

DESIGN RESEARCH

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FOCUS
USER-DRIVEN DESIGN

Umeå

– design consciousness under the surface

THE DESIGNER AS A CO-DRIVER IN KISUMU
WHAT DO POLITICIANS THINK ABOUT DESIGN?

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COVER
Photo: Fredrik Sandberg

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Design-conscious decision makers?

At the moment there is an intense struggle for voters in the lead-up to Sweden's general election this autumn, and the results of the election to the European Parliament have just been announced. In this issue we have posed questions about design to the parties in the Swedish Riksdag to discover their design-related policies. We also publish an article about France's La 27e Région, which is organising social innovation projects to involve residents, politicians and other stakeholders in various social issues. La 27e Région is a kind of innovation lab for change within the public sector, and the aim is to radically change how public policies are shaped. One of the most important aspects of the work is to create zones where public servants can step out of their everyday roles and look at the issues through new eyes.

One Swedish example of such an environment is Experio Lab, which operates within the framework of the county council in Värmland, and which is a place where design and health care meet. In a conversation with one of the lab's leading figures, Tomas Edman, I was struck by how important it is that we are all design-conscious decision makers. (Downloadable in Swedish from www.svid.se/svidpodd/!) If the methods exist, the experiences of users and staff can develop the sector's operations in a totally new way. We can see this clearly now as SVID's first programme, Design and Health, celebrates its second anniversary. There is great demand for design knowledge at various levels within the health care sector, but the interest in design in the public sector in general and in policy development is also growing rapidly.

In this issue we also follow along with Maria Nyström as she commutes between Kisumu in Kenya and Gothenburg in Sweden for her research into design and development in different cultures. Her work focuses on creating a functioning collaboration between industry, academia and society. We also stop by Umeå, where the municipality has worked closely with Umeå Institute of Design in various projects in the social services, preschools and library.

Design can contribute to formulating alternative futures. It is based on collaboration, user participation, and cross-sectoral and multidisciplinary approaches. An election year when the parties are battling for our votes is perhaps not the best time to create the most fertile soil for this type of process. But whatever the election results, I believe that design consciousness is increasing amongst our decision makers. Design-conscious users and workers will demand it. Because radical changes and working methods require design-conscious and brave decision makers.

Eva-Karin Anderman



PHOTO: CAROLINE LUNDEN-WELDEN

Eva-Karin Anderman,
Program Director, Swedish
Industrial Design Foundation (SVID)



PHOTO: CATARINA ÖSTLUND

MUST BUILD TRUST

Nothing is too small to be given a design. The everyday is worth exploring just as much as the more spectacular. So argues Maria Nyström, a professor in design with extensive experience of design research in Asia and Africa. Among other things she is currently associated with the Mistra Urban Futures global centre and its design-intensive platform in Kisumu, Kenya.

From Vietnam to Lund, from Gothenburg to Nairobi. And back again via a mental excursion to Mars. That is the shortest description of Maria Nyström's professional journey.

A slightly longer presentation is on the Chalmers University of Technology website: "researches into design and development in various cultures ... works with transdisciplinary research ... finds links between architecture, ecotourism and marketing." Nyström's "goal is to create a functioning collaboration between industry, academia and society. She is also involved in ... a joint project with NASA, which is exploring sustainable and stable construction with the minimal use of resources." Nyström

Maria Nyström

An architect and professor of design, in front of a traditional building in Kisumu. She splits her time between Chalmers University of Technology and HDK School of Design and Crafts at the University of Gothenburg. She has extensive experience of working with design and design research in Hanoi and Nairobi as well as in Houston, where she was associated with the design research at NASA. She currently commutes between Kenya and Sweden.

"also supervises a number of doctoral students and teaches systems analysis, design, building climatology and enclosed survival systems."

MORE DESIGN RESEARCH

I manage to catch a moment with her at HDK School of Design and Crafts in Gothenburg. She now has a 30 percent position there and is working mainly to increase the volume of HDK's design research. We speak about the altered roles of design and design research, and about the possibilities of changing the world.

In the mid-2000 decade Nyström founded Reality Studio, a master's degree course in the architecture education programme and design education programme in Lund. In 2008 she took the concept with her to Gothenburg. She says today that the Mistra Urban Futures international research centre could never have created such an extensive platform in Kisumu, Kenya if Reality Studio had not previously laid the groundwork there.

The district of Kisumu by Lake Victoria is thus the place in Africa where she is currently focusing her efforts. The city of Kisumu, on the shores of the lake, has just over half a million inhabitants and is Kenya's third-largest city. Its rapid growth, environmental destruction and poverty

have become major problems.

It was to Kisumu that the first master's students in the Reality Studio course came to explore in what way and how design knowledge and methodology could help to develop the community in a more ecological and sustainable way. Since then, about twenty students have gone down each time the course was offered and continued the work there. They spend two months there during one semester. Their stay is arranged in cooperation with the local universities of Maseno and JOUST. Reality Studio also has students as part of a Linnaeus-Palme exchange* between Chalmers and the local universities. In addition, guest students from the area universities also come regularly to both Chalmers and HDK.

JOINT PROJECTS

Today we see the results, partly in the form of the two more extensive projects on ecotourism and marketplaces, which were funded and run within the Mistra Urban Futures platform by the University of Gothenburg (HDK and the Centre for Tourism within

*) Linnaeus-Palme is an international exchange programme that aims to stimulate cooperation between universities and colleges in Sweden and in developing nations. The aim is to increase the internationalisation of the Swedish educational institutions.

Mistra Urban Futures

Mistra Urban Futures is an international centre for research and knowledge production. It aims to become the global leader in knowledge production for sustainable urban development in both theory and practice. The idea is that if politicians and decision makers gain access to relevant information and first-class research they will better be able to choose the right future path.

Mistra Urban Futures is funded by Mistra (The Swedish Foundation For Strategic Environmental Research), the Swedish aid agency Sida, a consortium (consisting of among others Chalmers University of Technology, the City of Gothenburg, the University of Gothenburg and the Västra Götaland region), and a number of international partners.

Mistra Urban Futures' core activity consists of transdisciplinary projects. These focus on a variety of themes in the field of sustainable urban development, which Mistra Urban Futures says is critical for the planet's future: "The actual concentration of knowledge and various shared systems in everything from energy to transportation are necessary in order to maximise both human and economic values. Cities – which give more than they take – are not a problem. They are the solution." The Mistra Urban Futures organisation is built on five local platforms in five cities throughout the world: Gothenburg, Cape Town, Kisumu, Manchester and Shanghai. Operations are administered by the secretariat in Gothenburg.

Gothenburg

The Gothenburg platform is the part of Mistra Urban Futures that has been operating the longest, since 2010. Experiences from the previous years' pilot projects are published in a

project manual (downloadable from the website). These projects' themes include sustainable lifestyles, social polarisations and segregation, and producing long-term strategies for strengthening innovation systems.

Cape Town

Cape Town became a local platform of Mistra Urban Futures in 2012. The flagship project, Knowledge Transfer Programme, is a partnership programme with Cape Town. Four researchers work within the city's administration, where they contribute to policy development regarding climate changes, a green economy, densification models and energy control.

Kisumu

Rapid urban growth, environmental destruction and poverty are among

the problems that the port city of Kisumu in Kenya struggles with. The Kisumu platform includes projects on ecotourism and marketplaces.

Manchester

The Manchester platform focuses on increasing the visibility of alternative forms of sustainable urban development. Recently an online-based knowledge and information portal was launched to share knowledge about sustainability in and around Manchester. The portal offers articles on everything from energy to transport, the economy, health, education and community building.

Shanghai

Shanghai is regarded as one of the world's metropolises to have undergone the fastest change in recent years. The local economy is growing but the rapid urbanisation process is bringing with it huge challenges. Environmental destruction, social sustainability and the urban growth itself are issues that must be dealt with. The challenges can be divided into four transdisciplinary themes: densification, diversity, dynamism and threats to the ecosystem. Densification is one of the most important issues for Shanghai, which has over 3,600 inhabitants per square kilometre.

The Shanghai platform is based on a collaboration agreement between Chalmers and Tongji University. There is one current project – Inclusive Bus Design, aided by Volvo among others.



Left: When Mistra Urban Futures was to move to new premises there was a desire to put its own ideas into practise and also meet requirements for a modern office. Recycling was key – nothing was to be bought new. The result is a warm and welcoming living room with antique chairs reupholstered in fabric from coffee sacks, a worn leather couch, real area rugs and a library, all of which invite encounters.

Reading material

Mistra Urban Futures regularly publishes research results from researchers and practitioners active within the organisation. Some examples to show the breadth are: *Climate adaptation Gothenburg – Technical possibilities and lifestyle changes* (cover, right). The report aims to increase knowledge of possible measures to reduce city residents' emissions to a climate-sustainable level.

Another report with a self-explanatory title but only available in Swedish is: *The future is already here: How residents can be co-creators in the city's development*.

The Centre for Sustainable Urban and Regional Futures: Governance, Knowledge and Transitions to Sustainable Urban Futures examines how the Manchester region can



take an overall approach to develop alternative paths to a sustainable development.

A more design-related example is the recently published *Design Harvests – An acupunctural design approach towards sustainability*, which reports on a number of ecology projects within the Shanghai platform. These and many

Above, extract from the richly illustrated and reader-friendly previously mentioned "Design Harvests – An acupunctural design approach towards sustainability". Authors: Lou Yongqi, Francesca Valsecchi and Clarisa Diaz.

more examples of interesting information, links and downloadable reports are available at www.mistraurbanfutures.org.

the University's School of Business, Economics and Law), Chalmers and the universities in Kisumu.

Over the years Maria Nyström and her master's students have also run various sub-projects. Last year they organised a trial tourist trip for international and local tourists. The trip was then evaluated, including by people from the University of Gothenburg's School of Business, Economics and Law. The project was part of the aim to make Kisumu an interesting tourism destination.

MAPS AND SIGNS

At first there were no good maps of the area but the Reality Studio students helped to produce some. A while ago, a designer held a graphic design course and then signs appeared along the Dunga Beach strip, which had never had any before.

Some of the master's projects focused on crafts and on limiting the huge growth of water hyacinths in the lake. These are now a joint research project involving local craftspeople. The design researchers began by designing various objects but then also had to step in as organisers and help to build up both the production and distribution together with local entrepreneurs. Today the craftspeople themselves are involved and create designs, partly in collaboration with Afroart.

"The role of the designer is changing all the time and we no longer recognise ourselves in the classic design literature," Nyström says. "Nowadays what is involved is just as much social innovations and the design of various types of services. As a design researcher, not least in Kisumu, you must constantly change roles to try

to understand what is happening. Wherever or whatever we plan, we always encounter something else when we get out into the field. Reality takes over and we have to work with unknown parameters. It can be stressful and difficult but is also very exciting. You must constantly be responsive."

MUST BUILD UP TRUST

Does she ever feel that she doesn't manage to keep up with what is happening between the visits to Kisumu? Or that the advances that are made are then lost?

"Yes, sometimes. Building up trust is a prerequisite for succeeding in implementing changes in a community. That's true wherever you are and whatever you want to achieve. There must be a continuity in the work and you must stay in contact all the time."

While they are in Kisumu the

Kisumu has changed views on development work



Helena Kraff and Eva Maria Jernsand cooperate with local actors and residents in Dunga Beach at Lake Victoria in their action-oriented research in Kisumu. Their aim is to develop ecotourism in the area. A very important feature is to involve the local people by such things as workshops where ideas and concepts are produced jointly.

The overall perspective is that the process is owned by the local community. Transparency and openness are used to create trust between the actors. This approach also means that the process is allowed to take new paths and enables all interested parties to participate. As well as reflecting on their own practical work, the researchers observe and interview the participants. The researchers are exploring a method which enables co-creation and openness and which takes the location's unique character into account.

Several levels of co-creativity are being studied, such as between different disciplines (primarily marketing and design), between academia and practice, and between tourists, guides and the local population.

Working in Kisumu has been a revolutionary experience that has changed the researchers' way of thinking about development work, research and participation. One problem is that many development projects come and go, much of the completed research projects become one-offs, and the locality's actors and residents can never access the research results. Helena Kraff and Eva-Maria Jernsand hope their own research can be an example of an approach that others can be inspired by and build on.

The two students say that 'researching in a way that results in both new

Left: The beach workshop in the village where participants could write down their hopes and fears about ecotourism development.

Below: The research project did trial trips with potential tourists. Before the trip, workshops were held with the local guides. The focus was on how the tourists can be active. One result was that all participants could try out activities involving various craft techniques.

knowledge and practical use is a fantastic opportunity. They add that the best thing about working in Kenya is the people, that they encounter openness and hospitality every day. It is also beneficial to work with fellow doctoral students from Kenya and within the larger context provided by the project.

Helena Kraff is a doctoral student at HDK School of Design and Crafts at the University of Gothenburg and Eva Maria Jernsand is at the Centre for Tourism at the School of Business, Economics and Law at the University of Gothenburg. Both plan to finish their licentiate degree in September 2014 and then continue working towards a doctorate. The working title of Helena Kraff's thesis is "Connecting – collaborating: A designerly mindset for working with places" and Eva Maria Jernsand's working title is: "Co-creation in destination development".



Reality Studio

Reality Studio is a master's programme open to architectural, engineering and design students. It was launched in 2004 by Maria Nyström and then organised in cooperation with UN Habitat and Nairobi University. As of 2008 Chalmers is the programme's principal in cooperation with Maseno University and JOOUST (Jaramogi Oginga Odinga University of Science and Technology).

Some of the research work done for the courses is located in Kisumu, Kenya. Reality Studio is now a well-known concept at UN Habitat. There is great interest in the project and many of the participants continue to work with development issues after graduation.

Over the years a number of smaller

research projects have been done within Reality Studio. Together they form the foundation of the Kisumu platform, which is now one of the Mistra Urban Futures research centre's five international units.

The research projects are presented in a number of books published by Chalmers. The latest came out in 2012 (the cover is shown at right). They contain much interesting reading, including various ideas on how we can utilise the feared water hyacinths, which threaten both the environment and the fishing industry in Lake Victoria, in a creative and fruitful way. There are also several ideas on how to adapt the design of wheelchairs and crutches so that more people can use them in Kisumu's urban environment. Industrial



designer Catarina Östlund is the main instructor this year.

students go into the homes, do household studies, and record processes from within. After they have spent some days with a family, they see for themselves what is really important in daily life. The starting point is also that the fundamental know-how does exist out among the people.

“People may be poor but sometimes they are much more skilled than we are at organising their existence in smart ways. The additions made by the students or design researchers are therefore often small but important. We can go out and implement things between visits. It is not possible to do research only in theory. Theory and practice must go hand in hand in these contexts. That’s my philosophy and conviction after all these years.”

IMPORTANT KNOWLEDGE

Maria Nyström says that both her master's students and the Mistra Urban Futures research deal with knowledge

production, business management and the dissemination of insights gained. Not least the last-mentioned is important; otherwise the visitors must start from the beginning every time they return. Dialogue is crucial and there is a constant need to turn perspectives around. For example, a designer who is copied in Kisumu should be happy about it.

Sweden has been a leader in the design sector ever since the concept of “more beautiful everyday things” was coined, Nyström says. In general, far too little mention is made nowadays of small things, despite the fact that all change starts with the individual in his or her daily life, especially with regard to sustainability issues.

“Sometimes I’ve felt that design research gets too far away from all this,” she says. “At the same time, I see a new generation of students who have another attitude. They want to do good, to deal with important everyday

issues, to contribute something.”

At the universities people now often speak about “total environments” in which research, education and collaboration with the outside world should fertilise each other. Nyström says that many educational institutions prioritise research and do not believe education to be as important.

INVESTMENT AND SPINOFFS

“With the Reality Studio courses we’ve done the exact opposite. The fact that the design contributions in particular have played such an important role within the Kisumu platform is also something we can learn from. As people from the University of Gothenburg’s School of Business, Economics and Law who were involved with the ecotourism project said: “We didn’t understand before this that design could single out the sets of problems involved in a project in this way; no one thought about that.” Often design researchers sigh over the

Space technology for Africa?

A decade or so ago *Maria Nyström* (together with *Lars Reuterswärd*, who was recently head of *Mistra Urban Futures*) wrote *Mot mars för att återvinna jorden* (2003) (translated as *Meeting Mars: recycling earth*).

The book draws parallels between ecological necessities on Earth and on future space stations. Then, in 2003, it was supposed to be 15 years before the first crew would land on Mars in 2018.

Nyström/Reuterswärd said that a city on Mars must be more ecologically sustainable than ever before. Research into this should also be useful when we build Earth's future cities. So what does space research mean for us today? Are these premises still valid?

Maria Nyström responds:

"Absolutely! By learning more about the universe we will understand much more about ourselves – I've understood that by speaking to people such as (Swedish astronaut)

Christer Fuglesang. Thousands of everyday products, such as Velcro, are actually the result of space research. I've never been involved with rockets but I have studied survival, closed systems, and how to make them smarter. Research into such issues by both NASA in America and the European Space Agency ESA is of interest to my design students and me. Scientists there are not at all as secretive as one might think. However, the students have to learn systems language so they can communicate about cutting-edge knowledge.

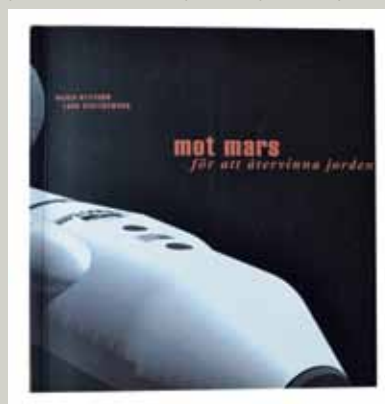
"Environmentally focused space research and studies about humans in space can help developing countries. Because how can we modernise cities like Kisumu, where all the sewage goes out into the sea? Should we use vulnerable 1870s technology or think in new ways?"

"A lot of all space research deals with how humans function together with their surroundings, and here design is an important factor. How can we bring home a body if someone dies during a space trip? This is a technical but also a mental, ethical issue – like much to do with space. Everything is extremely complex. You can't just pick out one parameter and work with it without taking all the others into account.

"Quite simply, it's about the unknown. Just as it is when we work in Africa. That's why I want my design students to learn to build up their own methodology toolbox. Everything is not concrete; sometimes design problems are philosophical questions.

"At the moment I have plans to construct a course on space similar to the 'Design for extremes', which I succeeded in getting funding for at Chalmers. This is together with NASA's head of development *Larry Toups*. He is responsible for manned space flights to other planets, and his studies include the challenges that arise from the need to be able to produce food, recycle air and water, and live in a closed system. He is an adjunct professor at Chalmers."

Below, the cover of *Mot mars för att återvinna jorden* (translated as *Meeting Mars: recycling earth*), published in 2003 but just as topical today.



fact that design research is more invisible than other research, with the implication that it should receive greater recognition. Others claim that design is needed in all imaginable fields, that it is by nature interdisciplinary and therefore cannot be circumscribed. Nyström gives her view:

"My research began in Vietnam and was about very simple kitchen design. During the thirteen years I was doing this, I allied myself with foresters, physicists, sociologists, architects, and I worked on climate simulations, "smoke in the kitchen" and full-scale studies with a building function theme. Our team kept in contact with the users to learn how a Vietnamese kitchen functioned. We worked as a whole team like in a lab; we created an institute and were careful to hold talks with the government ministries who were in charge of construction, energy and health issues. We had to carry out dialogues at every level. And there is never only one solution, no method that can be used in every detail everywhere."

It is therefore necessary to knit together all the threads, to let the activities, funders and professional categories cross-fertilise each other if something more concrete is to happen.

"I usually say to my doctoral students and researchers to go outside the normal framework," Nyström says, "not least with regard to applying for funding. And the fact is that more and more people are seeing the great potential of design, and Sida and other international aid agencies are starting to change. As well, the general public's view of what design is is starting to change, for example with people talking about using design for social development. We're living in exciting times. This is so very visible in Kisumu. Just think how much difference design can make!"

Lotta Jonson

An alternative role: the designer as co-driver

“Design is often defined as both a verb and a noun. The word refers to both the end result and the process behind it. The general public often still associates design with the end result – an object designed by a designer with a capital d.” Design researcher Helena Hansson argues, however, that in recent years the role of the designer has expanded and is now increasingly focused on the strategic processes and the system of actors that surround the object.

Ever since the end of the 1970s, the concept of “wicked problems” has been used to describe complex social problems such as poverty and unemployment. These are “unsolvable” and the process has neither beginning nor end. If you as a designer enter into such a process, you become part of a context that has many involved actors and a focus on mutual collaboration. In my view, design today is about participating in and being able to handle complex collaborative processes where the aim is to change an undesirable situation into a better one. The people affected are invited in as participating actors. They represent their respective special interests as “professional users” with experiences from their own immediate environment. The users are the

main actors; the designer has a more strategic support function and becomes what I call a “co-driver”.

Design researcher Otto von Busch describes the new role of the designer as an “orchestrator and facilitator, as an agent of collaborative change”. This alternative designer role is about applying the traditional design skills (such as creative concept work and visualisation) in a new context.

FOR SUSTAINABLE DEVELOPMENT

In my case, this application has been done in what was to me a previously unknown context, namely the city of Kisumu and its surroundings in western Kenya. For my research work, this diversified role of the designer has been shaped based on the way in which my client, Mistra Urban Futures, works with transdisciplinary research to achieve sustainable social development. The situation in Kenya also demands that one works with small financial resources and improvises solutions as one goes along. One must make the most of the possibilities available and scale up small changes into long-term strategic processes. Using a systems-based approach, strategic thinking

and practical implementation can be combined in a collaborative process of change.

My on-going research project is linked to KLIP (Kisumu Local Interactive Platform) with funding from the Swedish aid agency Sida. The process began in autumn 2012. Since then I have been in Kenya four times for three-week periods. Much of the collaboration in between my visits is done long distance via emails, text messages, Facebook and Skype. I work as both a designer and researcher in cooperation with a number of different competencies and disciplines, both academics and practitioners. My work is done on strategic, tactical and operational levels and the role has changed during the process based on what the situation required. Sometimes I am an inspirational speaker, an instructor, or a workshop leader....

I have designed products and developed tools together with craftspeople and innovators or “translated” other designers’ concepts to make it possible for a craftsperson to produce them. In some cases I have acted as a strategic sounding board in processes where we formulated overall

Helena Hansson

is a doctoral student in design at HDK School of Design and Crafts at the University of Gothenburg. She has worked as an industrial designer and design instructor since 1999 and has been involved in a number of crafts development projects in Sweden as a strategic designer.

project concepts and budget plans. My primary role, though, is to be a co-creative strategic resource who identifies the needs and skills required. Or who identifies potential drivers – agents of change – that can function as catalysts in the process. This is teamwork; I am a co-driver who identifies, supports, and constantly interacts with the other people involved. What is required is a willingness to work together with people in creative processes, a responsiveness and curiosity, and a large portion of entrepreneurship, but also the ability to dare to relinquish control and rely on other people's ability.

A MULTI-STAGE METHOD

1. Identify the local resources and support existing initiatives

The starting point of my research project has been the water hyacinth. By building on and linking together existing craft initiatives, we have launched an organisation for systematised basket production, and have supported the process by developing crafts-based services within an ecotourism context. By linking local

agents of change with other actors and initiatives within industry, civil society and academia, a knowledge cluster has been created where we jointly think and act. One important resource has been Zingira Nyanza Community Craft, which works with both product development and the training of craftspeople. Their basic idea is to use household waste to create ways in which the local community can support itself. Within the project they function as a local coordinator, trainer, mentor and instructor together with other actors such as Ufadhili Trust, Diakonia and Business Sweden.

2. Initiate training programmes that combine business development and entrepreneurship with craft skills

We have initiated a number of different courses in entrepreneurship and business skills in combination with the fine-tuning of craft skills. The aim is to increase business awareness and reinforce participants' ability. It is about building capacity and self-confidence. For example, 20 participants from the Dunga region

were trained in water hyacinth use with support from KLIP. The participants suddenly realised that the hyacinth could be a local resource rather than a problem. Another example is a course in entrepreneurship that was initiated by Diakonia Sweden, Ufadhili Trust, ADS Nyanza and Business Sweden as part of the Lake Victoria Rights Program (LVRP) in which a total of 20 craftspeople from four different local communities in the Kisumu area took part in a one-year course. The programme is a development of a previous entrepreneurship programme organised by Diakonia. Via workshops and a mentorship programme the craftspeople were supported in formulating and making concrete their business ideas in product and service development.

3. Test acquired knowledge in close collaboration with industry

As part of the entrepreneurship programme, a real business case was created. Together with the Swedish company Afroart we are now developing a collection of high-quality

About the project

Helena Hansson's research work has focused on establishing a shared knowledge platform based on crafts in order to turn water hyacinths into a concrete resource and create alternative ways for the Lake Victoria fishing communities to support themselves. Project participants are people in the crafts industry, innovators, entrepreneurs, designers and researchers from both Sweden and Kenya. Other participants are students from Chalmers, Gothenburg University, and HDK's Steneby campus, as well as companies such as Afroart and aid agencies such as Diakonia.



PHOTO: HELENA HANSSON

craft products designed to be sold on the Swedish market, a collaboration that I initiated. The participants can thereby test and implement their knowledge in a real-life situation. They are trained in organisational and business techniques and achieve a high level of craftsmanship. In addition, access to a market is opened up – which is one of the big challenges today for Kisumu’s craftspeople.

A joint project with Imperial Hotel, one of the bigger hotels in Kisumu county, is being launched for the co-development of services and products with an ecotourism and crafts focus. As well as the basket project, other products and concepts developed so far within this project are “Crafting play:ce”, a way to use local materials and excess materials to create social spaces for play and recreation, and “Children’s academy” – ecotourism activities where children and young people can learn more about both crafts and ecology by becoming personally involved and creating. This work is being done together with doctoral students from Maseno and Jaramogi

Oginga Odinga University (JOUST) in Kisumu, plus two doctoral students from HDK and Gothenburg University.

4 Develop low-tech innovations that can be scaled up

The Swedish market demands a high finish on craft products. This requires a lot of work by the craftspeople, who often have inadequate tools. Our process also develops what we call small-scale innovations, such as non-electric equipment and tools that can be replicated locally. These are intended to simplify, refine and develop the work of producing crafts. We have developed a manual ropemaking machine that processes the raw material in an easy way. We have demonstrated how to produce their own crochet hooks, and there are plans to develop a cheap but efficient pulp mill for paper production.

INSIGHTS AND RESULTS

The above-mentioned activities make crafts visible and reinforce them as a potential means of earning a living. In the development process of creating new products, services and

experiences associated with crafts production, cooperation, respect and trust are key concepts. The process increases awareness of the importance of partnership and of combining craft skills with a business approach and entrepreneurship. This reinforces the individual craftspeople but also the community.

Leadership, patience, time and trust are needed to create a sustainable development for long-term implementation. According to Nabel Hamdi, an internationally known “development designer”, organisation and the coordination of knowledge and skills are the foundation of development. Long-term relations must be built up between local and global actors in order to scale up small initiatives. There must be an open dialogue and those involved must regard each other as equal collaborative partners. Training programmes are needed that combine business skills, entrepreneurship, crafts and creativity in an open and exploratory environment where the participants learn from each other by means of “healthy” competition. Measures should be anchored



PHOTO: HELENA HANSSON



PHOTO: HELENA HANSSON

Left: The water hyacinths are on the point of taking over the beaches of Lake Victoria. Harvesting the plant and processing it in various ways can instead turn it into a much-needed resource for the local population. Next spread: The plant fibres are woven into rope, which is then used for woven or crocheted products such as baskets.

in the participants' real life and possible for them to implement in their day-to-day existence.

It is the participants themselves who must do the heavy work in a development process. The designer is “only” a strategic resource and external support in an on-going process in which the participants' own motivation must be the primary driving factor. The “new designer role” involves working both locally and globally, at the strategic, tactical and operative levels. It also means that the designer brings together various actors with the aim of achieving practical action and a learning experience. The changes should be applicable in real life. It is a matter of small changes but ones that have a big effect for the people involved. The designer's biggest challenge is perhaps to design a system where the designer can in the long term extricate him/herself from the active operative role so that the process becomes self-sustaining.

To design a social development that is sustainable, you must start by meeting and understanding the people who will be most closely affected by the

changes. The designer must adopt a grassroots perspective in order to really understand the needs and to get to know the situation that will be changed. One important design task is to identify local resources, competencies, and pre-existing local initiatives that have strategic potential. Building on existing possibilities together with the local actors creates better conditions for the changes to have a greater long-term effect. I call this “small change strategies”, inspired by Nabeel Hamdi's book *Small Change* from 2004.

A development project should be regarded as a system in which all participating actors are co-producers and contribute to a joint knowledge production as the output. When you work in a context on the other side of the globe, this platform must be designed so it can also work at a distance. The users must themselves lead the development work with the designer's long-distance support via interactive media. Being able to manage, coordinate, take responsibility for and create the conditions so that the platform can function and continue to exist, even if the designer is not present

and participating at the operational level, becomes a new and important design task for the designer.

The designer's role, however, is not just to be a neutral facilitator. According to Otto von Busch, the designer should be regarded more as an external “reinforcer” who activates, creates enthusiasm, and facilitates the process – a kind of help to self-help. One important ability in the designer is being able to “discover and reveal existing possibilities and initiatives”.

This can be done via observations and interviews. Doing practical work together is often an effective method. The solutions can come because everyone is contributing their own perspective. Solving a task together has a number of advantages. You get to know each other and build trust, and everyone becomes involved in the process as co-creators. Creating a self-sustaining platform and owning the process as users are important prerequisites so that it will not come to a halt when the designer is not longer present.

Helena Hansson



PHOTO: HELENA HANSSON



PHOTO: ELIN THOMASSON

Left: Women in Osiri make prototypes in water hyacinth rope for Afroart.
Above: Helena Hansson and Evance Odhiambo from Zingira Nyanza Community Craft discuss prototypes designed for the Swedish market.

THIS ARTICLE is a revised version of a blog text published on the Mistra Urban Futures website in November 2013. Since then the process has advanced and craft production with Afroart has begun on a larger scale. In mid-April 80 baskets were supplied to test out the Swedish market. This required a lot of organisational ability and was a significant achievement by those involved. Being able to earn money from their handiwork is an important motivation for the participants. The entrepreneurship training with Diakonia and Business Sweden will continue until spring 2015, this time focusing on access to the local market.

French design with great potential

In France a “transformation lab” called La 27e Région is organising social innovation projects with the aim of involving residents, politicians and other stakeholders in a range of social issues. At the local level these might involve gastronomy, social networking and planning the future of the country’s countless small rural train stations. But to succeed in the long run the results of these efforts must be implemented.

Imagine a small French community of 1,600 inhabitants – such as Corbigny in the Bourgogne region. Like almost all French towns and larger villages, Corbigny has a train station. Two trains stop here for passengers daily but many residents believe the station was closed down long ago. No one seems to know that eight people work here. If you consult the website of the French national railway company SNCF, the name of Corbigny is not even mentioned. The station has no ticket machine and will probably be closed within the next few years. If you phone and ask how you can get to the region’s central town of Dijon, you are told that it is easier to take a taxi. Or perhaps a bus, because there are many of those. So perhaps the train station should be turned into a bus station?

CHANGING THE PUBLIC SECTOR

This problem is shared by about 70 percent of France’s train stations. In 2009 the situation was acute. To explore both the underlying issues and possible future prospects, La 27e Région was brought in and the EU and the regional administration funded a project on how to revitalise rural train stations.

La 27e Région (the 27th Region) takes its name from the fact that France has 26 administrative regions. The 27th is a kind of innovation lab for change in public-sector administration at the local, regional and national level. This non-governmental organisation was founded in 2008 to create within the public sector new values and cultures inspired by social innovation, service design and the social sciences. The aim was and still is to radically change how public policy is shaped, including by promoting production and the exchange of innovative ideas between the regions. The work is done largely in the form of “action research projects” in collaboration with the various administrative bodies. So far some 15 projects have been completed.

Both the process and the projects were described by *Stéphane Vincent*, leader of La 27e Région, at a seminar entitled “Designing Publics, Publics Designing: Design roles in social innovation” at Konstfack in January.

“Those of us who founded the organisation all had experience from either national or municipal administration, and our shared goal was to change and modernise these adminis-

trative systems,” he explains. “At the moment we have the wind in our sails because interest in what we are offering is increasing and it is becoming more obvious that design has great potential in social innovation.”

He adds that the lab’s approach is to try to create zones in which public-sector employees can step out of their everyday roles and see the problems through different eyes – and reformulate them. More emphasis is placed on this reformulation than on the problem solving itself.

PROCESS FOR SOCIAL INNOVATION

To deal with the set of issues in Corbigny, La 27e Région assembled an interdisciplinary in-residence team, which stayed in the community for three weeks. The team consisted of two designers, an ethnologist, an artist who creates works for public spaces, and a project manager who blogged daily about the process. All the team members were generalists; none specialised in train station issues.

The first week was dedicated to surveying and analysing the set of issues and the conditions, including attitudes, knowledge and information. Everything



was done openly both inside and outside the station building. Many of the interviews were done to lead up to the second week's tests of possible solutions, ideas and prototypes. Roleplaying was staged to demonstrate, for instance, the lack of sufficient information. Everyone was welcome, as were all kinds of interaction.

The last week was spent drawing up strategies for the future. Tangible, fully realisable solutions were presented in various ways, including in exhibition format. Ideas included activities at the station in order to use the often empty building, tourist information, much better information even in the heart of the village – for example, just a few knew that they could get to London in seven hours. Another proposal was to make the station a vital hub for rural public transport. Everything was presented in a paper entitled “The rural station of the future” and on the afore-mentioned blog.

What is the situation today – do

resources exist to make these ideas a reality?

“They implemented the easiest of all the suggestions – the bus stops were made more obvious, a free Wi-Fi hotspot was set up and the ticket office was moved from the village centre to the station,” Vincent says. “This case was also used as inspiration for bigger projects. But our greatest challenge will be to contain the frustration if nothing happens after so many good suggestions were presented during the in-residence time.”

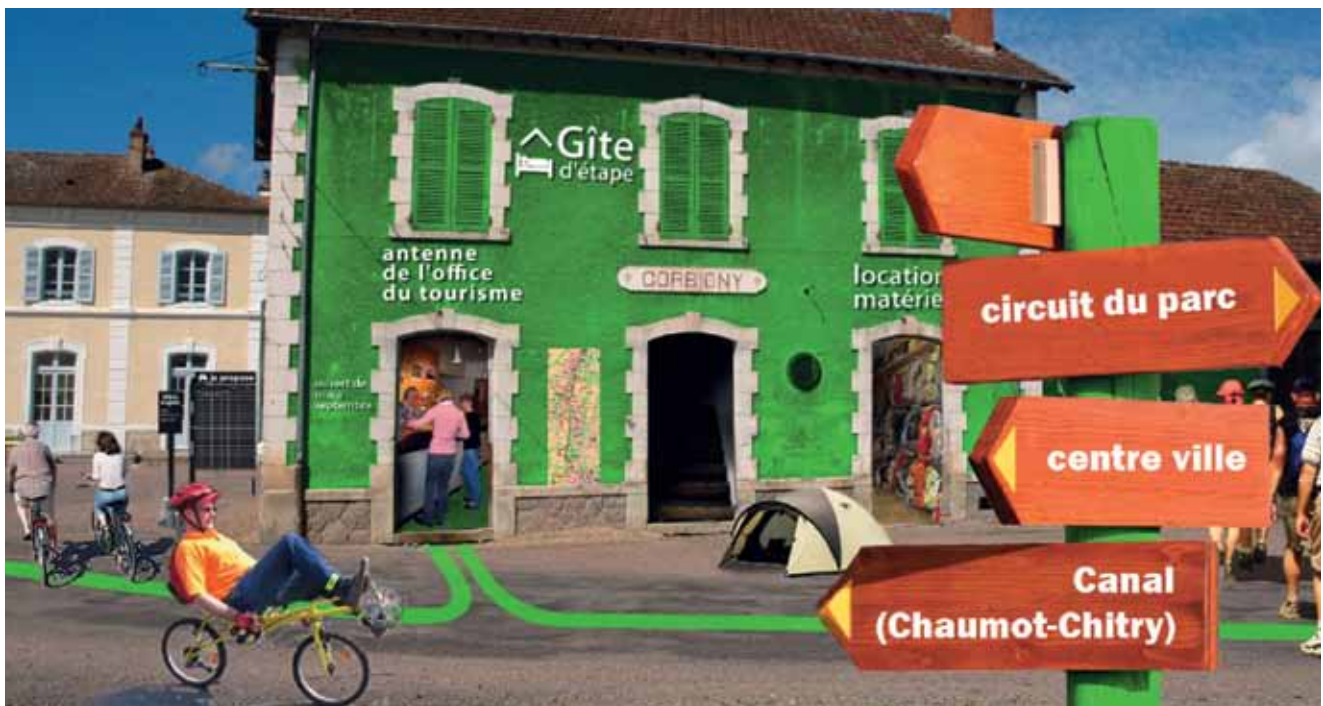
DESIGN AS A UNIQUE METHOD

La 27e Région is a non-profit organisation. Although demand for its services is growing, Stéphane Vincent says there are problems in that the funding for this type of work is drying up in the public sector. That is why it is important to make design useable by and understandable to politicians, to support and reinforce them so that they, too,

promote and want to use design and design thinking.

“It’s important that the public sector as an organisation can be quickly changed from within, in house, which is what our Friendly Hacking method offers,” he says. “It is more an attitude than a method, and is based on the fact that administrative bodies seldom change by themselves or via traditional administrative methods. They change when a group of people decides to create new spaces where people are given the right to work together in various ways and look at public administration from a user perspective. And that this is encouraged by the management.” Doesn’t the word “design” cause confusion in the public sector?

“On the one hand, the trend word ‘design’ is as confusing to public-sector managers as it is to most people. On the other, it forces us to go further and describe more precisely our specific method and explain what makes it



unique. Then the public-sector managers usually understand that it is something completely different from what they are used to.”

What role can designers play in social innovation?

“All designers do not have the mindset and skills needed to work directly with citizens, bureaucrats and politicians or with prototyping processes of a policy nature. And most designers are not social innovators by nature. But those that do have this capacity move unhindered between vision and reality, between experts and users,” Vincent concludes. He adds that La 27e Région now has so many good reference projects that the time has come to expand its activities. The regions pass on knowledge of the experience to each other and the unique working method is becoming better and better known.

Recently La 27e Région launched a four-year project with the aim of

making design a new competency within administrative training programmes and also to bring together the bigger actors from the fields of education, the local authorities, researchers, the professionally active and the state. All with the aim of striving towards the vision of a public sector that is smart, ingenious, and regards design as a good method for implementing change.

Susanne Helgeson

Left: Damien Roffat, Elisa Dumay, Fanny Herbert and Adrien Demay were responsible for the station project in Corbigny. The village residents were invited to discuss both the current situation and future possibilities.

Above: The suggestions were then presented in an exhibition in the station building. They included improved information, increasing the visibility of other attractions in the village, and making the station building a centre for all types of transport and other activities.

Design in the Public Sector

“Opportunities and Challenges” was the title in January when some 30 people from both academia and the public sector gathered at Konstfack. The main issues were how design can more often and better be used within social innovation. Many examples were presented of possibilities and challenges. The next day the theme was “Designing Publics, Publics Designing: Design Roles in Social Innovation”. The public consisted of about 200 designers, researchers, design students and other interested individuals. The documentation is available at www.konstfack.se. The organisers were Forum for Social Innovation Sweden, Malmö University, the Swedish Faculty for Design Research and Research Education, Konstfack, the KTH School of Architecture, Interactive Institute and SVID.

Design consciousness even under the visible surface

Is a design college necessary for a region to become sufficiently conscious about design? It makes things easier. Umeå Institute of Design at Umeå University has greatly helped to place Umeå and the province of Västerbotten on the design map. But more is needed. Such as inquisitive and brave decision makers. Plus many years of a culture-friendly climate that creates a creative “soil”.

Umeå’s future landmarks stretch along the river on each side of the church. Both are proof of an interest in culture and design that is not self-evident in all Swedish municipalities. A few hundred metres to the west, inland, the Kulturväven cultural centre is being finished. This opens in November and will house a library, a museum of

women’s history, artists’ workshops, a big black box performance space, a hotel, restaurants and more. A bit farther eastward lies Umeå Arts Campus at Umeå University, with Bildmuseet (the university’s museum of contemporary art and visual culture) as its visual focus, surrounded by Umeå Institute of Design, Umeå School

of Architecture, Umeå Academy of Fine Arts, and, not least, Sliperiet. Sliperiet will house incubator activities for the artistic, cultural and creative industries, as well as workplaces and meeting places for researchers, students, companies and public-sector organisations. There will also be workshops with both digital and



ILLUSTRATION: SINGHETTA

industrial equipment with the latest technology including a sound lab. Sliperiet's official inauguration is scheduled for September.

Many doomsayers are now predicting that Umeå has gotten into water above its head, that Kulturväven is a "ticking time bomb" and that the taxpayers will have to foot the bill. Umeå's selection as a European Capital of Culture for 2014 has speeded up the development of the urban space but underneath the surface, design-related activities of a totally different nature have been happening concurrently and long before the Capital of Culture idea was even thought of.

DESIGN ENTHUSIAST

One of Umeå's design enthusiasts over the past decade or so is Jan Björinge. He is just retiring as the director of the Umeå2014 Capital of Culture project, with a new job waiting for him on the Swedish island of Gotland. For the 13 years prior to this, he was Umeå's city



PHOTO: ANDREAS NILSSON

manager. He has a university degree in economics but he believes that what drives development is culture.

"Culture is the engine – it stimulates both people and society," he says. "It makes countries and also companies develop, and design is an important part of the cultural sector."

Left: Jan Björinge, formerly the city manager of Umeå for 13 years.

Below left: The new cultural centre Kulturväven by architects Snøhetta and White arkitekter.

Below right: Umeå Arts Campus is farther eastwards along the Umeå River, and is designed by Henning Larsen Architects together with White arkitekter.

Björinge has enjoyed his job with the city of Umeå, which has about 11,000 employees. The city's cultural climate has of course benefited from the university, founded in 1965. And from Umeå Institute of Design, with this year turns 25. But also from the politicians in Umeå who dared to invest in culture.

"They've been brave. Decade after decade right from the mid-1970s, Umeå has invested in culture. Statistically, Umeå is about 70 percent above average with regard to its cultural investments calculated per resident. That has resulted in a creative 'soil', an innovative climate where people think in new and free ways. This is also mirrored in the industrial and public sectors. Today Umeå is one of Europe's fastest growing





Above: AudoIndex makes the library more useable for the visually impaired. The original idea for this aid was developed in a joint project between Umeå Institute of Design and Umeå municipality. Far right: The Echolog energy meter was another such joint project. It was offered to tenants in the public housing company Bostaden, which is an active participant in a couple of environmental projects.

cities in a region threatened by stagnation. That's due to the investments in culture."

A WORLD LEADER

Umeå's reputation as creative and forward-looking has recently also been nurtured by Umeå Institute of Design's high international status. Ranked as one of the world's best, the Institute attracts students from far and wide. Foreign official visitors to the city are often taken to visit the Institute. During the Institute's initial years much of the work done there was applied research in collaboration with various companies. When an agreement with Volvo Trucks ended, the Institute looked around for other partners. Contacts were made with the city authorities. A growing interest in both interaction- and service design led both the Institute and the city to choose a different track. Jan Björinge was one of the instigators and well remembers how it happened:

"We made a deal with Umeå Institute of Design and set a total budgetary framework of 11 million kronor (now

worth EUR 1.2m). We then launched about 80 different projects where we involved design expertise with the city's various activities: preschool, school, library, the social service's various processes, the roads, parks and buildings. Basically all of them had industrial design students involved in various projects."

The cooperation agreement ran from 2004 to 2009. Björinge says it was exciting to see how the industrial designers used a totally different "toolbox" than those normally used by social scientists, librarians, teachers, or the city's various bureaucrats. The designers asked different questions and looked at the process in new ways.

"The result was simply an incredible creative lift. For example, one project was about our telephone exchange, coordinated for six municipalities. The company that had won the tender had organised it. You'd think that people who'd been answering calls in a telephone exchange for a hundred years would know what's best. That the routines had been developed into the best they could be. But the design students saw otherwise and suggested many new, good things no one had thought of before."

SOME WERE IMPLEMENTED

Some of the 80-odd design projects that

took place in the municipality during the six-year contract period ended up leading nowhere. Others could not be implemented because they were too expensive or extensive. Others were continued and led to results that are visible today.

For example, the library lending buses were altered according to the results of one project so they could better meet the needs of both the staff and the visitors. The public housing company Bostaden can now offer energy-savings opportunities for its tenants via the Echolog energy consumption meter – a development of yet another project. And the unique aid for the visually impaired, the AudoIndex talking library, was also developed from a joint project between Umeå Institute of Design and Umeå city library.

In conjunction with the decision on a new preschool curriculum in 2010, Umeå municipality commissioned a contract teaching course entitled "Processes for change: Design methodology"). This gave preschool head teachers an insight into design methodology so they could use it as a tool in the new curriculum.

Another example of design projects done with the municipality after 2009 is the project Beställartorget, which was done together with the municipality's procurement unit. This

involved a five-week course at Umeå Institute of Design given jointly with the municipality's procurement unit. The course was part of a one-year industrial design programme. The Beställartorget project was launched because the municipality wanted to introduce a new service for people who had to procure goods and services. The issues faced by the municipality were used as the case study for the course. A design student has even been hired for

the summer to help the municipality's IT department to continue with the project's results so they can already start being implemented this autumn.

Yet another example of a design project focused on the city centre road Rådhusplanaden. During a ten-week course at Umeå Institute of Design students in the university's Urban and Regional Planning Programme got to try out the design process in a city development project. The aim was

to understand and involve residents, business people and other users in the development of the road. The end result made headlines in the local press.

In total, Umeå Institute of Design offers four educational programmes and about a dozen freestanding courses within which a number of joint projects with Umeå municipality are being implemented. Work at the Institute is often done in project form with external partners, which come from

“We're just starting when it comes to co-creating”

“I really believe that management even in the public sector has begun to understand that design is a strategic resource,” says designer *Emma Karlsson*, who trained at Umeå Institute of Design. “It's rewarding to work with design issues in Umeå. Though sometimes it can be questioned at lower levels where people have had old ingrained work roles for years.

“Design is too new a concept to fit into the standardised types of work and the silo-shaped bureaucratic organisation that often exists in a municipality. This has meant that design methodology has sometimes had to slot in under concepts like ‘quality issues’ or ‘organisational development’, just because employees already know those terms.

“Yet a lot has happened just since I graduated. After every project I get confirmation that the people I worked with suddenly realise what design methodology is about. Public servants at all levels in a variety of activities turned to me and asked: ‘Could you make this concrete in pictures like you do? You are so good at demonstrating things.’ Or ‘Can you help us to think together?’ and this is exactly what a designer's work is about, using design to build up visions and make

them concrete, to give form to ideas and test them together with other people before they become a reality. Without design it's hard to visualise complex contexts like a service – which consists of people, technology and environments – in a comprehensible way. The visual and creative in combination with the analytical and strategic comprise a designer's strength. This makes the designer especially suited to leading creative processes in many development fields.”

Emma Karlsson says it is always unsatisfactory when work ends up leading nowhere. Public administrations often lack the structures to deal with the good ideas and turn them into reality. As a result, she believes a new model must be developed whose processes also include the business sector. It is easier for a company to develop a system or service than for a municipality, which also has to focus on running its own core operations.

“We're just at the start in terms of finding co-creating processes for the municipalities. One core issue is how to include citizens in the future in various types of development issues. That is important, not least from a democratic standpoint. In order to make this happen you have to make things clear by presenting ideas and suggestions in a

visual format. That requires designers, architects and communicators.

“The service society's increased demands for transparency and citizen participation are placing higher and higher demands on the public sector, and the communicators are carrying a heavier and heavier burden. Big gains can be made here by bringing in design at an early stage in order to add the user perspective and to create a transparent and co-creative process that gets things correct right from the start.”

Emma Karlsson has had a number of municipal commissions in Umeå since 2007. She is currently brand strategist at the Pondus design agency and her clients include the county council.



the industrial and business sectors. All of this is part of a long-term effort intended to spread and deepen the use of design within all of society's various areas and levels.

WORKING CONCEPTUALLY

Over the years Umeå Institute of Design has thus built up a high reputation within the public sector in the province of Västerbotten and also within the local business community. Often both organisations and companies contact the Institute for help with everything from new products to services and interactive solutions. However, *Maria Göransdotter*, a head of department at Umeå Institute of Design, says it is important that the Institute emphasises that the students should not deliver ready-made solutions but only work conceptually. When the concepts are presented the companies/ organisations can then develop the results from there; then it is no longer a development project within an educational framework but rather a regular commission job.

MAKING DESIGN VISIBLE

Emma Karlsson was part of Umeå Institute of Design's research team after graduating in 2007 and was brought early on into a service design project about how to involve citizens in community planning.

When the Institute's applied research was cut back and refocused in a more academic direction, she went to the city manager and described "everything" that design methodology could offer. He took the bait and she was hired for a couple of months' probationary period, partly to revise a comprehensive change in the municipal organisation. Her next task was, via the agreement with Umeå Institute of Design, to disseminate knowledge about design methodology to Umeå municipality's operations and to make visible how the design process could be useful in development issues, not least in identifying needs. She now works as a brand and design strategist at the Pondus communications agency in Umeå. One of their major clients is the county council. The same week as this interview was done, she was to pre-

sent to the council the work Pondus has done together with Norrland University Hospital.

ONE THING LEADS TO ANOTHER

Joyn Service Design consists of two former students at Umeå Institute of Design, *Linda Bresäter* and *Ville Lintamo*. They were involved in a pilot study into Ungdomstorget, which is a collaboration between Umeå municipality, the county council, the public employment service Arbetsförmedlingen, and the Social Insurance Agency, and which helps young adults into the labour market. The results were well received and have led to further commissions. This past winter and spring, Joyn worked together with Region Västerbotten in what they call "Reinforced user participation in the social service". The project involves increasing the influence of people who are encompassed by the national Act concerning Support and Service for Persons with Certain Functional Impairments (LSS). The project team included the pilot municipality Vännäs and two municipalities as observers, Umeå and Robertsfors. After the project team had defined problems, done probes, arranged workshops and more, they recently (at the end of May) delivered a concept.

Joyn's role is now finished but the project itself continues for two years so hopefully there will be both money and time to have a pilot period and then spread the concept more widely. This particular project involved special situations. Service designers must be good at listening, asking questions, and identifying needs. Some of the users had difficulty expressing themselves



PHOTO: LOTTA JONSSON

Left: Ville Lintamo and Linda Bresäter of Joyn Service Design do work for Region Västerbotten and Skellefteå municipality, another municipality that has become more design conscious recently.

Sliperiet

“Sliperiet is the natural extension of Umeå Arts Campus here in Umeå,” explains Tapio Alakörkkö while giving a tour of the still empty premises. He is a research engineer and former head of department for Umeå Institute of Design but is on leave and lent out as operations manager of Sliperiet until the end of 2015.

“This will be the place where ideas can start,” he says. “The concept is unique in the world, with the very latest technology. There will be seven 3D printers here, a portal mill, and aqua and laser cutters available for institutions and companies. Plus a fully equipped sound studio. Here students, researchers and companies will get together in a variety of joint projects. The aim is to support and create the conditions for students and researchers to get out into society. To make their creative ideas concrete.”

Sliperiet's four components:

1. A meeting place for conferences, workshops, seminars etc. Opening or closing sections permit several simultaneous activities. The biggest room can hold about 350 people. Tapio Alakörkkö says that meeting face to face is a prerequisite for ideas to be born.

2. A workplace for people in artistic and creative industries. They do not rent space by the square metre; rather, they share the space. Everyone in the building creates the dynamic environment where ideas can be captured and developed. These people might be researchers who have a joint research project involving people from various fields. Or they might be students who are doing their graduation project together with external partners. Only short rental contracts will be available (2–3 years).



PHOTO: JOHAN GUNSEUS

Being here involves a commitment: everyone must contribute to the whole.

3. A place offering advanced technology where everyone in the region can rent space. The user must pay to rent the equipment.

4. An incubator, Uminova eXpression, with a special focus on artistic fields.



PHOTO: LOTTI JONSON

The operations will work in the same way as the already existing Uminova Innovation deals with economics, technology or biomedicine. Tapio Alakörkkö describes how that would work:

“If you are a student, researcher, teacher or professionally active artist/designer and have an idea that can be developed, you can contact Uminova eXpression. You can then participate in various programmes to learn business skills, such as how to write a business plan. If you want to make a big commitment you can sit with others in the incubator process and receive guidance and reduced rent, for example. You can work for up to two years under the aegis of Uminova eXpression while you are establishing yourself in the market.”

Between seven to ten people will be associated with Sliperiet. The building has workspace for up to 60 people.

Lotta Jonson

Above: The old workshop, now Sliperiet, is surrounded by more modern buildings on Umeå Arts Campus. The nearest neighbour is Umeå Institute of Design.

Left: Tapio Alakörkkö, acting head of operations for Sliperiet, in one of the many light and pleasant newly decorated meeting rooms.

verbally and both time and respect were needed to gather all the pieces of the puzzle. But the results were very fruitful and there was a high level of involvement among the participants (which those involved preferred to call themselves rather than users).

What makes a designer better suited to a project of this kind than a psychologist or sociologist?

“The designer is always thinking about change and looking for ways to improve things,” replies Ville Lintamo. “The sociologist or psychologist is perhaps more interested in presenting a picture of the present situation.”

“A designer has another way of communicating a result,” Linda Bresäter adds. “That might sound simple but it is decisive in the end if things are to be understood and comprehensible. We have methods of working co-creatively, for example with workshops, and then analysing and discussing things with everyone involved. The design process happens close to the users, and the communication means that we also get a response and proof that we have fully comprehended the problem. Our work method is a winning concept.”

But whatever happened to the aesthetic aspect of the design profession?

“There are aesthetic elements in our job too,” Ville Lintamo says. “I can see it in the simplicity we try to give a service. If the service is as obvious as it can possibly be, it’s beautiful.”

“There are also craft elements in the work,” adds Linda Bresäter. “For example, we make probe kits that are sent out to the participants. The users may have to photograph and document their daily life, fill in the kit, pack it up and send it back. If you make these kits with care, with a nice cover and the person’s name nicely written on it, then you gain a lot. It should feel special to

Additional design involvement in Umeå

Uminova Innovation was founded in 2003 and one of its functions is to be an incubator. The aim is to strengthen Umeå and Västerbotten as a life sciences and IT region. Uminova Innovation helps entrepreneurs and innovators to test and develop their business concepts so they can found start-up companies. Another task is to help researchers and companies in Västerbotten to find international partners.

Uminova eXpression on the Umeå Arts Campus is a new incubator company with premises in Sliperiet. Umeå Arts Campus consists of Umeå Institute of Design, Umeå School of Architecture, Umeå Academy of Fine Arts, the contemporary art museum Bildmuseet and the digital experimental workshop HUMLab-X. The aim is that Uminova eXpression should interweave design, architecture, art and culture with technology, natural sciences, economics and markets. All to stimulate development and innovation at the interface of science and art. Both Uminova Innovation and Uminova



There was great local involvement when Sliperiet and Uminova eXpression presented their future activities at a seminar at the end of April.

eXpression are owned by Umeå University and Umeå municipality.

participate. A number of the users in Vännäs didn’t want to give the kit back to us, so we had to promise to return them again when we were finished.”

OFTEN INVISIBLE

It is very clear that much of the design work in Umeå and Västerbotten is done without the public realising it immediately. That is in the nature of the work – a well-developed service should not be visible; it should just function. But let us return to what is more apparent – the on-going year as a European Capital of Culture. The marketing information says the year should have a design focus.

Does it, Jan Björinge?

“Absolutely. The international design conference DRS2014 in June, which has the theme ‘Design’s Big Debates’, is part of the Umeå2014 official programme, and that alone is a major event. A renewal of the city’s parks and public spaces is in progress, and design has meant a lot to that. Masses of things are happening in the development of the urban environment that are taking off thanks to the Capital of Culture year. The whole Arts Campus, designed by Henning Larsen, is part of this. And there is also Sliperiet with its huge future possibilities.”

Lotta Jonson

What do Swedish politicians think of design research?

Where do issues of design and design policy stand on the political agenda? It would be interesting to find out now that the battle for voters is on prior to Sweden's general election in September. To get the answer in black and white, we posed five questions to all the parties in the country's parliament, the Riksdag. The result is seven interesting contributions.



The New Moderates

Does your party have any design policy or explicit approach to the design field?

“Design is and has long been an important part of Swedish industry. Sweden's development and welfare state are based partly on the fact that creative people's ideas have generated thousands of companies where people work to manufacture and develop such things as technology, cars, toys, computer games and clothes. Today almost all companies and organisations are working to create an attractive offering to their customers, in which design is often a central feature. A product's design and properties determine how well a company can assert itself amongst what is increasingly tough international competition.

“Jobs are the big political issue in

the 2014 election. The cultural and creative industries, of which design is an important part, make up about 5 percent of Sweden's GDP according to a report in spring 2013. The conclusion is that this sector will increase in importance, which is why design can be one of a number of important issues in the election.”

In recent years the EU has pointed out how important an investment in design is to the innovation climate. In 2011 the European Design Innovation Initiative was established to study how design could best be exploited in the context of innovation. Has this initiative had any influence on your view of the design field?

“We are good at design in Europe and all countries need to understand what importance design has for jobs and employment.

“The Alliance government (translator's note: The Alliance consists of the four centre-right parties in the Swedish Riksdag – the Moderates, Liberals, Centre Party and Christian Democrats – and is the current government of Sweden) has perceived a need to develop entrepreneurship and businesses in the cultural and creative indu-

stries as well as cooperation between the cultural and industrial sectors. Improved conditions for cultural creators and entrepreneurs in the cultural and creative industries as well as increased collaboration with industry can contribute both to regional growth and to increased Swedish competitiveness.”

Last year the UK parliament won first prize in the prestigious design competition Design of the Year 2013 for its user-friendly website www.gov.uk a deliberately democratic venture to get more Britons to understand how the state apparatus works. The choice of www.gov.uk was strongly applauded, not only in the UK. Have you noticed it? Is there any ambition in your party to promote something similar?

“We are prepared to listen to all ideas that can strengthen people's political awareness, get more people involved and increase knowledge within society about democracy and public institutions. In the long term this is a very important issue in order to strengthen people's trust in public authorities and democracy. In countries where people have little trust in social institutions, corruption tends to spread, which in the long term threatens social cohe-

sion, welfare and growth. The fact that from an international perspective, Sweden has fairly little corruption is due partly to our well-functioning bureaucracy. We have to protect and develop this. Happily enough, the Swedish Riksdag's website has won prizes for its communicative ability."

Can you point to any example where design has been decisive for development and/or competitiveness?

"That can be everything from IKEA, via Babybjörn AB, Stig Lindberg's collaboration with Målerås glass-works and NK, Playsam wooden toys, BRIO, and bottles of Absolut vodka to today's organic children's clothing from Geggamoja. Large and small examples of Swedish design that strengthen competitiveness and have created jobs and growth."

Can you name a well-designed service? A well-designed object that makes everyday life easier?

"One example is the cheese slicer, which was originally a Norwegian idea, but which is an example of a designed object that we all use daily."

Cecilia Magnusson, The Riksdag Committee on Cultural Affairs.



The Liberal Party of Sweden

Does your party have any design policy or explicit approach to the design field?

"We believe it is positive that attention

is being paid to design. Good design has long been important in Scandinavian culture and has been significant for many export successes. However, we are slightly sceptical that 'politics' is trying to take design under its wing too much. Such behaviour can easily be a little suffocating, when investments are made into things that can risk becoming big projects that suck more energy out from the industrial sector than they contribute. "The Liberal Party believes that Sweden needs a national architectural strategy. More awareness is needed about the cultural and historical values, urban planning, and architecture's importance to our development. At the same time we also need knowledge and openness to innovation. The municipal planning processes should place more value on cultural, historical and aesthetic expertise. We want the municipalities to better follow the basic principle that one percent of their budget should go to public art."

In recent years the EU has pointed out how important an investment in design is to the innovation climate. In 2011 the European Design Innovation Initiative was established to study how design could best be exploited in the context of innovation. Has this initiative had any influence on your view of the design field?

"When it comes to a view of design in general, we Liberals are close to the paradigm advocated by Donald 'Don' Norman among others: user-centered design. It starts from the individual, from his or her needs and approach. It is non-hierarchical and anti-utopian – if we are to speak about design philosophy. It does not in any way exclude design for achieving aesthetic values.

"The fact that design in innovation contexts is being raised up to the EU level will influence awareness within the sector, and we will follow the development of the European Design Innovation Initiative."

Last year the UK parliament won first prize in the prestigious design competition Design of the Year 2013 for its user-friendly website www.gov.uk, a deliberately democratic venture to get more Britons to understand how the state apparatus works. The choice of www.gov.uk was strongly applauded, not only in the UK. Have you noticed it? Is there any ambition in your party to promote something similar?

"It appears to be a very interesting project. Easily accessible information about how the government, parliament and life in society functions is always important."

Can you point to any example where design has been decisive for development and/or competitiveness?

"One example is IKEA's flat packs, which made possible efficient manufacture, transport and assembly."

When did you last use a well-designed service? A well-designed object that made your daily life easier?

"When I poured milk into my coffee from my Tetrapak."

*Ulf Nilsson,
Vice Chair of the
Riksdag Committee
on Cultural Affairs*



The Centre Party

Does your party have any design policy or explicit approach to the design field?

“Design is linked to entrepreneurship, innovation and culture, and the Centre Party has policies in all these areas. Design gives products added value and enables old and new companies to break into new areas.”

In recent years the EU has pointed out how important an investment in design is to the innovation climate. In 2011 the European Design Innovation Initiative was established to study how design could best be exploited in the context of innovation. Has this initiative had any influence on your view of the design field?

“Design and innovation are important both for established industry and for new businesses and small businesses, for digital products and services and also for culture, and all this is very important to the Centre Party. New companies with new ideas are what creates new jobs and tax revenues, and are thereby also the prerequisite for our welfare system. During 2012 to ’14 the Centre Party together with the Government is investing 31 million kronor in innovation checks. The money will go to the development of such things as service innovation, design, and business models.”

Last year the UK parliament won first prize in the prestigious design competition Design of the Year 2013

for its user-friendly website www.gov.uk, a deliberately democratic venture to get more Britons to understand how the state apparatus works. The choice of www.gov.uk was strongly applauded, not only in the UK. Have you noticed it? Is there any ambition in your party to promote something similar?

“It is important for democracy that all information is easily accessible: not only to people who understand how the state apparatus works but to everyone. We would not be against having an overview done within various government authorities to make websites and both old and new laws and regulations more accessible.”

Can you point to any example where design has been decisive for development and/or competitiveness?

“One example is the Swedish automotive industry. Another is Swedish technology in the furniture, interior design and wood sectors. We also have leading creators of digital services and games.”

When did you last use a well-designed service? A well-designed object that made your daily life easier?

“My everyday chinaware, Swedish Grace from Rörstrand.”

Karin Nilsson, administrator



The Sweden Demokrates

Does your party have any design policy or explicit approach to the design field?

“There is no explicit approach but rather a consensus on the issue. We are working more and more to reduce a body of text down to another, to us, newer format such as graphics and moving images. Consensus and our pragmatism must be regarded as being two inexplicit approaches.”

In recent years the EU has pointed out how important an investment in design is to the innovation climate. In 2011 the European Design Innovation Initiative was established to study how design could best be exploited in the context of innovation. Has this initiative had any influence on your view of the design field?

“No.”

Last year the UK parliament won first prize in the prestigious design competition Design of the Year 2013 for its user-friendly website www.gov.uk, a deliberately democratic venture to get more Britons to understand how the state apparatus works. The choice of www.gov.uk was strongly applauded, not only in the UK. Have you noticed it? Is there any ambition in your party to promote something similar?

“We have noticed it but it is not



The Christian Demokrates

“Thank you for your reminder about the survey. However, we will refrain from answering as we do not have any policy in the area.” Regards, *David Bruhn*, administrator.

a working process we will use in this year's election campaigns. Of course there is great interest for us in getting to know the process that lies behind the EU and its budget. The management process itself and the flow of economic resources, on a deeper level, is something that interests us but, as I said, it is nothing we are focusing on in the election campaign."

Can you point to any example where design has been decisive for development and/or competitiveness?
 "I think this question really goes together with the next one, at least for us, and I addressed it in my answer to question one."

When did you last use a well-designed service? A well-designed object that made your daily life easier?
 "We are now working purposefully and strategically with using infographics. Infographics are a way to convey difficult-to-grasp and often voluminous text or data in the form of easily and rapidly understood graphics. The starting point is to adapt material to people's ability to absorb and understand what they are seeing. By using infographics as a new tool, we are reaching out to more people. People for whom politics is not their primary interest."

Henrik Gustafsson,
 information secretary



The Swedish Green Party

Does your party have any design policy or explicit approach to the design field?

"Design has an important role in a developed democracy. Innovative design, and the cultural sector as a whole, is breaking new ground for intellectual activities and posing challenges. But we cannot expect that young people should dare to start working in the cultural sector out of pure idealism. We must also ensure that design creators have the possibility of working in decent conditions. If we are to have thriving design in the future, those people who are working to create new design must also be given access to the public sector safety net and better economic conditions.
 "We are allocating 100 million kronor more than the Government to Sweden's urban high-rise districts, which is one way of strengthening the sector. We are also allocating ten million kronor extra targeted directly to the image, form and design sector, and are investing in the independent cultural sector."

In recent years the EU has pointed out how important an investment in design is to the innovation climate. In 2011 the European Design Innovation Initiative was established to study how design could best be exploited in the context of innovation. Has this initia-

tive had any influence on your view of the design field?

"This initiative is welcome, of course. However, in our view, regardless of the EU's initiative, design is an important part of innovation and a foundation of Swedish competitiveness. Design also has a special task, which is to try, already at the product development stage, to include issues of sustainability and recycling, and thereby to simplify circular material flows."

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"We are not familiar with the award and have not noticed the specific design competition. We recently redid our party's website with the aim of making it more accessible and dialogue-focused for visitors. Accessibility and dialogue are obviously two important themes in the design of public administration websites, and here we see there is potential for improvement."

Can you point to any example where design has been decisive for development and/or competitiveness?

"That depends, of course, on how broadly you choose to define design. On the general level we believe that innovative and smart design is an important driver of social development. Swedish export successes like Skype and ball bearings are based on creativity and innovative design."

When did you last use a well-designed

service? A well-designed object that made your daily life easier?

“Just like in my previous answer it depends a bit on what definition of design you have. In my daily life I believe I come across well-designed and functional objects and services every day. They can range from running shoes to online services.”

Erika Karlénius,
political secretary



The Swedish Social Democratic Party

Does your party have any design policy or explicit approach to the design field?

“Already in the Swedish Committee of Inquiry on Cultural Policy in 1995, which was established by the Social Democrats, and the resulting bill in 1997, the future and new paths of the upcoming form and design policy were staked out. This was then followed by the Future Design action plan in 1998, a design inquiry in 1999, a Year of Architecture in 2001 and the Year of Design in 2005. This clearly shows what importance we Social Democrats have given to this issues, which we believe are decisive for creating new industries and new jobs. Sweden needs a national design policy, as part of our general growth policy. A survey by SVID/Teknikföretagen concludes that companies that invest in design increase their exports. Swedish design is a badge of quality internationally

and is our biggest sector in the cultural field. Priority should be given to technical/artistic development work in this field. We believe that Sweden needs a design centre, where crafts, design and architecture can cross-fertilise each other.

“We Social Democrats argue that design and creativity get people and societies to develop and grow. Innovative thought and development are closely linked to innovative power and expanded social wellbeing. To us, design is therefore a way of creating both growth and fairness. We showed this during the 2005 Year of Design by showcasing design’s importance both nationally and internationally. For example, the Swedish Institute for Growth Policy Studies produced the report *Design for Innovation and Growth – a promising competitive concept in the future?*, which clearly shows that investments in design lead to economic growth.

“But design issues are broader than that. Design touches on important sets of issues within most sectors of society: from product development to patent issues and teaching methods, from handicrafts to adaptations for people with functional impairments and sustainable development. In proposals to the Riksdag we have also pointed out the national mandate for art, sculpture, design and form that rests with the National Museum, a mandate we want to see clarified. We regard cultural and creative industries with a focus on design as a central part of a future-oriented policy for industry. Design, though, is not just about objects but also about services.”

In recent years the EU has pointed out how important an investment in design is to the innovation climate. In 2011 the European Design Innovation Initiative was established to study how design

could best be exploited in the context of innovation. Has this initiative had any influence on your view of the design field?

“The Social Democrats have long promoted the importance of design within innovation and development. European Design Innovation is an interesting initiative, which also raises the importance of design to regional development. This proposal deserves closer study.”

Last year the UK parliament won first prize in the prestigious design competition Design of the Year 2013 for its user-friendly website www.gov.uk, a deliberately democratic venture to get more Britons to understand how the state apparatus works. The choice of www.gov.uk was strongly applauded, not only in the UK. Have you noticed it? Is there any ambition in your party to promote something similar?

“I am glad to start by saying that the Social Democrats’ website (www.socialdemokraterna.se) was chosen by the Swedish digital trendspotters Internetworld as the organisational website of the year for 2014. Today both the Riksdag and the Swedish Government Offices have well-functioning websites. GOV.UK is a good model for public-sector communication. In our view Swedish public-sector authorities score highly with regard to the communicative aspect of their operations. The authorities’ websites and user friendliness with regard to digital media are important to us Social Democrats, not least because they are well adapted for people with functional impairments. A prerequisite for democratic participation is that everyone has access to media and information about society.”

Can you point to any example where design has been decisive for development and/or competitiveness?
 “Naturally the design discussion about mobile phones and smart phones is something no one could have missed, with some imaginative examples like mobile cooperative ventures with Armani and Prada. More examples can be mentioned: Apple early on saw the potential of not just being a computer but of being an attractive computer. The audio company Bang&Olufsen has also invested in design as a competitive factor. As a company, IKEA has been very clear in its design profile, from the smallest object down to the design of their stores, where design is a secure recognition factor for the consumer. “In Sweden we have had a number of active designers who have become internationally successful in developing their own design idiom: Bruno Matthsson, Carl Malmsten, Josef Frank, Ulrika Hydman-Vallien, Sigvard Bernadotte, Gudrun Sjödén and others. I believe that digital design must be developed so that the digital work environment supports business activities and work. In this respect Sweden has a big challenge but also major development potential; we are mature and critical users of IT systems. It must be a big competitive advantage to develop user-friendly and well-designed systems.
 “Designers should enter into the development processes at an earlier stage because they focus on problem solving. For example, I am convinced that design and intuitive functionality are more important than sophisticated technology when most of us are choosing a phone.”

When did you last use a well-designed service? A well-designed object that made your daily life easier?

“A service I use a lot of because I live in Göteborg is the SJ railway booking site, which works really well.
 “Of course my mobile phone is a very important work tool for me and functions as a small portable office.
 “One well-designed object that makes my daily life easier is an Edbland-brand shoehorn, which hangs on its knob in the hallway so I always know where the shoehorn is!”

*Gunilla C Carlsson,
 Chair of the
 Riksdag Committee on
 Cultural Affairs*



The Left Party

Does your party have any design policy or explicit approach to the design field?
 “Swedish design is important for several reasons. It creates job opportunities, generates export earnings and develops products for the benefit and enjoyment of consumers. It is also a creative industry with links to both art and crafts.”

In recent years the EU has pointed out how important an investment in design is to the innovation climate. In 2011 the European Design Innovation Initiative was established to study how design could best be exploited in the context of innovation. Has this initiative had any influence on your view of the design field?

“Not directly. We think it’s good that design is being given a higher profile.

We particularly want to single out design that increases accessibility for people with functional impairments.”

Last year the UK parliament won first prize in the prestigious design competition Design of the Year 2013 for its user-friendly website www.gov.uk a deliberately democratic venture to get more Britons to understand how the state apparatus works. The choice of www.gov.uk was strongly applauded, not only in the UK. Have you noticed it? Is there any ambition in your party to promote something similar?

“We must admit that we did not pay any particular attention to it. But it sounds like something that the Swedish Riksdag could learn from.”

Can you point to any example where design has been decisive for development and/or competitiveness?

“There are masses of examples. Design can be beautiful and stand the test of time, such as the Berså chinaware service by Stig Lindberg. Design can be groundbreaking and innovative, such as the Saab V4. And design can make life easier for people with functional impairments, for example with wheeled walking frames.”

When did you last use a well-designed service? A well-designed object that made your daily life easier?

“Yesterday my wife wanted to open a jam jar whose lid was very tight. But using a jar opener, which had been developed to make life easier for people with rheumatism, meant that she had no problem at all in opening the jar.”

*Lars Ohly,
 cultural policy
 spokesperson*

Interviewer: Lotta Jonson

GENEROUS DONORS

Design Sweden's most prestigious award to an individual designer or group is the Torsten and Wanja Söderberg Prize worth 1 million kronor. Significantly more millions are also awarded annually by the Torsten and Ragnar Söderberg Foundations to fund research and development in a range of humanities and science fields, including design. One example is the professorship in design management at the Business & Design Lab at the University of Gothenburg.

Were it not for the support of such private foundations, many design-related activities would never see the light of day. These include research projects, translations of historical design works, various other book projects, professorships of design management, exhibitions and conferences. And were it not for private foundations, nor would Sweden be able to boast one of the world's finest design awards – the Torsten and Wanja Söderberg Prize. The prize was awarded for the first time in 1994, when *Torsten Söderberg* would have turned 100, and aims to encourage the fields of design, fashion and crafts in the Nordic countries.

For all the above and more, we can thank Torsten, *Wanja* and *Ragnar* Söderberg. And of course their relatives, who continue to administer their legacy and wishes via the respective Torsten and Ragnar Söderberg Foundations. The Söderberg family's wealth was created in the mid-1800s from trading in iron and building materials. In 1934 the management company Ratos was set up by the brothers Ragnar and Torsten Söderberg. The Söderberg foundations were founded in 1960 both to support research and science and to ensure the survival of Ratos as it was passed down to the next generation. The foundations annually award hundreds of millions of kronor to research and various

socially beneficial purposes, and have a combined capital of about SEK 4 billion (440 million Euro). The exact amount awarded each year varies depending on the dividend from the Ratos shares, which comprise almost all of the foundations' assets.

OF NATIONAL SIGNIFICANCE

Tomas Söderberg, the son of Torsten and Wanja Söderberg, is now chair of the foundation that bears his father's name and, like his father once was, is also chair of the Friends of the Röhsska Museum. Tomas is extremely interested in both culture and philanthropy, holds an honorary doctorate from the University of Gothenburg, and in 2013 received the Gothenburg city medal in honour of his significant contributions to the city. So where does his interest in design come from?

“Our family has always been involved in culture, including in the Röhsska Museum,” he says. “The interest in design has increased over the years since we founded my parents' prize, as has the realisation about its important potential for improving society. We have a broad view of design as a concept, and this is reflected in the projects we support.” The purpose of the Torsten Söderberg Foundation is “to promote scientific research and scientific educational or study activities of significance

to the national interest, in which case preference shall be given to the economic, medical and legal fields.”

Tomas Söderberg continues: “Most of the foundation's distribution goes to economics, law and medicine but also to culture in Gothenburg. There is a pool of money for other fields, including a variety of design-related activities. The biggest of these was the donation of 40 million kronor to HDK at the University of Gothenburg in 2009.” He adds that this donation enabled the founding of the Torsten and Wanja Söderberg Professorship in Design Management, with the purpose of collaborating with the School of Business, Economics and Law at the University of Gothenburg over the long term to develop knowledge at the interface of design

Tomas Söderberg, chair of the Torsten Söderberg Foundation



The Torsten and Wanja Söderberg Prize

The respective Torsten and Ragnar Söderberg Foundations have a total capital of about SEK 4 billion (EUR 440m) consisting largely of Ratos shares. The share dividends determine how much money the foundations give annually to research and socially beneficial purposes. Foundation gave out SEK 142m in 2012, the highest amount ever in its history. The well-known Torsten and Wanja Söderberg Prize (which from 2014 is being funded solely by the Torsten Söderberg Foundation) has been awarded annually since 1994 with the aim of promoting the fields of design, fashion and crafts in the Nordic countries. The prize (1 million Swedish kronor) enables the recipient to do further research in his/her design speciality without any pressure to achieve immediate commercial viability. The most recent (2014) winners are Swedish fashion designer *Ann-Sofie Back*, Icelandic graphic designer *Hjalti Karlsson*, Norwegian jewellery engineer *Sigurd Bronger*, Danish fashion designer *Henrik Vibskov*, and the Swedish group *Front*.



Torsten and Wanja Söderberg

and economics. The professorship was assigned to the Business & Design Lab, an interdisciplinary research collaboration that includes a number of senior researchers and doctoral students from both HDK and the School of Business, Economics and Law.

“*Ulla Johansson*, one of Sweden’s leading figures in design management, was the obvious choice to be the first professor,” Tomas Söderberg explains.

“It is not clear yet who will succeed her when she retires but it is very gratifying that so many international

and well-known people have applied. As well as the professorship, we have also supported a number of doctoral students in various design fields over the years.”

IMPROVE RESEARCH QUALITY

Ulla Johansson took up the professorship in autumn 2009 and says it offers incredible freedom but with responsibility.

“The donation created incredibly good conditions for both shaping my own ideas and improving the quality of research in the field of design management. For example, our doctoral students have been able to take part in various conferences around the world, our environment has been extremely open, and two excellent theses have been produced by *Marcus Jahnke* and *Katarina Wetter Edman*.”

Johansson has also received funding from other sources including Vinnova, something she was keen to do because that organisation requires that the research contribute to a measure designed to help society. It also has very knowledgeable administrators

who know what research involves. The EU also contributed funds to create a research school in the design management field. Johansson believes in pluralism in both research and funding.

Were any demands stipulated at all by the Söderberg foundations?

“Yes, that I should not get stuck in teaching but really do research. Over these five years my research has led to about fifty different articles and papers. But I believe that research, teaching and work towards social change should always be linked.”

Is there any danger at all associated with funds from private foundations?

“That depends entirely on the foundation’s ethics, insight and how it is governed. Private foundations today are very important because they have a humanitarian rather than a financial basis. The Torsten Söderberg Foundation is a particularly wise example with knowledgeable commitment and a chairman who knows the field.

“In addition, they have none of what we might call the ‘fairness approach’. If you’ve been given money once you can get it again if they believe in the project. Only a year after the professorship was founded I received more funding to implement the research programme ‘Making Sense of Design Work – A Research Program within Design Management Exploring Designers’ and Design Buyers’ Perspective’.”

Ulla Johansson hopes that her successor, like her, will be interested in an exchange between the master’s students and researchers and in building up yet more creativity and development in Gothenburg and the Västra Götaland region. To this end both design and a design approach can contribute a lot – a view that is also shared by Tomas Söderberg.

Susanne Helgeson

Ulla Johansson, first Professor of Design Management at the Business & Design Lab in Gothenburg.



PHOTO: STEFAN IDEBERG

Design's subtle contributions

Design is a set of practices aimed at creating material or immaterial artefacts. What designers do and why they do it has long been a core question for design research. Designers engage in dialogues: with themselves, with others, and with matter and representations. Design researchers have also from a variety of perspectives addressed other issues such as people's relations to things, and the contributions design makes to innovation.

Since 2003, Nordcode – the Nordic network for research on communicative product design (www.nordcode.net) – has brought together doctoral students and senior researchers with a mutual interest in product semantics and what things mean to people. The information sharing within the network is also the subject of a recent PhD thesis by *Ola Pilerot* to be presented just about as this text goes to print. Two of the contributions in this issue originate from the 12th Nordcode seminar “Thinking X Making”, held at NTNU in Trondheim in autumn 2013. *Maral Babapour Chafi* focuses on the roles of different media in externalisation activities such as sketching or physical modelling, representing a traditional perspective on what design is. While these questions are still important, the focus of design both as professional practice and research field has expanded and come to also encompass interactions, services etc. Following the onset of *Patrick Jordan's* writings on “Pleasurable products” around the turn of the millennium, much attention has also been paid to User Experience and emotions created through design, especially strong positive feelings of fun, fascination and excitement. *Rebekah Rousi* questions the remarkable as a design goal, stressing the importance of designing for unremarkable experiences. From a user perspective sometimes things should just work well without calling for attention.

Engaging in collaboration, exploring ideas in prototyping, and user-centred approaches have been said to characterise design. These principles have also been central to discussions about designerly approaches and Design Thinking contributing in a larger business context. The article by *Lisa Carlgren, Ingo Rauth*, and *Maria Elmquist* problematises Design Thinking, drawing on a study of how it has been introduced in 16 organisations. Carlgren et al. propose a research agenda concerning perceptions of Design Thinking, how it is used, and who engages in it.

It is difficult to anticipate what will be the next trend beyond User Experience, Servicification, and Design Thinking. However, a multitude of perspectives is likely to benefit both design research and design practice in the creation of an as yet unwritten future. Design can bring together scholars and practitioners around a range of issues: from the dialogue between an individual designer and the material to the introduction of designer cultures and practices in large organisations; from sensational pieces stirring up emotions to the unremarkable items that through their subtle qualities support everyday life.

Viktor Hiort af Ornäs



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ROLES OF EXTERNALISATION ACTIVITIES IN THE DESIGN PROCESS

BY MARAL BABAPOUR CHAFI

KEYWORDS:

Design activities, External representations,
Sketching, Physical and digital modelling.

ABSTRACT

Designers engage in various activities, dealing with different materials and media to externalise and represent their form ideas. This paper presents a review of design research literature regarding externalisation activities in design process: sketching, building physical models and digital modelling. The aim has been to review research on the roles of media and representations in design processes, and highlight knowledge gaps and questions for future research.

INTRODUCTION

Rather than making products, designers make representations of their design (Pye, 1978, Lawson and Dorst, 2009), which puts the activities and media that precede design representations in the spotlight. Creation of product forms involve making various decisions to embody a potential function of a design through geometrical ordering, and the way this function is to be utilised (Muller, 2001). Design representations are made before, after and during the process. They may be very detailed or partial, vague or clear. Common design representations are sketches, physical and digital models (figure 1). The ability to make representations is central to the design process. According to Menezes and Lawson (2006), skilled designers can describe sketches in

more ways than design students. Suwa and Tversky (1997) found that experienced designers think deeper in each phase of their work as they read nonvisual functional issues from the visual features of their sketches, leading to emergence of new ideas. This requires developed *imagery* abilities (e.g. the ability to transform and rotate mental images as mentioned by Kavakli and Gero, 2001). Externalisation activities involve *imagining, drawing, and seeing* (figure 2) that are constituents of visual thinking and imagery (McKim, 1980).

Design representations are considered essential for understanding the works of designers and the origins of design artefacts (te Duits, van Daalen and Beuningen, 2003). The externalisation of shape ideas freezes and represents one instance of the designer's cognition (Lawson, 2006): *“the form of representation used and the skill in using them are likely to have a huge effect on the design process.”* Sketching is considered the “heart” of the design process (Lawson and Loke, 1997), *“amplifying the mind’s eye”* (Fish and Scrivener, 1990), and supporting innovative design thinking (Tovey, 1986). Even though much of the design nowadays relies on CAD in most design disciplines, digital modelling is regarded a threat in design, especially if the designers abandon their sketching practices (Lawson, 2002).

Despite their importance and potential effects on the

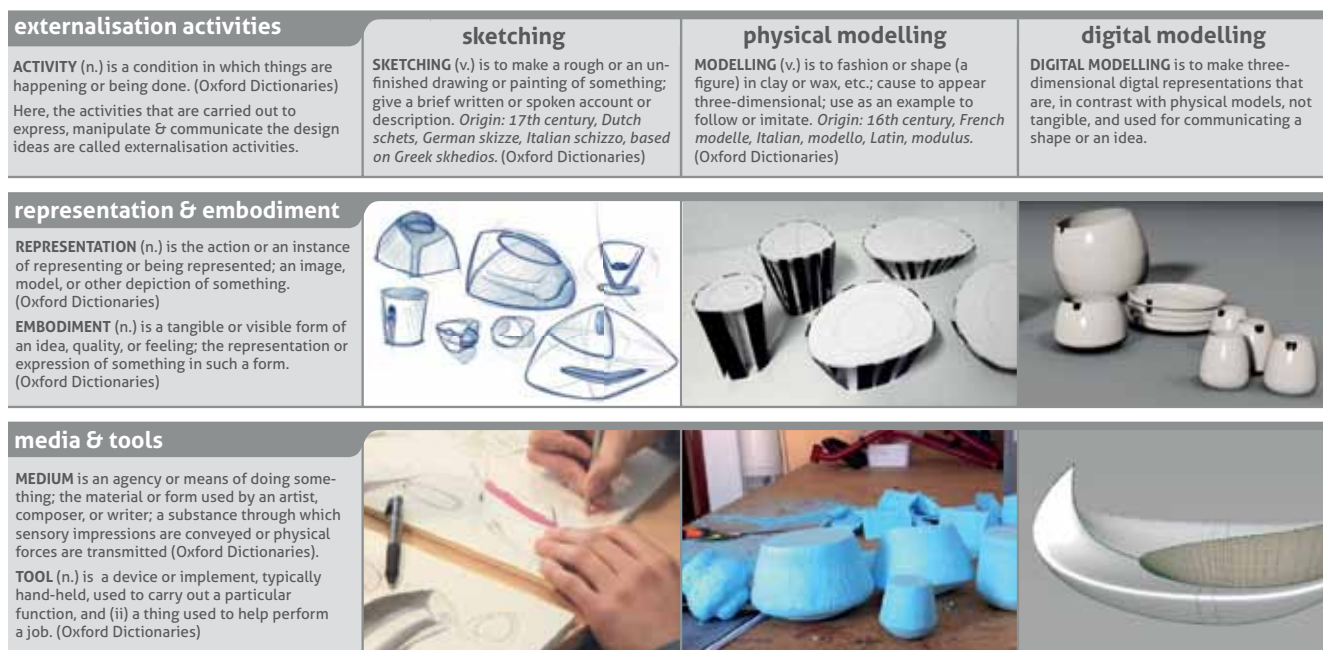


Figure 1. Externalisation activities, representations and media with examples from students works.

design process, research regarding externalisation activities and their roles in industrial and product design discipline is relatively sparse. While some literature elaborates on the role of individual activities (e.g. the review on the roles of sketching by Purcell and Gero, 1998), a broader, more holistic and systematic review of several externalisation activities, comparing and contrasting them is missing. The primary aim of this paper is to review research - across different disciplines - that has looked at the roles of different media and representations, and to examine their implications for the design process. Such a review may also provide a theoretical framework and a point of departure for future research.

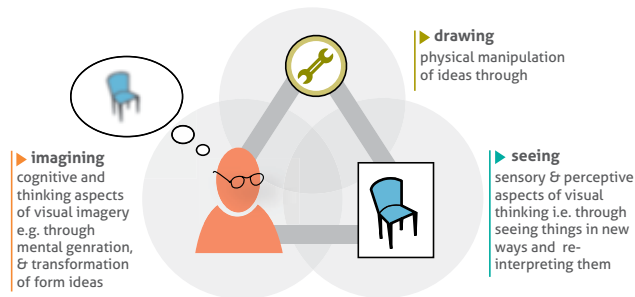


Figure 2: Visual imagery in externalisation activities (adopted from McKim, 1980).

DATA COLLECTION AND ANALYSIS

The search for relevant scientific literature was initiated by defining several key words e.g. sketching, physical and digital modelling as well as their synonyms. This review includes research from disciplines that are concerned with design of utilitarian artefacts¹ (e.g. engineering and mechanical design, architecture, and communication design), since the empirical evidence regarding the interrelations between the design process and externalisation activities is dispersed

1) Artistic disciplines (e.g. sculpture and painting) with mere aesthetic dimensions are excluded from this review, as they may involve limited restrictions regarding the use of materials and media.

2) In the words of Gibson (1986): "the affordances of the environment are what it offers the animal, what it provides or furnishes". What something affords is tied up with our bodily structures, our acquired skills and our specific cultural context e.g. for a chair to afford sitting or for a mail box to afford mailing letter, we should not only have a certain bodily structure, but also the skill to sit and to mail letters and live in a culture where sitting and mailing letters are practiced (Dreyfus and Dreyfus, 1999). The concept of affordance has been used extensively in design and HCI literature to explain and predict the interaction between users and artefacts. Norman (2002) defines affordance as "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used."

3) "Hartson's classification (2003) also includes social and communicative affordances, which falls beyond the scope of this paper.

across different disciplines. Further, the present review only includes aspects of design that concerns the designers' individual process, especially those activities that enable the designers to externalise their ideas. Apart from the academic literature, professional literature (e.g. design-related books that include anecdotal evidence on externalisation activities) was also reviewed. Further, only printed sources in English language were considered, while excluding unpublished work like magazines, or blogs.

The reviewed literature was analysed by summarising, extracting, tabulating and mapping key ideas, theories, and interpretations, as recommended by Hart (1998). To categorise the roles of externalisation activities, McKim's (1980) notion of visual imagery and its classification that pervades design activities were considered. This classification was in accord with Hartson's (2003) typology of *affordances*²: (i) *physical*, (ii) *sensory*, and (iii) *cognitive*³. In the present paper, affordances can be defined as the conditions that media provide for the designer, triggering certain types of actions or form repertoires. This classification is used here to account for the roles of media and design representations. Further, sub-themes were identified to describe these roles on a more detailed level. To explain and exemplify the identified roles, data from design diaries in an earlier study by the author (Babapour, Rehammar and Rahe, 2012) was consulted and diary entries were extracted.

ACTIVITIES, MEDIA, AND REPRESENTATIONS

An overview of externalisation activities, media and representations considered in this paper is provided in figure 1. The reviewed literature involved overlapping and at times blurry terminologies, especially since these terms are not only used to explain an externalisation activity, but also as the media and tools by which the activity is carried out, and the resulting representation or embodiment. For example McKim (1980) uses sketching as a general term to explain generation of ideas: "*Idea sketching is a way to express visual ideas... Visual ideas can be expressed by acting them, talking about them, writing them down, constructing them directly into a three-dimensional structure, and drawing them.*" The inconsistent use of terminology also extends to the use of sketching and drawing to explain making marks on paper, or modelling and prototyping for making three-dimensional representations.

Sketching

Sketching refers to the production of visual images to

interior designers (Bildá & Demirkan, 2003)

- > exhibited more changes in decision-making, made more redefinitions of spatial relation, and spent more time working with the problem in traditional media.
- > had shorter problem definition stage and spent more time in modification and concept evaluation phases in digital sketching media.

architects (Yi-Luen Do, 2005)

- > used diagrams, texts, and symbols, and constantly interpreted these symbols in pen & paper sketching.
- > did not use diagrams and symbols to the same extent in digital media.

graphic designers (Stones & Cassidy, 2010, 2007)

- > generated more design alternatives and were more likely to reinterpret them for creating novel solutions when sketching with pen & paper.

Table 1: Comparative studies between traditional and digital media (summary of findings).

externalise the visual thinking process and assist the creation and development of visual ideas (Fish and Scrivener, 1990). Schön and Wiggins (1992) describe it as a moving, seeing, moving process where each move serves as preparation for the succeeding moves. Other words that are used to describe the sketching activity are doodling, scribbling, drafting, etc. While some scholars use the terms drawings and sketches interchangeably (e.g. Purcell and Gero, 1998), others make a distinction between them. For instance, Pei, Campbell and Evans (2011) describe sketches as rough visual representations of the main elements of design as opposed to the more structured and specified character of drawings. In the present paper, sketching includes both rough and structured representations.

Sketch as a medium – Traditional or manual sketching with pen and paper has been considered a primary medium for visual thinking (McKim, 1980). With the introduction of digital media, new considerations are brought forward in discussions of sketching in design. This includes new ways of seeing and interpreting design situations that are, according to Coyne, Park and Wiszniewski (2002), enabled through (i) introducing new practices e.g. making backups and managing files that open possibilities for investigation and retrospection, online communication that requires being more organised, experimentation and discovery as modes of working, and (ii) introducing new terms and definitions

regarding new tools (e.g. digital drawing tablet, projector) or new practices (e.g. layering, filtering, scanning). Several studies compare digital and traditional sketching media and highlight how they influence the designers' behaviour (see table 1).

Sketch as representations – Different types of sketches are made across different design disciplines (table 2). Akin and Lin (1995) highlight how the nature of design problems can influence the type of sketches made. For example, using unstructured and random drawing marks are found to stimulate finding new ideas in architectural design process (Cross, 1999) which according to Akin and Lin (1995) is due to the nature of architectural design problems generally involving a novel and rare combination of site, client, etc. The extent to which a sketch is structured may also depend on the phase of design process as well as the individual preferences of designers.

Roles of sketching – Different roles that sketching can play in design process were identified from the reviewed literature and exemplified with diary entries from an earlier study (Babapour et al., 2012) in table 3. These roles can be seen as underlying facilitators that sketching entails even though the designer does not necessarily realise or use them. Akin and Lin (1995) found some of these roles, having different compositions during the design process, e.g. more thinking (i.e. cognitive roles) in the conception phase and more drawing (i.e. physical roles) in the presentation pha

Physical modelling

Tovey (1989) describes the design process as “*moving from one model to another*”. Physical models represent and embody design ideas and bring up otherwise hidden issues (Yang, 2005). Making physical models and mock-ups is generally associated with the conceptual phase of the design process. Building more detailed and accurately scaled physical models at later stages of the process is usually called prototyping (Veveris, 1994). Sometimes these terms are used interchangeably e.g. Yang (2005) refers to prototyping even for the earlier stages of the design process. Here, physical modelling encompasses making tangible three-dimensional models throughout the design process. To describe the modelling activities, Wieggers, Dumitrescu, Song et al. (2006) proposed a method for analysing clay modelling. Breaking down this process in chunks of *manipulation-see* (similar to Schön's description of sketching as moving – seeing), they found that preparation and modification of surfaces were the most common activities during clay modelling.

Working with physical models throughout the design

industrial design (Pei et al., 2011)

- > personal sketches (aka napkin sketches) to externalise and investigate ideas,
- > shared sketches to trigger group discussions,
- > persuasive sketches with high level of realism for stakeholders to evaluate the proposals,
- > handover prescriptive sketches to convey information for other members of the design team,
- > scenario and storyboards for describing the user interaction,
- > layout renderings,
- > presentation renderings to fully represent the product appearance,
- > perspective drawings.

experience design

(Greenberg, Carpendale, Buxton et al., 2012)

- > the vanilla sketch that integrates drawing, annotations, and symbols,
- > the collaborative sketch for brainstorming and expressing ideas as well as mediating interaction,
- > hybrid sketches that combine sketches with photos,
- > story boards & diagrams to communicate narratives,
- > animations to capture motions and sequences.

engineering design (Pei et al., 2011)

- > schematic diagrams for representing the operating principles & the relationships between components,
- > general arrangement drawings for showing the exterior view of the objects,
- > detail drawings for manufacturing details,
- > technical illustrations e.g. layout drawings and assembly drawings for communicating technical details in a realistic manner.

graphic design (Schenk, 1991)

- > sketches for accepting and passing the brief, as reminders of information, for an exchange of ideas, and to explain thoughts for clients,
- > inspirational sketches for collecting visual reference material,
- > personal sketches for analysing the problem and generating first ideas as combinations of words & rough and fluid visual notes,
- > synthesis and development sketches for combining & modifying visual elements to explore subtle variations in composition and form,
- > presentation sketches for evaluation, & revision of solutions,
- > sketches for preparing & controlling the production.

Table 2: Different types of sketch representations across design disciplines.

process and especially at earlier stages is often considered to be important for achieving successful outcomes (Yang, 2005). A remarkable example is the 5,127 numbers of physical models in cardboard, foam, plastic and metal which were made during the design and development of James Dyson's first vacuum cleaner (te Duits et al., 2003). Although scholars have highlighted the importance of modelling, the results from some studies show that modelling was the least frequent ideation activity (e.g. Jonson, 2005), which might be due to the effort and resources it requires.

Physical modelling media – Model making can include both conventional and digital media. Foam, paper, and clay models are common media used in industrial design at early stages while digital and rapid prototyping is often used at later stages. For making interactive devices, there is a wide range of modelling media e.g. Phidgets (Greenberg and Fitchett, 2001), or the Calder toolkit (Lee, Avrahami, Hudson et al., 2004). Apart from conventional approaches, designers take up experimental approaches when working with physical models (figure 3). Individual preferences and the designer's skill set may influence the choice and the extent to which materials and modelling media are used during design process.

Physical models as representations – Different types of models are made for various purposes across design disciplines (table 4). Industrial design models are mostly concerned with aesthetics of the products while engineering design models relate to the functional principles of the product (Veveris, 1994). A more general way of categorising physical models, according to Houde and Hill (1997), is by the aspects of a product they represent: the product's role in relation to its user, its look and feel, and its implementation through material, technology and components of a product. Further, they consider a fourth category that integrates all the three dimensions. The choice of physical models depends on the stage of design process and the dimension of product that designer is working on.

Roles of physical modelling – Table 5 provides a list of roles attributed to physical modelling in the reviewed literature (together with diary excerpts for exemplification). In contrast to sketches, which can only be read through vision, the tangible nature of physical models enable the designer with multimodal interaction. A recurring theme in the reviewed literature is how physical modelling aids designers in learning through identifying problems and debugging (see e.g. Brereton, 2004), which according to Viswanathan and Linsey (2009) results in rectifying designers' mental models in relation to materials.

Table 3:
Left: roles of sketching in design process (based on the literature review), right: manifestation of the identified roles (based on design diaries).

Physical roles	embodiment & materialisation	Embodying the content of mental images in sketch representations on paper or on screen.	“ I wanted to do a stem that had ridges, and maybe erosion and asymmetry as well... I also had some pictures of a table in mind, which had these kinds of forms. [JM]
	radical transformation	Generating solution alternatives through making radical changes e.g. in rough sketches.	Easy to get many shapes quickly, and easy to develop and go back. [AM] Small simple sketches were a good way of exploring the overall composition. [VS]
	incremental transformation	Generating solution alternatives through making incremental changes e.g. in detailed sketches.	Easy to see what works/doesn't work without having destroyed the material by taking something too far. Using paper, one can simply make an overlay and make one more iteration of the form. [...] Sketching in multiple angles and with slight variations allows one to develop form in a very quick manner. [AM]
	shape determining systems	Encouraging certain shapes and ways of working.	It was difficult to sketch some of the forms, especially the ones with thin walls, double-curved surfaces and holes. [JM] The soft indentions are difficult to communicate on paper. [VS]
	integration of visual & verbal data	Integrating both visual & verbal modes of representing ideas.	The sketches [referring to a sketch representation including explanatory notes] illustrates my thoughts of the basic idea for which the form now has to be developed. [AV]
	integration of 2-&3d perspectives	Integrating two and three dimensional perspectives and different views in sketch representations.	[Sketching] allows me to define the shape for myself, i.e. if I sketch this in different views, what will the back look like, it forces me to think in 3D in a 2D setting. [AM]
	immediacy	Enabling the designer with a direct and instant involvement and interaction.	Quick way to develop form. Easy to see what works/doesn't work without having destroyed the material by taking something too far. Using paper, one can simply make an overlay and make one more iteration of the form. [AM]
Sensory roles	visual aid	Displaying visual representations enables the designer to inspect their work.	In order to see how a given shape would be perceived had it been made with a smoother surface, sketching was utilized. [AM] [...] to be able to see how they would be affected by changes in smaller details. [...] Trying to see how different surface curvature would affect the expression. [VS]
	thinking aid	Aiding the designer in thinking about different issues and aspects of design.	I sat with a paper and started to draw some lines. [...] I often sketch when I am thinking. [JM] I found sketching to be a suitable first method of form development because that is what I found easiest and the fastest way to explore thoughts and try forms. To think with the pen. [AV]
Cognitive roles	memory & retrieval aid	Monitoring thoughts by providing an environment of short-term memory in sequences of sketches.	Using the pen as a sketching tool to record ideas for later use. [JN] Sketching was used as a complement to the other methods, when ideas came up they were sketched down so they would not be forgotten and then they were further developed with CAD later. [IK]
	support imagery	Provoking imagery & the ability to restructure visual components through vagueness inherent in sketches.	The lines become some kind of form, and I changed it with some more lines. In that way I get a form in which I saw a possible 3D form. I draw it in 3D. I wanted to see what happened if I changed the form. That gave me a new shape. [JM]
	selective attention	Attending to a limited part of a task by containing selective & fragmentary information sketches.	Made some sketches of ways to integrate the handle with the shape of the cup... To see how the negative space between the handle and the cup could affect the expression. [VS]
	interpretation & emergence	Provoking emergence of new ideas, seeing things in new ways, & recognising unintended consequences.	I wanted to see the relationship between the ridges, and how that affected the overall impression. [AM]

industrial design (Pei et al., 2011)

- > sketch models aka foam models or 3d sketches,
- > design development models for exploring the relationship between different components,
- > operational models for ergonomic evaluation,
- > appearance models for capturing precise appearance of the product.

engineering design (Ulrich & Eppinger, 2008)

- > soft models e.g. from foam for defining the outlines,
- > rough models from wood, plastic or metal for selecting the final concept.

mechanical design (Ullman 2003)

- > proof of concept at the initial stages,
- > proof of product for evaluating feasibility,
- > proof of process to address production methods and material properties,
- > proof of production that involves complete manufacturing process.

Table 4: Different types of physical models as representations across design disciplines.

Figure 3: Examples of experimental physical modelling for exploring form ideas for a dinnerware project (student works), from left to right: (i) transmitting soundwaves through a liquid, (ii) using balloons & flour, and (iii) using plaster & cotton.



Digital modelling

In digital modelling a CAD (computer-aided design) system is used to assist in defining the geometry and visual appearance of a design. There is an on-going debate regarding the nature of digital models, and if they can be considered as models or merely drawings (Coyne et al., 2002). Here, digital models are three-dimensional representations created in digital media. In general, digital modelling belongs to the later phases of the design process. Handing over final sketches to a modeller, who interprets and translates them into a digital model, is a common practice in most design firms. CAD systems are driven more by production needs i.e. accuracy and efficiency rather than creativity (Jonson, 2005), and encourage working with precision and details while allowing little room for vagueness and indeterminacies that trigger creativity in the ideation phase. Many scholars hold that digital modelling in ideation phase inhibits designers' thinking and creativity (see e.g. Séquin, 2005). Findings from a case study and an extensive survey with 255 designers suggest that the intensive visualisation in digital media discouraged the designers to modify their ideas resulting in *premature fixation*. Some studies however challenge this view. In a study with two designers, Won (2001) found that digital modelling demands a more complex cognitive behaviour than traditional sketching, since the designer has to deal with enhanced visualization, thus supporting better reinterpretation and frequent shifting from the whole design to details in the

Table 5:
Left: roles of physical modelling in design process (based on the literature review).
Right: manifestation of the identified roles (based on design diaries).

Physical roles	embodiment & materialisation	Embodying & transforming two-dimensional sketch representations into tangible forms.	<i>[Using clay is] good for transforming the 2D-sketches into 3D. [...] It is a big step from sketches on paper to clay, and a way of trying the idea in real life. [JM]</i>
	incremental transformation	Exploring solution alternatives through prompting three-dimensional & incremental experimentations.	<i>I tried to use another method for creating the form. I made long flat stripes of the clay and wound these into a shape with many holes. After that I smoothed out some of the edges. [VS]</i>
	integration of various components	Building separate components from different materials and integrating them in one whole	<i>[I] built a clay handle for the wooden model of the cup, to evaluate the handle in 3D and be able to actually hold it and get a sense for a suitable size. [VS]</i>
Sensory roles	visual aid	Enabling the designer to inspect the model from different views and perspectives.	<i>When you're using clay you cannot really choose the good side or bad side, as the entire object will be handled by the viewer. Thus in a way, it is a more honest way to work. [AM]</i>
	tactile aid	Responding to physical behaviour e.g. through giving tactile feedback when interacting.	<i>To get a 3D shape quickly, that can be changed, and to be handled physically. There is something special about being able to rotate a shape in your hands rather than on a computer screen. [AM]</i>
	other sensory aids	Giving rise to noises, smell and aiding in realising other dimensions of the product.	<i>We decided to project light through a liquid that was under vibration by a sound source. [...] The experiments were done to generate form. [JN]</i>
Cognitive roles	thinking aid	Aiding the designer in thinking about different issues and aspects of design.	<i>I tried working in clay to get a better understanding of what the form would look like, from different angles and to open up for more complex forms that are difficult to depict on paper. [VS]</i>
	memory & retrieval aid	Triggering kinaesthetic memories regarding materials, functional issues & revealing theoretical assumptions.	<i>When studying our clay models. [...] I realized that the transition lines between surfaces that are curved and multi force; curved in one direction and appears as twisted. [AV]</i>
	learning aid	Aiding the designer in learning by spending time on identifying problems and debugging.	<i>We have built physical models in Styrofoam. Our measurements turned out to be slightly too big, why we decided to scale down the dinner set. [...] It felt very valuable to make the physical models. [AV]</i>
	selective attention	Making different components at a time allows for selectively attending to one aspect of the problem.	<i>Instead of making the whole shape, we worked with form elements, forming the ridges on inside and outside. [AM]</i>
	interpretation & emergence	Interacting with physical models makes room for reflection, interpretation and discovery.	<i>[Clay modelling was] to explore the sketched ideas in three dimensions and transform them. [...] We found one particularly interesting form that triggered more new ideas, which we then decided to develop further. [AV]</i>

ideation phase. One of the four participants in another study (Salman, Laing and Conniff, in press) had a moment of discovery when conceptualising in a digital medium that was enabled by the systems' immediate visual feedback provided. However, all the participants in this study showed signs of distraction during the ideation phase, moving their attention to manipulating the system and focusing on a lower level of detail in the concept. Some researchers propose recommendations for enhancing digital systems or new ways of working with them in order to overcome the mentioned shortcoming. For example, Séquin (2005) showed how digital media could allow designers to explore a wide range of design alternatives through computation and programming. In another study, a digital sculpting medium was found suitable for the ideation phase, due to its restricted precision, which enabled the designers to carry out activities similar to that of sketching in terms of the number of ideas and reinterpretations (Alcaide-Marzal, Diego-Más, Asensio-Cuesta et al., 2012).

Digital modelling media – Computer-aided media differ in the particular approaches that they allow for working with digital models (e.g. through surface and solid modelling or deforming three-dimensional meshes like that of digital clay). A recurring theme in the reviewed literature concerns technical problems of CAD systems, distracting designers from ideation process, causing resistance for making major changes in the representations, and limiting the solutions to what is easiest and most available (Robertson and Radcliffe, 2009). Some researchers have suggested making CAD systems more sympathetic and responding by allowing more feedback and conversation in order to help designers express their ideas in a natural manner (Lawson and Loke, 1997).

Digital models as representations – The representation types that were mentioned for sketching and physical modelling may also apply to digital modelling, since designers tend to create digital representations that resemble their sketches and physical models. However, digital media also come with specific potentials e.g. the ability to create interactive representations by including movement and animation as well as photorealistic renderings.

Roles of digital modelling – Different roles of digital modelling in the design process are listed and exemplified with diary excerpts in table 6. Among these roles, introduction of new practices is frequently discussed, especially the ability to make photorealistic renderings in a short time. This is while cognitive roles were not a recurring theme for digital media. In fact, they were mostly considered to inhibit designers' thinking and creativity.

DISCUSSIONS AND CONCLUSIONS

Comparing externalisation activities and their roles

This review has presented a tentative overview on the roles of externalisation activities, as a starting point for future research. Figure 4 shows roles that different externalisation activities have in common, as well as those that are unique to each activity. While the presence of these roles in the reviewed literature illustrates the ways in which different activities contribute to designers' progress in design process, their absence may be merely due to sparse empirical evidence. Moreover, some roles are more prominent in one activity than others. For instance, the learning role that is uniquely discussed in relation to physical modelling might also apply to sketching and digital modelling possibly to a different extent. On the other hand, learning can be regarded as a latent role of sketching and digital modelling. This is however not applicable to all of the roles; e.g. the tactile inspection of representations is solely offered by physical modelling and there is no varying degree of this role in sketching or digital modelling. Further, the roles that different activities have in common may also vary in nature e.g. visual inspection is enabled in various perspectives in physical and digital modelling while sketching only offers a specific view of the representation. To account for the validity of these roles, future research should consider crosschecking the extent to which they occur across different media used in product design practice.

Comparing externalisation activities based on their roles reveals why sketching is considered an intelligence amplifier, while digital modelling is regarded as a creativity inhibitor. More cognitive roles are associated with sketching in the reviewed literature, in comparison with physical and digital modelling. Among these roles, *supporting visual imagery* was solely attributed to sketching which, according to Kosslyn, Thompson and Ganis (2006), concerns mental generation, inspection and transformation of forms. For example, Verstijnen, van Leeuwen, Goldschmidt et al. (1998) found that sketching facilitates restructuring of forms which is otherwise difficult to perform mentally.

Tangible qualities of physical modelling enable sensory roles e.g. triggering kinaesthetic memory, and learning. The latter, according to Brereton (2004), is enabled through experimentation, identification of problems and debugging. There is a need to understand the underlying relations between the haptic experience from manipulating materials in physical modelling and learning.

Digital modelling introduces a range of new practices that allow manipulation of forms in ways not possible in

Table 6:
Left: roles of digital modelling in design process (based on the literature review), right: manifestation of the identified roles (based on design diaries).

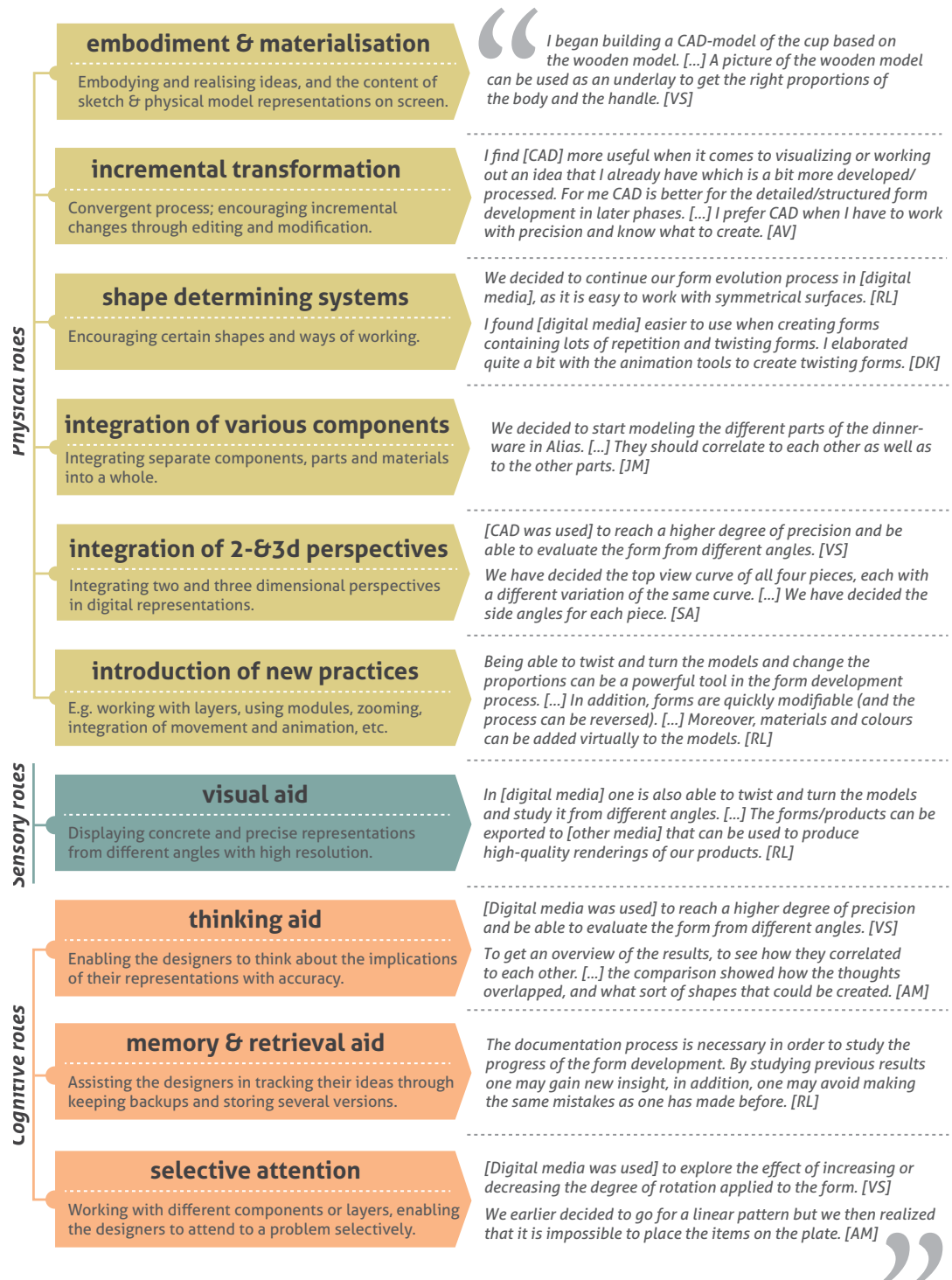
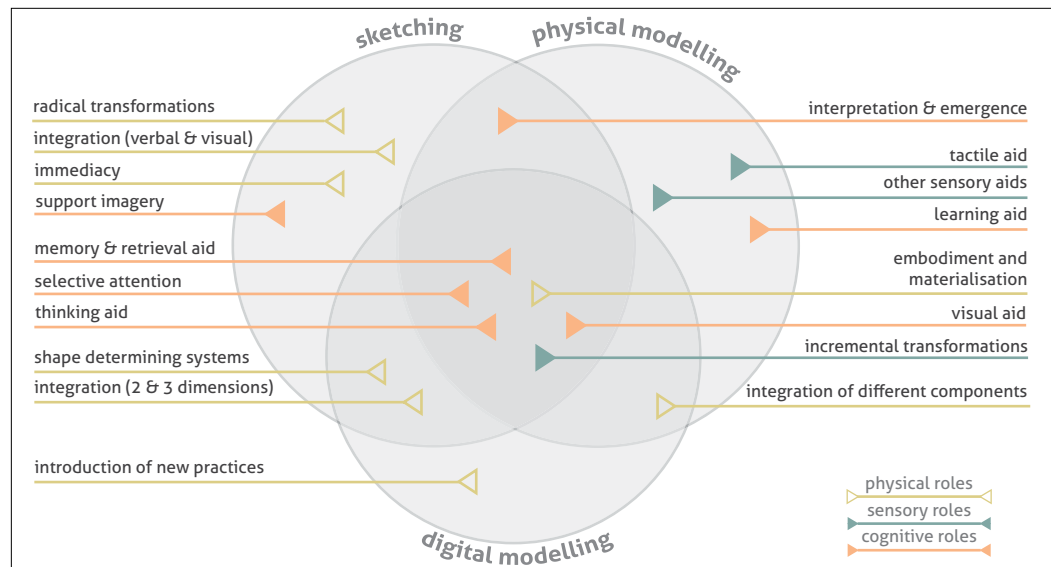


Figure 4: Roles unique to – and in common between different activities, identified from the literature review.



other activities, while having fewer cognitive roles. This may explain why digital modelling is regarded a threat in design. Several reasons are given to explain why CAD systems inhibit thinking and creativity in the design process. First, the high resolution of CAD representations distract the designers' attention from whole to detail and limit their ability to see and interpret things in new ways (Lawson, 2002). In contrast, the ambiguous character of sketches support imagery and encourage reinterpretation (e.g. Goldschmidt, 2003, Fish, 2004, Goel, 1995). This makes digital media more appropriate for incremental development, evaluation and integration in the concrete phases. Second, CAD systems are considered unsympathetic and not responding (Lawson and Loke, 1997). Since these systems introduce new ways of working and talking about design (Coyné et al., 2002), a gap between the new terminology and the designer's mental model is created that may inhibit the designer to engage in a conversation with these media. This is while some researchers emphasise that the main modality in the conceptual phase of design is verbalisation (Jonson, 2005, Lawson and Loke, 1997). The terminologies, however, vary considerably across different digital media. Third, "designers adopt their style to the computer software's capability and accept its limitations" (Fish, 2004). A possible compromising behaviour would be to adopt the visual appearance of products to what the system allows for. This has briefly been mentioned in a few publications regarding architectural CAD systems. Lawson (2002) highlights the more frequent appearance of parabolic rotated forms, or shell form with elliptical sections as a result of using digital media. Specific and explicit visual cues that dif-

ferent digital media impose on the appearances of products are not addressed in the reviewed literature, which might partly be due to the difficult nature of this topic. Systematic studies for identifying these compromising behaviours are yet to be initiated. Finally, learning and using CAD with its large array of functions is considered to be labour intensive and time demanding (e.g. Ullman, 2003, Lawson and Loke, 1997) and can limit the design possibilities (Jonson, 2005, Bilda and Demirkan, 2003, Coyne et al., 2002).

Interplay between different media and representations

In this paper, the externalisation activities and their roles were addressed separately, to allow for comparison. However, designers undertake a combination of these activities in the design process. Reframing prior ideas using a new medium facilitates interpretation and leads to finding geometric relations that would otherwise be hidden in one representation. Some studies suggest that working in one medium might limit design possibilities (Jonson, 2005), while use of different media and an interaction between two – and three-dimensional representations facilitate a creative approach and assist the designer to identify otherwise hidden issues (Tovey, 1989). For example, Capjon (2004) recommends using a combination of Rapid Prototyping and scanning techniques for translating digital representations to physical models, helping the designers to discover and correct shortcomings of their precedent solutions. A combination of media and activities may therefore result in different roles merging, eliminating the potential hindrances of a single activity. Empirical evidence regarding

the interplay between different activities and how they may complement each other in the design process is however relatively sparse.

Future work

Greater research efforts are required to explore the differences between various media and the extents to which they facilitate or inhibit the design process. This could be achieved by contrasting them against each other and also traditional media. Several comparative studies between digital and manual sketching were reviewed in this paper, but no research was found comparing three-dimensional physical and digital models or different digital media.

The designers' feel for media enables them to engage in a conversation with the design situation (Schön, 1983). Underdeveloped skills in externalising ideas considered a handicap to design particularly in the ideation phase (Muller, 2001). Several studies show hints of developed mental imagery abilities among skilled design practitioners when sketching, especially the ability to reinterpret their sketches (e.g. Menezes and Lawson, 2006, Suwa, 1997). Greater research efforts are required for understanding the mechanisms behind imagery, and whether using different media support or inhibit (i) designers' ability to reinterpret the design situation, (ii) their mental imagery processes and (iii) and the development of their skills.

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Unremarkable experiences – DESIGNING THE USER EXPERIENCE OF ELEVATORS

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KEYWORDS: Elevators, User experience, Design,
Cognition, Consciousness.

ABSTRACT

Elevators enable people and goods to be transported to great heights at substantial speeds. The feats required technologically for suspension, movement, controls and safety are no less than remarkable. This is increasingly so when considering the competing new heights of skyscrapers. Although technological accomplishments are becoming ever more extraordinary, for the sake of those using the technologies, there is also the need to counter this remarkableness and consider the unremarkable as an experiential design goal. Discourse in user experience (UX) has mainly focused on designing for positive, affective and memorable experiences. However, in the case of utilitarian technologies such as elevators often good or positive experiences go unnoticed. The current study's findings show just this. This article describes a study of UX with elevators using field observations and short interviews. Positive experiences were reflected in quantitative opinion scales related to the elevators under study. Negative experiences regarding previous elevator experiences were qualitatively recollected without prompting. The age and the detail of the recollected experiences suggest the significance negative (remarkable) events have on memory, influencing current and future impressions of elevator design. This calls for UX attention to be placed on designing for the unremarkable.

THAT'S REMARKABLE – UX PARADIGMS SO FAR

For decades now UX has been the subject of much discussion in the fields of design and human-design interaction (HDI). Attention has been placed on designing to elicit affect, or positive emotional experience in consumers (Hassenzahl, 2003; Jordan, 2000; Arhippainen, 2010). Often, the idea is to establish a consumer-product relationship (Gulden and Moestue, 2011), and on a deeper level, a consumer-brand attachment from which to base consumer preference, and future consumption (Hassenzahl, 2003; Jordan, 2000).

Many scholars have noted the multiplicity in definitions of UX (Arhippainen, 2010; Roto, Law, Vermeeren and Hoonhout, 2011). Roto et al. (2011) have described UX in terms of three main approaches as a: 1) phenomenon; 2) field of study; and 3) practice. The phenomenon approach covers issues such as parameters of how UX is described and defined, its conditions and implications. As a field of study UX is treated in terms of design methodologies and how these may impact experience. UX as a practice refers to evaluation techniques and methodologies. While many scholars and designers have emphasised characteristics which contribute to remarkable, exceptional, 'better than average'

experiences such as the “wow” factor, surprise and pleasure (Draper, 1999; Gaver, 2002; Gaver and Martin, 2000; Jordan, 1998; Mahlke and Thuring, 2007), others have discussed the nature of UX as accounting for the broader contributing factors of interactions (Hassenzahl and Tractinsky, 2006; Kuniavsky, 2003; McCarthy and Wright, 2004). They highlight the purpose of UX as acknowledging the role that dimensions such as time, context and the mind (experience) play in influencing matters such as usability, perceived usability, perceived usefulness, satisfaction and enjoyment (Davis, 1984; Tractinsky, Katz and Ikar, 2000).

One matter that the above mentioned approaches have in common is their emphasis on UX in terms of memorable, affective and remarkable experiences. This refers to experiences, prominent elements and design features that trigger some form of conscious emotion within the user. Through emotions people recall products, represent opinions (either negative or positive), and subsequently pre-evaluate future design encounters. Scholars and designers seem to ignore, however, the experiences with products that are designed to facilitate other interactions and experiences. These products are tools, often used by non-purchasers, quite literally embodying Heidegger's (1996) *handiness* and *readiness-at-hand*, which exist in systems and relationships with other equipment, never supposed to be experienced in and of themselves. The same may be said of experience, in terms of its conscious and unconscious components, in that it is not useful or desirable to be aware of all the interactions, encounters and information we are experiencing. Particularly in terms of elevator travel, good UX happens when all goes well and an elevator travelers stream of thought remains undisturbed from floor A to floor B.

THE REMARKABLE ELEVATING MACHINES – CROSS CONTEXT TRANSPORTATION PORTALS

Elevators have existed throughout history. They can be seen as early as ancient Egypt, enabling the construction of pyramids, originating as hoists and pulley systems. These systems developed into counter-weighted lifts, ascending rooms (see Figure 1 for the author's reproduction of Elisha Otis' safety elevator exhibited at the Crystal Palace Expo 1854), hydraulically powered industrial lifts and finally, various types of modern elevators commonly used today (Gray, 2002). The general purpose of elevators is to transport people and objects from one floor to the next, by ascending and descending. Elevator use varies greatly from leisure and commercial environments such as hotels, spas, shopping malls etc. to utilitarian contexts such as office buildings, car

parks, construction sites, mines, residential structures (i.e. apartment buildings), as well as health and rehabilitation contexts (hospitals and medical centres). Each of these contexts imposes different physical, psychological and social dynamics on the user. Likewise, each architectural level possesses its own aesthetic qualities coupled with different sets of socio-psychological dynamics. Upon arriving at various levels, building users will inevitably find that the feeling of the space changes – ceilings exist at varying heights, floors are fitted with differing materials and the spatial purpose differs.

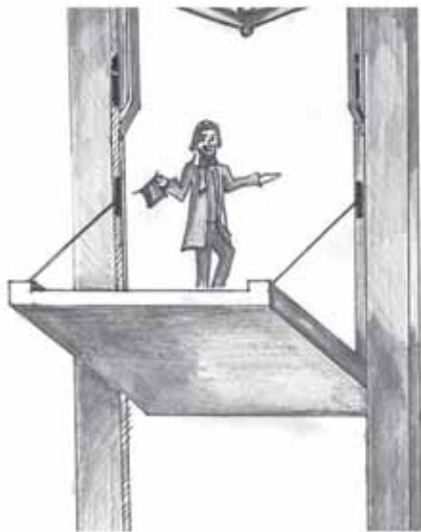


Fig. 1. Author's reproduction of Elisha Otis' safety elevator exhibited at the Crystal Palace Expo 1854

Thoughts and emotions in these environments are often driven by contextual factors, for instance, time (time of day – arriving or leaving), other people inside the building and other elevator users, social positioning (the person's role within the environment) and status in the surrounds (low level/ high level employee, tourist, customer etc.). Then most importantly, emotions are driven by the purpose and expected outcomes of being in the context (Berridge, 2009). Thus, every element of the designed environment should support the overall purpose of the structure and *experience* of the architectural design.

The purpose of an elevator is to physically transport people through this greater context, with the aim of supporting the architectural and spatial experiences. This entails that thought and interaction patterns which are initiated before elevator travel are not interrupted, and that attention is not drawn towards the mechanics and logistics

of the elevator itself. One way of looking at this is through Heidegger's (1996) discussions on *useful things* (tools) or more accurately, handiness in things ("readiness-to-hand"), and their existence not in and of themselves, but in their ability to be "something in order to" (p.69). He talks of materials and objects as *being* in relation to other entities:

These "things" never show themselves initially by themselves, in order then to fill out a room as a sum of real things. What we encounter as nearest to us, although we do not grasp it thematically, is the room, not as what is "between the four walls" in a geometrical, spatial sense, but rather as material for living... A totality of useful things is always already discovered before the individual useful thing.

(Heidegger 1996, p.69)

Thus, elevators are encountered as a part of a totality, the focus of our attention is on the use outcome, and the better the design works the less noticeable it is. A 'tool-being's' "first notable trait is its invisibility" (Harman, 2002, p.21). Heidegger's (1996) text can be interpreted technologically in terms of the tools themselves, as well as psycho-physiologically, in that humans are not consciously aware of all the processes that are occurring within them and around them, yet what is focused on is the goal, purpose of actions and overall concerns for well-being (Frijda, 1988; Ortony, Clore and Collins, 1988). As embodied beings we are constantly perceiving and experiencing our surroundings. Our neurological and cognitive systems are operating in parallel, sensing, perceiving, sorting and acting upon information received from our environment (Hekkert 2006; Rauterberg, 2010). It can be said that we have coinciding experiential processes – those which are conscious and represented to ourselves and may be passed on to others, and those which are unconscious, and not mentally represented (Chalmers, 2004; Searle, 1991). Winkielman and Berridge (2004) argue that emotions exist both in these conscious and unconscious forms, and that unconscious emotions subliminally affect our opinions of phenomena. Charles Sanders Peirce even notes that consciousness occurs in response to chaos, and that an "excited state (which is the conscious state) is a state of derangement, disturbance, disorder" (Peirce, 2009, p.81).

As will be seen in the results of the study, positive experiences were *not* qualitatively articulated – remaining unrepresented and *unremarkable*. Negative experiences, were remembered and recalled – these were *remarkable*. Negative

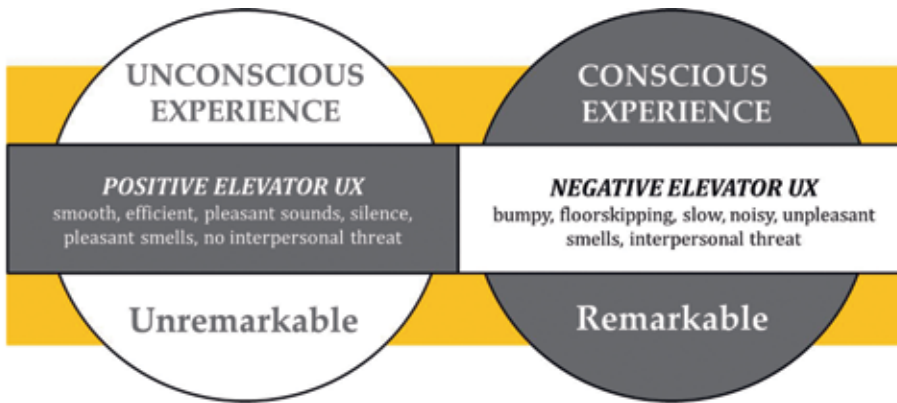


Fig. 2. Relationship between unremarkable and remarkable UX regarding unconscious and conscious experience

experiences were accompanied by emotions which enabled fast recall. Figure 2 demonstrates this relationship between perceived elements of elevator usage and representational and non-representational contents of experience.

With the above said, elevators are often small, enclosed spaces which move at speeds to substantial heights. These speeds and heights are only going to increase with time. This remarkableness plays on the psycho-physio dynamics of the people travelling in them. The task of countering this remarkableness is intensified when considering matters such as phobias (claustrophobia and acrophobia) and overall concern for safety which heighten the representation of emotions (Desmet and Hekkert, 2002; Frijda, 1988; Ortony et al., 1988). This poses a challenge for UX in relation to elevator design, as the design goal is that of the unremarkable – the seamless, smooth and efficient – in connection to a remarkable piece of technology.

THE STUDY

The research was carried out in two high rise office buildings in Adelaide, Australia. These are two of Adelaide’s tallest built structures, Building 1 comprising 31 floors (135 meters) and Building 2 comprising 26 floors (103 meters). Both were refurbished in 2007-08, including the fitting of new elevators from the same company and of similar style (see Figure 3). Elevator users included government and commercial office employees, legal practitioners, onsite maintenance, cleaning and security staff as well as couriers, visitors and commercial clients.

The data collection involved field observations from the ground floor lobbies and inside the elevator cars, as well as 44 short (two to five minutes) on-the-spot interviews. The interviews were supported by a questionnaire structure asking participants to respond to a range of multiple choice, opinion scale and open form questions. Observational attention was oriented towards interior design features in the building’s ground floor lobbies, as well as the elevator cabins, control buttons, aesthetic experiences of sound, movement,

Fig. 3. Elevator interiors – Building 1 (left) and Building 2 (right)



smell etc. Additional attention was placed on the social dynamics of people in the elevators – positioning and other interactional factors.

Forty-four people participated in the interview study - 22 women and 22 men, with ages ranging from 22 to 62 years of age (average age 42.6). Thirty-six participants were Australian, the rest were Indian, Congolese, Malaysian, Singaporean, Persian and English.

Three topics were covered in the questions. The first related to user characteristics: background (age, gender, language and cultural background) and mental factors (thinker type and emotional state). The second was linked to the elevator design itself, how the user evaluated it and suggestions for improvement. The third related to psychological and behavioural factors represented in attitudes towards security and safety, and habits users were consciously aware of. This structure can be seen in Figure 4.

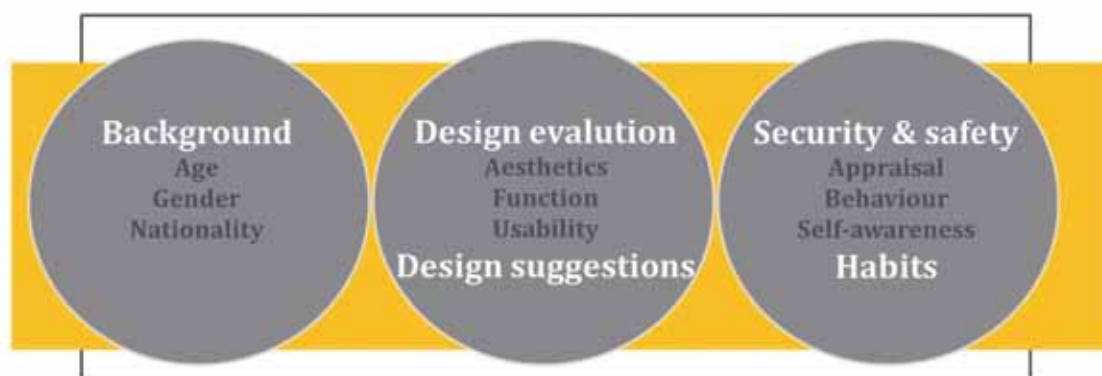
According to this structure, interviews ranged from two to five minutes. Participants were first asked to provide background details: age, gender and nationality. This was followed by a quantitative evaluation (from one to five, meaning most satisfied) of the elevators' design properties: colours, pictures, space, speed, waiting time, shapes, control buttons, sound and location. Then participants were asked to give suggestions that came to mind regarding any of the above mentioned properties. Finally, participants were asked to rate their perceptions of security and safety in the elevators in question, and mention any kinds of habits they were aware of when using the elevators.

RESULTS

Overall the elevator experiences obtained directly prior to the interviews were positive, this was reflected in the overall opinion ratings (from one to five – five meaning most positive) – Building 1 (B1) receiving 3.8 and Building 2 (B2) receiving 3.6. Participants were most satisfied with the locations of the elevators (B1=4.3; B2=4.2), the control buttons (B1=3.9; B2=4), the speed (B1=4; B2=3.8) and the space (B1=4.1; B2=3.7). They were least satisfied with the colours (B1=3.3; B2=3.2) and the sounds (B1=3.5; B2=3.4). Regarding the qualitative design suggestions, the factor of waiting time received the most comments (25%) relating to faster and shorter waiting times and the need to adjust call logic. Then colours (23%) were noted as needing to be brighter, cheerful and lighter with better lighting. Music, a factor which was missing in the studied elevators, was noted in 16% of the comments as desirable, particularly soothing, light and positive music. Sound (14%) was also mentioned in regards to the ability to hear the news on the television monitors, and eliminate the sounds of wind and scraping metal in the elevator towers. Participants suggested that the speed should be faster (11%), and in the other comments (11%) that there should be larger information screens and real people answering emergency calls. This leads to the observation of the correlation between feelings of security and safety, and evaluations of the control button design with a co-efficient reliability $r = .767$ between security and safety, which produced a 2-tailed Pearson correlation with control buttons at $p = .467$.

Opinions regarding safety (B1=4.2; B2=3.9) and security (B1=4.1; B2=4.2) were favourable in the evaluation of the elevators in question. An obvious reason for this is due to the newness of the elevators at the time of the interviews. However, what was additionally noted were accounts of incidents that occurred in the previous elevators at the sites.

Fig. 4. Interview design



The detail and emotion of the recollections are what drew attention to the importance of examining positive UX in terms of non-remarkable experiences.

INVISIBILITY IN UX – AN UN-REPRESENTED STORY

When participants reasoned positive opinions they mostly referred to things that had not happened, i.e., operation and mechanical problems, interpersonal tensions etc. One 49 year old man had disclosed that he “rarely threatened by other individuals (although possibly not vice versa)”. In other words, his comfort lay in his ability to intimidate others. A 41 year old man had stated that he had “never been involved in a lift failing.” Another participant, a 23 year old woman mentioned that she had experienced “no previous trouble with lifts.” and that the current elevators “seemed quite new.” One 36 year old man explained that he had given both the security factor and the safety factor scores of five because he had “never had a bad experience yet.”

Negative opinions were rationalized according to fears and past experiences. A 55 year old man admitted that he was “scared of heights...” and possessed a “fear of lifts falling.” Likewise, a 35 year old woman mentioned that she did not move once inside the elevator, for fear of it falling. A 37 year old woman said that if she is travelling late at night it was “not secure.” And finally, a 28 year old woman claimed that the “lifts in [B1] were quite temperamental. I’ve had quite a few bumpy rides.” A 36 year old man who had told of feeling safe in the elevators, went on to explain that there should be more security down in the basement and foyer. He said that there was a lot of “riffraff” who come and loiter in the building’s spaces. A 43 year old man who had given two for security and one for safety explained that when he travels in the elevators, they often drop several floors at a time. Similarly, a 46 year old woman, who had given five for security and four (and in brackets one) for safety, told of how the elevators sometimes dropped four floors per time. A 58 year old woman who had given a score of three for both factors, similarly to the above mentioned 36 year old man, mentioned that she had a lot of doubts about the basement. She told of how she had an insecure feeling about who would be down there. But regarding the elevators, she stated that all of her negative experiences related to the former elevators.

Participants were eager to represent their concerns and negative past experiences, often blending experiences in the previous elevators with the current elevators in the establishments. These participants described phobias, analysed elevator security and recalled moments when they felt personally threatened. The same 58 year old female

participant mentioned above gave an emotional account of how she had been trapped in an elevator and needed to communicate with non-local help-staff. In her recollection she described needing to clearly identify the building’s name and address of the elevator in order for help staff to assist her. The lack of on-site staff and absence of a security post (in B2) seemed to impact the way people approached the study, and focused on specific negative elements which coincided with this absence or invisibility of another component – the human element.

WHY “KILLER DESIGN” IS NOT ALWAYS GOOD DESIGN – CONCLUDING DISCUSSION

In cases such as this one, no conscious and remarkable experience of the past in particular, was good UX. The only concrete experiences which were represented by participants in this study were negative. Elevators were referred to positively not in terms of what they did, but what they did not do. Elevators were evaluated positively because they did not jam, fail or compromise users’ safety. Otherwise, the experience of elevator travel went unnoticed and was unremarkable.

This poses a challenge to UX discourse which has quite often focused on pleasurable and remarkable design (Blythe, Overbeeke, Monk and Wright, 2003; Deterding, Sicart, Nacke, O’Hara and Dixon, 2011; Jordan, 2000). Designing for no (conscious) emotion, or no conscious experience is not typically discussed. Scholars of design experience (Desmet, 2002; Desmet and Hekkert, 2002; Hekkert, 2006) and consciousness alike (Chalmers, 2004; Searle, 1991) acknowledge the role of unconscious emotions and experience in connection to the mind-body relationship. As embodied beings, humans constantly receive and process environmental and contextual information through the senses and nervous system. The neural system and unconscious mind constantly monitor what happens around our bodies. They are on the watch for factors which may threaten our physical safety and well-being (Frijda, 1988; Hekkert, 2006).

In this case, in which the UX of elevator travel was under investigation, the presence of represented (conscious) emotions indicated that something was wrong. Positive elevator UX existed on an unconscious level, i.e., if all functioned well, the elevator interaction remained unremarkable, and most experiential elements unconscious, aptly fitting with Heidegger’s (1996) idea of handiness and “something in order to” (p.69) support a totality. Information received during usage should remain unrepresented or

unremarkable. Bumpy elevator operation, floor-skipping, slowness, noise and threats to safety and security, interrupt the experience of totality and draws attention to individual objects and components, which should remain invisible. This generates a sense of disorder or chaos that Peirce (2009) claims is experience, whereby breaking down means visibility (von Duuglas-Ittu, 2009). Due to the nature of negative emotions, and their evolutionary role in protecting our well-being, negative experiences are easiest to access, remember and represent in preparation for action towards oncoming phenomena (Brosch, 2013; Hekkert, 2006; Kensinger, 2009). Elevator travel entails a completely embodied experience, remarkable or unremarkable. By setting foot in an elevator cab, we place complete trust in the machinery to transport us safely, as it is not just an experience at risk, but our lives. Yet, if the transaction were to be thought of on this level each time we entered a cab, elevator travel would be filled with anxiety if not completely avoided. Rather than focusing on the element of “something extra”, extraordinary interactions and events to be remembered, we should also be prepared to emphasise the significance of the unremarkable.

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EXPLORING THE USE OF DESIGN THINKING IN LARGE ORGANIZATIONS: Towards a research agenda

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KEYWORDS:

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ABSTRACT

In managerial debates, design thinking (DT) is promoted as a user-centered approach to innovation, suggesting that any firm could learn from the practice of designers. Still, it is unclear how DT relates to design in general, and to the design profession in specific. Previous work on DT is mainly theoretical, and empirical investigations of how DT is used in organizations are needed in order to better understand the concept in relation to existing theories. This paper reports the findings from an exploratory study of the use of DT in large organizations from four industries: software, product, service and healthcare. Based on qualitative interviews with key informants in 16 firms, a wide spread in terms of how DT was perceived and used in a variety of organizational settings is described. This puts focus on the use of DT as well as the importance of the local context. The paper contributes to an increased empirical understanding of DT, and proposes a research agenda.

INTRODUCTION

In search for alternative approaches to innovation, there is an increasing interest in design, both among scholars and practitioners (e.g. Borja de Mozota, 2010; Mutanen, 2008; Perks & Cooper, 2005; Veryzer & Mozota, 2005). Recently, the notion of design thinking (DT) has emerged in management literature, describing how any firm could benefit from designer's practice (e.g. Dunne & Martin, 2006; Brown, 2008; Brown, 2009; Martin, 2011). An important aspect of the concept is that it suggests that anyone can learn to apply a design approach to any innovation challenge (Martin, 2009; Brown and Katz, 2011).

The concept of DT has a growing, yet ambiguous importance. For example, how does DT relate to design in a broader sense, and to the accomplishments in design research? Is DT a new way to design, or a new way to organize any activity, which is not necessarily design? From a design research perspective, the term DT itself is a source of misunderstanding, mainly due to the use of the term in studies of professional designers and architects (e.g. Cross, 2011; Krippendorff, 2006; Rowe, 1991; Schön, 1983) denoted 'design thinking'. As noted by Johansson-Sköldberg et al. (2013), in the more recent managerial debate there are few, if any, references made to this work, and it has been suggested that this lack of a theoretical foundation of 'managerial DT' has led to some reluctance among scholars to perform research on the subject (Jahnke, 2013; Johansson-Sköldberg et al., 2013; Kimbell, 2011).

As DT is gaining foothold among practitioners, several

large firms such as Procter & Gamble, SAP, GE Healthcare, Philips have accentuated the value created by this approach (Lafley & Charan, 2008; Martin, 2010; McCreary, 2010; Wong, 2009). However, up to date academic publications on DT mainly consist of theoretical contributions (e.g. Kimbell, 2011; Kimbell, 2012) or the study of methods associated to DT in experimental settings (e.g. Seidel & Fixson, 2013). The use of DT in organizations has mainly been described in the business press through anecdotes of a few repeated success cases, as well as in books written by practitioners advocating DT (Johansson-Sköldberg et al., 2013). So far, more systematic empirical investigations of DT in organizations are still missing (Johansson-Sköldberg et al., 2013), and there is limited understanding of what happens when DT is adopted in a company context.

From an academic point of view, the lack of empirical foundation of how DT is used in practice makes it difficult both to theorize and to connect the concept to existing design theories and models (Kimbell, 2011, Hobday et al., 2012; Johansson-Sköldberg et al., 2013). Given the lack of coherence around the concept, a first step would be to explore organizational practices implemented under the label of DT. Therefore, this paper seeks to contribute to closing this gap in knowledge by describing what happens when large firms embrace DT and start applying it in practice. Based on an interview study of 16 large American and German firms that are using DT in various ways, this paper explores ways of implementing DT. It puts particular emphasis on how the concept is understood, used, related to existing innovation efforts, as well as who is involved in these efforts. In addition, an agenda for future research is proposed.

PREVIOUS RESEARCH

Described as a multi-disciplinary human-centered approach to innovation, DT can be interpreted as a conceptualization of the way designers think and work (Brown, 2008; Johansson-Sköldberg et al., 2013; Kimbell, 2011; Liedtka, et al., 2013). First mentioned in the early 2000s, the conceptualization is heavily influenced by the Californian design firm IDEO (Brown, 2009; T. Kelley & Littman, 2001), and management scholars who had collaborated with or observed the work of designers (Boland & Collopy, 2004; Martin, 2009).

There is little coherence in terms of understanding the concept of DT in theory and in practice. As Johansson-Sköldberg et al. (2013) and Kimbell (2011) note, DT is a rather loose term that can have several different

meanings. For example, it is often described as creativity (Johansson-Sköldberg et al., 2013) or marketed as a way of coming up with ‘breakthrough ideas’ (e.g. Brown, 2008). Representations of DT in the literature are often general and it is often described as a creative, subjective and emotional alternative to the structured, bureaucratic logic characterizing many large organizations (Brown, 2008, 2009; Rylander, 2009). Still, most proponents of DT describe how it takes account also of aspects such as feasibility and viability, and creativity within constraints (Brown, 2008). Martin (2009) argues that DT enables the balance between analytical and intuitive thinking, stressing that neither one of the logics is sufficient.

More specific descriptions of DT depend on how DT is perceived as a concept (Hassi & Laakso, 2011), ranging from a set of cognitive characteristics that managers can learn from designers to a prescriptive process where multidisciplinary teams take a user-oriented approach to come up with relevant solutions to complex or ‘wicked’ problems (Johansson-Sköldberg et al., 2013; Kimbell, 2011, 2012). In an earlier paper, we have proposed a framework (Carlgren, 2013; Carlgren et al., 2014) for understanding DT as a set of five core principles that are enacted and embodied through a number of mindsets, practices, and techniques. These are all informed by design practice but play out differently in different organizations – as a process, as separate activities, or as guiding principles for innovation work.

The most tangible representations of DT are put forward by IDEO (e.g. Brown, 2008, 2009; Ideo, 2011; Kelley & Littman, 2001), as well as the d.schools¹. These organizations propose DT as a process involving a multidisciplinary team applying a set of design-related practices to an innovation challenge and consisting a number of steps (e.g. T. Kelley & Littman, 2001; Stanford d.school, 2010) or a set of ‘overlapping innovation spaces’ (Brown & Wyatt, 2010; Brown, 2009).

The central idea of DT is that any organization can be inspired by designers (Brown & Katz, 2011; Brown, 2009). Brown (2008) refers to ‘design thinkers’ whose professional background can vary, stating that people outside of professional design can also have a natural aptitude for DT. More recently, the use of DT has been proposed as a way for individuals to develop their ‘creative confidence’ (Kelley

& Kelley, 2013). However, it has also been suggested that professional designers should play a central role in using and spreading DT, since it is argued that they have a natural ability for DT, and could take a more strategic role in the organization (Brown, 2009; Liedtka & Ogilvie, 2011).

In terms of empirical research on DT, the focus has mainly been on understanding parts of the concept such as tools (Seidel & Fixson, 2012), multi-disciplinary teams (Beckman & Barry, 2007), prototyping (Dow & Klemmer, 2011), physical environments and IT tools for collaboration (e.g. Plattner, Meinel, & Leifer, 2011, 2012). A majority of these studies are performed in experimental settings, often involving students. This paper therefore seeks to complement the descriptions of DT in the literature by describing DT in practice, thus investigating what happens when the concept meets an organizational context.

METHOD

This paper builds on interviews with large firms that claim to have applied DT in their firms. The exploratory study was designed on the basis of qualitative, open-ended data collection (Bryman & Bell, 2007). This also motivated an inductive approach where the investigation focused on identifying emerging patterns and potentially interesting avenues for future research. Since our focus was to describe different ways firms relate to and use DT a multiple case study was designed. Given that the concept of DT itself is not coherently described, we decided to study the ‘label’ DT (firms stating that they use DT) and investigate what they actually do. The concept of DT stems from the Silicon Valley-based design firm IDEO, and early implementation in firms started in the US in the early 2000s. The concept also caught interest by German investor and SAP co-founder Hasso Plattner who in 2006 founded two schools of DT (d.schools), one in Potsdam, Germany, and one at Stanford University, US. As a starting point we therefore decided to focus on firms in Germany and the US. Two interview studies were designed with similar data collection methods but with differences in terms of case selection. In Germany, we collaborated with the d.School, and in the US we used snowball sampling (Flick, 2009). See Table 1 for a firm overview.

Due to the exploratory nature of the study we tried to identify employees who were deeply involved in DT, and had insights into how the initiative had started. The interviewees were mainly individuals that had had a central role in the introduction or implementation of DT in their firms. When possible we performed additional interviews

1) Academic institutions offering DT education for master level students and executives (Stanford d.school, 2009).

with employees with a different function in order to get complementary perspectives, such as product development managers and designers. In total, we conducted 31 interviews in 16 firms (see Table 1). One firm had separate development organizations in both locations and was thus counted twice (company L in table 1). The interviews were all conducted during 2011, and mostly made by two researchers. 20 out of 31 interviews were conducted in person; the remaining ones were conducted by telephone. The interviews were semi-structured with a loose guide focusing on topics such as their view of DT and what it is, their motivation for wanting to apply it, how it was currently used, their perception of the value it had created and the challenges they had had when implementing it. Interviews lasted between 45 minutes and 2 hours. In some cases, we also got access to internal documents.

The data was analyzed on the basis of open and axial coding (Strauss and Corbin, 1998) where excerpts from interview transcripts were given keywords and then thematically sorted to identify emerging patterns across the data. The analysis was iterative and the themes were compared with the available previous research, in line with the systematic combining approach (Dubois and Gadde, 2002). There are some important limitations to our study. First, the concept of DT is difficult to grasp, and it can be questioned whether our study design allows us to study the phenomenon we are interested in. Firms may also have very different perceptions of what this is and thus we may be comparing 'apples and pears'. However, through defining our study objects as firms that state that they work with DT we have tried to address this potential weakness. To increase the trustworthiness of the study (Guba, E & Lincoln, Y, 1994), we have also carefully documented every step of the research design. However, the ambition of this exploratory study is not to provide generalizations, but some initial insights into how firms use DT in practice.

Table 1: Firm overview and data collection

Firm	Sector	Size	Started in	Number of interviews
A	Software	<100.000	2004/2005	7
B	Healthcare Products	<100.000	2010	1
C	Automotive	>200.000	2010	1
D	Telecommunication	>200.000	2008	1
E	Logistics	>200.000	2009	2
F	Software	<100.000	2006	1
G	Software	<10.000	2006/2007	2
H	Healthcare	>100.000	2003	3
I	Pet Care	>50.000	2010	1
J	Retail	>300.000	2008	1
K	Healthcare	>50.000	2005	1
L (US)	Consumer Electronics	>300.000	2006	2
L (DE)	Consumer Electronics	>300.000	2010	2
M	Finance	<10.000	2007/2008	1
N	Consumer Products	>100.000	2004	3
O	Finance	<100.000	2008	2

RESULTS

The empirical description of the role of DT in these firms is structured around four themes: perception of the concept, how it is used, integration of DT with existing product development, and who is using DT.

Perception of the term design thinking

When interviewees were asked to define or explain what they mean with DT, most struggled to provide a clear answer. As a result, answers varied greatly. Some would go back to their initial understanding of DT, others would quote literature, while others yet would give extensive descriptions of how they actually work in the firm. A recent fad discussion also seemed to stir emotions; one interviewee took a clearly defensive position in explaining her perception of the concept. The perception of DT thus varied to a large extent among the interviewees; not only was the term described differently in the various firms, according to the interviewees there were often diverse perceptions within a single firm. It was however possible to find some clusters among the answers:

Some described DT in very general terms as in *“user-centered innovation or a current name for really good user centered design”*, while other interviewees gave more detailed descriptions of their perception of DT. For some interviewees DT equaled the use of design methodologies, others described it as a process to develop new ideas or new products/services or to systematically solve problems. Even though the term ‘process’ was used, it was often referred to as iterative and non-linear.

DT was also described as a mindset or a set of principles: *“I would have said process two years ago, but I think it’s a mindset. I think it’s a mindset that puts the user first, focuses on finding differentiated and true insights, having a bias for action, [and] iterating constantly”*. When DT was described as a set of principles, these were not referred to as consecutive steps in a process; instead they were used as a way to relate to problems and the work at hand: reframing of the initial problem, iterations, prototyping. One such principle was putting the main focus on making sure that the questions were the right ones, another one was user centeredness: *“... for me I guess it’s maybe the sort of user centered innovation that is the strongest part of this. Really placing the user above all”*.

Others yet referred to DT as a combination of mindset and methods: *“For me design thinking is not a process per se, there’s not a blueprint where you can say on day one you do this activity, on day two you do this activity. You first*

have to have the mindset, and then the next level is you have to have a set of techniques and tools and approaches that you can use in different circumstances to help you get to the next phase of where you are in your project. It’s more like a toolbox, as opposed to a step-by-step plan”.

Use of design thinking

When the interviewees talked about how DT is used, several tools were mentioned: for instance different ideation techniques, techniques for more empathic customer meetings/observations, creativity tools for concept generation and prototyping methods.: *“Another thing we’re trying to do with a small group is put together an innovation toolkit which is basically to get people kind of a one stop shop for creativity tools”*. Emphasis was also put on what was more broadly described as new ways of working: an iterative way of working, incorporating user feedback, diverging and converging, and prototyping in the sense of creating coarse objects that can serve as a tool for communication and feedback.

Many of the interviewees also talked about designing space for creativity and innovation, and how they had tried to create an environment that would encourage a DT mindset/way of working and open up for collaboration. These were referred to as *war rooms* or *creativity rooms* with flexible furniture solutions, an abundance of material such as post-its, markers, whiteboards, glue, scissors, etc. The most extreme case of creating physical space for DT activity was one firm converting a whole warehouse into a design center and prototyping space to test new ideas and work flows.

Some firms consciously strived to create a culture that nurtures innovation based on what they perceived as DT values, for instance empathy training, having a bias for action, learning from failure, and creating a new outlook on problems and their solutions. *“Our focus was less on kind of novel discovery of new needs and opportunities, and our focus was more on how do you get the developers involved and have empathy for somebody using the product”*.

One way of achieving such culture changes was through the conscious interplay between work environment and behavior; it was mentioned how the environment should be as ‘simple’ as possible to contribute to a way of working that can be messy, where failure is accepted, and where team members dare stepping outside of the ordinary: *“And you know people would move the furniture around and some of the facilities people would get really mad and I had to get involved but we would just get them to develop new habits, like. When you are in the process of doing this stuff, breaking*

the rules is ok, like the rules are what are preventing you from being innovative, and so we'd encourage them to break these rules and try new things".

Design thinking in relation to product development efforts

Most of the investigated firms had a formal product development process, often including structured front-end activities. In many firms, DT was generally connected to these processes in some way; often in the front end for user research, ideation and concept generation, and sometimes throughout the whole development process.

Often DT was described as a formalized, prescriptive part of the development process. The concept could be integrated through adding or transforming bits and pieces of the current process, often in the front end: *"In our 90 day process we actually broke it down into very very discrete you know checklists if you will, I wouldn't say it's like a water fall process, but it's things that you need to be concerned about at different phases within the project, and what we have done is we have built design thinking principles in to them"*. There were also cases where an existing process was complemented by an entire new process step that had not been done previously, such as ethnographic user research. Another firm had no innovation process in place when they first came in contact with DT, but inspired by DT and internships at IDEO they created their own process for radical innovation, which they combined with methods for continuous improvement.

In other cases DT would be used inside the formal development process, but not as required or specified activities: *"So our focus has really been on the R&D employee and their experience here and elsewhere, trying to get them to do more creative thinking, idea generation and really doing more thinking out of the box"*. Further, in some firms DT was only used in a few chosen development projects, often major strategic innovation projects for solving complex problems, or projects chosen for maximum exposure of the DT methods internally.

One of the case firms in the service sector had an established innovation process, with an open innovation arena where they collaborated with retail and technology firms. They got inspired by DT and incorporated elements of it into their process, while realizing that some of what they already did also resembled DT: *"We don't use the pure design thinking process, sometimes you have a model which is similar to the design thinking model, but nobody is aware that they are doing this. What we're doing here is that we make nearly the same. But we don't call it DT process. It's*

our innovation process. But it's to 90% the same".

In some firms DT was only implemented on a small scale, and had to fit other and sometimes larger, initiatives going on such as agile or lean product development. Here DT was seen as a complement, and the use could be completely intertwined: *"Design thinking and Agile go together really well ... [we would] go through this design thinking exercise and come up with a set of new action items for your kind of your list for the scrum project"*.

DT was also used outside of the formal development process. It could be side projects for generating radical ideas; many of the firms who were in the early phases of implementing or evaluating DT had students or external consultants look at a particular problem, and they then evaluated the ideas that sprang from the project in terms of possible business viabilities. Some interviewees mentioned how DT was used for internal purposes, such as improvement of HR or financial processes; completely detached from development of the product/service offer. *"When we got in to the project it was just literally a couple of days in to it we realized it wasn't the software, it was the policies that were the problem [...] So we ended up working with the HR- organization. [...] And so when we went back to present this project to [the CEO], he kind of sat back and just very quietly said 'you redesigned the policy', we were like, yeah, and he's like, 'I thought you would design the product', and we were like 'yeah we will' but first we had to design the policy. And this light went on when he basically said, 'you design anything' "*.

Who uses design thinking

With DT being put forward as an approach inspired by designers – but not necessarily to be used by designers only – it is relevant to also study who is actually using DT, as well as the role of professional designers in relation to DT in the firms. While the firms in the study had varying experience of using DT, they were all in different stages of spread of DT. Often a group of 'DT experts' was responsible for DT in the organization, and this group had different roles. When the role of the expert team was to teach and spread DT inside the organization, the ambition was often that other employees would later use it on their own: *"You can think of it as an internal innovation consultancy group so like an internal IDEO, to really bring the concept of design thinking to [our firm] and spread it throughout the organization"*. In other cases the expert team would have a more supporting role in facilitating teams to work with DT methods: *"Eleven of us work together to kind of help, you know our goal is*

to help facilitate people, being creative, working together, creating ideas into our idea system process, and participating in different brainstorming events and things". Sometimes a DT expert group would act as an innovation team, running DT projects, often in collaboration with non-experts (such as individuals involved in providing services, or product development engineers). Often the expert teams had mixed roles. There was a common understanding among the interviewees that DT cannot be taught by the book, it has to be experienced. Therefore when expert team members were spreading DT, in practice they would often be involved in development projects facilitating and participating in the development team's work.

The 'DT experts' came from a range of disciplines and were in many cases not educated as designers. The approach to use professional designers or non-designers differed to a large extent between the firms; one firm had a large expert group that consisted almost exclusively of designers, while in another one the team was mixed: *"The team was very mixed, so we had multiple specialties, we had people who were designers, either product designers or interaction designers, graphic designers, we also had folks with background in psychology, sociology, anthropology, we had business folks, we had a couple of ex McKinsey guys on our team as well, we had software architects, prototypes, usual specialists, that kind of thing"*. It was also found that even though professional designers could excel in DT, they were not necessarily the best suited for spreading and teaching it: *"We started with mostly the designers, assuming that they were going to be best at it, the interesting finding was that not all the designers were actually great at it, that understanding how to take design thinking which was so inherent in their own personal DNA, and empower others to do it, was a skill set that wasn't necessarily given, right [...] And there was also a finding that a lot of designers want to hold that close to their chest, like 'this is a skill set that is unique to me, why would I give that away'. Out of the 200 people we have trained, we have got like, I don't know, maybe 20 of them are designers, but the rest of them are engineers, product managers, people from HR, you know, all different backgrounds"*.

Some interviewees stated that anyone with the right attitude could become a design thinker, although others remained more skeptical. One interviewee focused on personality traits instead of profession, and how the right combination of individuals, based on their attitude towards problem solving and the way they learn, would create the perfect team.

When a team used DT, the cross-functionality of the team was often stressed. In some firms, the use of DT went beyond expert groups and development teams. Employees were taught and encouraged to use DT on a personal level for approaching any problem, such as becoming a better manager, or in order to solve conflicts between team members.

Finally, most of the DT activities were carried out by employees - if outsiders were involved it was often in the initial stages of implementation. Most firms seemed to prefer to have the competence in-house once DT was a bit more established. In some cases students were involved in separate projects, often as an attempt for the firm to investigate whether DT was an interesting concept to invest in.

PROPOSING AN AGENDA FOR FUTURE RESEARCH

The concept DT is gaining recognition and seems to claim different goals; yet the meaning of DT remains ambiguous and empirical research is scarce. This paper set out to explore current practices of implementing and using DT in different firm contexts, and to propose an agenda for future research, outlining some topics that merit further investigation.

Perceptions of design thinking

The paper showed that interviewees defined DT as a number of methods, a process, specific mindsets, principles and culture. It is interesting to note that while many existing publications focus on methods or process (e.g. Seidel & Fixson, 2012) many of the interviewees perceived DT as a mindset or a culture. One reason could be the fact that proponents of DT like Tim Brown, Tom Kelley or Roger Martin, as well as institutions like the d.Schools, have described DT in terms of the way they work or how people could work, focusing on actual practices. It is interesting to note that many interviewees had difficulties explaining what DT meant to them, despite many of them having a central role regarding DT in their organizations. Another potential explanation is the connection to design that is new or unfamiliar to many.

Johansson-Sköldberg *et al.* (2013) suggested that striving for an ostensive definition of DT is a cul-de-sac. Yet, there is a need for some kind of shared understanding to enable systematic research on the phenomenon. A discussion of how to describe DT needs to take into account the various expressions it takes when put into use in various settings. For example, several descriptions of DT refer to a specific process (e.g. Brown, 2008, 2009; Kelley & Littman, 2001;

Stanford d.school, 2010), while others refer to cognitive aspects such as the ability to combine different logics (e.g. Martin, 2009). How can DT be discussed in a way that encompasses the various interpretations of the concept? A language for discussing DT that is flexible enough to allow for various interpretations is needed.

Using design thinking

The interviews revealed a wide variety in terms of how, when and by whom DT is used. In many companies DT was used for creating new concepts for offerings for the market, and integrated in the front end of a formal development process (Brown, 2009; Martin, 2009). In some companies DT was used as the basis to create a separate process for more radical ideas, something that innovation literature has long advocated for. In yet other companies, DT was considered something that everyone should always do, aiming at integrating it with the general culture. The findings of this study indicate that when these firms implemented DT, the main use of DT was in early, strategic phases of innovation projects, less in executional phases of product development, which is where design has typically been included. In line with the suggestions by some authors (e.g. J Liedtka & Ogilvie, 2011) the study found that several companies also used DT to address managerial problems, e.g. for developing corporate strategy or redesigning policies. Thus, it seems that DT does not replace traditional design; but rather adds a new field of work, mainly connected to the early, strategic phase of innovation.

We still know little about how DT is used and how it relates to design in a broader sense? Is DT a new way to design, or a new way to organize any activity, which is not necessarily related to traditional design activity? Is DT different from other user-centered approaches to innovation? Can design thinking be seen as a new management concept? It also raises questions on how DT is translated into different organizational settings and how it influences existing organizational and innovation practices. Closely linked to how DT is understood and used are also questions related to sensemaking and the value generated by DT. Can the value of DT be articulated or does it depend on the context in which DT is translated? More empirical studies are needed to better understand this dimension.

Who uses design thinking

The issue of who uses DT, or who is the 'design thinker' (typically defined as someone using DT or someone has the right personality for using DT) has been approached

differently in the literature. While Martin (2009) as well as Liedtka and Ogilvie (2011) advocate that DT is for managers, others argue for its use in multidisciplinary teams (e.g. Beckman & Barry, 2007), or even state that everyone can be a design thinker (Brown, 2008). This openness to different disciplines and backgrounds was reflected in the sample of our study. Interviewees stated a variety of backgrounds ranging from traditional design disciplines, marketing to management and software engineering. While individual backgrounds varied we also found a spread in terms of how DT expertise was used or created. Some of the interviewees put more emphasis on creating a team with the right mix of individuals, than on the specific abilities of an individual. There was also a strong focus on the skills needed to do DT and a shared view that these skills were learnt through experience.

Our study showed that DT was used by a variety of people and the role of individual and team competences and skills were often put forward as critical. This raises questions around how DT can be learned and taught? Are professional designers best suited for DT work, or can anyone become a design thinker (sometimes referred to as the 'democratization of design')? In the study, design as a term was sometimes referred to as problematic among the interviewees, and there were reports of friction around the view and role of professional designers. This indicates the need for clarification and a better articulation of the distinct skills and abilities of professionally trained designers, and it also puts emphasis on the role of an existing design function in DT initiatives. There was also some evidence of formation of DT expert teams in the study, suggesting a possible transformation of design from a line to a support function (Mintzberg, 1979). It would be very interesting to further research this phenomenon and the consequences of such development for the role of designers in large organizations.

CONCLUSION

Through providing examples of how DT is implemented in a variety of large firms this paper contributes to the building of a better understanding of DT in practice. Since there is a scarcity of empirical research on the use of DT in organizations, this type of empirical contribution is a necessary contrast to how DT has been previously described. This paper has shown that perceptions of DT vary a lot among individuals using DT, and also that it is used in a variety of ways in organizational settings. Depending on how DT is defined it is used for different purposes and by different people. The empirical insights offered by this paper

are intended to initiate a more critical discussion of the use of DT, and an agenda for future research is proposed. Since the ‘design part’ in DT is often used to motivate what sets DT apart from other concepts promising increased innovativeness, the role of design and designers in DT are thus crucial topics for further investigation – both in design and innovation research.

ACKNOWLEDGEMENTS:

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This section presents dissertations and books in the design field. Have you read something that you think *Design Research Journal* should write about? If so, e-mail us at: designresearchjournal@svid.se.

Towards better decisions

Oskar Jonsson's research project and thesis focused on how to communicate with users and develop processes for how knowledge about users and the knowledge of users can be transferred to complex innovation systems. The aim was to study how various user-centred methods can be combined, modified and practised so that the conditions for totally new or improved product design can be formed based on the user's perspective but also from a sustainability perspective.

Lisbeth Svengren Holm

FURNITURE FOR LATER LIFE – Design Based on Older People's Experiences of Furniture in Three Housing Forms
 Author: Oskar Jonsson
 Publisher: Department of Design Sciences, Division of Industrial Design, Lunds University, 2013



Design ≈ an interpretive core competency

Katarina Wetter-Edman's thesis for the HDK School of Design and Crafts at the University of Gothenburg aims to exploit the link between design and service logic via the development of design within a service framework with pragmatism as the starting point. The empirical section is based on a field study of the collaboration between a design consultancy firm and an industrial company for ten months, with the focus on a service design workshop with customers (see the picture below).

The ability to visualise a possible future has traditionally been regarded as the core of the design process but in this case was not the strongest contribution. Interpreting the users' narratives enabled their experiences to become relevant and manageable for

the industrial company. The thesis links research into design practice, user-oriented design, and service logistics by means of the development and refinement of a framework: design for service. Within this framework, design is not a stage in the development of a service but rather an interpretive core competency and value-creating aspect of service innovation.

Lisbeth Svengren Holm

FOR DESIGN FOR SERVICE – A framework for articulating designers' contribution as interpreter of users' experience

Author: Katarina Wetter-Edman
 Utgivare: University of Gothenburg, Faculty of Fine, Applied and Performing Arts, 2014



An inadequate concept practically and theoretically

"Design thinking" has become a management concept used to encapsulate the design process, with all that involves, and thereby help increase innovative ability. However, in her thesis "Design Thinking as an Enabler of Innovation", Lisa Carlgren argues that the concept is inadequate both theoretically and empirically. Thanks to its studies of companies that believe they are using design thinking, the thesis is a contribution towards filling that gap. Above all, the thesis shows the importance of understanding what design thinking does and can

achieve rather than what design thinking is. At the same time, though, the potential of design thinking is linked to the innovation ability that the company actually possesses, which is a critical aspect in this context.

Lisbeth Svengren Holm

DESIGN THINKING AS AN ENABLER OF INNOVATION: Exploring the concept and its relation to building innovation capabilities

Author: Lisa Carlgren
 Publisher: Chalmers University of Technology, 2013

Design's dark side

Anne Britt Torkildsby's thesis for the Swedish School of Textiles at the University of Borås has its starting point in design for extreme situations and environments. It can be difficult to prepare oneself for these when a design commission starts; here, these situations are defined as "the dark side" of design thinking. The concept of design thinking includes mentally putting oneself in the situation that potential users might be in and being empathetic with it. How can one be empathetic with a prisoner's situation in a prison? Or a patient's situation on an intensive care ward?

The thesis discusses how one



What is a prototype?

In his thesis, *Johan Blomkvist* of Human-Centered Systems at the Department of Computer and Information Science at Linköping University uses situated cognition as a lens for describing prototyping in service design. Via this description the thesis explores what a service prototype is, what the advantages of using prototypes are, and how prototyping can be used to design services. The thesis contributes to a deeper understanding of what prototypes are and their roles in service prototyping. This understanding is further deepened via a discussion of services as design materials. The thesis suggests that the work of representing

can open up the design brief when one is designing for this type of extreme environments. One theory is that focusing on 'designials' – design(existen)ials or the fundamental form of design being – leads to the development of a method that illustrates the fact that objects can have a direct effect on the existential – the fundamental form of human being. The method is also a form of critical design that enables the designer to shift focus, from design's function in use via a functional analysis of the form of being human.

Lisbeth Svengren Holm

EXISTENTIAL DESIGN.
Revisiting the "dark side" of design thinking

Author: Anne Britt Torkildsby

Publisher: The Swedish School of Textiles, University of Borås, 2014

and designing services includes both the design of services and the design for them. Service prototypes act as surrogates for the future service situation. The thesis describes the advantages of using surrogates and shows how prototypes support the possibility of creating knowledge about future service situations. This leads to prototyping being regarded as a way of thinking within design.

Lisbeth Svengren Holm

Representing Future Situations of Service: PROTOTYPING IN SERVICE DESIGN

Author: Johan Blomkvist

Publisher: Linköping University, 2014



The editors of *Public and Collaborative* are Ezio Mazini and Eduardo Staszowski.

Design's possibilities

Public and Collaborative is the name of an almost 200-page anthology, which according to its subtitle "explor(es) the intersection between design, social innovation and public policy" and is published by the DESIS network, that is, the design schools and organisations in Europe, Canada and the US that operate DESIS Labs. The current situation is summed up in 11 articles written by 23 researchers. The anthology starts with a text by *Christian Bason* from Denmark's MindLab, which has worked for years with design issues within the public sector. The rest of the anthology has four main themes: the design of new relationships between people and the state; design schools as agents of change; experimental locations for social and public-sector innovation (to which one contributor is *Per-Anders Hillgren* of Malmö University with a text on user participation); and methods and tools for user-driven design.

The editors start by saying that more and more people are organising themselves to solve daily problems together. This move is being driven by social and economic factors but also by technological developments. The result is that a large wave of social innovations is emerging. Designers are important actors in this context: the future is about creating democracy and sustainable solutions. The anthology makes for exciting reading. Download from wwiwiw.desis-clusters.org.

Lotta Jonson

V for Veryday

It was V for Victory for the research-intensive design company Veryday at the beginning of April when the German Red Dot awards committee announced the design world's Nobel Prize, the prestigious award Red Dot Design Team of the Year 2014. Veryday (previously Ergonomidesign) is known for having designed most objects from screwdrivers to bicycle saddles and medical technology

equipment and is the first Swedish company to win the award. Unlike ordinary Red Dot awards, this one honours a corporate strategy "through which innovative quality products in a sustainable way influence the company's success". Sweden's Minister for Trade *Ewa Björling* was present to congratulate Veryday in Milan where the award ceremony was held.



Red Dot's Peter Zec (left) presented the diploma to Krister Torssell, CEO of Veryday (far right) together with Ewa Björling and Veryday's Marcus Heneen.

Raising the status of waste materials

Weeds, old plastic bags, used coffee filters and other waste are clearly undervalued. According to Greek mythology, the phoenix arose from the ashes in a new guise. In the same way, the "Undesirables" project shows how waste can be transformed into both beautiful and useable objects – at least at the hands of 11 students from the Wood Oriented Furniture Design programme at the rural Steneby campus of the HDK School of Design and Crafts at the University of Gothenburg.

During the latest design week in Milan at the beginning of April, the group exhibited in a separate section of one of the larger Swedish exhibition spaces. Eleven objects were displayed: a table, cupboard, chair, benches, and more. All made of used materials that would otherwise have ended up on the rubbish heap.

The project included exploring work processes and studying small-scale production methods. *Helena Hansson*, a doctoral student at HDK, provided the initial inspiration and gave lectures. She is participating in a research project in Kenya together with local craftspeople (see page 9). Some of the students who took part in the "Undesirables" project have also chosen to work with craftspeople in Kenya. Others have studied what problem materials we have locally here in Sweden, primarily



PHOTO: MARTIN GUSTAVSSON

in the vicinity of Steneby. Here are two examples from the Milan exhibition: *Frej Grönkvist Wichmannfrej's* Bubble cupboard and *Lu Ding's* Tea-time, which is a kind of freestanding teahouse designed to create a more private space inside cafés or public places. The screen is made of used coffee filters and teabags.

The idea behind the cupboard (apart from making use of waste materials, including old plastic bags) is that it should be very easy to make. The only requirements are a bicycle-driven lathe and a rope-making machine made of used bicycle parts. In other words, Bubble can be made in places that lack electricity.

"The plastic bag is probably one of the most produced products of our age," Grönkvist Wichmannfrej explains. "It has a short lifespan but the material lasts a long time. I just wanted to lengthen the lifespan of plastic bags." The Undesirables exhibition was a true little oasis among all the showrooms

Left: *Frej Grönkvist Wichmannfrej's* Bubble cupboard, where the sticks of wood are held together with plastic rope made of used plastic bags. Below: *Lu Ding's* Tea-time with its screen of used teabags and coffee filters.



PHOTO: MARTIN GUSTAVSSON

of luxurious dream products during Milan Week.

You can read more about all the fine objects and the thoughts behind them at www.un-desirables.com.

Lotta Jonson

For inspiration

For almost two years now SVID has been coordinating a project to describe the concept of design, the changes it is currently undergoing, and the force for development that those changes involve. Another goal is to indicate the areas where design can make a difference. *Eva-Karin Anderman* has met many people, all with their own picture of what is happening in the design sector. To give as many more people as possible the chance to keep up to date with the discussions, six of the longer interviews are now available as podcasts but also in book form under the title *A Society Designing Itself*.

The conversations comprise thoughts on such topics as the need for design-conscious decision makers, design and democracy, design and education, or design and health care. The interviewees include *Cristian Norlin*, User Experience Lab, Ericsson AB. He speaks about how design is linked to innovation and what design knowledge can contribute within society and within a large company like Ericsson. Another speaker is *Tomas Edman*, one of the people behind Experio Lab, which started in autumn 2013 at Värmland County Council.

Right: The cover page of the pdf version of SVID's discussion transcripts entitled *A Society Designing Itself*.



He explains why design can make a difference in the health care sector but also what he as a design actor can learn from business developers, consultant physicians and auxiliary nurses. *Stefan Moritz*, from Veryday, talks about why Sweden could become even better at profiling itself as a strong service design nation. Finally, the talk with *Lisa Lindström*, CEO of the Swedish design agency Doberman, focuses on design-conscious decision makers and the benefits of working in a design-driven way in various social sectors.

Let us hope that this wide-ranging collection will inspire more conversation and reflection. Download the podcasts and/or the pdf from www.svid.se/svidpodd.

Smart textiles for better health care

Smart Textiles, which is linked to the University of Borås, and Södra Älvsborg Hospital (SÅS) have initiated a research collaboration. By bringing together various forms of expertise, both institutions want to create medical textile innovations that could give improved quality of life to medical patients and home care recipients.

It is hoped that full-scale laboratories with cutting-edge expertise and a large network in an open creative environment will lead to important textile innovations.

"Huge resources can be saved here," explains *Thomas Wallén*, director of Södra Älvsborg Hospital. "If we look at the international potential, it's breathtaking."

Susanne Nejderås, operations director at Smart Textiles, adds: "And all the conditions exist. With cooperation between academia, society and companies we can create new products that can improve people's daily life and create new jobs."

An ABC about a new design field

ABC in design and social innovation is the name of a publication from the Malmö-based Mötesplats Social Innovation (Meeting Place Social Innovation).

"It's about a new design field that's currently emerging internationally," explains project manager *Louisa Szűcs Johansson*. "Formerly design was mainly regarded as a way to develop products but today the concept also includes the ability to solve complex social challenges. More and more designers have begun to get involved in, for instance, how to respond to an ageing population, ill health, or integration.

"The ABC gives an overview of what's happening in the field and

presents concrete examples of design and social innovation from both Sweden and abroad. It also tries to look ahead. Even though Sweden slightly lags many other countries, both Sweden and the EU are now investing heavily in this field, which means we expect exciting developments in the near future."

Malmö University and Region Skåne decided almost two years ago to permanently establish and run Mötesplats Social Innovation in order to be able to develop a national knowledge centre for social innovation and social entrepreneurship in Sweden. The centre is bringing together academia, industry, the public sector and non-profit actors in



Left: The cover page of Mötesplats Social Innovation's latest publication, ABC in design and social innovation.

order to more systematically create the conditions for developing the field of social innovation into a national area of strength. Read more at www.socialinnovation.se.



Left: Susanne Nejderås, operations director for Smart Textiles and Thomas Wallén, director of Södra Älvsborg Hospital.

PHOTO: ANIKA SIGGÉ

“In ten years our collaboration with Smart Textiles will be internationally known and our expertise will be sought around the world,” Wallén says.

Those involved say it is unique to have such close collaboration, in which the hospital becomes a testing ground for smart textiles for practical clinical use in daily activities.

Wallén adds that what is important in this context is also that the researchers are not just emitting innovation impulses but that a strong interaction arises between the hospital’s needs and the research being done.

“We’re now at a stage where we’re gathering project ideas from the hospital employees,” he says. “To say the least, they’re exciting suggestions for realistic innovations and more will come.”

Those involved say it will be possible to commercialise many projects and, unlike traditional research, they will be directly useful in the health care system. However the rigorous safety regulations in the health care sector mean that results can take some time to appear; Wallén guesses it will be at least five years

before the first innovations come to market. Today’s research in the health care sector is often medical. The collaboration with Smart Textiles will introduce a new way of approaching various issues.

Thomas Wallén gives the example of the hospital’s Tehuset, a T-shaped extension to the hospital that was finished in 2010. In Tehuset the staff actively use a holistic approach: high-class specialist care combined with a pleasant and peaceful atmosphere in which strong emphasis is placed on artistic adornment and views of nature. Experience shows that patients spend 20 percent less time in the hospital in such an environment.

“There is a range of health problems that exist where we must not limit the solutions to medical research because the results will then be limited by the logic of that research,” Wallén says. “Smart Textiles has a major role to play here and massive resources can be saved.”

Lotta Jonson

Not just talk

Folklabbet is a group of social entrepreneurs who use design- and innovation methods to solve social challenges. During Almedalen Week (the annual gathering of Sweden’s politicians, journalists and NGO groups on the island of Gotland), which is held this year from 29 June to 6 July, Folklabbet is holding activities in collaboration with several stakeholders. SVID is attending as a concept partner. Design workshops are one such event. The organisers say they wish to “create a practical, democratic workshop with all the innovative energy gathered in Almedalen”. They want to contribute to “concrete answers and solutions to important challenges in society today and tomorrow – not just talk.”

Design methodology

During May workshops were held in the networks linked to SVID’s programme of activities to spread knowledge about service design. The aim was that public-sector employees could have the opportunity to learn about and personally apply service design methods. The workshops were held in collaboration with SP Service Labs and the Swedish Social Insurance Agency. There is great interest in design methodology within certain municipalities such as Umeå. There, the Umeå Institute of Design has worked with the municipality for a number of years to create greater awareness among municipal employees about design methodology’s ability to solve problems.

Designresearch.se

The Swedish Faculty for Design Research and Research Education and SVID are now launching a joint project: www.designresearch.se.

The site is a search page for design research and targets researchers, students and business people in the design field.

All types of design-related research will be searchable here: by author, subject, keywords, type of publication etc. The aim of the website is to raise the profile of design-related research. Another aim is to make design-related research accessible to all and to create knowledge via the users’ own tags of the research.

16–18 JULY**ICADRE14****SINGAPORE**

International conference to promote the use of engineering design, to advance design education practices, and to discuss how good design research can be used in design education.

www.icadre14.org

2–4 SEPTEMBER**The 19th DMI****LONDON, UK**

The 19th Academic Design Management Conference has the theme: Design Management in an Era of Disruption. Design has never played such an important role as it does today. Aware, knowledgeable and demanding consumers want socially responsive and sustainable products. Changes to business models and manufacturing are making consumers participate more and more in product design. The designer's role is changing. How is design management changing in an age of such "disruption"?

www.dmi.org

3–5 SEPTEMBER**Living and Learning****SHEFFIELD, UK**

The 2nd International Conference of the Association of Architectural Educators explores the concept of "liveness", i.e. community participation and constructed interventions. The conference focuses on architecture education but invites contributions that might spark critical debate from other fields including design.

<http://aaconference2014.wordpress.com/>

4–6 SEPTEMBER**DHS Annual Conference 2014****OXFORD, UK**

Theme: Design for War and Peace. Researchers from a number of disciplines in the design history field discuss a century of design development.

www.designhistorysociety.org

8–10 SEPTEMBER**DDR2014****CAPE TOWN, SOUTH AFRICA**

The 4th Development & Research Theme: Design for participation: connecting disciplines, people and ideas. "How can we use design to make the world a better place to live in?"

www.wdccapecetown2014.com

11–13 SEPTEMBER**AIGA****PORTLAND, USA**

Theme: New Ventures – Intersections in Design Education. How, where and what types of design education are needed? What institutions and collaborations best respond to these needs? About design research and the intersections between design practice and theory.

<http://educators.aiga.org>

25 SEPTEMBER**UrbanxD Symposium****VENECE, ITALY**

Theme: Designing Human Interactions in the Networked City. What might tomorrow's intelligent society look like? UrbanxD wants to involve researchers in the creation of the field of urban interaction design.

www.citydatafuture.eu

1–3 OCTOBER**EuroplA.14****NICE, FRANCE**

Theme: Architecture, City and Information Design. A cross-disciplinary platform for the analysis of ICT as it applies to architecture, archaeology, building engineering, urban design, policy analysis etc.

<http://eia14.europia.org>

7–8 OCTOBER**SDGC14****STOCKHOLM, SWEDEN**

Theme: Creating Value for Quality of Life. The 7th Service Design Global Conference provides a network platform for knowledge and value exchange for customer centric businesses and service design practitioners.

<http://www.sdgc14.com>

30 OCTOBER–1 NOVEMBER**Fashion Thinking****KOLDING, DENMARK**

Fashion studies is now a trans-disciplinary field that covers a range of topics and methodologies. Fashion Thinking explores and challenges the theory, history and practice of fashion.

www.sdu.dk

8–9 NOVEMBER**Design for a Billion****AHMEDABAD, INDIA**

International cross-disciplinary conference that discusses design and behaviour, interaction and user experience, services innovation, sustainability, and design for social integration and research.

www.iitgn.ac.in

15–18 NOVEMBER**HCD 2014****SAN DIEGO, USA**

Theme: Better Care Through Better Design. Focused on the design of environments that impact the safety, operation, clinical outcomes and financial success of healthcare facilities. For architects, interior designers, service designers and administrators.

<https://hcd2014.zerista.com>

20–21 NOVEMBER**DESIGNA 2014****COVILHÃ, PORTUGAL**

Theme: Desire. The 4th DESIGNA conference aims to consolidate design research.

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We still need global talents

To make a long story short, studying industrial design in Brazil gave me a pretty good theoretical foundation on the subject. I went through my entire undergraduate years without working on a single collaboration project between industry and academia. Immediately after graduation came my first job, at a vehicle manufacturer that had recently invested in creating its own design department. There, senior designers – mostly autodidacts who had been contractors serving the company for many years – now had to interact with recently graduated industrial designers. I became an advocate of tools for 3D digital design. These were exciting times but the thrill started to fade when I realised that a more fundamental element for achieving meaning and quality in design was still missing. We had succeeded in structuring, documenting and controlling our process but we lacked a more critical and creative base. That awareness was what eventually took me to Sweden. I had a basic notion that Swedish design involved honest solutions: that it was about proposing playful yet simple products with a strong humanistic touch.

This was my personal journey into advanced level education, and every year I see many similar stories of young people very hungry to learn reaching for a study place at Swedish universities. Motivations can be different but they all share the frustration of not being able to find the right opportunity to develop knowledge and skills. When I was in that situation, things like social democracy, the snow, the dark winters and the bright summers, the global

ranking in innovation, Volvo, Scania, Electrolux, all these were important references that made me imagine Sweden as an exotic place to live. But I was also very fortunate because there were no tuition fees for those students coming from outside Europe.

I knew that in contrast to to my previous studies, design education in Sweden would mean a full-time commitment. I was also aware that living costs were high, so the Swedish system with no tuition fees was the only way I could afford going on to higher level studies without having an income.

Unfortunately, this enabling situation has changed dramatically in recent years and we now have a significant reduction in the number of students coming from overseas. There are high tuition fees in place and design still does not have a top priority at the institutions and national agencies awarding scholarships worldwide. The success and reputation we have built at the Umeå Institute of Design, which is ranked as one of the best design educational institutions in the world, is directly connected to our ability to work with small and highly international groups of students. Our experience shows that talent attracts and stimulates more talent, on all levels. Having good students attracts good faculty, good researchers, good collaboration partners, and vice versa. Retaining that principle within the system of tuition fees is very difficult. The biggest challenge is that talent and the financial resources to pay SEK 270,000 per study year for tuition alone seldom coincide.

To describe the profile of the master's programme I head here

in Sweden, I normally refer to the motto 'futuristic-realistic'. These two words represent how we teach and the kind of results we encourage. Future design development will involve considering a growing number of factors. Multicultural awareness is one important aspect. Swedish universities and industry built a fantastic global reputation around progressiveness and innovation. Now I am afraid that one of the critical enablers has changed. Quality in education is an issue that obviously affects all of us. We are interacting with the students, we are employing them, supervising them, we are always learning tremendously from their new perspectives on the subject. So it is fair to say that if we as design professionals, researchers or educators want to push the development of our field, we should also all personally lobby for initiatives that will keep talented students coming. Creating scholarships and pushing for tuition fee reduction is a good start. More academic exchange agreements are also an interesting strategy. Being better at promoting Swedish higher education abroad is very important. These are only a few examples of the collective effort that will improve our ability to recruit the most talented students. We all appreciated that situation in the past. Now we need help to make this a reality in our future too.

Demian Horst

Demian Horst is a Brazilian immigrant who chose Umeå in the north of Sweden as ground for further education in design. Nowadays he is the programme director for the exact same master education he came to join in 2001 – Transportation Design.





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