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Design Research Journal #1.17

Swedish Design Research Journal

Anna Bäck
”It used to be product managers who would talk about user experience. Today, it’s **CEOs and board of directors.**”

How do we create positive experiences? Design and development in a complex world.

Design and IT, Servitization, Design labs, Innovation, Podcasts, Ecodesign…

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Octobre 2017

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Complexity and expertise


Photo: Caroline Lundén-Welden

IT'S A GOOD TIME FOR DESIGN! Design has gained a strong position in both the public and private sectors. The business world is focusing more on customer experience and innovation than ever before. The public sector is facing challenges that require new work methods while also wanting to supply citizens with better services. One underlying driver is new technology. Online, customers can read reviews and share their experiences of various products and services – a transparency that is spurring the need for customer focus. Various forms of new technology are also enabling masses of new solutions for meeting customers' needs. Companies are able to acquire and use more detailed customer information; technology is creating new possibilities for combining services and physical products; there are new ways of encountering customers via digital solutions. And so on – technology is permeating most aspects of society and innovations are popping up everywhere.

For designers and design consultancies, increased complexity is creating a need not only for greater expertise but also for more kinds of expertise. There are new technologies, new types of challenges and new concepts to deal with and utilise. New expertise is also required when organisations that have previously not worked with design start using design methods to develop more customised services. This issue of the magazine contains many examples of both situations. In an exciting interview we meet Darja Isaksson, who is combining digitalisation and design. We encounter Veryday (acquired by McKinsey) and Fjord (acquired by Accenture), and ask what is behind the acquisitions and how they regard the future. The concept of "servitization" – of combining services and products – is addressed via two researchers into the subject. In an article about sustainable design we learn of the concept of Ecodesign and how it can be spread to designers and students. We can also learn how policy labs are built up – in order to get design used in new types of organisations and by people who are not trained designers. You'll find articles about all this and more in our new issue.

I would particularly like to thank all our writers for their excellent contributions and wish all our readers happy reading! ■

Jon Engström Editor. Is there anything in particular you would like to read about? Email me, designresearchjournal@svid.se, or Tweet me @JonEngstrom

Tumbs Up

Podcasts! The range of exciting and educational podcasts available is fantastic – read Gustav's tips in this journal!

Something unexpected

The Grand Award of Design was won by the company behind a well-designed climbing machine. It's fun, ingenious and unexpected! Read more about it in this issue.

Darja is driven by data and design

She's founded two design agencies, is a member of Sweden's National Innovation Council and is a new member of the board of SVID. Meet Darja Isaksson, the digitalisation expert who has been described as one of Sweden's most important agents of social change.

By Lena Lidberg

ANYONE WHO GOOGLES DARJA ISAKSSON will find a whole collection of titles: digital expert, innovation strategist, change agent, concept developer, researcher, lecturer, inspirer, consultant, design agency founder….

She has been selected as one of Sweden's 15 leading super-talents (by Resumé magazine in 2013) and one of the country's 12 most powerful opinion shapers (by Veckans Affärer magazine last year).

This spring she also placed eight on Veckans Affärer's list of the most important women agents of social change in Swedish industry.

She herself sometimes deflects the attention by tersely describing herself as "a tech nerd from Piteå". But the truth is this: when Darja Isaksson waxes lyrical about the ongoing digital revolution nowadays she also has the prime minister's ear.

Since 2015 she has been a member of the Swedish government's National Innovation Council, whose overall goal is to strengthen Swedish competitiveness.

Just over six months ago she was also elected to SVID's board, where she wants to help increase the importance in society of design as a methodology.

"I apologise for being late," she says on the phone at just after half past eight on Tuesday morning.

A couple of minutes later she swishes into our meeting place, insists on paying for breakfast and finds a quiet-enough nook in the French-style restaurant at Stockholm's central station.

These blocks of the Swedish capital are her new territory. At Bryggargatan/Mäster Samuelsgatan streets, beside the Åhléns department store, she lives with her family in a rented townhouse in what almost 15 years ago became the city's first housing district on top of a roof.

Isaksson practises what she preaches – one of her pet topics is smart cities and finding sustainable solutions in an age of strong urbanisation.

"Half of all urban surfaces are used for roads and parking spots – intended for cars that nevertheless stand still almost all the time. If we could get rid of most of the cars, we could both reduce fossil emissions and have room for more homes," she says bluntly.

She is passionate about many solutions in the transport sector. Car and bicycle pools are one aspect but she also favours digital solutions that can link up supply, demand and various modes of transport.

Where does Sweden stand in this field?

"Internationally we are in a good position but there are cities in other countries that are more advanced. Helsinki is one example – they're good at intelligent transport systems there. Copenhagen has high accessibility for bicycles, and for some years now Amsterdam has had a platform with open data about transport possibilities. At the same time San Francisco has introduced dynamic pricing for parking spots – that's an exciting initiative. Here in Sweden we could have a road tax where parameters like the type of fuel, degree of utilisation


Darja Isaksson

Photo: Joel Nilsson

and public transport possibilities help to determine what you have to pay. What we need is a new approach, a new policy and a decision about what government authority should have the task of being responsible for an open algorithm of this kind."

In addition to transportation you also often point to health care and education as sectors having major possibilities of digital improvement?

"Yes, nowadays we can save lives in a totally different way than before. We can ensure that health-care resources go farther while also shortening queues and increasing accessibility. It's possible to make meetings more efficient and have more generic workplaces whose usage depends on what the demand is like. It's also possible to meet a doctor online and get advice about self-care. Such things save both time and lots of money. We're just at the beginning of all this.

"Digitalisation is also involved in education and is changing both schools and learning, which is becoming more of a life-long project. There, too, accessibility is increasing at lightning speed: today you can sit at home in your living room in a tiny village in northern Sweden and take a free Master's degree from Stanford in the USA.... The opportunities exist but unfortunately we're not using them yet."

> "The digital revolution is fundamentally **remodelling society.** It's challenging our old concepts about everything"

When you give lectures you often say that we're living in fun and exciting times, when all the conditions exist for us to be able to save the planet. Please explain.

"The digital revolution is fundamentally remodelling society. It's challenging our old concepts about everything from value to democracy, and it's changing how we produce, consume and communicate. Data is giving us opportunities to organise ourselves in new ways – data is the raw material that we need to be able to extract and refine, just like ore and trees. The changes are creating growth but it's important that this can be balanced by a development that is environmentally, financially and socially sustainable. One of the cornerstones is transparency and open platforms, which are the basis of innovation processes and business development. Things are happening

> The first stage of digitalisation is leading to **greater efficiency, lower prices and increased consumption,** which comprise a dangerous trend."

very fast right now and this is influencing us as individuals, as citizens and as business entrepreneurs."

But you also perceive some lurking dangers?

"Yes. The first stage of digitalisation is leading to greater efficiency, lower prices and increased consumption, which comprise a dangerous trend. Even today we're consuming more than the planet can withstand. That's why we must introduce environmental management measures and ensure that the efficiency gains we achieve are used to change our consumption patterns.

"In a global welfare system we should also have an equal right to optimised welfare. That's one of my strongest driving forces. We're not there yet, and it almost makes me lie awake at night. People who have the knowledge and opportunities will go abroad to get access to things like stem cell treatments etc. But we must find ways of broadening access to advanced treatments, not least now that global health insurance may soon be a fact. We're maybe just a few years away from Facebook offering banking and insurance services. The only question is who sets the risk premiums and algorithms in such a system? And how egalitarian will it be? There's a lot to think about on this issue.

"Another important aspect is everything to do with personal privacy and the individual's right to data about him- or herself. Sure, we can store things like health data but we must agree on how we do it. Often it is the young countries such as Estonia that are the most digitally mature. It has legislation giving people real-time access to what data the authorities have on them."

What is your role on the government's National Innovation Council?

"When the National Innovation Council contacted me in 2015 I realised it was not about my formal platform: I'm not CEO of Ericsson or Volvo, or president of the KTH Royal Institute of Technology or Gothenburg University. But I have worked with various digitalisation themes and I like having lots of things going on and opportunities to move around the system. At our latest meeting, in mid-May, one topic we discussed was open data. That's an area very close to my heart."

What is Sweden's strength as an innovation nation?

"We're good at English, we are early adopters, and our population is highly connected digitally. It's also possible to start a limited company here without risking your child's education or your own health insurance. Sweden produces one percent of the world's knowledge from less than one-thousandth of the world's population.... We are ten million inhabitants who as a group are highly trend sensitive. If we decide to do something we have good possibilities of succeeding."

What are the weaknesses?

"There must be proper leadership at all levels for the digital transformation to function. This is a really difficult process and there will be many failures. For example, in Sweden we have many management boards that are relatively immature when it comes to digitalisation.

"Our biggest problem is that we still don't have the necessary structures. We've built a large system of silos, which every service designer knows. The money exists but not the national processes. Municipal self-government is a chain where a lot falls between the different areas of responsibility. Resources are being used wrongly and many people are abdicating their responsibility."

What role does design have as a methodology in the digital transformation process?

"It is a totally decisive factor. We need to work with processes and cross-disciplinary combinations, to include people, and to put ourselves in the customers' shoes. We also need to have standards and other forms of infrastructure so that the information can be linked up and create innovative strength.

"But we also need to consider that technology does not automatically take us where we want to go. As designers we also have a responsibility for the ethics and consequences. We can use prototypes when major things are to be transformed at the level of society but a degree of humility is required. More designers need to become interested in the institutional systems and learn more about them."

What importance does SVID have to the Swedish work for innovation and change?

"I've known about SVID for a long time because I've run a design agency. SVID is an important actor when it comes to advancing design as a methodology and finding many of the answers we need at the level of society. A lot has to do with how we should scale various competencies – that's something that's really needed. The organisations that have been successful over the past 20 years are those that have had this ability and have realised the value of investing in design methodology.

"We design advocates must think in the way we did in the 1990s, when we stood on the barricades and fought for user friendliness. We can if we want to – as long as we work together!"

Darja Isaksson has chosen a breakfast combo of cheese and ham sandwich, orange juice and Greek-style yoghurt. She's ordered tea instead of coffee. When most of the morning's hubbub and clinking of glasses starts to subside in the restaurant she apologises for speaking in a mixture of Swedish and

Photo: Carlos Zaya

English with phrases like “top-down model”, “tipping point” and “big, hairy problem”.

Later today she will go home and prepare a project meeting on the topic of mobility services. She chairs a research project that involves such actors as the KTH Royal Institute of Technology, the Swedish National Road and Transport Research Institute (VTI), and the companies that founded and own the public transport service development company, Samtrafiken i Sverige AB. Together they are developing a vision for 2050.

What do you spend most of your work time on?

“In addition to being involved in projects and on councils and boards, I lecture and have commissions as a consultant. This always takes me into new contexts and sets of problems – which is an exciting part of the job and includes both gathering and transmitting information.

Previous interviews with you make it clear that you were interested in technology and design even as a child. Tell us more!

“My dad worked for the Swedish national telecom administration and what later became Telia Research. In his spare time he was an electronics inventor and at home we had a lab where my siblings and I could do things like weld circuit boards. My parents founded a company that sold test instruments to customers in the paper and steel industries throughout Europe. The rights were later sold to the USA, where the instrument was used in submarines.

“We got our first computer in the family as early as in 1982, and that was when I learned the basics of programming. I’ve always been interesting in technology, especially how it can be combined with my favourite subject, design. I wasn’t super popular in school when I was growing up but when I discovered the Internet, new worlds opened up and I came into contact with new people. That’s how digitalisation became a natural force in my private life as well.” ■

Facts

Darja Isaksson

Name: Darja Isaksson.
Age: 41.
Profession: Digitalisation strategist, lecturer and design agency founder.
Family: Married to Mijo Balic. Bonus daughter Miranda, 13, and sons Aiden, 9 and Baltazar, 6.
Lives: In a rented terrace house on a roof in central Stockholm.
Grew up in: Munksund outside Piteå.
Education: Studied media engineering, a cross-disciplinary engineering degree at Umeå University.
Professional background: At age 22 went to Zürich to do snowboarding and work as a web consultant. Was simultaneously involved in building the then-biggest website for club music in Europe. After returning to Sweden, founded her first digital agency, inUse, in 2002. Ten years later founded the digital innovation agency Ziggy Creative Colony together with Mijo Balic. Resigned as its CEO in 2014.
Leisure: Likes to play Minecraft with her son Aidan. Meditates (although not every day). Likes to spend her summer holidays at her parents-in-law’s house in Croatia.

Facts/National Innovation Council

The Innovation Council’s task is to develop Sweden as an innovation nation and strengthen its competitiveness.
The Council focuses on digitalisation, environmental and climate issues, and life science, but also discusses other areas of significance to the innovation climate and competitiveness.
In addition to Sweden’s Prime Minister Stefan Löfven it also includes government ministers **Magdalena Andersson, Mikael Damberg, Helene Hellmark Knutsson** and **Isabella Lövin.**
The ten other, advisory members are: **Ola Asplund,** senior advisor, IF Metall, **Mengmeng Du,** entrepreneur and board member of various companies, **Charles Edquist,** Professor at the Centre for Innovation, Research and Competence in the Learning Economy (CIRCLE), Lund University, **Darja Isaksson,** digital strategist, **Sigbritt Karlsson,** President of the KTH Royal Institute of Technology, **Martin Lundstedt,** President and CEO of the Volvo Group, **Johan Rockström,** Professor in Environmental Science and Executive Director of Stockholm Resilience Centre at Stockholm University, **Karl-Henrik Sundström,** CEO and Managing Director of Stora Enso, **Jane Walerud,** entrepreneur and **Carola Öberg,** project manager at Innovationsfabriken Gnosjöregionen.

Photo: Istockphoto

Sustainability starts with design

Resources are not endless and what we produce and consume has a significant impact on our environment. In this context design has a decisive role to play. Two European projects help designers to work with ecodesign for greater sustainability.

By Anna Velander Gisslén and Renee Wever

CREATING PRODUCTS AND SERVICES that do not negatively affect the environment and climate is the foundation of ecodesign. Several dimensions must be considered: creating the conditions for minimal waste, taking social aspects into consideration, and observing human rights. A designer's decisions largely determine what environmental impact the resulting products and services will have. It is therefore important to include this aspect from the planning stage in order to create design that is sustainable and circular.

Many people are requesting the knowledge and tools to enable them to work with ecodesign. Several concepts are available, such as Cradle to Cradle and Circular Product Design. These encompass ways of thinking and methods that foster a more sustainable approach. The conditions for using them vary, but the need of greater expertise within fields that are not always included in traditional design educations, both in the areas of technology and materials science, unites them.

Sustainability and business enterprise

A study done by SVID this spring concludes that one of the topics businesspeople think about most regarding the move to sustainability is how to combine ecodesign with profitability. The companies further wish to study the examples of other players in closely related business activities in order to see how they can work in a way that is both sustainable and financially successful.

At the economic level, the task is not only to ensure the profitability of one's own products but also to consider issues such as the banks' attitude to new business models. This was demonstrated, for example, by a project in the Netherlands that involved developing street lighting for bicycle paths. Circular, long-term design plans and business models turned out to be difficult to implement when the banks did not want to work with long-term time frames. In this situation, predecessors and good examples are necessary.

Design for new customer behaviours

The complex nature of ecodesign also lies in understanding and shaping behaviour patterns. Design choices affect – and are affected by – consumer behaviour. Let us take the mobile phone as an example. Today mobile phones contain a tiny amount of gold. From a sustainability perspective, it might be a good choice to increase the amount of gold in the phones so that recycling becomes more economically sustainable. The problem is that most phones are not currently returned for recycling – so an increased amount of gold would not neces-

If the computers being scrapped daily In Sweden alone were stacked on top of each other, they would surpass the world's highest building, the Burj Khalifa.

sarily have a positive effect but would instead be negative. Herein lies a dilemma: should we start with new designs, new recycling technologies or new solutions for collecting end-of-life products?

We need cross cooperation's to bring out best solutions to be achieved, and let consumers successfully be informed about what they should consider, when making their own choices.

Tools and methods require data

Just as in the above-mentioned case of the telephones, it is not always apparent what is the right decision. Tools, knowledge about them, and data all help. To make the correct design decision about such factors as the choice of materials, designers can use Life Cycle Assessment (LCA) tools. Sometimes it can turn out that more – not less – material is preferable if this leads to altered behaviour.

Let us take food waste as one example. If we add more packaging material to extend the food's shelf life, make the product recloseable, and reduce portion size, this can have a positive effect on the amount of food waste. Recent calculations done at Karlstad University showed that the extra material needed to package two half loaves of bread instead of one whole loaf corresponded to one-tenths of a slice of bread. But to be able to answer whether this was the most sustainable alternative, it had to be compared with how much less bread was wasted thanks to the smaller packets – and this information was not available. This indicates the need for more knowledge about consumption patterns, better data collection, and better exchange of information between various parties.

Inrego – reuse as a business concept

Inrego is one successful example of a business concept that combines sustainability, behaviour change and profitability. The company collects used IT equipment such as mobile phones, refurbishes them and resells them. If a product cannot be mended or does not meet the criteria for being sold, it is sent to a "rescue station" where the material can be sorted and matched to other components before being combined to form new products.

Inrego has been profitable since it was founded in 1995 despite a difficulty of obtaining more of the products that can be reused. Services designed to simplify and encourage greater reuse are badly needed and help to create sustainable behaviour patterns. The companies that offer solutions to reinforce this change will benefit both the environment and their own finances.

"Ecodesign Circle" and "Circular Design" support companies and universities

With examples such as reuse, recycling and changing consumer patterns, there is a great need for new design solutions. Two European projects are underway that aim to develop and disseminate knowledge about ecodesign to companies, designers and university students.

"EcoDesign Circle" is a joint venture between various design organisations and universities in countries around the Baltic Sea, and particularly targets SMEs. The project aims to help create jobs for tomorrow's markets by increasing the resources and capacity for including environmental aspects in design. The development of new ecodesign products will facilitate the step towards a circular economy, and the work is aimed at both businesspeople and educational institutions. A new platform will be launched in the form of a sustainability guide featuring tools, methods, networks and learning resources for students and others to use in their education. In order to spread knowledge about the innovation potential that exists with ecodesign, there is also a focus on joint ventures and various communicative activities in order to increase awareness and transparency about much-needed behavioural change.

"Circular Design: Learning for Innovative Design for Sustainability" is a project that will help to increase the supply of and demand for ecodesigned projects and services on the market. The project is run mainly by various European universities. The development of training materials and sustainability strategies for innovative design will increase the sustainable consumption choices and provide new business opportunities for both third-level educational institutions and industries in Europe. Universities, design centres and companies will cooperate in the project to increase sustainable design and to identify possibilities for sustainable products, services and business opportunities.

These types of collaborative process will accelerate the great need for sustainable solutions in design. Among other things, there is a need for strategies and for the design training of students, faculty members and companies. At the same time, we can see how the growing number of innovative solutions in the wake of digitalisation is contributing to this development. Concerns that the sustainability aspects will not be profitable are being dispelled as the regions that are investing in renewable and environmentally beneficial solutions are proving to be economically successful. New research, more knowledge, and more innovations are leading to sustainable business models and a healthier world. The trend is hopeful! ■

FACTS
Concepts

Ecodesign

A collective concept in which, thanks to design solutions, products and services are created without negatively impacting the environment and the climate. The aim of ecodesign is to create the conditions for minimal or zero waste when a product is consumed, and to lead the work towards a circular process.

Cradle to Cradle

The Cradle to Cradle principle involves the fact that our social development and product development have much to gain from resembling ecological systems in which energy and materials are "used" effectively and cyclically instead of being "used up" and creating waste.

Circular product design

This involves designing products whose production and consumption cause the least possible impact. What remains after the product is used can be returned to the manufacturer, reused by the consumer, or returned to nature in a way that does not negatively impact the environment.

Projects

Circular Design: Learning for Innovative Design for Sustainability

The aim is to promote the sustainable consumption and production of products and services in Europe.

It involves 13 partners, European universities, design centres and companies in Catalonia (Spain), Ireland, the Netherlands and Sweden. The Swedish partners are Linköping University, Habermann Design & Development and SVID.

Funded by Erasmus+, the European Union programme for education, training, youth and sport within the field of social entrepreneurship and pedagogical innovation.

EcoDesign Circle

A three-year project that aims to increase knowledge about ecodesign among the Baltic region's small and medium-size enterprises, designers and design organisations. The work is led by SVID in collaboration with Green Leap at KTH Royal Institute of Technology together with design organisations and universities in Germany, Estonia, Lithuania, Poland and Finland.

Funded by the Interreg Baltic Sea Region and the European Regional Development Fund.

Podcasts about design

In recent years podcasts have begun receiving the attention and dissemination that the medium deserves. Although podcasts have existed for 10 to 20 years (depending on how you define a podcast), the phenomenon is now widespread in popular culture, much thanks to American podcast sensations like "Serial", "This American Life" and most recently "My Dad Wrote A Porno". Today at least a handful of podcasts exist for every tiny obscure topic – including design.

A podcast is basically a series of sound files to which people can subscribe. The contents often resemble what we would call radio talk shows but developments in recent years have resulted in a wide variety of styles, ranging from classical discussion podcasts to reportage, documentaries, drama series and narratives that are closer to being sound art.

For readers who want to explore discussions and stories about design, here are some of the best podcasts available right now.

By Gustav Edman

Why Service Design Thinking

Of course there is also a plethora of podcasts that focus specially on service design. Why Service Design Thinking is one of several podcasts on this topic (with easily confused names), and is led by design strategist Marina Terteryan. The podcast alternates between narrow and broad, from case studies to conversations on such topics as running a successful design business or innovation culture.
www.whyservicedesignthinking.com

99% Invisible

With more than 250 episodes to date, 99% Invisible is an almost inexhaustible source of knowledge and inspiration. The podcast focuses on design from a broad perspective, with fabulous stories about everything from how to design a postal system or a sect, to the history behind basketball rules or the American concentration camps. The podcast is part of the Radiotopia network, which includes many of the US's very best podcasts with a strong narrative focus.
www.99percentinvisible.org

Invisibilia

Just like public service radio in Sweden, NPR in the US offers a range of interesting podcasts. Invisibilia presents elegantly told narratives about the invisible things that influence us as people. Although the podcast is not always about design in the purely technical sense, the concept that we must be aware of invisible structures and processes so we can shape the world around us is always close at hand. The two first seasons covered topics such as categories, cyborgs and the influence of clothes on our personality. The third season began in June 2017.
www.npr.org/programs/invisibilia/

Design Matters

Debbie Millman is something of a podcasting legend. For over a decade she has talked at length with people who are her own sources of inspiration. Here graphic designers and creative directors rub shoulders with authors, artists and architects in discussions that often take unexpected turns.
www.debbiemillman.com/designmatters

How to listen to podcasts

Although it is totally possible to follow podcasts directly online, most listeners quickly switch to using their phone – today's equivalent to the iPod that gave podcasts their name. With an app and a set of earphones you can access hundreds of thousands of podcasts that are basically always free. Apple's Podcaster is an obvious solution for iPhone users whereas Android owners can use such apps as Overcast or Pocket Casts. In Sweden Acast has gained many listeners and its app is both advanced and easy to use. Download an app, find a podcast and start subscribing to if it you like what you hear.

Introduction to the issue's scientific articles

In this issue we publish two exciting scientific articles – one on design research itself that examines the academic view of design and aesthetics. The second article focuses on the designer's role in relation to the public sector.

Experience and design

In "What is it like to see a bat?" Richard Herriot challenges design researchers to study the qualitative and aesthetic aspects of design more. He argues that design research focuses too narrowly on the more accessible aspects – the design processes and objectively measurable issues such as accessibility, customer satisfaction and sustainability.

The design researcher's dilemma is that a focus on legitimising processes is difficult to reconcile with the intuitive aspects of design. Drawing support from such sources as philosopher Thomas Nagel's reasoning about the subjective nature of experiences, Herriott argues that a designer's way of seeing is something special. Design research fails to capture the design-related way of seeing and the experience of seeing designed objects – the impressions they give and the content they convey: to capture what makes an object designed and not merely the result of an engineering-type process. The challenge in capturing this aspect means that design research often focuses on the planning of design – a general process that is not unique to design. At the same time, it is the unplanned, the intuitive, that produces an aesthetically rich design.

One conclusion is that design research must include more first-hand analysis of designed objects by offering rich descriptions of objects together with well-supported analysis. This enables the reader to judge the reasoning offered and create his/her own opinion about the design.

Designing design tools in the public sector

Designers are increasingly working in the public sector, where the designer's role is more to develop tools that employees can then use in their development work. The article "Designing, Adapting and Selecting Tools for Creative Engagement: A Generative Framework" (by Leon Cruickshank, Roger Whitham, Gayle Rice and Hayley Alter) discusses the development of these tools and in particular how designers should relate to the tools they create. The authors stress it is important not to define what is right or wrong with regard to using the tools but instead to open up the way for new, local interpretations and adaptations of the tools so that their users' own creativity is supported and reinforced.

The scientific literature contains a range of classifications of design tools but instead of using defined classifications, the article advocates that the users of the tools – in this case public sector employees – themselves develop an inventory of various methodologies, one based on their own interpretation of the tools. The article is based on two case studies of public-sector activities in Scotland with examples of how this can be done.

The article is an important contribution to the field of public-sector design – a field that is is increasingly important, as is also evident from other articles in this issue.

Of course I urge you to read both these articles! Reading a scientific article when one is not a researcher oneself can be a bit of a challenge. My advice is not to get stuck on the details but rather to focus on the main themes. The most important sections are often at the beginning and the end. What is important is to gain inspiration and be stimulated to think of new ideas!

Jon Engström, PhD, Editor

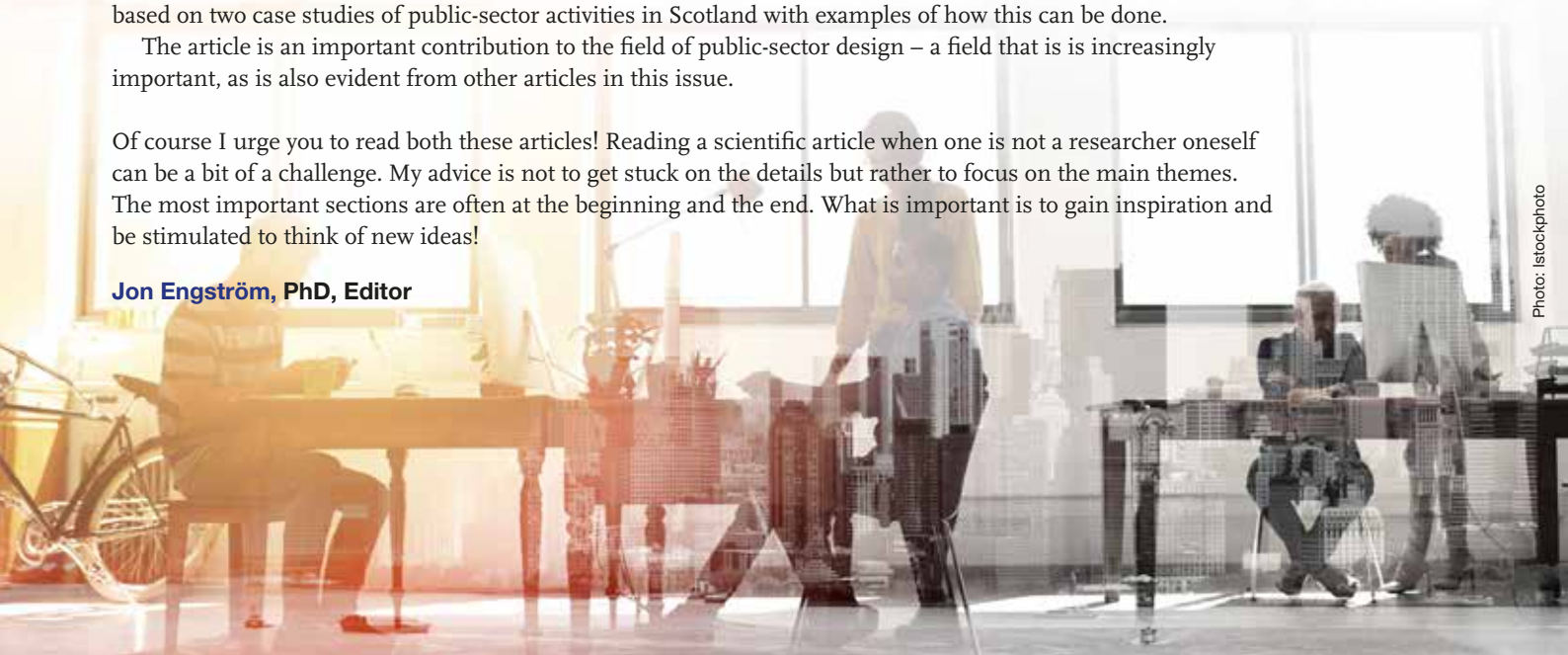

Photo: Istockphoto

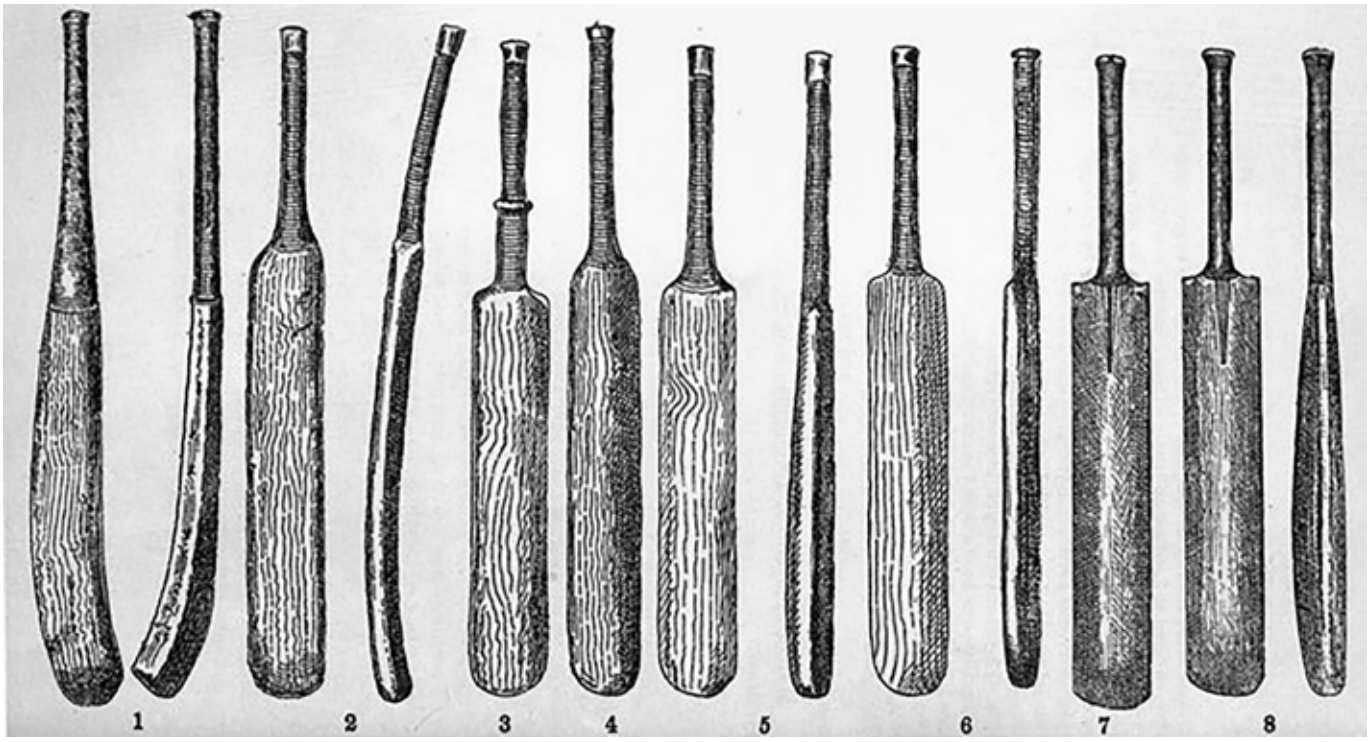

Figure 1: Bats. (Grace, 1891)

What is it like to see a bat?

Richard Herriott
Design School Kolding, Kolding, Denmark

ABSTRACT:
The article examines inadequacies of design research regarding the treatment of appearances of objects or, in other words, those aspects which are qualitative and psychological. It presents a division of design research into means-based and ends-based inquiry. Design's relation to art, planning, engineering and social science is presented to make clear how design research may overlook the intuitive in pursuit of objectively legitimate explanations. A tentative description of the core of design is offered followed by an analysis of how designers approach aesthetic judgements. The distinction between intuitive design and process-based design is explained. This relates to a question posed by Hillier (1998) concerning design's relation to processes and form. Finally, a case is made for an art-criticism approach to design research, one which addresses the meaning of form.

Keywords: design process, design research, design methods, aesthetics.

INTRODUCTION

Without wishing to reduce the value of existing branches of design research, a case can be made that this research is inadequate. Much design research does not address the qualitative in design, that part of design which exists in drawings, in the physicality of products and "what it is like to perceive a designed thing". Design research is neglecting the intuitive, non-verbal aspects of design and the meaning of the object or its parts.

The article is structured as follows. Firstly, it explains how the development of design research has downplayed the aesthetic aspects of design. Design research has been interested primarily in methods and objectives: respectively how to plan a design process and how to achieve defined objectives such as accessibility, acceptability or usability. Design research on aesthetics has inquired into visual cognitive process or dealt with

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> As in the philosophy of consciousness where there is a divide between dualist and materialist approaches, there is also a parallel division in design research.

consumer attitudes. Secondly, in order to make clear the aesthetic core of design, the paper shows design's relation to art, planning, engineering and social science. It is argued that the wish to pursue "legitimate" design outcomes has put a strong, materialist emphasis on process. However, the core of design is an intuitive activity that occurs in the relation of the designer to the idea of the object, its visual representation and instances of the idea. Thirdly, the paper then proposes that the meaning of form be addressed so as to acknowledge the subjective quality of designed objects in contrast to engineered objects. This is on the basis of the idea that art methods introduce the issue of meaning and the subjective that is absent from both design as planning and the design of engineering solutions that satisfy objective needs.

In terms of delimitation, this paper does not address artistic design research. In Frayling's terms (1993) this is research *through* design. This paper discusses research *into* design, the output of which is written documentation. Research through design´s output is the object itself and documentation about the process and/or the final objects. A considerable body of work exists regarding the discourses of design research and design practice and industrial design versus technical design. A satisfactory treatment of these discourses would require more space than is available so in this paper the focus is on modern design research, starting with the Design Methods movement of the 1960s.

Design can be analysed at the levels of practice, tools and theory. Using Love's (2000) meta-theoretical structure for design theory this article deals with design methods, design process, theories of internal processes, and ontology of design.

In his paper "What is it like to be a bat?" Nagel (1974) addressed the nature of consciousness by inquiring into the subjective experience of a creature very different from humans. Particularly, he was drawing attention to the way the bat perceived its surroundings. Nagel argued that materialist accounts of the mind did not deal adequately with the essential, subjective component of consciousness, which is that there is something that it feels like to be a conscious being, for example, a bat. A conscious being could be said to be conscious if it could experience or sense that state. The longer argument as to whether consciousness can or can't be explained by reductionist theories has not being resolved although authors such as Chalmers (1996) have attempted to propose a dualistic explanation of the mind phenomenon. At one level, this article draws upon Nagel by asking about how designers see and how design is perceived; it also asks if design research can account for how one sees as a designer.

As in the philosophy of consciousness where there is a divide between dualist and materialist approaches, there is also a parallel division in design research. This division in design research is possibly tacit: the objective character of design is well-covered. The subjective character, what it is like to see a designed object, its impressions and meanings are not so well handled. We might be able to define the geometry of the bat (see Figure 1), we can discuss the design process of the bat's creation and can determine what percentage of users are satisfied with its appearance and functionality. But that is not the totality of what it is like so see the designed object. It does not exhaust the quality of the bat that makes it different from a purely engineered object.

This article began as an inquiry into the subjective matter of form and how to treat aesthetics in design. It is apparent that at the core of the matter lies the subjective nature of design and that which makes design qualitatively different from other problem-solving activities such as planning and engineering. So, alluding to Nagel and his discussion of subjectivity, the relevant question here could be "What is it like to see a bat?" To see *as* a designer and to create *as* a designer is to do so in a distinct and unique way. Is design research over-looking this? In so doing, does design research extend the meaning of the term design too far? As Herbert Simon (1996, p.111) wrote "not only engineers design, all who devise courses of action aimed at changing existing situations into preferred ones..."

THE EVOLUTION OF DESIGN RESEARCH

The starting point for this section is the notion that design research has focused (not unreasonably) on 1) method and 2) objectives. There has also been some attempt at dealing with aesthetic aspects from cognitive and user-judgement viewpoints. This section is divided into a short description of these approaches.

Methods and objectives

Frayling (1993, p. 98) makes the distinction between an expressive idiom and a cognitive one. Design straddles those two but the emphasis in research is usually on the cognitive. Two authors can be cited as inspiration for this second avenue of inquiry, namely the cognitive approach, though there are other candidates (e.g. Rittel and Webber 1973; Krippendorff, 2006). Regarding methods, Jones (1971) lays out the ground work for research by attempting to characterize the process of designing. The 1971 book resulted from the initial debates of the design methods movement. This movement came in response to the perceived deficiency of natural science-inspired design (Glanville, 2012) meaning hard-systems methods (Broadbent, 2003). Regarding objectives, Papanek (1972)

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forcefully argued about what design was *for*, making that point that design had to address the needs of society and to take moral responsibility. Typically, texts such as Papanek's dealing with objectives make prescriptions about what design should achieve: less waste and less pollution and to address social ills such as poverty and inequality.

The design methods approach has branched into two strands. One is more managerial in outlook (e.g. Jones 1971), focusing on the structure of the process. That means it looks at the steps of the process and their interrelation and it is neutral on the stated goal. This has been termed the Science of Design (Gasparski and Strzalecki, 1990) and an example of research in this vein would be Dorst (2001). The second sub-strand of the methods approach involves quantitative analysis of user's perception of design objects or of the performance of the objects, or both. An important point is that the second strand is morally neutral and deals with quantitative or measurable parameters. Its aim is to assist designers develop more acceptable consumer goods.

The design objectives approach has evolved with a focus on beneficial outcomes such as sustainability, design for disability and the extent of user involvement (e.g. co-design, participatory design). It has a strong moral tone, and is concerned with ethics. Some research of this type has technical content e.g. which materials to use for sustainability or how to conduct user-research with the elderly, marginalized or disabled (e.g. Clarkson *et al.* 2007). The second strand naturally requires a design methodology (e.g. Steinfeld and Maisel, 2012). That said, it may be harnessed to any available design methodology if they it achieves the required ends. However, objectives-focused design research tends to draw on soft systems methods rather than hard-systems methods (see Broadbent, 2003) as does the design method outlined by the Cambridge Engineering Design Centre (EDC, 2017).

These two strands, methods and objectives, can be also called respectively means focused and ends focused design. There are hybrids of the two where an attempt is made to both shape the design process and to suggest a values-determine outcome. Inclusive Design, for example, embodies both a methodology and a set of preferred design objectives (Clarkson *et al.* 2007).

Both means-focused and ends-focused design are entirely valid ways to consider design activities. However, they do not as a general rule, make any claims about the aesthetic nature of designed objects. One qualification is that both named approaches to design a) assume that the resultant objects are aesthetically satisfactory, or b) that acceptable forms are a natural success criteria or c) that aesthetic standards are insufficient to justify the outcome of the design process. Point (c) rests on the idea that even if an informal and unstructured “intuitive” design approach worked in one instance it is not reliable or repeatable for other instances. Any instances of failure will be unacceptable and Inclusive Design, for example, is conceived of as a means to avoid design failure. A second qualification is that Design for All (particularly Inclusive Design) addresses the psycho-social impact of aesthetics by its preference for forms that avoid stigmatization of the user (Langdon *et al.*, 2012). However, the literature on Design for All does not delve deeper into what characterizes those forms apart from their ergonomic impact (e.g. large buttons, easy-to-read graphics and easy-grip forms) or whether the user deems them ugly or not.

The two-strand categorization presented here is not comprehensive or exclusive. Bruce Archer (1981) was able to identify ten areas of design research (only two among them are relevant here so the other eight will not be listed for reasons of space). Corresponding to a means-focused approach is Archer's Category 4, design praxeology, which is “the study of the nature of design activity, its organisation and its apparatus”. Aesthetics are mentioned is under Category 10, Design Axiolology which is “the study of worth in the design area with a special regard to the relationships between technical, economic, moral, social and aesthetic values”. Aesthetics, or the subjective aspect of design are, one could contend, important enough to justify a separate category.

Design Research on Aesthetics

There is research on the aesthetics of products which is primarily the analysis of consumer preferences regarding the appearance of designed objects (e.g. Hagtvedt and Patrick, 2014). This research addresses what consumers prefer rather than the creation of the objects. The analysis may result in a recommendation concerning how future products should look or how to target specific users. This work can be characterized by its basis in hypothetico-inductive reasoning. A hypothesis is proposed and tested as to whether a particular formal characteristic is more or less attractive to customers using standard market-research and social science procedures. It is primarily quantitative in nature.

Even qualitative research tends towards a hypothetico-deductive model. The researcher tries to convert qualitative text data into something quantitative. Such work deals with what the consumer thinks or possibly with the analysis of the design process regarding the methodology.

Is that sufficient? Consider the hypothetical case of joints between parts in product design. David Pye (1964) noted that it is often the case that perceptions

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of quality reside in the craftsmanship of joints. Would typical design research as listed above be sufficient to address perceptions of quality and their meaning? A process-based inquiry centered on interviews with designers would not capture the character of the issue. Quantitative surveys of users would measure perceptions of the object, not the object itself (e.g. Hagtvedt and Patrick, 2014; Hoegg *et al* 2010; Shih-Wen *et al* 2008; Sonderegger and Sauer, 2010; Tuch *et al* 2012). A numerical study of joints (types and frequency of use) would not throw light on the aesthetics of the subject matter. There isn't a "theory" of joints and numerical data about their frequency of use would not address how they are perceived. A similar condition pertains for curvature, proportion, volume, colour and texture although all can be quantitatively described. So, leading from this it would appear that a significant element of design is beyond discussion if it does not fit into a natural science or social science box. The qualities of Grace´s bats (Fig 1) seem a long way from Frayling´s design axiology.

Work also exists on a cognitive and psychological understanding of how objects are viewed e.g. Weber (1995), Norman (2005) and Desmet and Hekkert (2007). Weber considers the aesthetics of architecture with reference to Gestalt theory and spatial perception. As noted in Herriott (2016) Weber does not provide a means to address what Kant refers to as a pure aesthetic moment. Work on emotional design (Norman; Desmet and Hekkert) assumes that objects' aesthetic qualities matter alongside extrinsic aspects like product meaning.

Of these two last groups (qualitative research and cognitive), it is the cognitive approach that comes closest to the aesthetics of design but is also situated in a hypothetico inductive tradition. The work underlying this follows a natural science approach as to how design objects are perceived but could also be valid for explaining how any element of the environment may be understood. The cognitive approach doesn't deal with what might be called the depth of the design. For example, it might be correct that the elegant forms of Rams' work at Braun in the 1960s and 1970s are satisfying because of the strict ordering of the elements but it does not exhaust the description of the object or fully account for its effect.

Figure 2 is schematic representation of design research as outlined in this paper. For clarity the path from methods- and objectives-focused design research are shown leading to quantitative and qualitative research approaches as two duplicate pairs of boxes. Hybrids of these approaches exist. The aim of the diagram is to make clear that design research can be conducted without reference to aesthetics.

To summarise the foregoing: design research has produced a body of work that does not fully address what distinguishes expressively design objects from what might be called design-neutral objects which are machine tools and intangibles (services and values-based outcomes e.g. accessibility or sustainability). The research is dealing with what is perhaps necessary for a designed outcome but not sufficient.

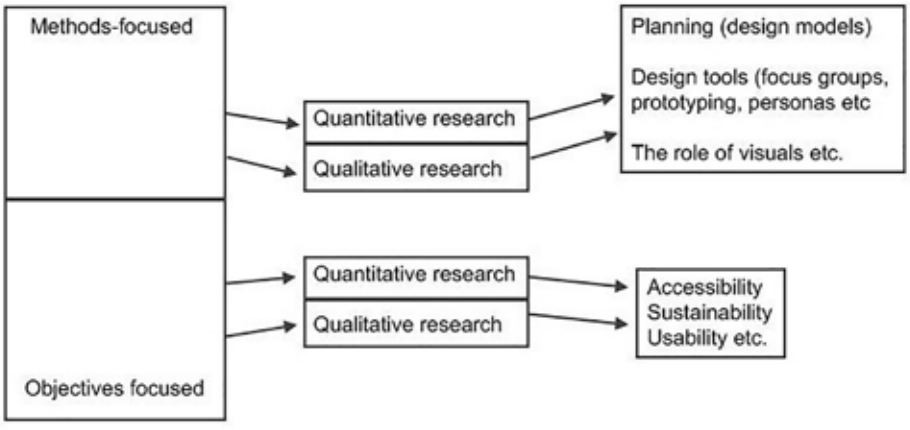

Figure 2. Design research relations.

THE CORE OF DESIGN

So, where does this leave the core of design? And what is the core of design? The answer to the first is that design research might be ceding the essential aspect of design to management studies: a soft-systems design methodology that could be used quite as well to plan a new organizational structure or a new urban district as it might be used to design a visually-rich consumer product. Or it could be used by individuals who are not designers to deploy design process models to solve planning problems. An example of this is the widespread use of "design thinking", which might be summed up as the use of sticky notes, marker pens and knapkins (e.g. Roam, 2008).

The second question, about the core of design, is highly contentious. A full answer to this has not yet been developed. Kroes *et al.* (2009) offer the explanation that, in contrast to engineers, designers tend to interpret problems expansively and to employ qualitative data. Engineers are reductive and focused on the quantitative: "Designers tend to expand the scope of their problem to go beyond the everyday while engineers tend to reduce the scope of their design problems to the narrowest possible empirical criteria" (Kroes et al. 2009, p.5). The authors thus refer to design and engineering as having separate "epistemic communities" (Kroes *et al.* 2009, p.5).

Figure 3 shows a possible mapping of design in relation to its necessary elements: art, planning (which is a synonym of management activity), engineering (or the technical) and social

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science. The four terms have hybrids where the activities overlap. The diagram positions service design outside the field of engineering but within planning and social science. With engineering (which is synonymous with narrow functionality) and social science the hybrid of urban planning emerges. Design is where all four parameters overlap. It includes architecture which is merely building design.

An interesting possibility that allows for service design to be considered an aesthetically-orientated discipline is that the graphic representations of the abstract service might be judged on their aesthetic merits (clarity, simplicity, intuitive qualities) by the designers. From this point the aesthetic considerations might not be perceived by the end user but only by the designer. For this paper I wish to focus on tangible design outcomes.

For this article I propose that design is that which designers can uniquely do and which other problem-solving professionals do not. Design, by this pragmatic definition, is the use of visual representations to conceive of and produce objects which have an expressive aesthetic quality. It is the intersection of art sensibility and socio-technical requirements. What the designer can do that the mere user of "design thinking" cannot is to conceive of a not-yet-existing object, produce an accurate visual representation and then judge three dimensional instances (hereafter "instance") of it against the aesthetic ideal expressed in the images. There is a feedback between the drawing which will show an aesthetically correct form and the instance of it. If the instance has a feature which one would not draw in that way, the instance is amended to conform to the ideal. To put it very simply, the instance is judged against the question "would one draw it like that?" If the answer is no, the instance is corrected.

Figure 4 shows the four way relationship between the designer, the drawing, the idea and the instance. There are two start points for the idea of the new object X: 1) a mental image or 2) the act of drawing. A third is a hybrid of the two in which abstract ideas constrain the range

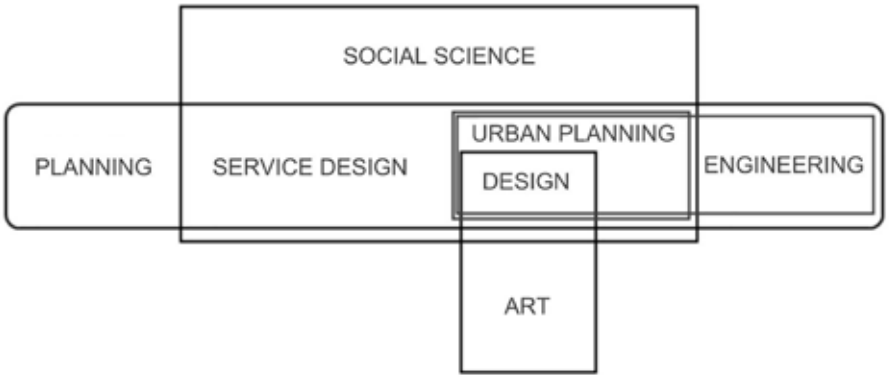

Figure 3. Art, planning, engineering and social science´s relations to design.

of forms permissible for the image. I will deal with cases 1 and 2.

In case 1 the designer has an idea with aesthetic content, the idea of the new object X. That idea is considered for its formal and conceptual content. Formal content would encompass the object´s intended appearance. Conceptual content might involve values-based assessments such as 1) if the object is feasible in principle (can it be made), 2) whether the object is morally acceptable at some level (should it be made) or 3) its fitness for purpose (will it work as intended). A robust wooden chair would pass the fitness test, for example, if one wanted to design furniture for an outdoor setting. A Louis XV-style chair might fulfil 1 and 2 but might not be conceptually correct for use in a large auditorium or a busy airport lounge.

When the idea passes the tests of formal and conceptual acceptability it can be drawn and re-drawn. The re-sketching process involves the drawing being assessed in itself (is it a good drawing) and in reference to the idea of object X. Producing a three dimensional representation of object X is needed to test the validity of the most acceptable drawing. That instance will be compared to the drawing and to the idea of object X on the basis of its formal and conceptual content.

In case 2 the designer, more or less constrained by verbal (a key word) or abstract notions (the feeling of the intended result e.g. a drawing that evokes the feeling of humour or Frenchness). She or he sketches freely and then assesses the ideas as they develop on the page. The idea is then considered in the light of formal and conceptual content as per case 1. This process results in the idea of object X evolving in formal terms. The designer uses the two-dimensional drawing to first create a place-holder elements of which are added, deleted or amended. This part is partially intuitive and partially involves abstract reflection such as "what is causing that effect?" or "is that effect in line with the design´s requirements".

From this one can understand that the creative, aesthetic aspect of design is occurring in the interaction between the idea of the object, its visual appearance on a two-dimensional page and in the mind of the designer. The designer both creates the shape unselfconsciously but also self-consciously reflects on that shape and alters it in a series of iterations.

When the object is realised as a three-dimensional instance (such as a hard model or CAD model) the interaction becomes more complex. In satisfying some criteria inherent in the 2D drawing and the idea of object X, there usually emerges new, previously unconsidered elements that are in conflict with the ideal of an acceptable form, as shown on the drawings. One scenario might be when the needs to satisfy the appearance of the object from two views produce an appearance unacceptable in a third. A concrete example is known from automotive design when the front and side elevations can´t be reconciled from the three quarter view or when the side elevation

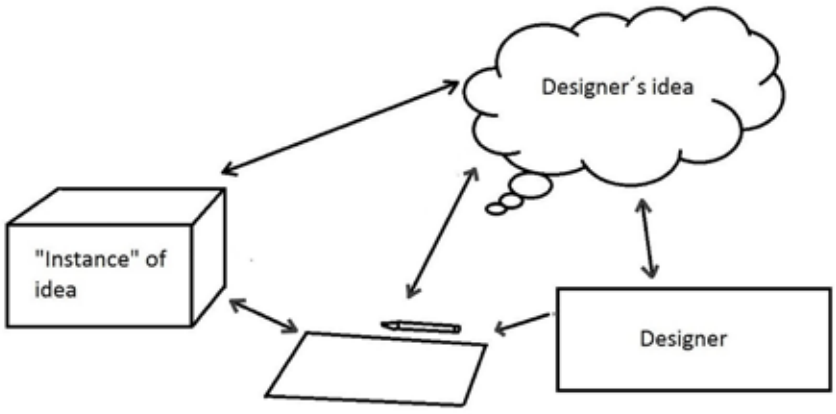

Figure 4. The relation of the design, idea, drawing and instance.

is not acceptable in three dimensions due to scale and optical effects. To adjust for perspective effects large objects such a motor cars are usually styled with more curvature than would be needed to produce an acceptable two-dimensional drawing. From this it is apparent that design activities focused on appearance are not purely conceptual or paper-based but rely also on aesthetic awareness in assessing three-dimensional instances. The assessment of three-dimensional forms overcomes the difficulty of representing complex objects seen from atypical angles. Drawings of objects from extreme angles are rare because they tend to produce shapes that are hard to assess. Drawing deals with the presentation of new forms in archetypal view. Three dimensional models test these by making visible all possible viewpoints, with each one satisfying the criteria of being acceptable if drawn from that view, were the designer able to visualise it.

The result of this process is a prototypical three-dimensional model which satisfies the aesthetic requirements from all viewpoints. If translated back a two-dimensional drawing, the result is what one would draw if one had sufficient drafting skills.

In applied design, production requirements and other demands may force the object away from the drawn ideal. It is the task of the designer to ensure that the produced object is as close as possible to what one would draw, if entirely free. Design is thus always a compromise (see Pye, 1964) but one that aims to compromise in a certain direction. A designed object is thus one which has the potential to produce in the viewer what Kant calls a pure aesthetic moment (Kant, 2007; Allison, 2001; McConnell, 2008).

To link this back to the introduction, the design methods and design objectives strands of design are neutral on this process and the topic of the pure aesthetic experience. Design research in general is mute on the aesthetic aims of design other than, in some cases, to measure approval or to understand cognitive processes of visual assessment.

This section has described the relation of design to art, planning, social science and engineering. It has also described the role of the visual and the assessment of visual qualities during creative designing. The next question relates to addressing that aspect of the design process which is exclusive to the domain.

INTUITION VERSUS PROCESS

In this section I turn to Hillier (1998, p. 37) who asked how much design should be regarded as a legitimately intuitively process as opposed to one that:

"...is intuitive by default, and awaiting emancipation to a systematic procedure."

The design methodology strand of design research is based on the assumption that design can be systematised. It can be but at the possible expense of treating that which makes design distinct from engineering or planning.

Hillier´s question forces an analysis of what design is. It exposes a conflation of two related but different processes: the technical aspect of design and the creative aspect of design. The tendency to focus on that part of design focused on systematic procedure has produced a school of design not dissimilar to engineering. There was a point when it was a radically creative idea to eliminate decoration, as new products so designed could be seen in the context of the world of the old, decorative-arts approach to design (Loos, 1913; Michl, 1995). Today, many western people live in post WW2 constructions; minimalist, "engineered" designed objects are indistinguishable from engineered objects (See Fig 5. a Danish light switch). That is one consequence of a focus on the technical aspect of design. The technical approach may make it impossible to see the bat as a designer would.

We must look at the alternatives put forward by Hillier (1998). The question requires that one can define and recognize the legitimacy of intuition. There is a problem that intuition and legitimacy might not be compatible terms. To be legitimate means to conform to rules or to be defended with logic or justification. Taking the second meaning as more relevant, the intuition is justifiable if the results are satisfactory. So, the test of the design process is whether the results are satisfactory, that they meet the stated requirements. In plain terms this is to say the ends justified the means. An example: the wish to make a good-looking object. Is the object good-looking? If yes, then the process is justified. By that definition, the design methods approach loses its power, at least applied to industrial design. The recognition of the legitimacy of the design is a non-trivial problem. As shown above, to be legitimate means to be defensible by logic or justification. Since design is not philosophy, it is not enough for the formal logic to be correct. If, however, we allow that the defense is a logical argument then logical

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terms must correlate with aspects of reality rather than only internal logical consistency. For example, the form of the object must seem appropriate to its stated function (loosely defined). To test the legitimacy of the process one must have a record of the process. That is usually not the case. But assuming a documented design process, one could show evidence leading to the conclusion. Then it could be said to have been a legitimately intuitive design process. But the problem now is that an intuitive design process is usually obscure one: the designer may have simply chosen a reclining rectangular form as a basic theme without *a priori* reasoning. If the process was accurately and fully documented, the problem still remains that the success criteria ("is it a satisfactory design?") rely on essentially subjective estimations. On the other hand, the more an object and a process can be made to conform to objective criteria of fitness the less interesting the design object is and the less likely it would be recognized inter-subjectively as a piece of design (see Figure 5). It is easy to see if a light switch has met defined requirements but the object is not aesthetically rich. It is less easy to see if an armchair or motor car have met defined requirements and these are objects designed with typically sparse documentation and much reliance on intuition.

Few would call a light switch a "designed" object; it is more the result of engineering decisions. Aspects of the armchair or motor car are also engineering decisions but they are not the totality of the object. The question remains: is the shape of the striking car, attractive kettle, or "iconic" armchair legitimate or not? In essence, there are no objective rules-based ways to test the legitimacy of the design other than to ask if people like the results (appearance, functionality). If the answer is yes, the process is legitimate regardless of what it entailed.

This argument has shown that if design is legitimately intuitive, if the ends justify the means, then there appears to be little incentive in the development of procedures for its management.

Hillier's question also requires that we must disentangle the elements of "design" because depending on how it is defined (a perennial problem) not all of design is related to intuition, non-verbal processes or ends. One part is focused on quantitative factors and can be explicit and the other part is focused on the aesthetic which tends to be non-discursive and intuitive, that is the part dealing with pure form. Essentially, there is a tension between the extent to which design can be made to conform to an objectively literal model and to possess the richness of designed objects that sets them apart from engineered objects.

ADDRESSING FORM

Hillier (1998) proposes the idea that in dealing with configuration (meaning form) designers are engaging in a non-discursive process. He writes that "we have no words and concepts that describe it at anything like the complexity at which we create it and experience it in the real world" (ibid: p.39). This is an elaborate way of saying one might need a thousand words to describe a picture and still not capture its character. More words yet are needed for the process of creation of the picture. In Nagel's terms, it is (1) hard to characterise what it is a designer experiences subjectively and it is (2) hard to characterise verbally what we perceive visually. Understanding design involves both (1) and (2). Fig 2. Demonstrates how this problem is bypassed in design research.

Design researchers might want to consider the study of the object from the standpoint of the designer's perception and the general perception of the user. If designers and design researchers can engage with objects rationally at that level then it could translate into a better four way process (See figure 2). This would be distinct from the "the Science of Design" which Cross (2001) describes as "the study of the principles, practices and procedures of design" inasmuch as this approach does not get close enough to the subjective, intuitive nature of design nor on how designed objects are perceived.

Figure 5. Danish light switch.

There is some value to considering the meaning of form in the way that one also considers the meaning of words, artworks and actions. This can be broken down into this (non-exhaustive list)

1) Functional meaning: the form is supporting the function or the form is in accord with the function. An example might be an item of medical technology with simple, geometrical shapes.
2) Kinetic meaning: Cheryl Akner-Koler's (1995) concept of forces explains how the shape of objects is compared the known behavior of material. An example might be a curved surface that looks as if it has been subject to a force.
3) Analogical meaning: the object's resemblances in part or in whole. An example is the front end of a motor vehicle where the main elements seem to resemble a stylized human face.
4) Relational meaning: viewers can infer from an object how much effort was expended to make the object and how valuable the materials are. An example from product design is the effect of lead-in curvature on surface transitions which looks to be of higher quality than cruder curvature transitions (tangency and positional matching).

CONCLUSION

The conclusion to be drawn from this is that design research must make more use of first-hand analysis of designed objects. This means offering a description of the object along with a reasoned analysis for that opinion. What is then possible is for the reader to judge the argument made against the object it relates to. One can agree or disagree. This mode of research is not intended to replace the other modes. It does however bring into design research a mode of discourse that addresses the intuitive and non-discursive aspects of design in a way analogous to architectural and film criticism. Of course, architecture and film are not identical to design. Important similarities are that they are complex and visual.

So long as design research attempts to deal with the objective aspects of design only it underplays the subjective, aesthetic phenomena that distinguish design from engineering and planning. If "old school" design paid insufficient attention to objective research, it does not follow that design research itself should disregard the subjective nature of a design and designing. To reformulate that, "old school" design often relied on the designer's intuition, tacit knowledge and personal preferences (see Polanyi, 1966). The design process may have been unstructured and unplanned. The design methods movement articulated the hazards of this approach and attempted to formalise design in order to avoid negative outcomes such as a poor fit to users' needs and other problems.

The previous section should now be related back to Hillier (1998) who asked if design *"...is intuitive by default, and awaiting emancipation to a systematic procedure."* From the foregoing, the argument has been that the definition of a systematic procedure does not capture the intrinsic element of design, namely the subjective aspect. Parallel to that, design research (by which is meant here systematic research into design) has not dealt satisfactorily with that part of design and thus it tends not to address what it is in design objects that makes them distinct from engineering objects.

Design research should be able to address the aesthetic and subjective aspects of design objects since this is what makes them worthy of attention and that which puts them into a distinct class. Design is a discipline that encompasses methods that draw on natural science and social science approaches. However, there is an aspect of it which can be characterised as belonging firmly to the arts and requires informed and analytical but, ultimately, subjective approaches. A way to think about this is to draw on Bent Flyvbjerg's (2006) argument for case studies and consider the designed object and the researcher's view on it as a case. Turning to the other side of design, the creation of designed objects, both researchers and designers might usefully accept the value and also the limitations of attempting a fully systematic approach to design. It is a reasonable hypothesis that systematic design methods reduce the likelihood of design failure. There is also the risk that the scope of design is reduced to be as close to engineering design as to be indistinguishable. A case could be made that designers act as if their work is solely the result of systematic procedure when in all likelihood the forms are really the result of moments of intuition and inspiration set inside a systematic procedure ("caged intuition"). The consequence of this is that the designer dodges responsibility for the result by at least implying that it is the outcome of objective procedure. As Michl (1995) shows, the programme is selected by the designer and so is the procedure. No design is really the result of an objective process and nor is it true that when a designer sees a bat, they see only value-free geometry. Designers see bats and other things in a way informed by aesthetic understanding and they create things in the same way. Design research should address this in ways as diverse as the effects design objects have on the viewer.

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Photo:: Johner AB

When consultancies acquire design agencies: Fjord and Veryday

In recent years management and technology consultancies that have not traditionally focused on design have made high-profile purchases of design agencies. What lies behind these acquisitions, how do you integrate design agencies into a global consultancy, and, not least, what does the future look like?

By Jon Engström

IN 2013 ACCENTURE, ONE OF THE WORLD'S LARGEST CONSULTANCIES with 400,000 employees, acquired the design agency Fjord. Fjord was then a British company with studios in various parts of the world, including one in Stockholm with nine employees. In 2015 the management consultancy McKinsey acquired the American design agency Lunar, and at the end of last year it bought the Swedish company Veryday. These acquisitions are part of a bigger trend of global corporations making major investments to strengthen their design expertise. In this article we meet with Fjord and Accenture, and Veryday and McKinsey, in order to understand what lies behind these acquisitions, what those involved have learned during the integration of their companies, and how they see the future of the design market.

Fjord and Accenture

I interviewed Daniel Freeman, Group Director for Fjord Stockholm, and Mattias Boman, Managing Director of Accenture Interactive Nordics , at Fjord's studio in central Stockholm. The studio has a clear designer touch – it is an open, creative and colourful environment.

New digital channels created new needs

My two hosts explain that the acquisitions of recent years stem from changes in the market that began 10 to 15 years ago. New digital channels for interacting with customers have been created. The leading companies have created customer experiences that have driven expectations in the market.

"Managing to deliver positive customer experiences in all channels has become an incredible challenge for companies," Boman says.

Interest in customer centricity has moved higher up the companies' hierarchies and has led to more extensive design commissions.

"When we were independent at Fjord, before Accenture, we noticed we were gradually talking with more and more senior representatives of our customers," Freeman explains. "They asked us to help them with customer centricity and increasingly complex problems. This led to some frustration for us – we could design an experience but it was hard to get our design implemented on a large scale."

Likewise, customer experience was also becoming more and more important to Accenture's clients. Accenture had the technological platforms and strategic expertise but its clients often did not sufficiently understand what customer centricity involves or the value of design.

"We needed to be able to explain the value of design and we needed to integrate design into the delivery process ourselves," Boman says.

Technological advances have created a complex reality for design agencies. There are advantages to being part of, or working with, companies possessing a higher level of technological focus and expertise.

"It's a matter of being able to deal with all the new developments – such as virtual reality, augmented reality and artificial intelligence. You can be lucky and invest in the right technology but that's not sustainable," he adds.

Design is decisive in creating services with great appeal.

"Many companies understand more and more that this is of central importance yet still need help in successfully incorporating customer centricity with business and technology needs", Freeman explains.

The need to integrate more skill sets into the development process has also increased. For example, marketing and communication could previously be done separately from product development. Now they are built into the service, and the skill sets must therefore be integrated into the development work. Daniel Freeman gives an example of how design can be used to integrate technology, communication and marketing:

"Together with designers we were able to humanise the process of using artificial intelligence. When we developed a chatbot for a customer, we didn't just ensure it was user friendly but also that it communicated in a way that expressed the company's image."

At the same time as complexity has grown, the rate of innovation has also markedly accelerated.

"Companies need to be able to develop and launch a new product or service within a hundred days. That's difficult if your company is divided into different departments whereby maybe one group works with design, another with technology, and others with marketing and strategy. Then a partner is needed who can manage to tie everything together."

Daniel Freeman, Group Director for Fjord Stockholm, and Mattias Boman, Managing Director of Accenture Interactive Nordics, in Fjord's studio in Stockholm.

Fjord and Accenture celebrate their fourth anniversary

This summer was the fourth year since Fjord and Accenture joined forces.

"The journey has not always been easy, especially since there were no clear models for how it should happen," Freeman says. "This was the first global acquisition of this kind."

Fjord and Accenture drew up a list of the basic principles of the merger. It encompassed everything from the employees being allowed to keep their Mac computers to the retention of the studio structure, culture and rituals.

"We've worked to retain our identity and the way we work," Freeman says.

At the time of acquisition, Fjord's Stockholm section had nine employees. Today there are fifty.

1 Accenture Interactive is part of Accenture, whose business activities include service design, marketing strategy, marketing, and customer experience.

"Such strong growth creates a lot of stress on the culture and identity," Freeman says.

"When you're under pressure dealing with many commissions there's a risk that you start to take shortcuts," Mattias Boman explains. "One of the biggest challenges we've had is to explain both to our clients and internally within Accenture how to sell design and also to allow people who are different [i.e. designers – author's note] to give presentations to important clients."

Another challenge has been to find a compromise between the designer's desire to create the ultimate design and the consultant's focus on delivery.

"As a designer it's hard to accept compromises because the task is to push the limits," Freeman says. "Then it can be painful to first design, then deliver, and then gradually improve. That's something we've definitely had to learn in the past few years."

"Designers and consultants use different languages and that's something that takes time to mature. The strength lies in the combination," says Boman. "We've now done this for four years and we've come quite far. We've focused on creating the cooperation from the bottom up – that people get to know each other and can build confidence in each other."

For Accenture, the acquisition of Fjord has also meant a change towards a more customer-oriented form of business development throughout the company, whose previous focus had often been on processes, strategies and technology.

"Through the purchase of Fjord our offering has become significantly more modern. We can start from the end customer – where value is created – and then understand how the organisation should deliver the experience. This is clearly a much better way of driving business development."

An ongoing golden age

Daniel Freeman and Mattias Boman believe this is a golden age for design, with strong demand and insufficient supply. This creates opportunities for various types of player.

"Some want to hire the services of a designer, some want to have a niche designer, others want to have other types of collaboration. The broader the design concept and the more diversity that exists, the better."

At the same time, Boman believes the market is facing a consolidation in certain areas.

"For the more comprehensive and transformative commissions there will be a more limited number of players who can participate."

He also predicts the relationship between different players will change:

"We have to be humble and say that we can't solve everything. We must open ourselves up to society in general – to startups and the whole ecosystem. We'll be seeing more of this in the future."

Veryday and McKinsey

I met Peter Andén, partner at McKinsey and CEO of Veryday, and Anna Bäck, COO of Veryday, in the company's characteristic premises – a rebuilt mission church in the Bromma district of Stockholm. Visitors encounter many awards for good design – everything from SAS's classic coffeepots to IKEA's new "Sladda" bicycle.

Convergent design made the difference

Just as with Accenture/Fjord, Bäck and Andén see the development of digital technology as an important driver of the acquisitions in the design market. New technology has created the foundation for masses of innovations and has made customer centricity increasingly important. Today customers can easily share their experiences and compare different products.

"The development of digital technology created a boom for user-centred design that has been driven by a number of players. With the help of user-friendly products, they have been able to knock their competitors off their feet," Bäck explains. "The key is to deliver something extra that customers themselves haven't realised they want – then the customer experience has greater strategic importance."

McKinsey's investment in design began with the purchase of Lunar, one of the leading design agencies in the US, but McKinsey has also grown organically via McKinsey Digital Labs with more than 100 designers.

"McKinsey has been a traditional management consultancy but over quite a long time we have been adding specialist functions in design, digital services and advanced data analysis," Andén says. "Especially in the past five years we have expanded in the digital services sector, and globally we now have 800 developers and over 300 designers. This is one stage of a long-term strategy."

Veryday saw the advantages of having a partner who is used to speaking with the highest management at the customer level.

"The whole field of design and customer experience is now coming far higher up the agenda," Bäck says. "Before it might have been a product manager talking about customer experience but today the topic is being discussed by the CEO and management board. So then it's good that we have McKinsey with us."

That McKinsey's choice fell on Veryday in particular was due largely to the latter's already strong position in what is called "convergent design" – when physical products, the digital aspects, and services are linked (read more about this in the articles on servitization, p . 26).

"Many companies are skilled at product design but when you have to combine the physical aspects with digital design and service design, this is a unique area where Veryday was the leader. Often it is here that clients' challenges are to be found."

United by a passion for the customer

When McKinsey bought Veryday, the experiences from the Lunar acquisition came in useful. So far the collaboration has gone unexpectedly well, with one key factor being a shared focus on the customer.

"We share a passion for the customer – both the end customer, that is, the user, and the client, our direct customer. McKinsey and Veryday have differences in their methods but the vision is the same so it all still works out," Bäck says.

There is no desire for any total integration.

"The aim is to build the most preeminent design agency, not to satisfy internal needs," Peter Andén says. "We're looking at how we can turbocharge Veryday and create the most spectacular design company."

Retaining the company's identity is important.

"We want to keep the culture and the premises, which contain a lot of passion and soul. We believe that's important for creating good design."

Even though McKinsey's acquisition of Veryday occurred just over six months ago, the two companies have already worked on many shared projects. These combine skills from Veryday and McKinsey, such as design with strategy and advanced data analysis.

"This combination is very powerful," Andén says. "We've got results that neither Veryday nor McKinsey could have achieved by themselves."

He gives the example of a customer segmentation project to develop a product in the health-care sector. McKinsey implemented a quantitative segmentation with the aid of various data sources. Veryday did a qualitative study with in-depth interviews and customer journey mapping. Veryday's designers could quickly create 3D prototypes and test them on users. Meanwhile, McKinsey focused on aspects of the product development, such as what various components would cost. Together they were able to develop a user-friendly and cost-effective product.

"The sets of problems are the same but are based on totally different approaches," says Andén. "We get a richer picture of the entire customer experience and can add several dimensions of value for our client."

They both believe that the merger has enabled different forms of expertise to come together. This has resulted in many useful lessons.

"I believe that many of my colleagues are inspired by adding more dimensions to the projects we're doing," Bäck adds. "It's possible to get up to a higher strategic level and influence which products are made. Previously we got to do this sometimes but not always."

Andén highlights Veryday's focus on details as particularly instructive.

"Going into such depth is impressive. For example, I'm thinking of the SAS coffeepot and all the prototypes. Understanding the angles. Understanding the hand. Or Veryday's work with Gillette – really understanding the shaving habits in various countries. The superb work and the depth fascinate me."

For the employees, the merger creates opportunities for exchanges between McKinsey and Veryday, but also between Veryday and Lunar, for example.

"Many people think it would be exciting to work for a while in San Francisco," says Andén.

Further consolidation will come

Bäck and Andén perceive major opportunities in the design market in the future as well as further consolidation.

"Veryday is being contacted more and more about business strategy issues, and clients are asking for increasingly advanced and complex services," Andén says. "This is a sign that the design consultancy market is becoming ever more sophisticated and it's a matter of combining the physical and digital aspects with services. I believe there's a huge amount for design agencies to do". He also predict a continued trend of acquisitions and consolidation.


Photo: Jon Engström

Anna Bäck, COO Veryday, and Peter Andén, Partner at McKinsey and CEO of Veryday, in front of Veryday's studio in Bromma, Stockholm.

"We're working a lot to help transform companies. Other consultants might focus more on things like supplying a specific IT solution, but we develop new products and services that drive a company's transformation. Together McKinsey and Veryday are very strong in this field."

They both emphasise the importance of creating an understanding for the significance of design.

"We want more people to understand the scope of design. A design approach can be applied to many, many issues a company has," Andén says. "Today global companies are coming to us and asking: 'We're facing a major transformation in the entire way we work and how we meet our customers. How can you help us to implement design in our various work practices?'

"We believe in design as a work method, and together we have the capacity to deliver something totally fantastic to our clients!" ■

Photo: Ikea

The servitization journey has just begun

Servitize or die, more and more people are saying. In a world of increasing competition, loyal and long-term customer relations are created when services are integrated with existing products. Differentiation, survival and profitability are made possible – and the help of a service designer makes it all easier.

By Susanne Helgeson

A WORD THAT IS BEING HEARD MORE AND MORE in every sphere of activity from manufacturing to retailing, marketing and service provision is servitization. The term is attributed to researchers Sandra Vandermerwe and Juan Rada, who in 1988 published the article "Servitization of Business: Adding Value by Adding Services" in the European Management Journal. In its broadest sense, servitization is about "an increased range of customized offerings that combine goods, services, support, self-service and knowledge in order to increase the value of the core product."

Ultimately at stake are companies' survival, profitability and brand building. As competition gets tougher in today's global markets, especially in uncertain times when consumers prefer to postpone making major purchases, it is scarcely enough to have just one quality product. To ensure growth, stand out better from all the competition, and create loyal, long-term customer relations, more and more companies are adding services to their existing products in order to create integrated solutions based on customer needs. Some examples: Swedish furniture maker Kinnarps is renting out furniture, Ikea is helping to design and install kitchens, and BMW is launching an app to enable car owners to rent out their cars to other people in a kind of private car pool. Sometimes the service is closely linked to the core product, like when Procter & Gamble launched a dry cleaning chain with the same name as its best-known laundry detergent – Tide. Sometimes the service is more remote; one example is the UK grocery chain Tesco offering everything from travel experiences and mobile telephony to banking and insurance services.

> The central question – **whether to sell products or services, or products *and* services** – affects so many companies"

A method for profitable service development

Two specialists in servitization are researcher and Associate Professor of Industrial Marketing Christian Kowalkowski at Linköping University and his colleague, Professor Wolfgang Ulaga of Arizona State University. Together they have recently published the book Service Strategy in Action: A Practical Guide for Growing Your B2B Service and Solution Business. In brief, it is a guide to how your company can use a well-explained twelve-step method to move from a product-focused business to a service-focused one – and to the profitable development of services. The book gives guidance on how to best determine if your company is suitable for services, what service strategies to use, how to best create an organisational structure that promotes service development, and how existing services can be exploited and new ones discovered.

"There is huge interest in this field and here at Linköping University we are considered to be among the pioneers of servitization research," Christian Kowalkowski explains. "I've been working full time with this since 2008 and in recent years I've noticed that more and more people who work in product development have realised we must work more together with these issues."

The designer as developer and driver

"The designer's role is central," Kowalkowski continues. "Partly it involves developing a broad spectrum of services – both those close to the product and ones that are farther away – and developing business models more generally. And partly it's about driving an internal process of change while having a customer focus, which I believe designers are good at doing. A designer can support both the commercialisation and the industrialisation of services by applying design-oriented methods. Often a cross-functional approach is needed, which requires that colleagues and partners from various units have both the knowledge and the willingness to work towards the same goal. In addition, nowadays servitization and digitalisation often go hand in hand, but unfortunately this means that many companies are tempted to start too much from what is technically possible instead of first understanding the customer in depth."

Christian Kowalkowski, Associate Professor of Industrial Marketing at Linköping University.

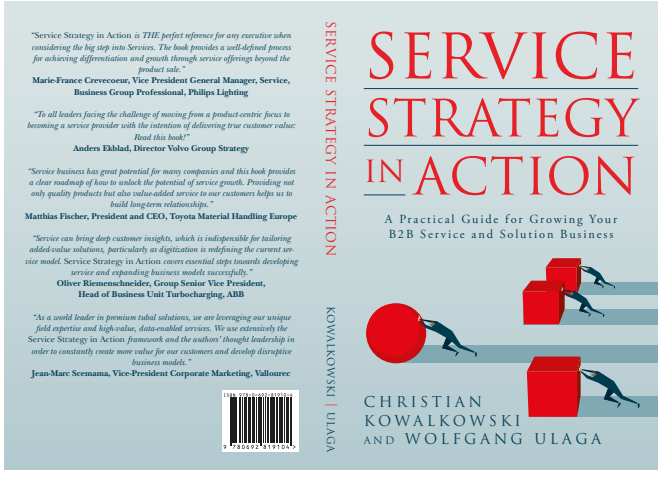
Less cyclically sensitive

One of the reasons for writing the book was that its authors noticed that research generally has difficulty reaching a wider audience. The book complies the results of a large number of scientific articles, based on many years of studying many different companies' servitization experiences.

"The central question – whether to sell products or services, or products and services – affects so many companies," Kowalkowski explains. "That's why we decided to write a book for decision makers, business developers and consultants in many different industries.

"More and more people have already realised that the ever-stiffer competition is making it harder to get paid for product quality, while at the same time customers are demanding that suppliers assume greater responsibility for maintenance. In addition, services are far less cyclically sensitive, which is a big advantage. A car owner might postpone buying a new car but will then need more service on the old one."

The authors also point to the challenges of servitization – for example, the whole brand suffers if the services do not work. But having a service designer on staff minimises that risk. ■



Cover of Christian Kowalkowskis and Wolfgang Ulaga's book.

Photo: Mia Oscarsson

Involve customers in servitization

When companies that have traditionally focused on manufacturing physical products start adding services and solution offerings, inward- and product-focused thinking are no longer good enough. The customer must be involved in the process. Here are some tips from my and other's research.

By Elisabeth Johansson

IN RECENT YEARS I HAVE STUDIED how manufacturing companies have begun including services and solution offerings in their offerings. Between 2014 and 2016 I closely followed three small manufacturing companies' servitization journeys, and performed a survey of 239 European companies. In particular, I have examined the companies' efforts to increase their knowledge about their customers and how the latter have been involved in the work to develop services. Even though many people who work with these issues on a daily basis have intuitive- or experience-based knowledge, many questions lack clear answers from a scientific perspective. How, when and why should companies involve their customers?

The research situation – some uncertainty reigns

Researchers in the field agree that customer involvement should occur at least during the early stages of service development. If a company is satisfied with capturing the needs that customers themselves can express, then methods like customer interviews, focus groups, surveys and other "reactive" methods are suitable for gathering information. If a company wants to understand its customers more deeply and explore unstated latent needs, then more long-term collaboration is required. Involving leading customers can be a good way of understanding which way the trends are heading.

One question that many researchers are focusing on is the degree to which customers should be involved in the practical work of the development process. On this topic, researchers are not entirely in agreement. Some studies show that the more customer involvement the better, especially in the development of new services. This applies, for example, to participation in development teams with projects that can continue for some length of time. However, sometimes the opposite is shown, especially regarding the development of physical products. In that case a some amount of customer involvement is seen as good – but not too much. The customer is perceived as being able to describe its needs or give feedback about prototypes, but not to be sufficiently technically knowledgeable for deeper forms of involvement. Thus the more technically complex the product is and the higher the level of innovation, the less the customer is considered able to contribute to the development process. Other studies suggest that certain customer groups, especially lead users, can certainly be involved at a high innovation level.

More successful innovations

The results from our European survey showed that companies that use several methods in parallel to gather customer information gained a higher level of customer knowledge. We also saw that having high customer involvement (particularly early on) and a development team comprised of people from various sections within the company provides more knowledge about the customers and more successful results. One example of this is that development engineers and sales reps have different perspectives on the customer and its use of the products. Having various job roles involved and contributing will in the end lead to better service innovations.

For manufacturing companies, customer involvement proved to be particularly beneficial in the case of smaller, incremental service innovations. In contrast, when companies

chose to implement radical service innovations, the customer involvement was less valuable. When manufacturing companies involved customers during the service development process, the service innovations also became more profitable.

Three small companies' servitization journeys

Manufacturing companies that introduce services to their offerings encounter many challenges. One of these is to adapt their development processes so they can also handle service development. When I began following the small and medium-size manufacturing companies that were trying to introduce services, at first they had difficulty letting go of their focus on the physical product. Their main goal was continued product sales, with service being an add-on. The possibility of seeing which services could be included and added to the product was neglected.

> "**Technically skilled product developers** often start with the technical possibilities or their own perception of **customers' needs.**"

As a rule, manufacturing companies rely on technically skilled product developers, who often start with the technical possibilities or their own perception of customers' needs. But to succeed with service innovations, the customer must be involved. The customer, who a manufacturing company often only encounters during the sales process and when problems arise, is an important player in the delivery of services and must therefore also be involved in the development process. This is something that many manufacturing companies lack experience of. These companies need to adopt new approaches, methods and thought processes.

At an early stage of the project we already convinced the companies to increase their customers' involvement. The companies visited the customers in their factories and discussed issues such as "how are you using our products, what are your customers asking for and how are your customers using your products?" This method offers great possibilities to involve the customers more in order to discover what their processes look like and how the services can be adapted to them. This situation was new to the companies, and they initially lacked the skill of systematically taking advantage of the possibilities. One of the companies worked in the recycling industry. The company selected specific customers to represent various areas where the product was being sold. The company visited the customers a number of times and on each occasion tried to gain a deeper understanding of how the customer was using the product and what problems arose. It turned out that many customers were insufficiently knowledgable about the laws and regulations governing the use of the products. The company then developed various training packages in order to disseminate knowledge and support the customers to repair the products themselves and to approve the repaired products. This was a success and the company has now developed an online training service. One lesson from this case is to examine the product's use and what the customer is doing with it. This results in new service innovations.

Developing solutions takes time

If providing add-on services is the initial stage of servitization, providing solution offerings is the mature stage. The solution offering is when products and services are integrated and create added value for the customer. Part of the task here is to support the customer in their value-creation processes, which means that the development of the solution offering must occur cooperatively between the company and the customer. The company thereby gains a lot of knowledge about what the customer does and can customise its offering. In turn, the customer can gain more knowledge about how the offering can be developed and adapted to its own processes.

In our study of the three manufacturing companies, we learned that as the complexity of the solution offering increases, so, too, does the time required until the offering is operational. One example of this is a company in the healthcare sector. Its solution offering rests largely on the movement of hospital personnel and patient beds within the hospital. In order to learn about its customer's movement patterns, the company monitored a hospital department for a longer period of time. Among other things, the company observed and shadowed the personnel and implemented pilot projects. The aim was to be able to demonstrate what value the solution could offer and which alternative costs would disappear. This long-term but important work gave the company invaluable information about how it needed to design the solution so that it would suit the customer's processes. ■

My three most important tips about servitization are:

- Explore how the physical product is used. Exploit this information – it is the key to many new services.
- Involve the customer more in the development of (small) incremental service innovations compared with the development of (large) radical service innovations.
- When you are developing a solution offering, make sure that you work closely with the customer and let it take time. If the comprehensive solution is to support the customer's processes it must be thoroughly customised.

Elisabeth Johansson is an assistant professor at the Division of Logistics and Quality Management, Linköping University.
Read her thesis: Understanding Solution Quality, which is available online (search to find it).

Policy Labs
for quick tests done right

The public sector faces major and complex social challenges. Policy labs are connecting social actors and citizens to find new solutions.

By Fredrik Olausson

THE PUBLIC-SECTOR OPERATES IN A COMPLEX WORLD. People, organisations and institutions comprise a system in which the actors influence each other and the entire system over time. Society's challenges usually span a range of different sectors and meeting these challenges is a complex task. Managing issues such as refugee reception, mental well-being or the complex building of society means that the system's components must work together and organisations must coordinate their efforts. This is made more difficult by the traditional silo thinking that permeates Sweden's public, non-profit, and private sectors. It has become more and more clear that traditional forms of governance based on a top-down perspective with sectoral boundaries are no longer effective. The classic administrative structure is quite simply not built to handle complex social challenges that require a holistic perspective and an ability to work across both policy areas and administrative boundaries.

Policy labs an international phenomenon

Ineffective silo thinking is not only a Swedish problem. To meet these challenges, many other countries have established policy labs to create the forums and tools for cooperating across boundaries and sectors and between various administrations, authorities and government ministries. It is particularly important to also involve users and citizens in this process, which should be open and inclusive. One Danish forerunner is Mind Lab, which has existed since 2002 and is a cross-sectoral development unit working with public-sector innovation. Starting from the views of citizens and social actors, Mind Lab helps the public sector to design various services and implement legislative changes. Among other things, Mind Lab has worked with almost 400 educators in Denmark to develop a plan to turn the country's new school curricula into a reality. In Sweden a number of labs have been founded, such as Experio Lab (which works with challenges within the health-care system), Trafiklab (a "community" that aims to disseminate public transport data to various social actors), OpenLab (for social innovation in Stockholm), and Mötesplats Social Innovation (with a focus on social development in Skåne).

Policy labs can be quite varied in terms of their organisation. Erika Augustinsson, who works at Mötesplats Social Innovation, gave a good summary of the structure of policy labs in an article in the Swedish magazine *Dagens Samhälle* (Today's society)[1]. She says policy labs are platforms with a mandate to act quickly in order to increase the ability to design holistic policies and to facilitate policy development between administrations,

When systems comes together – this example from Co-Lab when the different actors around unaccompanied immigrant children and youth meet.

1 https://www.dagenssamhalle.se/debatt/soekes-ett-svenskt-policylabb-foer-innovation-28696

authorities, government ministries and academic disciplines. A lab normally contains several different forms of expertise that work together, such as change management, communication, service design, ethnography and behavioural science. Labs use testing and an iterative method to build up the ability and courage to think in new ways and respond to risks as they arise.

Together with the officials who will design the service for the target group, the lab can drive a process of change that focuses on new solutions. Equally important is to identify obstacles in the form of laws, regulations, praxis and policies. These are legacies from the time before terms like "cross-sectoral work" or "sustainable development" were in use. Today's rapidly changing world does not offer any simple answers. These lab environments are therefore needed so that we can experiment, explore and find ways to get the target group involved in order to create a more agile, co-creative and open public sector.

Dare to make mistakes in order to get it right

The most important aspect of the labs' function is – in addition to having a testing and inquisitive work method – to also include both users and employees in the work. By understanding these groups' needs in depth, and by working in an exploratory and iterative way, this inclusion will lead to solutions that meet actual needs and not just ease the symptoms.

> "**Here people, contacts, ideas and learning are brought together.** We want to be here because this is a **learning project.** This is a forum for meeting others who are working with the same issues"
>
> Jurate Karlsson, the Swedish Migration Agency

The labs' work method is based largely on design methodology. This builds on exploring needs and problems, generating ideas, creating prototypes, failing and trying again – together with the user. Drawing on things like interviews and observations, the lab gains an insight into the user's daily life and the needs that exist from the user's perspective and not from that of a specific organisation. This is important in order to identify the "right" challenge area and problem. On many occasions, the immediately apparent problem can merely be a symptom of the real problem. After a solution has been found, the next task is to have the power to implement change and to scale up.

Co-lab Sweden

Over the past five years Sweden has received more than 50,000 unaccompanied child and youth migrants. Co-lab Sweden is working at the mandate of the Ministry of Health and Social Affairs to create better welfare and a faster way into society for these individuals.

WITH SUPPORT FROM THE MINISTRY OF HEALTH AND SOCIAL AFFAIRS, bin autumn 2016 the Swedish Association of Local Authorities and Regions (SALAR) were allocated funding to operate Co-lab Sweden. The Swedish Industrail Design Foundation, SVID, was commissioned to implement the initative. Co-lab Sweden is intended to act as a multisectoral platform for innovation and cooperation in order to solve, from the user's perspective, complex issues at the national level. The aim is to be able to apply the forum and methods used to any complex social challenge.

"The lab's first challenge is to create a better everyday existence for unaccompanied children and young people," explains Pia McAleenan, project manager at Co-lab Sweden.

Bringing actors from the non-profit, private and public sectors together with the target group in a secure environment far from the regular organisational functions creates better conditions for achieving ideas without silo logistics. New solutions to complex social challenges must be met by multisectoral and scaleable approaches.

Since the beginning of autumn 2016 some 40 actors from the public, non-profit and private sectors have been linked to the lab. These actors have med on several occasions and discussed multisectoral challenges and opportunities. At the same time Co-lab Sweden has met a large number of unaccompanied young people, who have described their situation and how they experience the system. In the work to create a better everyday

Exercise where the children and adolescents get to know each other and express how they feel.

> Working like Co-lab Sweden is excellent if you want to **eliminate organisational gaps!**"
>
> Mats Tyrstrup, associate professor researcher in business economics at the Stockholm School of Economics

life for unaccompanied young people, it has been important to give them influence within the contexts they are part of. They are experts about their own situations.

"We're working according to a model where we are trying to grasp and understand the needs of these unaccompanied people," Pia McAleenan says. "By merely talking, we believe we are missing out on many insights. That's why we're also working with manifesting in various materials plus image-based storytelling, all in an enjoyable and inspiring way.

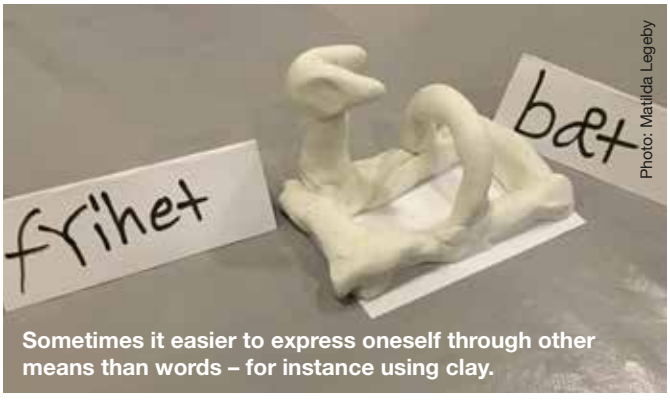
"We've also noticed it's often easier to have a freeranging discussion about various topics, instead of using in-depth interviews and other more traditional information-gathering methods. This applies whether we meet with unaccompanied children and young people or with working adults."

The information and insights from the conversations with the unaccompanied young people were taken back into the lab for use as a basis for discussion. The lab participants chose three challenges to focus on more: the lack of information, reinforcing the adults around the children, and reinforcing the children's and young people's identity and sense of self. Based on these challenges, the lab participants have worked with the unaccompanied individuals to generate ideas for proposed solutions to the needs identified within the framework of these three challenge areas.

"It's fantastic how Co-lab Sweden has captured the views of the children and young people and what they feel is important," says Sonja Ghaderi, coordinator in Uppsala Municipality. "This can be challenging and is something many people need to improve at. That inspires me."

During the spring the lab participants met on three occasions in three different groupings, in which they worked with the three challenge areas. The unaccompanied young people have continually been given opportunities to contribute and suggest improvements. The smaller groupings have worked according to the model: capture and understand the insights in order to create innovative solutions that renew the young people's welfare.

In May 2017 all the lab participants met in a large group to present their ideas to each other. Also present were unaccompanied young people, who could ask questions and give relevant feedback. Some of the ideas that arose during the work done in the spring focus on getting the public-sector actors to cooperate at a higher level in order to enable more independence and self-esteem among the unaccompanied individuals. Co-lab Sweden also perceives good opportunities to improve these people's everyday life by hiring previously arrived unaccompanied young people who have been granted a residence permit to help the newer arrivals with such things as questions about their rights and obligations, and questions about Sweden and culture. The next step is to test the ideas on a small scale but in live situations. This will allow the solutions to be refined before they are scaled up to the national level. The tests will be carried out by the lab participants within their respective organisations. During the entire test phase, the participants will receive support from one another via a number of network meetings. ■



Sometimes it easier to express oneself through other means than words – for instance using clay.

Photo: Sara Tunheden

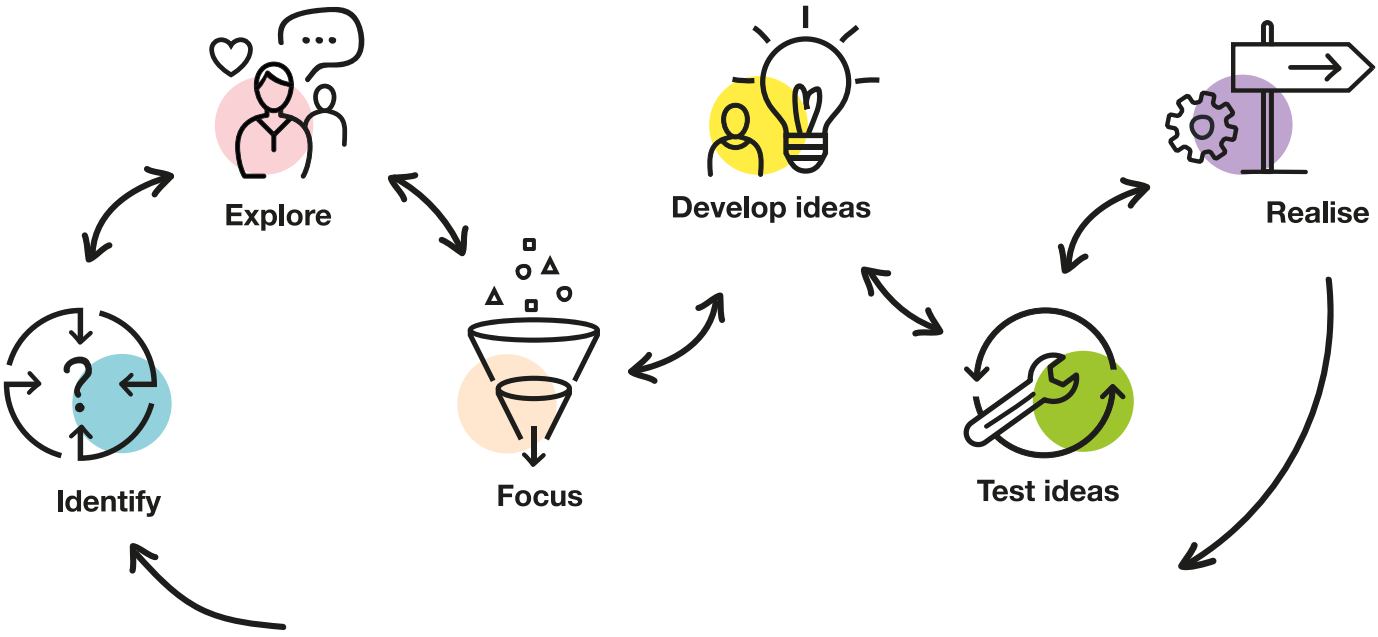
Innovation Guide offers help for self-help

The Innovation Guide is a development programme and methodological support tool designed to enable participants from the public sector in Sweden to work by themselves with user-driven innovation and service development in their own field of activities. Two previous participants of the programme that have gained insights about their residents' daily lives are the City of Gothenburg and Uddevalla Municipality.

By Caroline Lundén-Welden

INVOLVING USERS CAN BE AN EYE-OPENING EXPERIENCE. When the City of Gothenburg signed up for the Innovation Guide programme and began to involve users in the development of its services to raise the quality of life for parents or other legal guardians of children with functional impairments, city officials became strongly moved by the insights they gained. Officials already knew that parents had a difficult situation, involving contacts with nearly 40 different government agencies and authorities. But when the parents were interviewed in depth and asked to write daily journals, it became clear that their everyday existence was even tougher than had been realised. A number of the legal guardians felt extremely alone

The Innovation Guide's six steps to renewal



The Innovation Guide's model is divided into six steps, which methodically take the development project from challenge to realisation.

and abandoned when they received the diagnosis. They said "I would have liked to have met someone when we got the diagnosis – it's been four years and four days since then" and "We've been given a diagnosis – what can we do?"

Based on the acquired insights, the project developed a prototype of a web-based safety kit. It is designed to make it easier for legal guardians to get through the first year after the child has been diagnosed – a critical period for the family. Parents in this situation will now test the prototype kit.

This method has been received so positively that the city is now continuing to implement it in other areas of its activities as well. User-driven development will become a method in the process for innovation and service development that the city is developing.

"Julia Olander and I have been out in the city telling people about our project," explains Gunilla Gudmunds, operations developer at the Administration for Consumer and Citizen Services at the City of Gothenburg. "There's great interest in this method in the city. We've had a workshop for operations developers and this autumn we will continue to work on what the methodological support in the city should look like. We want all the city administrations to be able to work in this way." In Uddevalla Municipality a simple solution turned out to have a major impact. The municipality wanted to increase the sense of security for users of its homecare programme. In general there was a good level of security but users worried about not knowing which caregiver would be making the next home visit to them. During the municipality's participation in the Innovation Guide programme, officials developed a simple but effective service. It enables users to see a photo of which caregiver will visit them next time.

"It was terrific to get the users' perspective because usually we think we know what they need," comments Ulrika Olsson, head of the social services unit of Uddevalla Municipality.

Involve the user

The Innovation Guide is a development process that involves producing new, innovative solutions based on users' needs and experiences.

"The fundamental aspect of this method is to involve the users in order to discover what their real needs are, and then to test and co-create the 'right' solutions together with the users," explains Sara Tunheden, service designer and project manager of the Innovation Guide.

The Innovation Guide is partly a digital platform with step-by-step instructions, templates and films, and partly a development programme. The development programme lasts for about nine months for the various project groups. They must attend three training sessions where they are given theory about innovation work interspersed with practical know-how and training in approaches and methods. The teams also get to compare experiences and exchange knowledge with other project groups

Photo: Ulrika Lundin

Prototyping during one of the training workshops.

that are undergoing the same process but have other challenges or areas of development.

Each team is given a coach who has good knowledge of the method and can guide them and be a sounding board throughout the entire process.

The website – innovationsguiden.se – offers the groups instructions and advice, methods and templates for downloading, and inspiring documents that can provide support for their work when they are back on the job.

Build capacity

By the end of 2018, 100 groups totalling about 600 people will have taken the Innovation Guide development programme. The idea is that they will pass on this work method within their own organisations.

"We want to support the participants by giving them tools so they can do this themselves," Sara Tunheden explains. A two-day basic course in service design plus a training course for coaches have been developed in parallel with the development programme in order to ensure the project's coach capacity and quality.

Important to prioritise and budget for innovation

A number of the participants said what a powerful experience it was to meet the users and how it had affected them emotionally. "Whatever the result, the project and meeting the children has made us better social workers," says Cecilia Hast Wagneryd, a social worker in Borlänge who has taken the Innovation Guide programme.

Many innovative solutions or proposed solutions emerged during the project. Researcher Jon Engström followed the project and interviewed the participants in depth.

"The digital support and the long-distance coaching are appreciated and create efficiency," he says. "The participants have learned new methods, and many also say they can apply the method to other projects and contexts. Perhaps the most important lesson learned by the participants is the importance of understanding the users in depth and not jumping immediately to offering solutions."

One important lesson learned from the Innovation Guide work is to carefully gain support for the development work within an organisation – among both the management and the employees. For many participants, time resources and organisational changes have been obstacles to the work.

"A good method as the one suggested in the Innovation Guide is necessary," Jon Engström says. "There must also be clear support from management. The public sector must become better at prioritising and budgeting for innovation."

There is strong demand from municipalities and county councils who want to learn more about user-driven development. At the same time, there is a need to create opportunities for working in a user-driven way within the existing structures.

"If many good new solutions are developed then there must also be enough room to turn them into reality," Sara Tunheden says.

The development process has now successfully been used within parts of the Swedish public sector but it also has great potential to be used in other sectors such as industry and government agencies. ■

Facts

The Innovation Guide is a methodological support tool for the public sector developed by the Swedish Association of Local Authorities and Regions (SALAR). Project manager of the initiative is SVID, the Swedish Industrial Design Foundation.

By 2018, 100 groups with a total of 600 participants will have gone through the programme.

The Innovation Guide was initially funded by Sweden's innovation agency Vinnova and the Swedish Ministry of Health and Social Affairs.

During 2017-2019 a similar programme is being offered to small and medium-size enterprises via SVID in cooperation with various partners.

Read more about the Innovation Guide at www.innovationsguiden.se

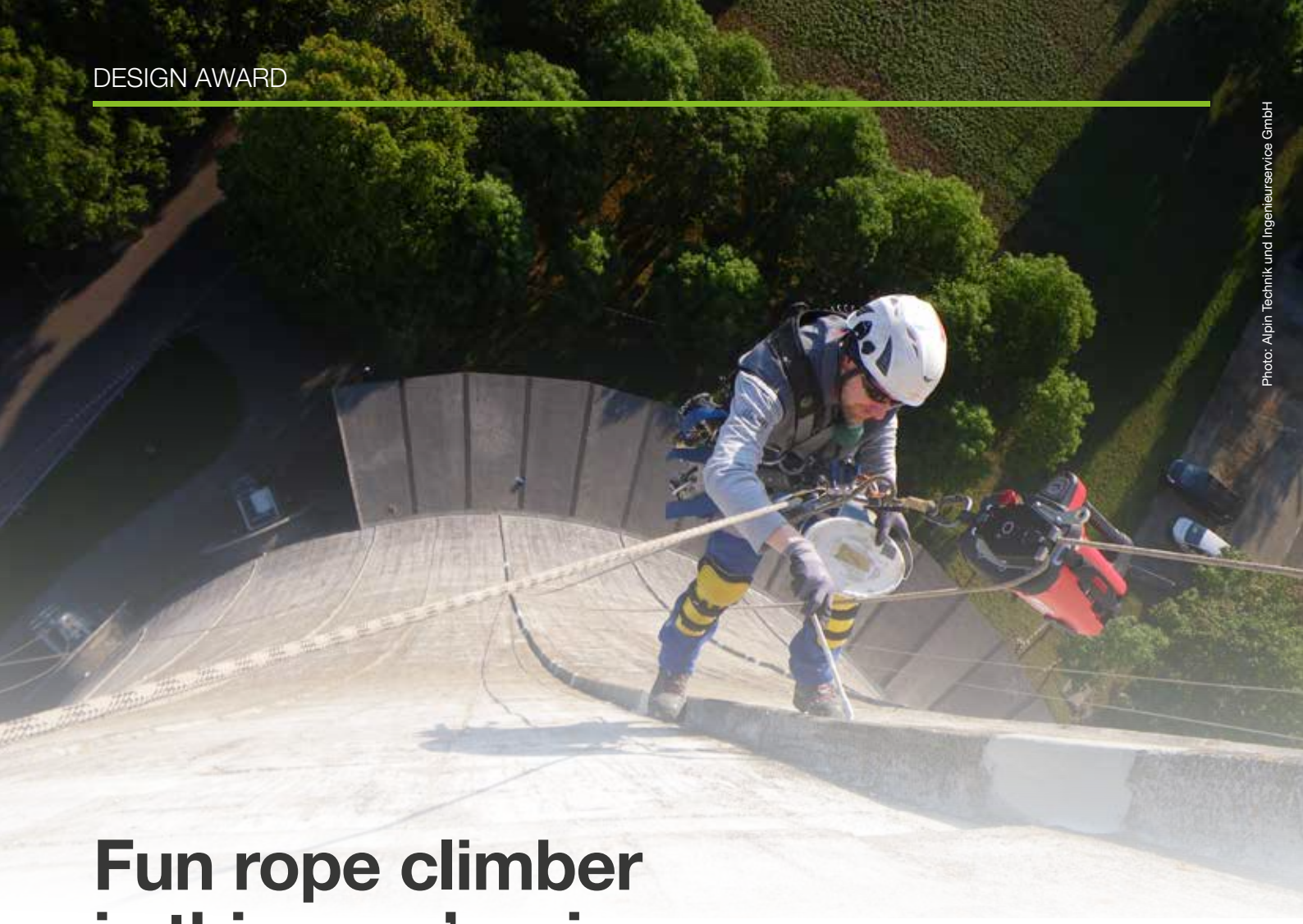


Photo: Alpin Technik und Ingenieurservice GmbH

Fun rope climber is this year's winner

The ACX Power Ascender was the victor when the Grand Award of Design was awarded in May. Or – to be more specific – the device's manufacturer ActSafe and "design supplier" Shift Design & Strategy were the winners. The jury statement says the winning product "revolutionises" the climbing activity it is designed for. What's more, it guarantees "driving pleasure".

By Lotta Jonson

BUT HOW CAN A ROPE WINCH BE REVOLUTIONARY? And exactly what do they mean by "driving pleasure"? Teknikföretagen (The Association of Swedish Engineering Industries), which organises the Grand Award of Design, seems to like macho advertising words. More than serious explanations?

"No, it's not like that," says Pär Bergström of Shift Design & Strategy. "The words are accurate – I can explain..."

Bergström is responsible for the design of the ACX Power Ascender. It is actually a third-generation power ascender but he says it has undeniably (together with its predecessors) radically changed the work of professional climbers who must descend into deep crevasses or ascend heights.

To clarify, the ACX Power Ascender is exclusively a work tool and not something for hobby climbers. It helps maintenance workers when a ladder or aerial access platform can't reach. It aids rescue personnel and makes law enforcement assault teams much more effective. Previously, people climbed a rope, used their arms and pulled themselves up along a line. All this clearly puts wear and tear on the body. There is no comparison to today's situation when an ACX Power Ascender takes you up and down almost effortlessly.

And the driving pleasure?

"Driving a car is a horizontal activity – here the journey is vertical," Bergström explains. "All the previous mechanical winches were jerky and intermittent. We wanted to create a smooth movement with the exact same response as a motorcycle – agile to drive. The user should feel safe and have control of the situation. The ACX Power Ascender works in exactly this way. So the term 'driving pleasure' is accurate."

The ACX Power Ascender is powered by a motor that runs on rechargeable batteries and is operated directly or by remote control. It is small and compact, measures only 33 x 28 x 27 centimetres, and weighs 13 kilos including the battery. It can take a load of 200 kilos and has an ascent rate of 0 to 24 metres a minute, depending on what it is being used for.

Far-sighted owners

ActSafe, which manufactures the ACX Power Ascender, was founded in the 1990s and launched the world's first motorised "power ascender" rope climber in 1997. In conjunction with a change of ownership, the company was forced to tighten its business focus. It decided to concentrate more on rope-climbing technology. The new owners were far-sighted and insisted that management hire a designer for the continued development work. A design agency named Hampf Industridesign was recommended, and Pär Bergström worked there. Hampf Industridesign later merged with the design agency Stinct and became Shift Design & Strategy. And that was how it happened.

"Our first project started in 2005 with a tiny budget and extremely limited production possibilities," Bergström remembers. "But we had to adapt accordingly. Over time the response from our customers made the company realise that the investment in the design had paid off – right after the first ride."

During this period, the company developed from being a small business with small resources into today's export company with sales of almost SEK 50 million (EUR 5.2m).

When Bergström joined the company and the business took off, ActSafe needed reinforcement on the engineering side of things. He connected the company with a skilled design engineer eager to be involved in developing an engineering design department. ActSafe now has some 20 employees at its head office in Lindome outside Gothenburg, plus many regularly consulted experts outside the company.

"This has been my longest job relationship – we've been working together for more than ten years," Bergström says. "One ActSafe project has followed another – always with interesting products. But for me by far the most important thing has been to see how the company and its attitude towards design have changed. Today nobody there questions whether design is worth it."

Everything is connected

As mentioned, the winner of the 2017 Grand Award of Design, the ACX Power Ascender, is the third generation of its kind. In describing the latest version it is impossible not to also speak about its predecessors. Everything is connected and the design work has progressed in a kind of logical order. But how, exactly? The question goes to Per Bergström again:

"There are major differences between the first generation and the latest one in terms of both their exterior design and technology. The first commission was to transform the first model, which already existed and was petrol driven, into an electric one. The demand for electric operation came from the German windpower industry, which had shown an interest in the petrol-driven model. At that time the external design was fairly unimportant; the commission then had very little to do with the aesthetics. Different production techniques require different investments. For example, to modify the shell into a more visually appealing plastic casing would have meant a major investment back then. In the first generation we used aluminium extrusion. It's a relatively cheap manufacturing method but offers limited external design possibilities.
"In any case, the response was above expectation. Since then the technology has been developed, especially regarding the power supply, such as the battery size. The award winning ACX Power Ascender is more compact. It is more intelligent electronically than previous versions and has rechargeable batteries. Assault teams are a relatively new user group. One request from them was to make it watertight. Now you can't even insert a nail file inside the shell, it's that tight."

In brief, the different generations of power ascenders are as follows: The first one could only be used to ascend; then the user had to release it and glide down. The second generation could go both up and down via a switch. Today's prizewinning third generation can be operated both up and down without a switch, has replaceable batteries, and can be remote controlled from the ground, which can be useful when it is used as a top-mounted winch. Or if an accident happens and the individual in mid-air becomes unconscious.

"Developing a product like this is a team effort. It does happen that several people from Shift Design & Strategy work on the same project but usually not. We're a small, tight-knit gang of only four people. Often we all get drawn into a project because we often toss ideas back and forth across our desks. But only one of us is responsible to the client and in this case it has always been me. Our customers often can't afford to have more than one designer involved and we also need to achieve a certain level of efficiency."

In contrast, ActSafe has always had several people involved in the development process, which is led by a project management team. It includes engineers who know everything about climbing and climbers' needs. Focus groups have continuously answered questions like "What do you think of this function?" or "Are these in the right place?" Various experts have also been brought in during the process: battery developers, electronics experts and so on. Not to mention safety experts: the demands on this type of product are extremely high. Naturally the company must closely monitor all these aspects.

Well-known design process

Pär Bergström explains that all design processes, including this one, follow more or less the same stages. The work always begins with a period of sketching with paper and pens. At first there is a lot of scribbling but this is important in helping the ideas to mature. The sketching then continues digitally in some form. When working with more complex products, designers must switch to a 3D environment early on so they can get a grasp of the product's external form.

"Over the years I've learned that if you don't go up to actual size soon enough, it's easy to end up down a one-way street. We use models as often as we can," Bergström says.

"On a design palette I'm a bit closer to the technology end than to the pure form aesthetic. I find the technology very interesting. Some designers work exclusively with the external form – they might use an engineering team to adapt the engineering design to the desired form. I work more from the other direction. I try to make progress and solve the problem together with the engineer. To figure out how we can package the product so that everything is in line with what the company wants to convey."

Before the ACX Power Ascender was launched in November 2015, work with this particular model had been going on for about 18 months.

"In this case I've also been involved in some of the related work – the documentation, marketing materials for the website and so on."

Classic problems

Most design jobs start with a commission that formulates the project description and the desired result. Bergström can hardly remember how things began with ActSafe.

" Over the years I've learned that if you don't go **up to actual size** soon enough, it's easy to end up down a **one-way street.** "

"One general problem for all small companies is that they're not used to writing optimal project specifications. And in some cases the development process of the specification (plus all the thoughts about what the product could become) needs to occur to some extent in parallel with the actual development of the product. Unfortunately this can take a lot of time. Perhaps after a while, you might realise that this or that solution doesn't work and you have to do something else instead. Then you have to back up in the process. Some parts of this project have been well specified whereas others have not been so well described from the start. But with the very latest version – the award-winning one– everything went very smoothly. Of course the better you get to know each other, the better the process goes."

Pär Bergström says many design commissions share the same major challenges: weight and size. An optimal product should weigh nothing, take up little room, and still be operationally reliable: all classic problems in any industry.

"We achieved the operational reliability. Our weight goal was between seven and eight kilos. We got to just over that. It was extremely tricky to fit all the components in, because the motor also had to be watertight. But we succeeded. And the fact that we won the Grand Award of Design for the ACX Power Ascender is good confirmation of that."

Photo: Alpin Technik und Ingenieurservice GmbH

Magnus Glans, CEO ActSafe

Design made the difference

The cause of the successes that ActSafe has had with its "power ascender" rope winches is spelled d e s i g n, confirms Managing Director Magnus Glans.

HOW IMPORTANT HAVE THE ACX POWER ASCENDER AND ITS PREDECESSORS BEEN TO YOUR COMPANY'S DEVELOPMENT?

When I joined ActSafe in 2005 the company was active in several different fields: providing training for aerial work with climbing equipment, manufacturing climbing harnesses and other equipment for work/rescue at heights and more. At that time there was a power ascender powered by a petrol engine. It is still sold today and has merely been developed somewhat since then. It was not designed and looks a bit like a motor with some equipment hanging from it (see the photo). It is noisy, emits waste gases and can only go up (which means that the user must still have extensive knowledge about rope techniques).

ActSafe was running at a loss; the company lacked focus and a sustainable plan for the future. Our main market was Sweden. The power ascender was only responsible for a small proportion of the sales revenue then but was the part of the company with the most potential. We decided to invest everything in further developing this product and focus less on the other aspects of the business. Because this is a very much a niche product we were forced to also start selling more outside Sweden so we could achieve sufficient volumes. In conjunction with the decision to focus on power ascenders, it was decided that the new machines would be driven by a battery and an electric motor instead of petrol engines. Our owners also demanded that we use an industrial designer, something which at that time I was against, as it was a large cost when we were already under financial strain.

Focusing only on power ascenders and exports turned out to be the right decision. Today 90 percent of our sales revenue and 95 percent of our business dealings involve other countries.

WHAT IMPORTANCE DO YOU THINK THE DESIGN HAS HAD TO THE SUCCESS?

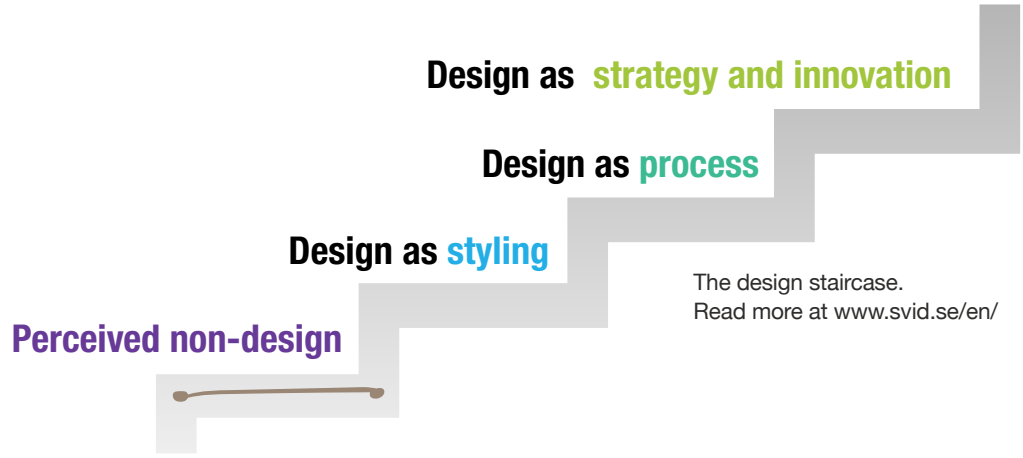
Hiring the services of an industrial designer and focusing only on power ascenders are the two decisions that been most important to our success. The ACC I, our first battery-operated power ascender, was launched in 2007. In terms of performance, it was not revolutionary compared with our previous models or with our only competitor at that time. What really made the difference was the design. The ACC I was user friendly, felt right, and exuded safety, quality and innovation. In my view this was decisive in making us the acknowledged market leaders in our niche today.

CAN YOU SAY ANYTHING ABOUT THE RELATIONSHIP BETWEEN THE TECHNICAL AND THE AESTHETIC DEVELOPMENT OF THE ACX?

That's an interesting question. The technical development is governed to some extent by what batteries and motors can cope with. There have not been any revolutionary advances in performance yet, simply because the technology won't allow it. What we have succeeded well with is to make the ACX smaller, lighter, safer and even easier to use. This has also led to more efficient production, as all our product versions (for industry, the rescue services, the military etc.) are based on and produced from the same platform. I would say that the aesthetic development has advanced further than the technical one. As the company grew we gained greater resources to invest in the design of the ACX compared with its predecessors. With the ACX we've set a new standard. It's become easier to sell it to larger customers because it's seen as a good-quality, capable product in its field of application.

HAS YOUR ATTITUDE TOWARDS DESIGN CHANGED DURING YOUR TIME AS MANAGING DIRECTOR OF ACTSAFE?

Absolutely. The successes with the ACC I were what made me understand the major – and indeed decisive – importance of design. Since then we've always included design when discussing our products or product changes. When we develop new products, design is one of the first things we discuss and then the engineers and Pär Bergström work together to find the best solution. ■



The design staircase.
Read more at www.svid.se/en/

“The research should benefit everyone – not just us”

This year is the fifteenth time Teknikföretagen has awarded the Grand Award of Design. Shift Design & Strategy became this year’s proud “design supplier” and thereby the recipient of the SEK 250,000 (EUR 26,000) in prize money. The rules state that half of it must be invested in research.

So what are your thoughts at Shift Design? What will you invest the money in?

The question was put to Pär Bergström, who has been Shift Design’s representative to ActSafe and been responsible for the ACX Power Ascender.

“We don’t really know yet – we’re still discussing it. We’re asking ourselves what we’d like to achieve with the research. One thing is sure at least: we don’t want the money to benefit us primarily; we want to go further. Preferably it should contribute something to the design field as a whole.

“There are no huge sums of money involved, so we will have to try to find some organisation or activity that can help to gear up the money. One issue I personally have been considering is how to motivate more people to use design. To dare to use it. In our field, all industrial designers know about the so-called ‘design staircase’ but sometimes it’s far too theoretical.”


Photo: Carl Hampf

Pär Berström, Shift Design & Strategy

The concept of a design staircase has been used by such design actors as SVID for many years. The use of design is illustrated graphically in the form of a staircase. At the very top, on the fourth step, is written “Design as strategy and innovation”. Before getting there, a company must pass steps one and two, “Unconscious design” and “Design as external appearance” and also reach step three, “Design as process”.

“When we reach out to small and medium-size companies it is sometimes overwhelming to start talking about all the steps in the design staircase and how design drives profitability. For us it’s often really just a matter of helping them up onto the first step. So it would be fantastic to find a way to achieve this.”

Do companies still not understand that design pays off?

“No, not really. And in the past few decades even more obstacles have popped up. One is that everything’s happening so much faster nowadays. Digital products are being developed at lightning speed. Physical products take time to develop – for various reasons. But the digital world is speeding up the tempo, which is considerably higher now than when the theories about the design staircase were formulated. Often people are still discussing the entire staircase and how important it is to reach the top step. But these days companies don’t have the patience to absorb everything. I’d like to get them to at least take the first step. Then a lot has been gained because they often keep going by themselves. Small and medium-size companies must get up onto the track – on the design track.” ■

Column

With co-creation our ideas don't end up in a desk drawer

By Sophie Uesson & Maria Brenner
Service Designers at Daresay

WE HEAR A LOT ABOUT METHODS FOR CREATING INNOVATION. Large corporations and government agencies are establishing innovation departments and "play labs" to produce results that will increase competitiveness in saturated markets. Traditional industries like the automotive and telecom industries are seeking new ideas to make them stand out. Public-sector agencies want to digitalise their services in order to better meet citizens' needs.

But we're also seeing many good innovations getting stuck on the drawing board. Initiatives for citizen dialogues can be perceived as gimmicks and private companies' hackathons can be seen as a way to get free ideas from customers. In our own careers as professional designers we've seen projects that were never realised but we've also been involved in ones that really succeeded. So what is the recipe for turning concepts into reality?

We believe that co-creation throughout the entire design process – from the brief to the finished product or service – gives the resulting innovations great potential for becoming a reality. By co-creation, we mean inviting various forms of expertise from the agency or business involved plus the users to work together during all stages of the innovative process. This method has its challenges: it takes time and energy and requires careful planning. Here are some of our key success factors:

Build an "expanded team" with the client

Creating innovation requires trust and close cooperation between different areas of expertise. The right conditions for this exist when we are close to our client and are working together with them. The expanded team can consist of such functions as customer service agents, developers, product owners and communicators.

Formulate the set of problems together

The expanded team must agree on the scope of what it is to work with. The team should work together to develop a problem definition and set the boundaries.

Plan the whole process from start to finish

Achieving concrete results requires a structured innovation process with clear stages, activities and intermediate targets. Schedule time for all the activities so that the expanded team can set aside the time to participate. Make the plan visible: put it up on a wall.

Visualise ideas and thoughts

Start early on to sketch and visualise together with the team. This takes your concept work to the next level and triggers new thoughts.

Discuss how to realise the concept from the start

To gain support and get people engaged it is important to involve the individuals who will be implementing the concept right from the start. They perceive the limitations and can indicate which ideas should be prioritised. It might feel counterintuitive to discuss at an early stage the implementation and to have to reject ideas but the result will be that more people feel a sense of ownership.

Achieving such cooperation is not always easy; people are short of time and feel they must prioritise something else. The co-creation process can itself lead to change: people become more engaged and more of them want to become involved and influence the result. In our experience this is a good checklist to use to get people engaged. More people feel a responsibility for making the ideas a reality and meeting customers' needs.

And co-creating is also really fun! ■

RESEARCH/

Figure 1. The Make It Stick template (left, with the cut lines of the stickers outlined here for legibility) and examples of adapted templates.

Designing, Adapting and Selecting Tools for Creative Engagement: A Generative Framework

Leon Cruickshank[a,*], Roger Whitham[a], Gayle Rice[b], Hayley Alter[a]

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ABSTRACT:
Increasingly public sector practitioners are turning to design to help them do more with less. This often takes the form of designing tools or resources that are used by public sector workers in their everyday practice. This paper critically examines the practice of tool design with the aspiration to improve creative engagement (that is, novel interactions that result in the creation of new knowledge or understanding in the public sector). We assert that designers should not be attempting to define what is a 'right' or 'wrong' way to use an engagement tool, but instead seek to enable new interpretations and adaptations of tools so the creativity of practitioners is supported and amplified. We present a proposal for a framework that supports people in organising the multitude of creative engagement tools in a manner that is meaningful to them rather than imposing taxonomies form the outside, enabling them to fix their own meanings, significance and use of the tools they use. To explore this we present 2 use cases, one by IRISS (a leader in innovation in the social services in Scotland) and a second by Leapfrog (a research project led by Lancaster University looking to transform public sector engagement by design).

We believe this change in the terms of reference when thinking about the creation and use of tools has profound implications for designers working in the social services and wider pubic services sector.

Keywords: *tools, taxonomy, creative engagement, social services, scaffolding*

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INTRODUCTION

In this paper we are concerned with how design can have a positive impact on creative engagement activities as part of social service provision. Here we define *creative engagement activities* as purposeful, skilful approaches to enable innovative, active and expressive dialogue between members of the public of all ages and social service professionals.

There are a great many people in the social services sector who are skilled at developing new engagement activities. However, people in this sector are also working under a range of pressures and do not always have the time to create or devise engagement activities (Iversholt et al., 2011). Social service workers have highlighted that there is a 'dearth of materials, resources, dedicated physical space, facilities and a lack of creativity' when working with people who access services (Winter, 2009). Responding to this it is clear there is a growing potential for social service practitioners to make use of designed materials, tools and related resources to support and structure professional interactions with people.

This paper proposes an approach to articulating the value and relevance of creative engagement tools that gives predominance to the skills and ingenuity of the social service workforce. We argue that the designers of engagement tools should be supporting and encouraging 'creativity in use' rather than seeking to prescribe how tools should be used or classified. We suggest that designers should not be attempting to define what is a 'right' or 'wrong' way to use an engagement tool, but instead seeking to enable new interpretations and adaptations of tools by those who use them. This is in tension with a taxonomic approach to organising and articulating the value of engagement tools, in which tools sit within predefined and, we argue, fundamentally limiting categorisations. We promote an approach where practitioners respond to local conditions and needs, adapting tools or resources accordingly in ways that are potentially radically different to the expectations of the tool designer.

To pursue this overarching aim this paper firstly describes creative engagement activities and the kind of outcomes people experience when engaging with and in these activities, drawing out barriers which effect to their use in social services. This leads onto a discussion of traditional taxonomic approaches to organise engagement tools and presents an alternative approach using a generative framework.

This generative framework is in itself a creative engagement tool, designed by the authors to help the creation or relevant micro-taxonomies by practitioners. In this paper we examine the potential for application of this framework by using two creative engagement tools as test cases that we apply to the generative framework. Following this we conclude by discussing the implications of our generative framework and present research questions that would better enhance our understanding of challenges our perspective illuminates.

Design and Creative Engagement in the Public Sector

There are examples of excellent design input into social service development (and more broadly) in the public sector through initiatives such as .dot initiatives and institutions such as Mindlab in Copenhagen, SILK (Social Innovation Lab Kent) and Super-Public in Paris. Designers have the disciplinary knowledge and skills to propose new forms of engagement, and to develop tools and resources to allow others to implement them. For designers working in this area, tools are often seen as a key means to support and trigger creative engagement (Sanders and Stappers, 2008; Cruickshank, 2014; Manzini, 2015). In this paper we consider how engagement tools can and do enable social service practitioners to undertake creative engagement activities, the barriers at play in this space, and propose a generative framework intended to enable social service professionals to find and articulate the value in using creative engagement tools. We propose this framework both as a practical resource for social service professionals looking to undertake creative engagement, and as a means for designers to better articulate the contribution they can make to engagement practice.

While the position taken in this paper is relevant across the UK and internationally we are basing much of this research on a long and deep engagement with the social services in Scotland, UK. Engagement activities between people in this context, like many others, are time bound and the positive impacts of using creative engagement tools are influenced by many constraints.

CREATIVE ENGAGEMENT ACTIVITIES

Gauntlett (2008) identifies a range of benefits that creative engagement can bring to understanding social situations and individuals within them. The seeds of creative engagement can be traced back to twentieth century experimental models for participatory, co-constructive and thoughtful and considered exploration (Dewey, 1916; Freire, 1970; Forester, 1982; Sarkissian & Wenman, 2010). These are now emerging as two distinct creative approaches, 'creative acts' and co-design (described below) which both skilfully employ purposeful activity to enable innovative, active and expressive dialogue between members of the public and social service professionals.

The first kind of creative engagement uses creative acts (making, modelling through different media including film, photography and storytelling) as a way of considering community and societal issues. Research into the partnerships between the Voluntary Arts and Community Sector, public and social service providers in the UK, gives evidence for the value of creative engagement between public bodies and citizens (Kagan & Duggan, 2011; Clennon et al., 2016). Value is demonstrated through the opportunity it affords for inclusivity of voices (Sarkissian et al., 2010; Kagan & Duggan, 2011; Clennon et al., 2016), and its ability to bridge divides. It converts

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historic norms of top-down engagement into the co-construction of new cultural practices and collaborative governance, with improved chances of long term success (Kagan & Duggan, 2011; Clennon et al., 2016).

A second form of creative engagement is *co-design*, a method designers use to avoid a top down approach across projects involving external stakeholders. It is a route to social innovation, creating frameworks through which stakeholders can drive creative decision-making activity, at any stage of a design process (Sanders and Stappers, 2008; Manzini, 2015). The resultant framework can refer to both singular design initiatives and to the architecture of an overarching ecology of activity (Manzini, 2015). Advocates of co-design as a route to social innovation regard it as both social conversation and a near inevitability of any design process in a networked society bound to engage with complex societal challenges (Manzini, 2015; Leadbetter, 2010). In such a process, non-professional designers are skilled, experienced and motivated enough to work alongside expert designers (Leadbetter, 2010).

In the case of public services, experience and motivation is derived equally from the workforce and the beneficiaries of that service seen in examples of service, product and space co-design. This dual engagement is represented in the literature in the areas of health (Donetto et al., 2015), public space (Cruickshank, Coupe & Hennessy, 2013) and public services (Long, 2015). This is especially relevant for the design of tools to be used by social services professionals, this area is an active area of design research, for example see the Leapfrog project (www.leapfrog.tools).

In both the more embedded 'creative acts' approach and the more project-centric co-design, tools are often used to facilitate creative exchanges. In the following section we focus on these tools and how they can be organised and adapted to best suite applications in the social services sector.

OUTCOMES AND BARRIERS WHEN USING TOOLS FOR CREATIVE ENGAGEMENT

Like any other kind of tool, a tool intended for creative engagement is not used for its own sake. It supports the practice of engagement by performing a function to help people achieve their desired outcome (Conole, 2009). Outcomes in social services in Scotland relate to 'the real improvements that people see in their communities and in their lives[1]'. In this paper we are focusing on process and change outcomes. These include, for example, instances in which the way support is delivered means people feel valued and respected, and relate to improvements in their mental or emotional functioning.[2]

In practical terms a tool is a mediating artefact, designed to codify and structure the way people engage (Fill, 2005), as well as support cognitive processes (Norman, 1991). Examples of tools might include templates, pro-formas, maps and card decks directing individual or collaborative action. Tools of this nature are often theorised as boundary objects that seek to support people to reveal where their socio-cultural values, knowledge, experience and intentions converge and diverge. In doing so enabling them to learn about and acknowledge that neither side has full or even partial expertise in the other's domain (Bernstein, 1971; Engeström et al., 1995; Star, 1989; Suchman, 1993).

Tools used in creative engagement activities can allow active dialogues between contrasting forms of expertise (and experience) with the tool helping to bridge between them. This engenders joint ownership of the issues that are being discussed and localises problem solving (Engeström et al., 1995). Following from this, it is imperative that the design of a tool helps to capture multiple meanings and perspectives in a way that is interpretable to those involved in an activity (Hasu & Engeström, 2000). The codes and structures a tool seeks to highlight and offer depend on the interpretation of information about the tool's intended use and an individual's interpretation of the tool itself (Crilly, 2011). Consequently tools can be appropriated or used by people and become highly and uniquely structured through individual use (Star & Griesemer, 1989). The variety of engagement tools produced by designers has the potential of offering great value to anyone seeking to instigate and facilitate creative engagement activities. However, clarifying the intent of an engagement activity before discovering, selecting and using the tools to assist in it can be a substantial barrier to unlocking this value.

It is important to point out that we believe tools do not offer, structure, aid, prompt, encourage, reveal or reflect outcomes unless the people who are using them

1) create a facilitative and participatory space which enables people to openly share what they are thinking, feeling and learning with others during the engagement process.
2) Take the time to reflect on what they and others are hearing, seeing and doing.

We see the values and principles inherent in creating facilitative and participatory spaces and adopting periods of reflection as part of engagement practice as key to realising the outcomes people seek when utilising particular tools.

It can be hard to identify what makes a tool work well for everyone. However, through the process of reflective practice people have been able to identify that tools support creativity, inclusivity, reflection thinking using a holistic perspective (Gauntlett, 2008), and the visualisation of power dynamics and unconscious and influential biases and assumptions (Winter, 2009). Yet creative engagement tools produced by designers are not necessarily easily discovered, understood or adopted by social service practitioners (Cruickshank, 2014; Donetto, et al. 2015). Additionally, realising the kinds of outcome described here can be difficult for social service practitioners because the interactive space in which they work

1 http://www.gov.scot/resource/doc/130092/0031160.pdf, p31
2 https://www.iriss.org.uk/sites/default/files/iriss_leading_for_outcomes_a_guide_final-1.pdf

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can be highly challenging; people can be emotionally stressed and may find it difficult to express their views, feelings and needs (Smith et al., 2010). This can equate to situations in which the inclusion of creative engagement activities is not appropriate. This also suggests social service interactions are also inherently complex and can have variable social and psychological dynamics that can include unacknowledged and uneven power dynamics. For example, social workers have expert knowledge of the social work system and evidence from conversations and observations is used to make judgments about if and how the state can enable people. While acknowledging this, people who access services don't tend to have access to this knowledge. If people and the tools they use do not address such uneven power dynamics, these dynamics could be reinforced and possibly exacerbated, undermining attempts for rapport, parity and an individual's sense of support in social service interactions. Finally, both people who access services and practitioners are engaging with one another in what can be an opaque service which is part of an ever changing system and structure. This means it can be difficult for people to understand how the creative engagement process they have participated in (and the outcomes they have realised) connects to wider system and structures.

In responding to these barriers there are calls for designers to better support and enable this workforce to 'take on ever more challenging and complex client groups that require more personalised services' (Meroni & Sangiorgi, 2011; Cunningham et al., 2015). Existing approaches that fit with such calls include those which critique and challenge organisational and cultural norms, new service designs and adaptations, new policy development and legislation, educational and training opportunities and lower caseloads. Whilst appreciating the need for these developments, this paper focuses on activities and tools for the opportunity they present to reflect 'invisible [yet] prevalent discourses' in systems, services and interactions (Winter, 2009). Tools that can empower people in the social services with the resources and knowledge to identify and devise responses so they experience outcomes that better enhance their lives.

TRADITIONAL TAXONOMIC APPROACHES TO ENABLING TOOL DISCOVERY AND SELECTION

Taxonomies offer a means to systematise knowledge and practical resources, and so constitute a general strategy for connecting practitioners to new tools they could use in their work. Patrick Lambe (2007) describes three key attributes that define an effective taxonomy; providing a classification scheme that places related things together; providing a fixed and meaningful vocabulary; and producing a knowledge map to enable navigation between the things within it. As Lambe proposes, meeting these criteria requires deep engagement with the individuals who will use it, producing a socially-negotiated scheme that in turn provides meaning and utility for those who create it (Lambe, 2007).

There is an argument that for tools to be meaningful when initially encountered the infrastructure (underpinning relational conventions and constraints) through which they are accessed must be sympathetic to the overall social context and daily practices in which it is embedded (Star & Bowker, 2006; Bjögvinsson et al., 2012). This requires knowledge of both practical application issues and related standards to help form a taxonomy of tools, which in a complex and mutable social context, must be both flexible and emergent (Bowker & Star, 2005; Jewett and Kling, 1991).

We see taxonomic approaches deployed within the design research community as researchers seek enable practitioners to select appropriate tools for the situations they encounter in their work. Sanders, Brant and Binder (2010) offer a framework with high level categories of *form*, *purpose* and *context* for participatory design (PD) tools, directly reflecting structures, terms and norms used by the PD community. Alves and Nunes (2013) aggregate and classify methods and tools for service design by mapping them into an axis that can guide designers to select appropriate tools for their context, structured around Mager's processual categories of *discover, reframe, envision* and *create* (Mager, 2004). The literature also reflects more localised attempts to produce tool taxonomies. For example, Tarmizi and de Vreede (2005) analyse and categorise the facilitation tasks undertaken by communities of practice, using this analysis to create a taxonomy, and Walsh et al. (2013) offer a framework with eight dimensions for the classification of techniques used in intergenerational PD.

These taxonomic approaches seek to map out a generalised 'landscape' of tools, enabling practitioners to identify appropriate tools, and for researchers to identify opportunities to develop new or improved tools. Taxonomies of this kind need to be sufficient breadth to meaningfully organise tools within them, and be expressed with language that others will recognise and be able to use. The categories and terms chosen for this purpose are typically abstract, reflecting the knowledge structures, conventions and logics of a particular community or group. This is appropriate when consensus in practice and knowledge production is sought, but is in direct tension with tools intended to enable emergent, innovative and creative practices.

Here we argue that the flexibility and degree of emergence required for a taxonomy to really reflect the innovative applications that creative engagement tools can be put to by the social services workforce renders the taxonomic approach highly problematic, or even redundant. Instead of creating a top down hierarchical construct (even if it is in formed by working practices) we argue for a more pragmatic, responsive approach that supports the huge variety of social service practitioners to develop their own localised structures and characterisations, free from the influences of generalised frameworks intended to

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meet the needs of designers, researchers or broad communities of practice.

This rejection of an imposed 'meta-narrative', that is an underlying message dictating how best to use the tools, is very well established in areas such as open design (Cruickshank, 2014), democratised Innovation (von Hippel & Katz, 2002) and fundamentally in post-structuralist and object orientated philosophy (Bryant, 2014). All these problematize the establishment of a fixed classification system to act as a system of control and argue for the deleterious effect this has on the ability of people involved in a process to maximise their own personal contribution. In the context of organising creative engagement tools to enable practitioners to discover and select them, a taxonomic approach imposes generalised expectations of tools use on working practices. While this could prove effective in a particular local context (such as a group of practitioners with shared practice and/or context), it could never capture the variety of possible tool use across the social services. It is the potential for variety and innovation through use that we are most concerned with, and how it can be encouraged and catalysed through the way tools are organised and encountered.

GENERATIVE APPROACHES TO ENABLING TOOL DISCOVERY AND SELECTION

Activating social service practitioners to discover and select and adapt tools for creative engagement is a challenging problem. For tools to be reusable in multiple contexts, and for them to provide opportunity for creative use and reinterpretation they must be presented in a form that is generalised. If the purpose of a tool is too tightly defined, then it is unlikely to fit with the diverse contexts and challenges such professionals face. At the same time however, if tools are presented in too general a form then they may fail to be meaningful or relevant to the understandings and contexts of professionals.

In this paper we put forward the argument that when seeking to enable non-designers to adopt creative engagement tools, the stability required for a successful taxonomy in vocabulary and ontology is unlikely to exist for an audience with diverse backgrounds and diverse contexts of work. More significantly, a stable top-down taxonomy would implicitly carry with it the notion that undertaking creative engagement is itself a stable and finite problem. In contrast, the authors' experience has shown that effective creative engagement requires strongly specialising tools and approaches to particular situations and contexts. A more productive strategy is to design tools that enable this specialisation at the point of use by public sector practitioners, the people who understand their context best and assist practitioners in constructing their own organising system or micro-taxonomy.

This approach enables discovery and selection of tools from a different direction, which explicitly emphasises the appropriation and adaptations professionals make when incorporating creative engagement tools into their practice. Rather than seeking to indicate how particular tools relate to general categories of use, this approach captures how tools have been specialised to fit with particular groups, situations and needs. The framework presented below enables tools users to reflect on how they use tools and generate bottom-up micro-taxonomies to help them use tools in their own innovative manner, not prescribed by designers.

ENGAGEMENT TOOL ADAPTATION IN PRACTICE: MAKE IT STICK

To translate this philosophical position into something more tangible for workers in the social services a project was undertaken to explore how social service practitioners adapt creative engagement tools in practice. This creative engagement project was called 'Make It Stick'[3]. Make it Stick (MIS) worked with 20 people through 5 workshops with aim of facilitating the adaptation of a creative engagement tool. The funding for this tool (and MIS) came from the Leapfrog project, a three-year, £1.2million project funded by the Arts and Humanities Research Council in the UK aiming to transform public sector engagement with citizens through design.

MIS used a tool developed by Leapfrog to enable creative engagement without the need for participants to write. Writing is a significant barrier for participants with low levels of literacy, where they are writing in a second language or where there are issues of trust in the authority that the social services represent. The tools consisted of a custom made set of stickers on a blank A4 sheet. These stickers (see Figure 1, left) had generalised human forms, a range of basic shapes, and a large area for composing a new representation. The sticker sheet was designed to have graphics printed on them from a range of templates made available by the project with the aim of supporting a visual storytelling approach that did not require writing.

Initially a set of customisable digital templates were made available for people to download and print. However, we found that this was too restrictive the frames/templates developed by the designers on the project were not meeting the needs of the people downloading the tool.

MIS extended this beyond customisation to the point where participants were designing their own digital templates to exploit the physical sticker sheets. The researcher responsible for the project developed an interactive template that enabled people using it to not only change some of the text in the template, but to easily change almost any aspect of the graphics printed onto the sticker sheets. This sticker sheet acts as a support or a scaffolding to prompt creative adaption. Examples of different uses of this tool include a playground design, dog fouling and advocacy service experience (see Figure 1). The tool has also been used in unexpected ways, for example one facilitator using the tool with a group of participants used lots of sticker sheets to create one large group storyboard. The aspiration for this project is that tool

3 www.leapfrog.tools/project/make-it-stick

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adaptors in the social services form an ecology of exchange around a platform such as a closed Facebook group.

A GENERATIVE FRAMEWORK FOR TOOL DISCOVERY, SELECTION AND ADAPTATION

The experience of MIS and other projects in Leapfrog (www.leapfrog.tools) led to the realisation that we needed a way to support the organisation and use of tools without imposing preferred uses or applications. The result was the formulation of a generalizable, generative approach to engagement tool use. This approach offers more utility and flexibility than offering a 'menu' of tools (and how they should be used) as commonly seen in taxonomic approaches. The approach has three loosely defined stages, informed not only by the MIS project but also more widely by work helping participants move out of their normal modes of working, for example the NETS project working with small high technology companies (see Mortati & Cruickshank, 2012).

Stage one: social service workers would be asked to think about a project or initiative in which they have successfully used an engagement tool. They would also be asked to describe their practice in terms of:

1) Their intention for the engagement activity that uses the tool
2) The situation they seek to support and enable (i.e. people involved, their history, needs, motivations, expectations and desired outcomes)
3) The fundamental capabilities they attribute to the tool.

The fundamental capabilities any tool offers is an area of potential debate. Drawing on an example of conventional physical tool use, a screw driver has a fundamental capability of rotating a screw, yet it can also be used as a lever to get the lid off a tin of paint or as a crude chisel. Equally for engagement tools they could be said to legitimately have many capabilities, here we want participants to think about the fundamental capabilities *as they appear to them personally. These responses will depend on the experience, perspective and innate creativity of each participant. In this process all responses are correct if the participant in believes them to be convincing.*

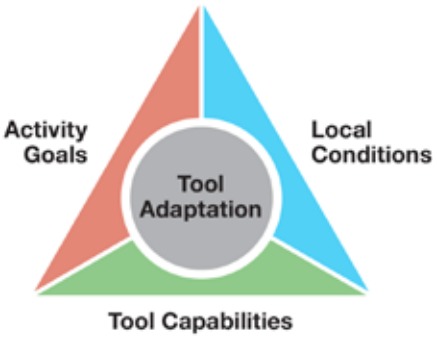

Figure 2. Tool use and adaptation framework.

Stage two invites practitioners to describe how they were first exposed to the tool they successfully used, what form this took and critically how this was translated from initial form to practical implementation in their example. The aim here is to highlight past successful adaptations.

Stage three would introduce the diagram shown in Figure 2, bringing together the intention of tool use, the situation it is used in and expectations for what the tool can do. This 'prototyping' of tool use in a specific past context is intended to bring participants to a point where they are comfortable projecting into the future and actively considering their own tool adaptation. By moving towards adaptation of tools. The aim is to encourage practitioners to engage with creating their own collection of tools tailored to their own skills.

The diagram presented in Figure 2 can be expanded to encourage participants to think about how adaptations of the same tool can vary with different intentions and contexts for engagement. Figure 3 presents the general form all instances of the framework take; a matrix with goals arrayed on one axis and conditions on the other. When instantiated for a particular tool, additions can be made to both axes and descriptions of tool adaptations within the matrix itself. Adding to either axis prompts abstraction, grounded in the vocabulary of a particular context of practice, drawing out relevant features of engagement practice. Completing the body of the matrix prompts reflection on concrete choices made to adapt and use a tool in particular circumstances. Together the abstract and concrete elements of a framework instance are intended to capture the specific and transferable elements of tool use, acting as a reflective tool during population, and an accessible summary of tool adaptation that can be shared.

APPLYING THE GENERATIVE FRAMEWORK TO REAL LIFE TOOLS

To explore how the framework introduced in the previous section could function, we present two use cases of the framework populated with reference to tools the authors and public sector engagement practitioners have created and adapted for use in many contexts.

Figure 3. A generalizable form of the framework for participant created tool adaptation and organisation.

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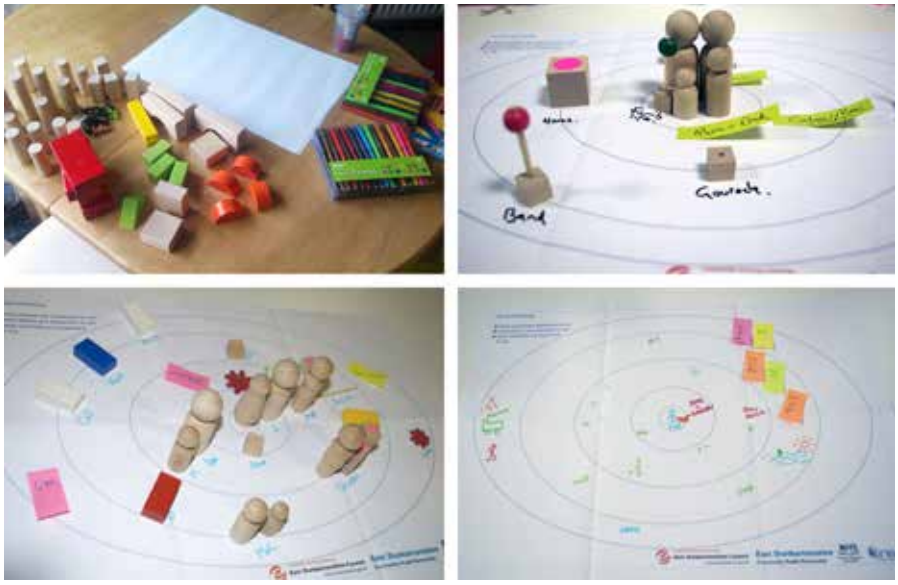

Figure 4. What's Important to You? Paper version before and after use.

Case Study 1 – What's Important to You?

The first example use of the framework is applied to the What's Important to You? (WITTY) tool.[4] WITTY is an iPad app and paper-based tool that enables people to visually map positive assets and factors they have and can better engage with in day-to-day life. The tool is available in paper (Figure 4) and iPad form. The tool was designed to support people in visualising a personal interpretation of the positive assets in their life, identifying means to stay well, connected to these assets and happy. WITTY has been designed to be used as a reflective tool by one person, and as an aid in a one-to-one conversations and group discussions. WITTY can be used to help community members identify community and personal assets by creating a visual map of things a person has done in the past, things that exist in the present, or they would like to do in the future. The authors have found that when a participatory, asset based approach is engaged in to facilitate the use of this tool the imagery enables people to see 'the bigger picture' of their life, and identify things they like and are able to do when they are not feeling well. It can also support people to move from a deficit based model to an asset based perspective when thinking about a person's health.

Like many other tools suited to creative engagement, WITTY offers a set of flexible practical and conceptual resources that could be used in a wide variety of ways. Capturing some of this flexibility and potential, Table 1 applies the framework presented in the previous section to this tool. Here we see 2 examples of the type of goals and conditions that could have a bearing on the adaptation of the tool. This table could be developed into a participant-defined organisation of the way they have adapted tools. Also the participant would add their view of the fundamental properties of the tool.

In the example of tool adaptation here (the shaded box in Table 1) WITTY has been adapted by the authors to draw out insights concerning the evaluation of past interventions when there is an uneven power dynamic (for instance in the often hierarchical organisational structures in the health service). The adaptations here are focused on helping people feel comfortable expressing their views through the creation of a safe space, through humour, through anonymity and through discussion amongst peers rather than hierarchical groups. There is also a suggestion for an adaptation to the graphic representation of the tool to help achieve the goal.

Case Study 2 – Superheroes

The second example use of the framework we present is applied to the Superheroes tool[5]. The Superheroes tool was originally designed to enable workshop participants to explore the perceived, actual and desired characteristics of a group of people without adopting a negative perspective (see Figure 5).

The Superhero proforma offers a series of 'dotted' line suggestions that help an individual or group draw their own superhero on one half of the proforma and their normal alter-ego on the other. In addition to the superhero's costume, participants can be invited to think about special powers, tools and equipment and their 'kryptonite'. The metaphor of the superhero can be used to encourage a playful approach that suspends disbelief and encourages open, free thinking, in Huizinga's terms establishing a *magic circle* (Huizinga, 1944) where normal

Figure 5. The Superhero Tool used to explore and compare the characteristics of policy makers, designers and frontline staff in the public sector.

4 www.iriss.org.uk/resources/tools/witty-whats-important-you
5 impact.lancaster.ac.uk/tools/#/superheroes

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Fundamental Tool properties Highlighting and better understanding interpretations of assets in people's lives Unexpected outcomes wanted		Conditions the tool was be adapted to meet	
		Uneven power-dynamics	(Table headings continue)…
Goals for the engagement activity	Recognise assets	Use WITTY in self defining groups with similar levels of authority	Use WITTY in self defining groups with similar levels of authority Use humour and different size counters to encourage groups to recognise power relationships. Collective creation with no direct feeding back. Create a time machine metaphor to help people 'think back'

Table 1. The engagement tool adaptation framework applied to the WITTY tool (section shown)

Fundamental Tool properties Discussing hidden qualities in a positive manner Unexpected outcomes wanted		Conditions the tool was be adapted to meet		
		Uneven power-dynamics	Participants don't know each other	Time poor…
Goals for the engagement activity	Build and strengthen relationships	Create superheroes for contacts to map out a shared social network.		
	Recognise diverse opinions	Participant's fill out each other's alter-egos, surfacing hidden talents.	Work in pairs to identify super powers, avoiding individuals being in the spotlight alone.	Imagine stories about how the superheroes would collectively change the world, finding common goals.
	Plan and do work	Focus on imaginary superpowers, surfacing frustrations and barriers.		
	[more] …			

Table 2. The engagement tool adaptation framework applied to the Superheroes tool

rules do not apply. The difference between the everyday alter-ego with their fair share of flaws and vulnerabilities and the super-hero beneath the surface can be used a means to surface intentions, beliefs, assumptions, desires and possibilities.

The graphical form of the Superheroes does not necessarily constrain the variety of ways it can be used. Applying the framework presented in the previous section, in Table 2 the authors suggest a range of ways the tool can be adapted to enable creative engagement for different purposes and under different conditions. The framework shows how the original design intent behind the tool, to playfully surface individual characteristics, has been adapted to fit a number of different conditions and different goals for the application of the tool (highlighted in green). Each of these possible uses and adaptations of the Superheroes tool is particular to a situation or context that demands it, together mapping out a space of possible uses for the tool that may intersect with the experience or needs of an individual seeking to use the tool in their creative engagement practice.

IMPLICATIONS AND DISCUSSION

The examples presented here demonstrate a ground up, generative framework that supports the creation of local taxonomic structures that recognises and facilitates the creative abilities of social service practitioners, while avoiding imposing organising structures and principals from the outside. This offers a new dimension to design support for social services. Design is increasingly playing a part in public sector innovation, through design thinking, co-design and co-creation through to more formal service design interventions.

The argument and proposal presented here has profound implications for those designing tools to support creative engagement and for the role of social services practitioners in creative engagement processes. Rather than seeing tools as 'products' to be used by practitioners to help achieve something that otherwise would be difficult or impossible, we are proposing a change of mind-set on the part of the designer. Designers should be looking to create 'proto-tools' that balance fundamental properties:

1) The designer should be thinking in terms of 'pallets' or collections of tools that can be built by practitioners to suit their own practice, tools should 'talk to each other' not tie participants into closed systems. Practitioners should be assisted in building up a collection of tools that fit their skills and abilities.

2) Tools need to be immediately accessible to attract under-pressure social service practitioners. This entails them working reliably without adaptation or having to 'learn' how to use them. The function and application to the tool needs to be obvious.

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3) Tools also need to encourage modification and tailoring to the specific needs, imagination and context of the person using the tools. They should invite experimentation while also working well as they arrive (to meet the requirements of property one).

The notion of encouraging active curating of tools into personal collections and then adapting these to fit a specific need is critical here. Within the use of individual tools, what are the cues, affordances, constraints and indicators that reassure social service practitioners while at the same time drawing them into reflecting on how the tools can be developed to further improve their practice? The generative framework proposed in this paper is one possible approach to this, but we need to find better ways to both co-design flexible tools with practitioners and find new ways of working with practitioners to 're-co-design' tools to fit their own needs. The authors of this paper have started work in both of these endeavours (for example in April 2016, 50 public sector practitioners came together to adapt flexible creative engagement tools specifically focused on working with young people) but there are still significant challenges ahead. We end with a call for dialogue, research and action to address four key problems:

How to encourage public sector workers to pause and reflect on the possibility that tools can offer tangible benefits to their practice while they are under incredible and increasing work pressure where facilitative and reflective space and time is not common?

How can we design ways of helping practitioners curate their tools in a natural way that does not introduce layers of bureaucratic or linguistic complexity?

How to design tools that social service professionals both to adapt to better fit their specific needs?

How to share this creative social service led adaptation / re-co-design to build a critical mass of adaptation that is self-sustaining?

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Book Reviews

An eye-opener!

The result of industrial designer Karin Ehrnberger's research is in many ways both unique and striking. It concerns what reality is actually like, how important it is to do further research in the field of norm criticism, and the fact that the possibility of positive change is easier than what many people think – if more design workers and manufacturers become aware of it. The thesis also differs from most of its fellows in terms of its embodiment, accessibility, appeal and language (Swedish).

The title of the thesis is **Tillblivelser – En trasslig berättelse om design som normkritisk praktik** (Creations – An entangled narrative about design as norm-critical practice). In it the author invites the reader to participate in reflections, projects and a dialogue about norm-critical design, what it might be and how it can be used. Ehrnberger shows with all (un-)desirable clarity how norms govern the design process and how design reproduces social norms by repeatedly creating products and services that exclude people. These, like most innovations, are based on the norm of the middle-aged, heterosexual, white man with a good income and without any functional impairments.
Ehrnberger describes her research via five stand-alone projects – all spiced with anecdotal-like personal life experiences. Among other things, she presents the Energy AWARE Clock, a new way of making visible energy consumption in the home, and one that demonstrates the energy companies' normative view of solutions that do not at all meet customers' needs. In Androstolen (The Androchair), a chair for the examination of men's prostates with a design based on women's experiences of the gynecological examination chair, the neglected need to pay serious attention to women's experience of the chair in question is made apparent. She also includes the project in which she demonstrates what "masculine" and "feminine" design look like respectively when a drill is designed as a handheld stick blender and vice versa.

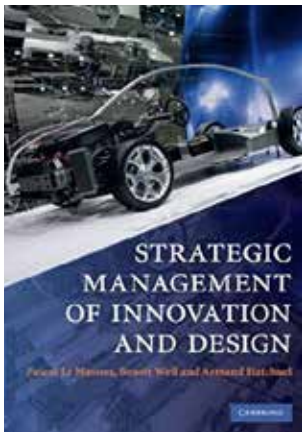
Karin Ehrnberger's dissertation should be read both by all of Sweden's design students and by all the stakeholders in the industry. In brief, in order to understand what the situation is actually like. Thanks to Ehrnberger's view on how a thesis can be designed both in terms of its contents and its form, design research now has a far greater chance of doing its job of reaching out, being read, understood and implemented, and fostering improvement outside of academia's tight, strict walls.

Note: For those who are not able to read Ehrnberger in Swedish, she has also articles published in English, e.g. The Androchair: Performing Gynaecology through the Practice of Gender Critical Design by Ehrnberger and co-authors Räsänen, Börjesson, Hertz and Sundbom, in The Design Journal, 2017.

By Susanne Helgeson

Photo taken at "Anova- centrum för andrologi och sexualmedicin". Choreagrapher Carl-Olof Berg is in the chair.

The Androchair, a chair for the examination of men's prostates with a design based on women's experiences of the gynecological examination chair.



From research and development to research, innovative design and development

This book is neither new nor an easy read. It is challenging, at least for me and for my intellect. It is rich, philosophical and generous with both theory and practical examples. A lovely trial to read but don't be surprised if you have to reread bits now and again!

I have come to the design field via research, teaching and practical work in innovation management. Important starting points for the work I do with my colleagues come from fields such as innovation management, organisational development and change management as well as action research. Service design is based on approaches and methods that are an excellent match to our fundamental values and toolbox.

So what is the connection between innovation and design? That is the theme of the book **Strategic Management of Innovation and Design.** The conclusion is that strategic innovation management must be based on innovative design activities. How do the authors reach this conclusion?

The authors have distinguished five "action models for innovation" in the academic literature:

- **Laissez-faire:** Innovation really cannot be steered and often fares badly from interference. In this model the basic approach is to give the innovator freedom. The innovation is "a happy surprise".
- **Black Box:** As with laissez-faire, the innovation is "a happy surprise". We don't need to be able to describe or understand the innovation process. All we must do is to add resources, and something might happen.
- **One-off innovation:** Radical innovations arise as the result of stand-alone projects. In this model people often seek new technologies and unique products. The idea is that the new innovations will create value that will cover the costs of previous mistakes.
- **Planned innovation:** Continuous improvements and incremental innovations based on a dominant design can be planned for and do not have to cost a lot.
- **The innovative firm:** Innovations are continuously occurring and it is unimportant whether they are radical or incremental. At the same time, we leave the stable product identities behind us: whether it is a physical product/specific technology or a service that delivers the benefit does not necessarily matter. In this context the innovative ability of a community, network or ecosystem is important, and don't always know in advance which competencies are significant. What the authors call "innovative design" happens in this situation.

According to the authors, innovative design is based on *a process for defining value and a process for defining new competencies.* The authors suggest that design activities and design theory have come farthest in the creation of the innovative organisation, partly via an ability to find new descriptions of functions, competencies and benefits, and partly via a development of the "steering" of the innovation work. Today, "design communities" can therefore be the right place for the development of new ways of acting.

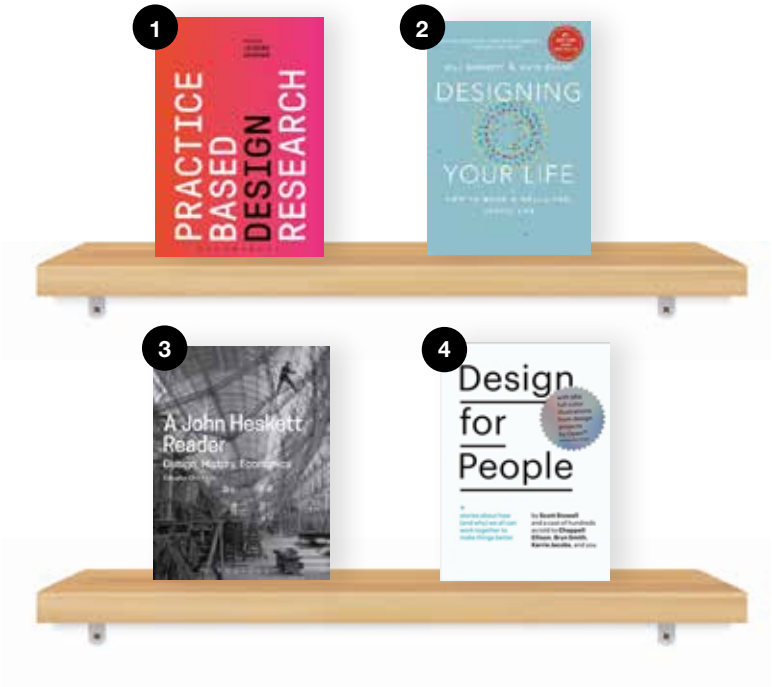
Based on this reasoning, it is natural that devoting ourselves solely to research and development is not enough. **Research** is a controlled process for the production of knowledge, and in general involves seeking answers to pre-defined questions. This can be beneficial if the questions turn out to be well formulated. Research can also deliver unexpected results, which can be beneficial if we want to and are able to utilise them. **Development** concerns something else: it is a controlled process for utilising existing knowledge in order to specify processes, products, organisations etc. in order to meet well-defined criteria (quality, cost, time). Innovative design links research and development by means of its ability to "fill the gap" between R and D. The authors therefore suggest that we should replace the R&D concept with R-I-D (Research – Innovative Design – Development).

The book is rich in its contents and offers a convincing argumentation about the importance of design to innovation. The diligent reader will be richly rewarded because this is a real source of knowledge and inspiration.

By Hans Björkman

On the bookshelf

Here are some recommended books and writings in order to better understand how design can be used strategically to drive future innovations.



1. **Practice-based Design Research**
   Laurene Vaughan (2017)

2. **Designing Your Life: How to Build a Well-Lived, Joyful Life**
   William Burnett, Dave Evans (2016)

3. **A John Heskett Reader Design, History, Economics**
   John Heskett (2016)

4. **Design for People: Stories About How (and Why) We All Can Work Together to Make Things Better**
   Scott Stowell (2016)

EVENTS & CONFERENCES

Outlook

16–24 September 2017
London Design Festival
LONDON, UK
www.londondesignfestival.com

22–23 September 2017
Åre Sustainability Summit
ÅRE, SWEDEN
www.aresustainabilitysummit.se

16–25 October 2017
World Design Summit
MONTREAL, CANADA
www.worlddesignsummit.com

31 October – 3 November 2017
IASDR Conference
CINCINNATI, USA
www.iasdr2017.com

2–3 November 2017
10th Service Design Global Conference
MADRID, SPAIN
www.service-design-network.org

7–9 November 2017
16th NORDCODE Seminar
NYBRO, SWEDEN
www.nordcode.net

14–15 November 2017
Social Innovation Summit
MALMÖ, SWEDEN
www.sisummit.se

15–17 November 2017
EXCLUSION: 2nd Biennial PARSE Conference
GOTHENBURG, SWEDEN
www.parsejournal.com/conference

5–7 March 2018
Twelfth International Conference on Design Principles & Practices
BARCELONA, SPAIN
www.designprinciplesandpractices.com

21–24 May 2018
Design 2018 Conference
DUBROVNIK, CROATIA
www.designconference.org

18–20 June 2018
ServDes 2018
MILANO, ITALY
www.servdes.org

20–24 August 2018
Participatory design conference
GENKE, BELGIUM
www.pdc2018.org

4 Design notices

Exhibition

Norm Form at ArkDes

From 6 October to 11 February ArkDes has an exhibition on the theme of norm-critical design. The exhibition curators are Camilla Andersson, architect and researcher at Aalto University, Maja Gunn, designer and artist with a doctorate in fashion design, and Karin Ehrnberger, industrial designer with a doctorate in product and service design. The exhibition includes Ehrnberger's "Androstolen" (The Androchair) (read the review of her doctoral thesis in this issue), an "activist CP truck" and hijabs for the police, firefighters and armed forces.


Photo: Blåkläder

Design for better patient experiences

Experio Lab began as a project of the Värmland County Council and since 2013 has worked with design as a tool for shaping health-care services that create value in people's daily life. Today Experio Lab is a permanent resource within the County Council, which also coordinates cooperation with similar lab environments in other county councils. With funding from VINNOVA the "Patient Experience Lab" is now being created as a joint project between the lab environments involved. The project's aim is to foster a human-centred and user-driven transformation and policy development of the health-care system.

Further consolidation in the design market

The latest news in the consolidation trend we have seen in the design market is that Acando has recently acquired two service design agencies – Transformator Design and Daytona. The press release says the aim is to create a strong total offering for customer experiences: "The new business will combine empathy and a deep understanding of human needs with innovative and technical solutions." The same message is found in the interviews of Fjord/Accenture and Veryday/McKinsey about their respective mergers, which also explain why traditional consultancies are now acquiring design agencies. The consolidation in the market continues.

New leaders in design organisations

Leadership changes are occurring at several major Swedish design organisations. Here are the new names taking the helm in 2017/2018:

Kristina Frisk became interim CEO of SVID on 1 September. Her first task in the position is to lay the foundation for an innovation platform for small and medium-size enterprises. Kristina is a trained designer and psychologist and comes most recently from being the CEO of her own company, Caresumables AB. In 2016 she was selected as "Female inventor of the year".

Kieran Long became director of ArkDes in April 2017. His most recent job was head of the design and architecture department of the Victoria and Albert Museum in London. He previously worked with the Venice Biennale and the Royal College of Art. He has also worked as an architectural critic for several publications and as presenter at the BBC.

Mats Widbom will become the new CEO of Svensk Form in January 2018. He is currently head of the Swedish Institute in Paris and Sweden's cultural attaché in France.


Photo: Caroline Lundén-Weldén

Kristina Frisk


Photo: Vinciane Verguethen

Mats Widbom


Photo: Andrea Björsell

Kieran Long

Publisher: Kristina Frisk, Interim CEO SVID **Editor and Research Editor:** Jon Engström, SVID/Linköping University, jon.engstrom@liu.se.
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