Beyond the Product – Enabling design services in small and medium sized enterprises

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Beyond the Product

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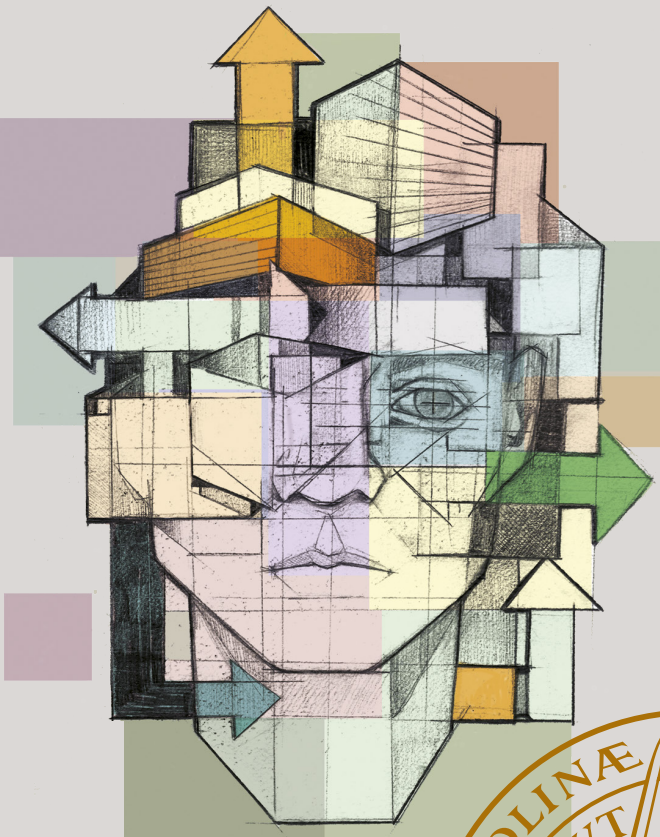

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Enabling design services in small and medium sized enterprises

Magnus Eneberg

LUND
UNIVERSITY

Academic thesis for the degree of Doctor of Philosophy in Design Management at the Department of Design Sciences, Lund University, Sweden.

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While the design industry is moving into new domains, it seems that potential customers do not always understand how the designer can contribute beyond the aesthetically appealing product. The overall purpose of this thesis is to expand our understanding of design as an enabling service in the context of small and medium sized enterprises. An enabling design service has the potential to result in organizational learning and change. The co-creation of new knowledge and competencies can in turn enable the customer organization to become more innovative and able to deal with an ambiguous environment. The first part of the research consisted of interviews and workshops with the major industrial design consultancies in Sweden and Finland and some smaller American consultancies. A conceptual business model canvas based on service dominant logic is presented in the thesis to increase our understanding of the business of the industrial design consultancy. During the study, we observed several changes in the organization of the industrial design consultancy. We also noticed self-confidence among the industrial design consultancies in respect to their skills in methods to orchestrate collaboration and contribute to strategic development in customer organizations. An analysis of the initial interviews and workshops together with a literature study helped me to summarize the characteristics of the methods and processes designers are educated in as being integrative, collaborative and explorative. They are integrative in that they incorporate hands with thought, and theory with practice. They are collaborative in that interaction between individuals is a necessity to solve the wicked, ambiguous and open-ended problems the designer usually faces. This has resulted in designers being educated in methods involving a broad range of stakeholders such as users in development processes. Finally, the methods and processes are explorative in that they aim at ingenuity and focus on how things ought to be rather than on the present state. The second part of the research consisted of interviews and observations and had a focus on shared activities between design students and participants from small and medium sized companies. Design methods and processes were put into the context of organizational learning and change theories that centered on knowing as embodied and encultured. An activity theoretical model was applied to enrich the analysis of the diversity of perspectives that may lead to conflicting interpretation and negotiation in shared activities. The concepts of *place* and *space* were used to highlight the dynamics between how structures and human desires and needs motivated participants in the shared activities. *Place* is characterized by stability and is the strategy of the prevailing and often connected to identity. *Space* is practiced *place* and connected to change and human agency. The thesis presents how design services enabled individuals and organizations to be introduced to and to strengthen a given *place,* such as a discipline or organization. It also provides examples of the opposite, with individuals distancing themselves from a *place*, such as a discipline. Mediating artifacts and the integration of doing and reflection created experiences that evoked emotional involvement and enactment among the participants. Most activities resulted in creating *space* for change and learning and the outcome can be characterized as business and organizational development.

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Abstract

While the design industry is moving into new domains, it seems that potential customers do not always understand how the designer can contribute beyond the aesthetically appealing product. The overall purpose of this thesis is to expand our understanding of design as an enabling service in the context of small and medium sized enterprises. Enabling design services have the potential to result in organizational learning and change. The co-creation of new knowledge and competencies can in turn enable the customer organization to become more innovative and able to deal with an ambiguous environment. The first part of the research consisted of interviews and workshops with the major industrial design consultancies in Sweden and Finland and some smaller American consultancies. A conceptual business model canvas based on service dominant logic is presented in the thesis to increase our understanding of the business of the industrial design consultancy. During the study, we observed several changes in the organization of the industrial design consultancy. We also noticed self-confidence among the industrial design consultancies in respect to their skills in methods to orchestrate collaboration and contribute to strategic development in customer organizations.

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Populärvetenskaplig sammanfattning

Många industridesignkonsultföretag har som ambition att anta en strategisk roll i sina kundföretag. Design ses i detta sammanhang som ett viktigt konkurrensmedel med en kreativ process som stödjer en innovationsdriven verksamhet. Samtidigt saknas ofta kunskap, framförallt i små och medelstora företag - SMF, om hur designmetoder och processer kan bidra utöver skapandet av estetiskt tilltalande produkter. Denna avhandling inriktar sig på en förståelse av design som en social aktivitet och ett specifikt sätt att skapa kunskap.

Det övergripande syftet med avhandlingen är att öka förståelsen för hur designtjänster kan bidra till att möjliggöra och underlätta organisatoriskt lärande och förändringsprocesser för att på så sätt stärka innovationsförmågan i SMF. Studier visar att de företag som har en historia av att arbeta strategiskt med design är mer innovativa, exporterar mer och tvingas inte konkurrera lika mycket med pris. Baserat på detta bör SMF kunna dra fördel av att samarbeta med designers vilket även gagnar samhället i stort då företagandet inom Europeiska Unionen idag till 99 procent består av SMF.

Forskningsprocessen har bestått av litteraturstudier inom design, organisatoriskt lärande och förändringsarbete och empiriska undersökningar i form av observationer, intervjuer och deltagande i workshops. Initialt låg fokus på designkonsulten, dess förståelse för den egna affärssituationen och bidrag i kundföretagen. Studien visade att industridesignkonsultföretag genomgår en förändring vad gäller organisation, ledning och de kompetenser de anställer. Detta är bland annat en konsekvens av ett breddat designerbjudande. Vi observerade en självtillit bland designer avseende deras förmåga att genom sitt explorativa förhållningssätt bidra till strategiskt utveckling, innovation och annat förändringsarbete i kundorganisationen

Genom att studera konkreta aktiviteter mellan SMF och designers flyttades fokus till relationsskapande och dynamiken i samarbetet mellan de båda

parterna. Bland annat visade studierna på behovet av att introducera designmetoder och processer tidigt i den gemensamma processen. Detta skapar en förståelse för designprocessen och dess metoder och hur dessa skiljer sig från hur kundorganisationen vanligtvis arbetar med förändringsprocesser. En tidig samverkan var även viktig för att designer skulle kunna förhandla till sig mer utrymme för kreativt utforskande. I de fall beslutsfattare var aktivt involverade i designprocessen upplevdes slutresultatet i ökad utsträckning som positivt. Genom att involvera beslutsfattare kunde uppdragsbeskrivningen bli ett levande dokument och målsättningen förändras under aktivitetens gång allteftersom nya problem och möjligheter dök upp.

Deltagare i en aktivitet bär med sig en unik historia, kultur och identitet som bland annat utgår från den disciplin eller organisationer de tillhör. Detta leder till att olika perspektiv och kommunikationsredskap, som exempelvis begrepp och prototyper, introduceras i den gemensamma aktiviteten. Att synliggöra dessa men även vilka önskningar och behov som motiverar aktiveten, hur man tolkar regler och fördelar arbete och ansvar, är av vikt för hur samarbetet i aktiviteten fortlöper. I avhandlingen beskrivs och rekommenderas såväl forskare som designpraktiker att använda en aktivitetsteoretisk modell för att öka förståelse för och understödja samarbetet mellan designers och deltagare från SMF.

Visualiseringsmetoder underlättade integrationen av handlande och reflektion, samarbete och ett utforskande förhållningssätt. I flera fall ledde designaktiviteten till ett känslomässigt engagemang vilket i sin tur ledde till nya erfarenheter och lärande. Resultaten kan karakteriseras som affärsutveckling och organisatorisk utveckling. Avhandlingen lyfter fram behovet av långsiktiga relationer och att designern deltar i implementering av resultat för att den nya kunskapen skall få fäste i kundorganisationen.

Avsikten med denna avhandling är att den skall bidra till en pågående diskussion inom designforskningen kring hur designaktiviteter kan bidra till att utveckla organisatoriskt lärande och förändringsprocesser. Min förhoppning är även att den skall bidra till designerns praktiska arbete.

Preface

As a PhD student I have wrestled with the tension between objectivity and subjectivity and the dualism between subjects and human agency, on the one hand, and society and structure on the other. The struggle has been part of my development as a researcher but also inner journeys making me question my own epistemological, ontological beliefs and frame of references.

Using the terminology of cultural-historical activity theory, I would say that as a subject I am motivated to participate in numerous activities, by a desire and need to understand structures and to fight prejudice. Badiou gives a great example in his book "*In Praise of Love*" (2009, p. 25) how politics, identity and love go hand in hand.

> *Love doesn't take me "above" or indeed "below." It is an existential project: to construct a world from a decentered point of view other than that of my mere impulse to survive or reaffirm my own identity. […] at the most minimal level, people in love put trust in difference rather than being suspicious of it. Reactionaries are always suspicious of difference in the name of identity; that's their general philosophical starting point. If we, on the contrary, want to open ourselves up to differences and their implications, so the collective can become the whole world, then the defense of love becomes one point individuals have to practice. The identity cult of repetition must be challenged by love of what is different, is unique, is unrepeatable, unstable and foreign. (Badiou, 2009 p. 25, 98)*

During my professional and educational experience I have observed how strong the ties to a professional identity can be. I have moved between areas of education and professional backgrounds such as management and organizational studies, art history, business control, applied psychology, design management and single-subject courses in design. Numerous times I have observed preconceptions about "*the other*" such as the artistic emotional driven designer,

the profit driven MBA student or manager and the researcher who does not understand how a business is run "*in reality*". The preconceptions have in most cases led to barriers, not the least when individuals with different professional backgrounds are expected to collaborate in change and learning activities. Although the rules and mediating artifacts (such as language, Excel sheets and sketches) that different professions apply may differ, they are all used as a means to communicate and make sense and in the process of externalizing and internalizing knowledge and beliefs in social settings. The tensions I observed made me interested in how conditions for interaction and communication are created. It made me also curious about design methods and processes that strive to integrate body and mind as well as practice with theory.

As a PhD student I was given the opportunity to start to explore. This thesis is a mediating artifact, a tangible result of my action. It is, however, just a milestone on my own journey and a statement of an ongoing dialogue about design, *"beyond the product",* which I am grateful that I have been given the possibility to be part of.

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Thanks to all of you in and outside of academia who made this thesis possible by letting me take part of your perspectives and participate in various shared activities. It has been a mind-blowing experience and I look forward to continuing our journey together. First and foremost I wish to express a special gratitude to my supervisors and mentors Lisbeth Svengren Holm, Professor at the Business and Design Lab, Gothenburg University and Per Odenrick, Professor at the Department of Design Sciences at Lund University. Both of you have provided me with dead-lines and critique, but at the same time have always expressed that you believe in my capacity as a researcher. Lisbeth, I will always be indebted to you for the journey that you gave me the opportunity to take. It has had its ups and downs but you have encouraged me to keep moving forward. Your personal support and friendship is invaluable to me. Per, thank you for all of our inspiring conversations and your helpful review of articles and the thesis. Your ability to contextualize and put everything in a wider perspective is remarkable. You have had a tremendous influence on my development as a researcher.

For several years I have had the privileged to be employed at both Konstfack, the University College of Arts, Crafts and Design in Stockholm, and the Department of Design Sciences at Lund University. The conversations with other PhD students, faculty members, colleagues and not the least my design students have been an important source of inspiration. Professor Bo Westerlund, thanks for your thoughtful questions and advice. Professor Anders Warell thanks for all your practical and emotional support.

Also Marianne Döös Professor at the Department of Education, Stockholm University deserves my sincere expression of thanks for crucial and constructive criticism during my pre-seminar. I am also grateful for all conversations we had during the years and your why and how questions.

I would like to express my gratitude to research colleagues at KTH, the Royal Institute of Technology, Department of Machine Design in Stockholm, and the Business and Design Lab at Gothenburg University. You have all been of major importance for the development of this thesis; I have also had the additional opportunity to be enrolled at The Swedish Faculty for Design Research and Research Education and the Research School in PIEp – Product Innovation Engineering Program. I would like to express my appreciation to all the PhD colleagues, professors and others involved that have made our seminars and meetings inspirational. Our diverse backgrounds and perspectives create dynamic networks that should be fostered in one form or other. Anna Rylander, Business and Design Lab, Marcus Jahnke, SP Technical Research Institute of Sweden and Katarina Wetter-Edman, Konstfack: thank you for uplifting discussions, friendship and irreplaceable emotional support. SVID, The Swedish Industrial Design Foundation, has been an important partner throughout my research project. I had the opportunity to participate in and co-arrange one workshop in New York and another in Stockholm with participants from Swedish, Finnish and American design consultancies. Through SVID I was also introduced to the project management in the Summer Design Office in Fagersta/Norberg, which is one of the most important empirical study supporting this thesis. I would also like to thank everybody at SVID for creating such a welcoming atmosphere and always making me feel like I am part of the organization. The research project on which this thesis is based was made possible from financial support from VINNOVA, The Swedish Agency for Innovation Systems, and two of their research programs: Product Innovation Engineering and The Competent Workplace. Thank you for believing in and making the research project possible. I would also like to express my gratitude to all the companies and organizations for letting me take part of your stories and experiences. Eileen Deaner, thank you for your critical eyes proof-reading and improving the language of the thesis, and Josefin Ambring for all your efforts to visualize my thoughts and create an amazing book cover.

Last but not least all my love to the most important guys in my life. Mikko, your patience, support, care and love keeps astonishing me. Dexter, you have the ability to catch my attention every time my mind wanders off. I have to be present and live in the moment, which I never managed before. Thanks to both of you for letting me be part of your lives.

Appended papers

This doctoral thesis is based on three journal and two conference papers. Papers I to IV are double blind peer reviewed and published. Paper V is submitted to a scientific journal. The papers will be referred to by their Roman numerals in the body of the text.

Paper I

Olsson, M. (Eneberg's birth name), Svengren Holm, L. (2009), Strategic Growth of Industrial Design Consultancy: A study of changes in ID consultancy in a post-industrial society, *Proceedings of the 8th EAD – European Academy of Design Conferenc*e, Aberdeen, Scotland.

> *The authors designed the study, collected and analyzed the material and wrote the paper together.*

Paper II

Eneberg, M., Svengren Holm L. (2015), From Goods to Service Logic: Service business model requirements in industrial design firms, *The Design Journal*, 18(1).

> *The authors designed the study, collected and analyzed the material and wrote the paper together. Both authors responded to corrections suggested by the editors. Eneberg introduced the literature regarding business model canvas and service dominant logic and its application to the business of the industrial design consultancy.*

Paper III

Eneberg, M. (2012), Organizational Sensemaking through Enabling Design Services, *The Design Research Journal*, 2(12).

> *Eneberg independently, conducted the theoretical study, developed the perspectives used in the paper and authored it. Odenrick and Svengren Holm contributed with feedback on content.*

Paper IV

Eneberg, M., Svengren Holm, L. (2013), Design Thinking and Organizational Development: Twin concepts enabling a reintroduction of democratic values in organizational change, *Proceedings of the 10th EAD – European Academy of Design Conference*, Gothenburg, Sweden.

> *Eneberg conducted the theoretical study and developed the perspectives used in the paper. He also authored the main body of the text with theoretical contributions and feedback on content and editorial issues from Svengren Holm.*

Paper V

Eneberg, M., Odenrick, P., Space and Place for Learning: Design competencies in shared activities with small and medium sized enterprises. (Submitted to scientific journal.)

> *The study was planned, executed and analyzed by Eneberg. Svengren Holm and Odenrick contributed with critical feedback on the design of the study. Eneberg conducted the theoretical study and developed the perspectives used in the paper. Eneberg authored the main body of the text with theoretical contributions and feedback on content and editorial issues from Odenrick.*

Other publications by the author

Eneberg, M. (2012), Enabling Design Service Facilitating Inter and Intra Organizational Sensemaking. *Proceedings of the International Design Research Society Conference – DRS*, Bangkok, Thailand.

Eneberg, M., Svengren Holm, L. (2012), Chapter: Designprocessen skapar innovationstänkande i små företag. *Den Kompetenta Arbetsplatsen*, Vinnova rapport VR 2012:12, Stockholm, Sweden.

Eneberg, M. (2011), The Enabling Service of the Industrial Design Consultancy: A change of focus from Goods- to service dominant logic, Licentiate thesis, Lund University, Media-Tryck, Lund, Sweden.

Olsson (Eneberg's birth name) et al., (2008), Chapter: Skapa kundnärvaro i innovationsprocessen. In *Innovationsförmåga*, Olsson, A. (Ed.), PIEp

Olsson, M. (Eneberg's birth name), Svengren Holm, L. (2008), A Profession in Transformation – The paradox of industrial and design in a post-industrial society, *Proceedings of the 7th Nordcode seminar*, Lund, Sweden.

Olsson, M. (Eneberg's birth name), Wängelin, E. (2006), The transformation from impression to expression: A model for visualizing different viewpoints and goals in craft, art, design and company work. *Proceedings of the 5th International conference ICDHS, Connecting*, Helsingfors/Tallinn, Finland/Estonia.

Olsson, M. (Eneberg's birth name), Cohn, J. (2006), Chapter: Design och innovation i småföretag. In *Design som utvecklingskraft II*, Ulla Johansson (Ed.), Växjö University Press, Sweden.

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APPENDIX .....

Abbreviations

AT	Activity Theory
CHAT	Cultural-Historical Activity Theory
CF	Customer Firm
COP	Community of Practice
DC	Design Consultancy
DJ	Design Journal
DRJ	Design Research Journal
DRS	Design Research Society
EAD	European Academy of Design
G-D logic	Goods-dominant logic
DC	Industrial Design Consultancy
MNE	Multi National Enterprises
OD	Organizational Development
PIEp	Product Innovation Engineering Program
RQ	Research Question
S-D logic	Service-Dominant logic
SDO	Summer Design Office
SME	Small and Medium Sized Enterprise
SMF	Små och Medelstora Företag
SVID	The Swedish Industrial Design Foundation
VINNOVA	The Swedish Agency for Innovation Systems

1 Introduction

The design industry is moving into new domains with an expanding offering such as service design and design strategy. Design is a broad concept understood as the designed products but also as an activity with its unique methods and processes. However, in this thesis the focus is on how the organization can achieve learning and change leading to developing innovation capabilities through and the contribution of an enabling design in this context. The utilization of design methods and processes is argued to orchestrate the integration of reflection and action enabling collaboration and exploration in shared activities. In this way they may contribute to value-creating networks by handling complex, ambiguous contexts (Buchanan, 1995) and act as a strategic resource aiming at innovation, organizational learning and change (Svengren, 1995; Valtonen, 2007; Delléra et al, 2008; Murphy and Evans, 2015). This is also an example of how the industrial design consultancies are broadening their offering without giving up any role they previously had (Valtonen, 2007). Visualization through mediating artifacts is still an important skill that the designers possess, but today's offering is broader. However, it seems that potential customers, especially smaller sized ones, often only understand design in terms of developing aesthetic products. At the same time, there has been an increased interest in the methods and processes designers are educated in both in academic journals and business magazines (e.g. Boland et al., 2008; Brown, 2008; Leavy, 2010; Martin 2010). This reflects the design industry's growth, which aroused my curiosity as a researcher to increase my understanding of the phenomenon. I wanted to study the effects of an expanding offering, such as if there were any changes in how the industrial design consultancy was organized. I also sought to explore and describe how industrial designers themselves understood the business of industrial design and how the characteristics of design methods and processes were described.

A literature study about design competencies and changes in the design offering combined with and a qualitative empirical study consisting of semi-structured interviews and workshops with industrial design consultants assisted me in increasing my understanding of these issues.

This thesis put an emphasis on the word design as a verb, a social activity and as a certain way of knowing. With this background, the contribution of design may be understood from a service dominant logic. The overall purpose of the thesis is to expand our understanding of design as an enabling service in the context of smaller sized customer firms. *Enabling* means helping the customer to perform a task in a new way different from what they were able to do before (Norman1992, 2001; Vargo and Lusch, 2008). Thus, an enabling service involves an element of learning. In research on organizational learning and change, predominant attention is paid to the relation between the social world and the individuals acting in it (Engeström, 1987; Weick, 1995; Billett, 2010). As active participants we take part in a process of transforming society and being transformed by it through reacting and enacting in shared activities. Our process of making sense and creating new encultured and embodied knowledge is characterized by shared activities.

A central issue in cultural-historical activity theory, as proposed by Engeström (1987), is that the consciousness of social beings is shaped by the experiences people have from performing action in activities. Actions are characterized by ambiguity, interpretation, and sensemaking and take place in a social setting. As social beings, people act with and through other people as members in, for instance, communities and organizations. The activity is guided by a number of entities such as rules, division of labor and mediating artifacts. These are introduced, interpreted, negotiated and transformed as participants in the activity bring with them cultural and historical backgrounds from other activity systems in which they have participated (Engeström, 1999). Values, norms, power, and multiple perspectives are important constituents in organizational learning and change (Hatch, 2006) and thus the identity of the organization and its members. An activity theoretical framework helps our understanding of contradictions that exist in a shared activity that consists of individuals from several activity systems. Each activity system includes its own history and culture. The perspectives that the participants in a shared activity carry with them may lead to conflicts and become barriers to learning and change. The

internal tension may also lead to learning, innovation, and other change activities. Prevalent perspectives may be questioned, leading to negotiation—with or without the aim of enhancing knowledge. I also use the concepts of *space* and *place* (de Certeau, 1984; Tuan, 2011) in the thesis to increase our understanding of structures and human agency. *Place* is characterized by stability and is positioned in a temporary but distinct location. It is the strategy of the prevailing. As humans, we do not just create abstract *places* in our minds (Tuan. 2011), but also embody and enact our feelings and thoughts in tangible material, such as mediating artifacts or physical environments. The *places* we surround ourselves with and participate in carry established meanings and values that organize our world. *Space*, on the other hand, is practiced *place* and is connected to change but also human agency.

Several studies indicate that smaller sized companies have less experience of working with design and less understanding of how design can contribute to their business than larger companies (Nielsén, 2004; 2008). Currently, 99 percent of companies in the European Union fall under the definition of small and medium sized companies. Nine out of ten of these are micro sized providing work for an average of two people (European Commission, 2015). Fridriksson (2008) argues that collaboration should be high up on the strategic agenda for small sized companies. External sources are often needed to initiate improvements and tangible effect through business development (Bergh, 2009). Large customer firms often have employees working with strategic issues that in smaller customer firms take place more ad-hoc. Reactive behavior to innovation is more common than proactive behavior in SMEs (Lindman, 2002). The need to better handle an unstable future was expressed by participants from small companies that participated in a Swedish project called krAft (Fridriksson, 2008). At the same time, a study conducted by Löfqvist (2014) reported that the use of external expertise was found to be rare; knowledge was mainly gained from suppliers or other small enterprise managers. Companies that have a history of working strategically with design are more innovative, export more and are not forced to compete as much with price (Nielsen, 2004; 2008). The same studies also show that those companies that increased their investments in design were the ones that already were working consciously and strategically with it. With reference to the studies, it seems obvious that both design consultants and smaller sized companies can benefit by collaborating in the

shared learning and change activities that an enabling design service can result in. Thus it would be worthwhile to study and increase our understanding of the collaboration between smaller sized companies and design consultants participating in shared activities, as is done in this thesis.

2 Purpose and research questions

The overall purpose of the thesis is to expand the understanding of design as an enabling service in the context of small sized customer companies. This chapter presents an overview of how the papers and research questions are interrelated. The initial studies focused on recent changes and the business logic of the industrial design consultancy (DC), including areas such as how the consultancies are organized, the competencies of the industrial designer, and the perceived role of industrial design in customer organizations.

> *RQ1: How have the industrial design consultancy changed regarding organization and management, strategic competence, relationships and alliances with clients? (Papers I, II)*

> *RQ2: How do the industrial designer and their customers perceive the role of an industrial design consultancy? (Papers I, II)*

> *RQ3: What are the characteristics of design thinking and hence to work in a designerly way? (Paper III)*

Several studies, including those I have carried out, have shown that many—especially smaller—customer firms recognize design to be a product-focused activity. In the studies reported in Papers I and II, industrial design consultancies stated that they experience difficulty in getting commissioned and receiving compensation for the intangible parts of their offerings. The problem is by no means unique to DCs but is also experienced by other companies moving from a product focus to selling services. It would therefore be fruitful to analyze and understand the business of industrial design consultancies from a service-dominant logic (S-D) as opposed to a goods-dominant (G-D) logic. This led to a fourth research question.

RQ4: What are the requisites of a business model based on service-dominant logic? (Paper II)

A conceptual business model was created based on the characteristics of S-D logic. The result was a descriptive and comparative model that aims at expanding our understanding of the business logic of the industrial design consultancy. The analysis of part one of the research also demonstrated a need to distinguish between relieving and enabling design services. At this stage, the study shifted from a focus on the DC toward a potential contribution of an enabling design service in the context of sensemaking, organizational learning and development. Research questions 5 to 7 address these issues.

RQ 5: How can the contribution of an enabling design service be understood put in relation to sensemaking theory? (Papers III)

RQ 6: How can we understand an enabling design service in relation to organizational change theories and in particular organizational development? (Paper IV)

RQ 7: How can and enabling design service contribute to organizational learning and the strategic development in small and medium sized enterprises? (Paper V)

3 Thesis outline

The first and second chapters introduce the general context, background, aim and research questions of the thesis. Chapter 4 describes the theoretical framework while Chapter 5 provides a description of the methods that were used in the research project. In that chapter, I also discuss the ontological and epistemological assumptions behind my choice of methods.

The research project that the thesis is based on was divided into two parts resulting in five papers that are summarized in Chapter 6. The focus of the first part of the research project was on the business and service offerings of industrial design consultancies. Paper I offers an initial analysis of the changes in the business and the role of industrial design. This analysis is taken one step further in Paper II, in which a conceptual business model based of the requisites of service-dominant logic is proposed. The context and business of industrial design consultancies are then compared and reflected upon with the support of the conceptual business model. In Paper III I summarize the most prominent characteristics of how to work in a designerly way which is based on a literature and the initial empirical studies. These first two papers emphasized a need to distinguish between the relieving and enabling services that the industrial design consultancies offer. The logic behind and need to succeed in delivering an enabling service are different from that of a relieving service, since there is a higher degree of learning and collaboration involved with enabling services. In Paper III, design methods and processes are put in relation to the process of sensemaking in organizations. Design as an enabling service, examined in Paper IV, is also considered in relation to the ontological and epistemological developments in organizational change theories. Paper V addresses how an enabling design service can contribute to organizational learning and strategic development in small and medium sized enterprises. In Chapter 7 I reflect upon my empirical studies in relation to the theoretical framework. Finally, Chapter 8 concludes the thesis by summarizing the main results, the application value of the thesis, and offers suggestions of areas that can be further explored in future studies.

4 Theoretical framework

Knowing by designing

Several of the scholars who have had the strongest influence on the study of design claim it to be a science with its own specific processes and methods (Schön, 1983; Buchanan, 1995; Simon, 1996; Cross, 2006; Lawson, 2006). They are not a unitary group but come from different scientific fields and take different epistemological positions. The different positions lead to a distinction in how they describe design, its characteristics, and its contributions. Simon (1996) is perhaps one of the more renowned scholars who have had an impact on the definition of design sciences. He argues that design is the science of the artificial world, differing from natural science in that the latter focuses on how things are, as opposed to on how things ought to be. Some scholars claim that the primary role of designers is to put forward new ideas and stimuli (Delléra et al., 2008). This implies that design activities are future oriented and hence focused on change activities such as innovation. Just as the natural sciences aim to increase knowledge of natural laws, design sciences aim, in Simon's view, to increase knowledge of rational methods and processes in the creation of the artificial. Schön (1983) criticizes Simon's technical rationality of the science of design, claiming that it can only be applied to well-formed problems, which is not congruent with the problems that the designer faces in practice. Rittel and Webber (1973) criticize the technical rationality of linear processes, claiming that the problems addressed by designers are *"wicked problems"* that cannot be solved in a simple linear process. Wicked problems are ambiguous indeterminate, open-ended problems with more than one solution; the information available to solve them shows different perspectives and values. Situations and problems can differ and appear as uncertain or ambiguous. Uncertainty can be defined as the absence of information. Ambiguous situations, on the other hand, call for sense making since they are puzzling,

confusing and do not fit with what is known. Westling (2002) found that complex and ambiguous issues created innovative interpretations of how to deal with them (Westling, 2002). Design methods and processes that include an ability to imagine multiple perspectives and interpretations of an ambiguous environment would hence be of importance.

Design is argued to be a specific ability that most individuals can acquire on a basic level but need a longer period of reflection and experience to master (Ullmark, 2007). Simon (1996, p. 138) also states that design is not just a matter for designers:

> *Everyone designs who devises courses of action aimed at changing existing situations into preferred ones […] the proper study of mankind is the science of design, not only as the professional component of a technical education but as a core discipline for every liberally educated man.*

Buchanan (1995) stresses that design thinking and hence the competence of a designer are integrative and universal in scope, not having a fixed subject matter; thus, design thinking can be applied to different areas of human experience (ibid.). This standpoint paves the way for an understanding of design in a broader sense than just working with aesthetic products; design is also an activity with its own unique processes and methods. DCs are broadening their offering without giving up any of the roles they previously had (Valtonen, 2007). This can be exemplified with design practices such as service design (e.g. Holmlid, 2009; Segelström, 2013; Wetter Edman, 2014). I acknowledge that the trained designer possess a certain set of skills as a result of training during his or her design education and that the *place* of the designer carries with it a certain set of history, cultural values, norms and perspectives. The concept of *place* will be further discussed in a later section on organizational learning and change. However, *place* is to a certain extent characterized by structure and at least a temporary stability (de Certeau, 1984) and in this thesis can be exemplified by the companies or disciplines to which the subjects belong. Buchanan (1995; 2001) describes the change of focus in the design discipline with four orders, or areas, of design. Each of the four orders of design can be seen as a specific design profession such as graphic design and industrial design. Buchanan argues, though, that it would not be satisfactory to limit each order to a discipline since they are not just design results but *spaces* for invention shared by all designers.

Design grew out of a concern for symbols and visual communication, which is the focus of the first order of design. This area is expanding into communication through, for example, computer monitors and television. The second order of design is that of tangible artifacts, which Valtonen (2007, p. 280) defines as "*the archetype of industrial design."* This area is expanding into the interpretation of physical, social, psychological, and cultural relationships between humans and products. Among the scholars who have had an impact on design research shifting in the direction of the human-made artifact are Lawson (2006) and Cross (2006). It should be noted that the archetype of industrial design has not disappeared but has been supplemented with other offerings by the industrial design consultancy.

In G-D logic, value resides in the product (Maglio et al., 2009; Vargo and Lusch, 2008). This is comparable with Buchanan's second order of design (1995; 2001), which focuses on the design of tangible artifacts. The models we use influence the way we think and act in, for instance, how we organize a value creation process. Porter (1985) has had significant influence on strategic thinking with his metaphor of the classical value chain. Wetter Edman (2010, p. 4) argues that industrial design has been a "*victim of the value chain perspective*" and struggles to "*integrate the holistic customer perspective*" of design in the sequential logic of the value chain. The chain metaphor is in line with the G-D logic that was relevant during the industrialism paradigm since, as Normann (2001) illustrates, a piece of material could only be in one place at a time. Using the logic of the chain metaphor, design was often added at the end of a product development process (Wetter Edman, 2010) to make the products more attractive.

Buchanan (2001, p. 11) argues that the third order of design is a shift of focus from symbols and product aesthetics to the actual activity as previously discussed. This can be exemplified with the focus on communication in a broader sense instead of a phone as an aesthetic artifact. In this sense, it can also be argued that the designer works and contributes on a systemic level that according to Buchanan is the fourth order of design.

> *The focus is no longer on material systems—systems of "things"—but on human systems, where there is an integration of information, physical artifacts, and interactions in environments of living, working, playing, and learning.*

The emphasis of this thesis is on design on a systemic level, that is, design as an enabling service. An enabling service follows an S-D logic and highlights the need to co-create new knowledge and to assist the customer in performing a task in a new way that is different from before (Normann, 1992; Vargo and Lusch, 2008). Thus, an enabling service highlights the need to involve other stakeholders in a learning activity. According to S-D logic, the process of production and consumption is not sequential; instead, different stakeholders add value and exchange knowledge simultaneously in a value-creating network (Vargo and Lusch, 2008). Each organization in the value network contributes with its resources in a business ecosystem (Vargo, 2009). Service is always relational and based on social interaction and an enabling design service can enable innovation through an interpretation and translation of emerging cultural and social patterns (Morelli, 2009)

A value network is a structure of values in which social and economic actors interact to co-create and/or exchange service offerings (Normann, 2001; Maglio et al., 2008; Maglio et al., 2009; Lusch et al., 2010). Creating affordance through mediating artifacts is a pre-condition for the activities involved in enabling design services. Affordance refers to the conditions in environments that enable action (Greeno, 1994) or as Billet (2010, p. 462) expresses it:

> *These affordances (Gibson, 1969) constitute the invitational qualities which will be extended to and perceived by individuals, and which in turn will shape their participation. The invitational qualities of the workplace likely determine how individuals are invited to participate in goal-directed activities and secure the guidance that will assist them to learn tasks that they would not otherwise learn alone.*

S-D logic has its own set of characteristics, which can be translated into necessary requirements for a business model (Osterwalder et al. 2005). The logic of a business model canvas, as presented in Table 1, is based on a conceptual abstraction that expresses the goals, motivations, intentions, and relationships between different stakeholders (Osterwalder et al. 2005; Samavi et al., 2009). A

broadened offer thus leads to new motivations and relationships and a demand for changes in the business models, something that the design practitioner rarely has the time to reflect upon (Murphy and Evans, 2015). In chapter 7, the requirements of a business model based on S-D logic are discussed as I elaborate on changes in the business of industrial design consultancies.

Table 1. The business model canvas, based on Osterwalder et al. (2005)

Pillar	Business model building block	Description
Value propositions	Value propositions	Gives an overall view of a company's bundle of products and service.
Customer interface	Customer segments	The target audience for a business' products and service.
	Channel	Describes the various means of the company to reach its customers.
	Customer relationship	Explains the kind of links a company establishes between itself and its different customer segments.
Infrastructure management	Key activities	Necessary activities to execute a company's business model.
	Key resources	Outlines the resources necessary to create value for the customer.
	Key partners	Portrays the business alliances with other companies necessary to efficiently offer and commercialize value.
Financial aspects	Cost structure	Sums up the monetary consequences of the means employed in the business model.
	Revenue streams	Describes the way a company makes money through a variety of revenue flows.

A business model always has a resource-based view of the organization (Kujala et al., 2010), just as in the case of S-D logic (Vargo et al., 2008), which means that both intra- and interorganizational resources are described (Grant, 1996). Thus, relational aspects are also considered to be a competency in a value system (Normann, 2001). Resources can create new resources through learning activities (Vargo and Lusch, 2008). Organizational learning is hence a vital

concept in talking about design as an enabling service. Networks are constantly reconfiguring—learning, evolving, and adapting to changes in the environment (Lusch et al., 2010). An organization's knowledge influences how it pays attention to and interprets its findings and discoveries, such as how it makes sense of its contexts, like the market (ibid.). The prevailing view of an organization or a value network should always be questioned since it is only valid in temporary activities taking place in a certain context; this also holds true when it comes to the design consultants and their collaboration and partnership with customer firms. Design can be understood as an activity that potentially can be applied to what is traditionally understood as management "*problems*". It involves an element of learning and highlights the need to involve participants that are not educated as designers in shared action using design methods and processes.

Design and management

It is argued that management practice and education is grounded in the scientific traditions of deductive inference from logical premises or inductive generalization of specific instances (Ungaretti et al., 2009; Martin, 2010; Leavy, 2010). Management education is also argued to be based on intellectual study and is criticized for lacking training in interpersonal skills and creativity, which is a necessity to facilitate innovation (Ungaretti et al., 2009). Decisions are based on historical data and solutions are crystallized too soon, not providing any room for experimentation (Ungaretti et al., 2009; Martin, 2010; Leavy, 2010). Of course, this description is simplified but nevertheless, design and management are rooted in different epistemological and educational traditions and have the capacity to bring their unique competencies to the table.

Although it is not new (Rylander, 2009; Johansson and Woodilla, 2010), design thinking has become a popular concept in management in recent years (Brown, 2008; Boland et al., 2008; Martin, 2010; Leavy, 2010; Ungaretti et al., 2009; Carmel-Gilfilen and Portillo, 2010). One reason for the increased interest may be that the methods and processes that designers are educated in have the potential to orchestrate innovation (Cooper and Press, 2001; Bruce and Bessant, 2002; Verganti, 2009; Jahnke, 2013). It is also argued that a human-centred

design approach can contribute in solving organizational problems (Junginger, 2006).

Design methods and processes can enhance interpretation, sensemaking, and collaboration between multiple stakeholders (Bruce and Bessant, 2002; Gay and Hembrook, 2004; Verganti, 2009; von Stamm, 2010; Jahnke, 2013). The concept of design thinking is at the same time argued to be a management fad that will disappear when the next hype replaces it (Johansson and Woodilla, 2010). Walters (2011) argue that there is a lack of consensus on a definition of design thinking (Walters, 2011). It seems that the problem lies not in the lack of contribution but in how the concept of design thinking is used. What is needed is to try to understand how design thinking can contribute to the business of design and the companies implementing it. We need to understand what is typical and designerly with design thinking (Cross, 2006; Rylander, 2011) and study the actual design activities taking place.

Design methods and processes

Organizational and cultural traditions from Taylorism and onward, have led to dividing labor into a mental process and physically performing action, but also dividing theory from practice. In contrast to management education, design is taught in action—by doing (Dunne and Martin, 2006; Rylander, 2009). Essential aspects of design methods and processes include the joining of hands and abstract thought. Idea formation and action occur simultaneously via the use of mediating artifacts such as moodboards, sketches and prototypes (Stolterman, 2007) and reflection takes place in action (Schön, 1983). It is also important that this is a reflective process, which is referred to as "*reflection in action"* (ibid.). Design as a verb—that is, as an activity above all—is understood as being future oriented. An enabling design service can contribute and be a complement to change activities such as innovation (e.g. Simon, 1996; Cooper and Press, 2001; Bruce and Bessant, 2002; Delléra et al., 2008; Verganti, 2009; Jahnke, 2013). Lawson (2006) concludes that designers use a combination of thinking styles, but (to a higher degree than is present in other disciplines) use what is referred to as "*adventurous thinking"* This is characterized by combining elements that previously were unrelated. Designers are argued to work as "*technology brokers*" transferring technical solutions and bridging competencies

between different industries, and in this way contributing to innovation (Hargadon and Sutton, 1997).

Design has the potential to contribute on a systemic level (Buchanan, 2001). This includes the paradigms and beliefs that form the basis of the perspectives that individuals use to define the world around them (Nonaka, 2004). The designer searches for and matches patterns by zooming between details and the whole to gain an overall understanding of the different contexts relevant to possible solutions (Ullmark, 2007). Multiple models are suggested as means for evoking emotional involvement from participants (Boland and Collopy, 2008). As multiple alternatives are enacted, interpretation and negotiation of an ambiguous environment can take place, and in this way an organizational sensemaking process. The extracted cues acted upon arise out of the familiar structures of previous sensemaking processes. By moving into a fictive future, it is possible to act on and make sense of what has not yet taken place. It is argued that the use of design methods during a process results in new knowledge about a design space (Westerlund, 2009), which means identifying several solutions to a problem (Lawson, 2006).

The design consultant creates affordance when supporting an environment that allows the individual to perform actions in shared activities and thus facilitates the opportunity for different thought networks to merge and for new competencies to be developed (Gibson, 1969; Greeno, 1994; Billet, 2010). Affordance is a precondition of activities based on the previously mentioned enabling design services. Sawhney and Prandelli (2004) claim that new knowledge is created when the preceding knowledge alternates between being tacit and explicit, i.e., between being individual and social (ibid.). With the aid of mediating artifacts, the designer facilitates a process that alternates between externalizing and internalizing knowledge (Nonaka, 2004) and in this way creates conditions for learning and change activities. By enhancing cross-functional and interorganizational communication and collaboration, different combinations of problems, contexts, ideas, opportunities and solutions can be explored and a learning situation can be created. The collaborative approach of the designer is also noticeable in an evolving briefing process. Such a process goes from clients previously presenting a problem to be solved to the co-creation of a dynamic, non-linear briefing process involving several stakeholders (Murphy and Hands, 2012). Design management, just as other kinds of

management, covers a wide range of perspectives and deals with how design methods and processes are to contribute to solving different management "*problems*" such as brand building and innovation. The empirical and theoretical studies in the thesis are centered on organizational change and learning theories and more specifically a possible contribution of enabling design services in sensemaking, change and learning activities.

Organizational learning and change

The epistemological and ontological perspectives that influence and set the tone in the culture of a customer organization set the limitations around the action that can take place and thus the contribution of design methods and processes. Modernist organizational theories view organizations as closed systems that process information that is found outside of the boundaries of the organization (Nonaka, 2004). The organizational environment provides the organization with input, such as resources or information, and absorbs outputs such as products (Hatch, 2006). Organizations coordinate activities such as trying to manage exceptions and defining goals. Uncertainty arises when exceptions are greater than the information residing in the organization. In this case the organization needs to adapt and be redesigned (Galbraith, 1977). The focus on organizational design is to achieve strategic aims, which has an impact on the structure of an organization. Several interrelated factors need to be considered such as hierarchies, division of labor, level of specialization and spans of control (Kreitner and Kinicki, 1992). These factors affect and are affected by design and the impact of an enabling service in learning and change activities. A modernist approach to organizational change would diagnostically try to discover the true nature and hidden character of a problem. This approach is, however, problematic in solving what Rittel and Weber (1973. p. 162) call "*wicked problems*".

> *The systems approach "of the first generation" is inadequate for dealing with wicked-problems. Approaches of the "second generation" should be based on a model of planning as an argumentative process in the course of which an image of the problem and of the solution emerges gradually among the participants. (Rittel and Webber, 1973, p. 162)*

A symbolic interpretivist approach on the other hand regards knowledge as socially constructed (Hatch, 2006). Organizational actors enact, co-create and recreate the organization in a process of organizing (Weick, 1995). Information is hence not out there to be found but a result of a negotiation of multiple interpretations that exist simultaneously. Ford and Ogilve (1996, p. 59) present in Table 2 the difference in organizational learning outcomes based on a system structural and an interpretive view.

Table 2. Organizational learning outcomes resulting from system structural and interpretivist epistemologies, based on Ford and Ogilve (1996).

	System structural view	Interpretive view
Action	Outcomes of routines sanctioned by system-structural assumptions	Outcomes of creative actions sanctioned by interpretivist assumptions.
Knowledge acquisition	Attempts to reduce uncertainty produce internally directed performance that monitors routines undertaken by specialists.	Attempts to create meaning from ambiguous environments result in externally directed creative actions undertaken throughout the organization.
Information distribution	Rigorous analyses produced by specialists are distributed primarily within functional hierarchies.	Lessons from experiences are distributed horizontally within and across the project or service teams as they attempt to develop creative associations.
Information interpretation	Organizational frames guide linear and rule-bound interpretations.	Multiple frames lead to recursive and informal interpretive processes that help produce creative insights.
Organizational memory	Lessons from experience reinforce sanctioned interpretations and current routines.	Lessons from experience produce diverse information and perspectives that can be utilized to support multiple interpretations and creative actions.

In a change management approach, change is planned and implemented in the organization (Argyris, 1976) by the management or management consultants. This approach can be contrasted with organizational development (OD) and design as an enabling service. The idea behind OD is to democratize life in

organizations by involving members in shared activities. (Bradford and Burke, 2005; Clegg, 2005; Marshak and Grant, 2008). It is even considered impossible to engineer change in complex situations without involving organizational members in the activity (Harvey, 2005). Opportunities for learning and development are created through collaboration rather than by imposing change (Bradford and Burke, 2005). Democratizing an organization means focusing on the relationship between learning and active involvement by employees (Spender, 1996). Buchanan (2001) argues that design is moving into new territories with a focus on integration within human systems. Design science is argued to hold the appropriate body of knowledge that can be applied to solving problems through intermediation (van Aken, 2007). A prerequisite for an enabling design service is the ability to combine thinking and action (Kimbell, 2011) that involves internal and external stakeholders in shared design activities; a closed systems-structural view can thus hinder change and learning activities. A closed system model is not sufficient for the study of innovation since complex interactions should be taken into account (e.g., interactions between science, technology, market, designers, and users) (Freeman, 1994).

According to institutional theory, organizations adapt and conform both to the values of the internal group and the external environment. Argyris (1976) divides learning into two categories: single- and double-loop learning. Single-loop learning permits a limited adaption to the environment surrounding the organization, provided the prevailing goals and governing values of the organization are not questioned. In this instance, *place* is to be protected. According to de Certeau (1984), we are caught between "*the thing and movement"* and cannot experience the difference. He describes the possibility for change by using the concepts of *space* and *place*. The two concepts are interdependent. *Place* is defined by the boundaries of what can be done and what is given to us or taken by us from, for instance, our society, history, gender, and upbringing. *Place* can be compared with "*molarity*" as described by Delueze and Guattari (2005, p. 227).

> *We are always afraid of losing. Our security, the great molar organization that sustains us, the arborescence we cling to, the binary machines that give us a well-defined status, the resonances we enter into, the system of overcoding that dominates us—we desire all that.*

Situated learning theory (Lave and Wenger, 1991) describes how learning is situated in a community of practice (COP). Ideas and practices are institutionalized through the development of shared tools, symbols, stories and routines. This takes place between the defined competencies of a COP and the experiences of the individuals. The focal point it becoming a practitioner rather than learning about practice (Hall-Andersen and Broberg, 2014). Huzzard (2004) argues that the shortcoming in situated learning theory is its narrow focus on routine labor processes and the mastery of a certain task. An essential perspective in this context is human agency and to what we as individuals can change in society and our own reality. Human agency can be defined as the need and ability to act and that actions are directed toward an object[1], which is motivated by the needs and desires of individuals (Kaptelinin and Nardi, 2006). Rylander (2007) argues, by referring to Mead, that individuals assume the role of "*the other*" by viewing themselves with the attitude they believe others have of them. As individuals, we do not just create abstract *places* in our minds (Tuan, 2011); we also embody our feelings and thoughts in tangible material, such as mediating artifacts. The practitioner becomes aware of the available frames that (s)he put on reality by performing action. Artifacts may help us in co-creating our identities or the environment in which we participate. The embodied dimension is essential in design methods. The use of mediating artifacts such as prototypes has the potential to integrate body and mind and hence reflection in shared action. The visualization skills of the designer thus have the potential to contribute to a process of introducing individuals to a certain *place* through the use of mediating artifacts. By observing ourselves in different contexts, we see our varied ways of interacting with other people, artifacts, and *places*. In this manner, we construct our organizational self, that is, our identity as organizational members. An internalization process is one of assimilation or accommodation of the external environment (Engeström, 1999). In assimilation, the individual incorporates what is experienced and interpreted in the external world without changing the structure of the internal world. The

[1] An object is within an activity theoretical framework defined as "*the 'raw material*" or problem space at which the activity is directed (Kaptelinin, 2005, p.10). The concept will be further discussed in Chapter 4, Theoretical framework.

place of an individual, therefore, is not threatened, and assimilation is a relatively easy process. On the other hand, accommodation forces the individual to adapt to the external environment. The negative side of *space* is the threat of vulnerability and exposure. The *places* we participate in are not just barriers to change, embodied power, and potential structural oppression.

They are also shelters with established meanings and values that organize our world (ibid.). Kaptelinin (2005, p. 5) expresses this point about *place* in the following manner:

> *A place full of meaning and value, a place that can be comfortable or dangerous, restricting or supporting, beautiful or ugly, or (as it is often the case) all of these at the same time.*

In contrast to single-loop learning, double-loop learning implies a reflection and correction of errors that have been detected in previous experienced situations. The status quo is questioned which leads to learning through exploration and change (Argyris, 1976) and thus, *space*. There is a dialectic relationship between *space* and *place*, and to survive, we crave both.

Space defines what can be accomplished via action (de Certeau, 1984, p. 117):

> *A space exists when one takes into consideration vectors of direction, velocities, and time variables. […] space is like the word when it is spoken, that is, when it is caught in the ambiguity of an actualization […] in short, space is a practiced place.*

Idea formation and (inter)action occur simultaneously in the design process via the use of tangible artifacts such as sketches and prototypes in a dialogue with different contexts and perspectives. The mediating artifact enhances both the processes of externalization as a tool for communication and to enhance interaction between different stakeholders. In this way design methods and processes have the potential to bridge competencies among organizational members and functions, such as marketing and production, but also with external stakeholders. In this thesis, knowledge does not imply a universal truth, as it does in an essentialist epistemology. Knowledge is instead regarded as encultured and embodied (Blackler, 1995). Knowledge is not out there to be discovered, but rather is the experienced reality of a situation that is the result of a negotiation between multiple perspectives (Nonaka, 2004). Encultured

knowledge is socially co-constructed and open to negotiation. Embodied knowledge is action oriented, acquired by doing, situated in a specific context (ibid.) and thus the result of participation in an activity (Kaptelinin, 2005). A pragmatic and dialectical perspective also recognizes that knowledge and learning are the outcome of an action-led activity motivated by the needs and desires of individuals (Schön, 1983; Engeström, 1987; Kvale, 1997; Blackler, 1995; Döös, 2007; Elkjaer, 2010).

In contemporary forms of OD, interaction and the facilitation of a sensemaking process (Weick, 1995) are at the very center of attention (Marshak and Grant, 2008; Werkman, 2010). The sensemaking theory originates from Weick, who introduced social construction into organizational theory (Hatch, 2006). Sensemaking may be understood as a sociocultural process—an ongoing activity situated within a certain context (Bruner, 1986). Huzzard (2004) criticizes sensemaking for not considering power aspects and instead suggests the relational conception of sensegiving. Sensemaking is a mental endeavor practiced by leaders, and sensegiving is then the undertaking of making others act. This view would highlight the power aspects in sensemaking. Sensemaking and sensegiving are suggested to be situated in a cyclical model of experiential learning. Experiential learning involves the formation of ideas through experience as we interact with the environment (Kolb, 1984). Change processes take place in an alternation between routines and experimental actions. What is suggested is a switch from learning through exploitation to learning through exploration (March, 1991). Exploitation refers to a learning process to refine and extend existing knowledge in an organization. Exploration refers to a learning process to discover and acquire new knowledge and skills and hence challenges the existing way of "*mastery over a particular task*" (Huzzard, 2004, p. 353). In this sense the introduction of design as an enabling service can be an example of explorative organizational learning taking place in the customer organization. It is thus also a means to move sensemaking and sensegiving into the sphere of employees or users.

Meaning creation is the core process in sociocultural activities. The perspective is based on the acknowledgement that multiple perspectives exist simultaneously among various internal and external stakeholders and that all individuals are active agents of change. Nilsson et al. (2014), however, showed in their study that even if management aims to create a mindset in the organization that all

employees should contribute to innovation, this is rather limited in stimulating explorative activities and systematically making use of diversity in competence and skills. I argue that an enabling design service has the potential to contribute on a systemic level by orchestrating collaboration and making multiple perspectives and interpretations of an ambiguous environment visible. Several solutions are often the result of design activities. They are the result of a trial-error process switching between inclusive creativity and critical review of the solutions. This way of working may be contrasted with change management, where senior management and management consultancies are regarded as the primary creators and agents of knowledge and change. However, consultants imposing their knowledge on an organization without creating shared rules may lead to failure. This was the case in a study by Räisänen and Löwstedt (2014). The practitioners started to question the legitimacy of the consultants and their competencies to understand the industry in which the organization was operating. This exemplifies the need to move our view of knowledge from a positivistic machine-like view to that of a corporate asset. Instead, we need to understand knowledge out of an interpretive perspective and a process that makes knowledge meaningful (Spender, 1996).

Both transformative (Kegan, 2009) and expansive learning (Engeström, 1987) focus on the diversity of perspectives instead of the use of authority, coercion, and tradition in a learning process. According to expansive learning, it is in the tension between perspectives and contradictions that the reconstruction and co-construction of a new, shared object takes place. This is the result of participation, interpretation and negotiation in shared activities and leads to expansive learning. Transformative learning is a process that challenges and transforms frames of references and habits. It highlights the need to focus on how the identities of, for instance, an individual or organization are co-created. The focus is on "*becoming*" and restructuring whole clusters of schemes and patterns. By combining elements that were previously unrelated, the designer searches for and matches patterns and in this way challenges what is taken for granted. Bridging competencies within and between organizations and transferring technical solutions between industries can in this way lead to organizational change, learning and innovation. Döös (2007, p. 146) states that an individual's understanding can be described as a thought network. Thought networks are "*linked to situation and are action-related."* Different thought

networks merge in the relation and interaction between individuals as a sensemaking process takes place. The context affects how we understand an event, which leads to different interpretations and meanings (Weick, 1995). Arousal is triggered by the interruption of an ongoing activity and leads people to search for answers and make sense of a given situation. Sensemaking is an ongoing process that is punctuated when we focus on the past from a point beyond it; thus, attention is based on the memory of the past action. Negotiation, questioning, criticizing, and even rejecting accepted wisdom all energize the process of knowledge co-creation and development of innovation capabilities. Accuracy is not necessary in sensemaking but, rather, is something that preserves plausibility and coherence, embodies past experience, and resonates with other people (Weick, 1995, pp. 60-61).

> *What is necessary in sensemaking is a good story. […] a good story, like a workable cause map, shows patterns that may already exist in the puzzles […] patterns that could be created anew in the interest of more order and sense in the future.*

Elkjaer (2010) highlights the need to create an experimental learning environment related to the work organization. She refers to the method of inquiry as proposed by Dewey and argues that it includes cognition, emotion, individuality and sociality but also combines thinking and acting. Knowing is then not something that individuals or organizations possess, but something that they do (Blackler, 1995).

According to Chenhall and Chermack (2010, p. 589), action learning is a

> *[…] collaborative inquiry process in which participants work and reflect on real problems with learning partners, producing a tangible outcome while at the same time learning from the experience.*

In an environment consisting of a high degree of complexity and change there is a need for creative actions that facilitate change and learning. In this way organizational actors can make sense and enact on shifting aspects of the environment to become more proactive (Ford and Ogilve, 1996). Design methods are often future oriented and action oriented. They can contribute to creative action by putting elements together that are not normally related and in so doing, create a fictive future. Coughlan et al. (2007) argues that shifting from

abstract ideas and plans to concrete, tangible artifacts enhance organizational learning and development. Artifacts, especially those that are "*in the making*", orchestrate a dialogue and knowledge sharing between different practice domains such as disciplines (Hall-Andersen and Broberg, 2014). Tangible artifacts act as mediators between individuals and contain meaning (Barthes, 1994; Engeström, 1999). A change in the physical context that is acted upon has the potential to lead to experimentation, exploration, communication of new ideas, and transformation because experience and behavior vary according to the situational context. The use of mediating artifacts—such as prototypes and moodboards—is also suggested to accelerate learning and reduce the costs associated with failure (Coughlan et al., 2007). Artifacts that communicate how value is created as well as what knowledge and competencies exist in the organization are paramount. When the knowledge is embodied in mediating artifacts, it can more easily be communicated, shared, and manipulated (Osterwalder et al., 2005).

Activity theory has had an impact on practice-based learning within and between different knowledge domains (Kaptelinin and Nardi, 2006; Hall-Andersen and Broberg, 2014). A central principle in activity theory is that meanings and values are redefined and undergo constant transition as the borders between individuals are crossed (Kaptelinin and Nardi, 2006). Structures, perspectives, norms, and values are often mechanically accepted, routinized, and institutionalized in an activity system. They can become barriers to change but also a shelter for individuals in their workplaces. The tactics of action create *space* to resist and even to change the present situation. To be able to understand the tactics of action, we also need to consider them in relation to the activity systems that make up our reality. Different activity systems meet in local activities trying to reach a common object (Engeström, 1999). Organizational learning is local and situational; the structures, practices and perspectives in an organization are developed over time. A historical perspective is thus necessary to create change (Virkkunen and Kuutti, 2000).

A cultural-historical activity theoretical framework

In the 1920s, Vygotsky, the founder of cultural-historical psychology, proposed what is considered to be the first generation activity theoretical model. Its point of departure is the analysis of subjects performing action, mediated by artifacts to reach a shared object. Activity theory (AT) is based on the philosophy of Karl Marx and assumes a praxis-based perspective of human activity. The claim is that the consciousness of social beings is shaped by experiences that take place in an activity in a social setting. According to Vygotsky (in Engeström et al., 1999), the actions that take place are mediated by the entities presented in Figure 1: subject, object and mediating artifact. These entities are shaped by the culture and have a unique historical background (ibid.). The aim of AT is to understand how individuals construe consciousness in everyday practical activities (Kaptelinin and Nardi, 2006).

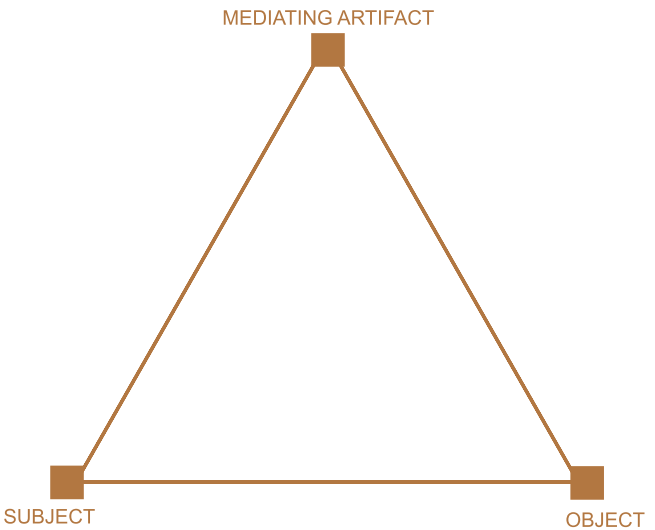

Figure 1. First generation activity theoretical model as proposed by Vygotsky, based on Engeström et al. (1999).

Leontiev, further developed the work of Vygotsky by adding social and societal aspects to action (Engeström et al., 1999). He proposed three levels of analysis of human processes, presented in Figure 2. The upper level is the activity, driven by object-oriented motives. The middle level illustrates how individuals or groups perform actions to reach goals. The lower, operational level is driven by the present conditions and available entities (ibid.). AT did not become widely

known in the West and in different disciplines until the mid-1980s (Kaptelinin and Nardi, 2006). Yrjö Engeström (1987) expanded Vygotsky's activity theoretical model and incorporated the context in which the subjects interact. According to Engeström (1999), the third generation activity theoretical model includes at least two interacting activity systems. With its focus on activities, this model is crucial to understanding the value creating networks described in S-D logic as consisting of a series of interacting activity systems. The activity systems in the value-creating network can be both intra- and interorganizational.

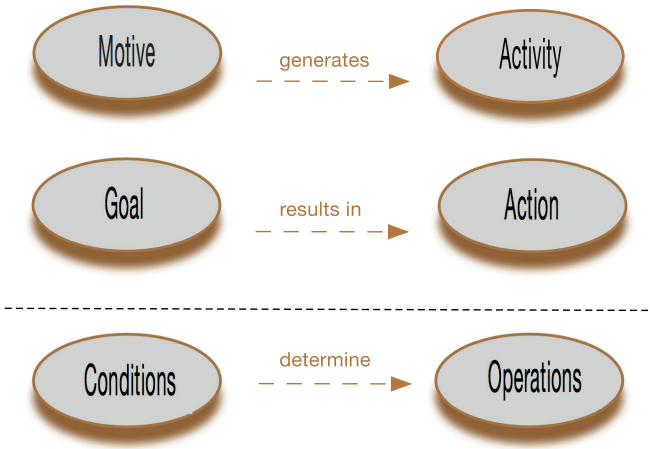

Figure 2. Based on three levels of analysis of human processes as proposed by Leontiev, based on Engeström et al, (1999).

Actions are performed by individuals or groups and are the result of a division of labor. All individuals participating in an activity bring with them values and norms derived from previous experiences in their cultures' activity systems. Consequently, it is of importance to understand the cultural-historical background in the analysis of actions performed in a learning activity (Engeström 1984; Billet, 2010). Kaptelinin and Nardi (2006) argue that human agency can be defined as the need and ability to act. Tuan (2011) exemplifies how *space* is experienced when we kick our legs; what we experience is an ability to move our bodies. Movement also creates a sense of direction, which can be compared with action as proposed in activity theory (Engeström, 1987) (further described in the next section of the thesis). Goals are attached to action with a clear beginning and a clear end. Moreover, goals and plans are constantly revised

as the action is in progress. Hence, it is only possible to understand retrospectively just how an action emerges as suggested in sensemaking theory (Weick, 1995). Engeström (1999) also argues that the actions of an individual or group are not fully predictable, rational, and/or machine-like. Rather, actions are characterized by ambiguity, interpretation—and thus can potentially affect learning and other change activities.

Activity, motive, and object

As mentioned atop this chapter, humans are social beings who act with and through other people as members of communities and organizations. Actions occur within a historical and cultural context and are shaped by society and culture. Activities are social practices oriented around objects that are motivated by human needs, desires, and emotions (Cole and Engeström, 1999). An object is both a projection of the subject on the external world and the projection of the external world on the subject. Objects can in an activity theoretical framework be described as the "*raw material"* or "*problem space*" at which the activity is directed (Kaptelinin, 2005, p.10). As humans we perceive a culturally determined objects such as a problem to be solved, material for producing something, which can be exemplified with the creation of new technology. It can be a material thing or intangible as a common idea as long as the object can be shared and transformed. At the same time the object is interpreted in different ways by participating subjects, which may lead to contradictions and conflicting views. A precondition of expansive learning is a re-mediation of the object of the activity. This means that the object is put into a new context and interpreted in a new way. Learning is thus a key to transform an activity (Virkkunen and Kuutti, 2000). Engeström applies AT to organizational change, and in his view, activities can only be performed collectively. An activity takes place in a community that consists of individuals from different activity systems. He describes activities as mediated with the help of mediating artifacts, rules, and division of labor. Entities such as tangible artifacts, signs, and language do not only mediate the activity but are also recreated by it. Activities transform artifacts and individuals, but also the culture in which we live; they are carriers of conflicted relationships between various actors and structures (Holland and Reeves, 1996). The construction of objects is a collaborative process in which

different perspectives, norms, and values coalesce. Activities are characterized by tensions and contradictions and the object of the activity has to be reinterpreted in a broader perspective. An expanding activity leads to expansive learning (Virkkunen and Kuutti, 2000). New objects can only be captured in a fuzzy and ambiguous form and the embodiment of an object—for example as a product or service—is just a milestone in a process of transformation. Engeström (1999, p. 387) provides an example of object construction from one of his studies:

> *The initial existence of a shared problem or task can rarely if ever be taken for granted in work teams. In fact, actions directed toward constructing a shared understanding of the problem took the lion's share of both discussions. The innovative solution itself seemed to emerge as a final burst after the painstaking period of object construction.*

Kaptelinin (2005) argues that objects are dynamically constructed and reconstructed. They are based on, for instance, desires and needs from several actors that all are to be satisfied by the means that are present. To succeed with the activity, several criteria need to be taken into account. All motives needs to be represented otherwise the activity will fail. The object needs to be feasible but also attractive to drive the activity. Further on, the object needs to be stabile to some extent so as not to disorganize the activity. At the same time it needs to be flexible to meet new needs or utilize new means.

Activity theoretical model

In addition to subject, object, and mediating artifact, which are all part of the first generation model, Engeström (1987) expands the activity theoretical model presented in Figure 3, with three new entities: the community in which the subjects participate, the division of labor that structures interaction, and the rules that guide the activity system.

Subject

The human mind and the culture we live in are intrinsically related and shaped by activities that are based on the needs, desires, and intentions of the subject. Subjects are always participating in several activity systems. Human agency can

be defined as the need and ability to act, and since nonliving things lack intention, they have no agency even if they possess the ability to act.

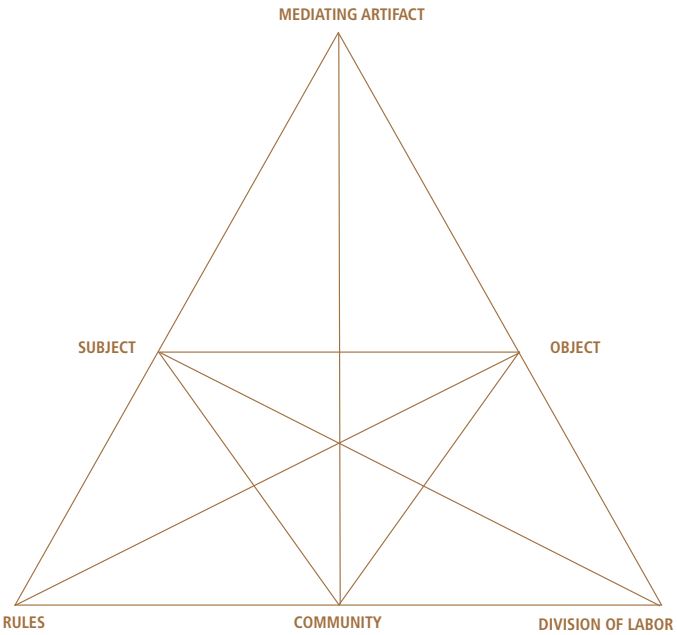

Figure 3. Activity theoretical model as proposed by Engeström. (1987)

Community

A community consists of the subjects that participate in an activity. Since the subjects are always part of several activity systems, the community can be characterized by instability, contradictions, and conflicting values and norms. In this sense, barriers between different activity systems may affect the interaction within an activity via the subject. Similarly, the differences may lead to change and innovation.

Rules

Rules regulate activities, functioning as both a divisive entity and as the glue, as it were, between subjects and community. They can be conscious or subconscious, but also implicit or explicit, and are clearly defined as laws, routines, and/or guidelines.

Division of labor

The division of labor builds on formal and informal hierarchical structures in a community. It builds on the notion that actors are assigned to perform certain tasks and take certain roles in the community by contributing to the joint effort to reach a certain outcome. The division of labor is, however, often characterized by intra- and interorganizational power struggles about who is to decide about and perform a certain action.

Mediating artifacts

The artifacts we use are influenced by the culture we live in and therefore transmit social knowledge. Artifacts are reconstructed in action and influence both the actors in an activity and the social structure in which they exist. Mediated artifacts function as a form of expression of norms, standards, and object hypothesis that exist outside of the individual (Engeström, 1999). External processes can be internalized by using internal signs (Kaptelinin and Nardi, 2006). Both internal and external artifacts are always part of an activity, and they have the capacity to effect change both on the internal and the external level. Even if external artifacts are always present when the subject acts in the world, they do not necessarily impact the collective activity. Kaptelinin and Nardi (2006, p. 47) exemplify it as follows:

> *Or, consider a musician who plays in an orchestra and internalizes musical scores when participating in the collective activity. The degree to which the musician relies on external artifacts (music sheets) has little to do with participation in the collective activity of the orchestra.*

The internal/external and hence the individual/collective dimensions are interdependent. An internalization process is not just a process of assimilation of the external environment; it also contains an aspect of interpretation based on previous experiences and a potential to change the external environment (Engeström, 1999).

5 Research design and methods

Actions and contextuality

Humans are active actors who strive to structure the unknown and construct sensible events (Weick, 1995). This exemplifies an ontological view that emphasizes that science is contextual and colored by subjective experience (Alvesson and Sköldberg, 1994). The research project has taken "*an actor's point of view*" as its point of departure, with an emphasis on the need to understand the meaning that an actor ascribes to a given situation (Alvesson and Sköldberg, 1994; Silverman, 2007). Meanings expressed in activities are regarded as reflexive articulations of meanings that the respondent communicates in a specific historical and social context (Kögler, 2007). The social contexts of respondents in the first part of the research project were the interview situations between the industrial designers and me as a researcher. Another context consisted of two workshop activities with participants from the largest industrial design consultancies in Sweden and Finland and some minor ones from the USA. The studies had an intra-disciplinary approach. The aim was to interpret and describe meaning construction and co-construction among designers.

The second part the research project took a cross- and multidisciplinary approach with a focus on shared activities with participants from several design disciplines such as industrial, graphical and interaction design, and employees and owners of small and micro-sized companies. The research project did not only include elements of interpretation and description but also action research inspired methods and active involvement by the researcher (Sunding and Odenrick, 2010). An essential method used in part one of the research project was to participate and study workshop activities. As researcher, we introduced the topics to be discussed in the two workshops (that will be discussed later in this chapter). In the second part of the research project, I studied the relational

aspects of design as an enabling service aimed at learning and change. Through SVID (The Swedish Industrial Design Foundation), I was offered the opportunity to study a local Summer Design Office[2] (SDO) during two years. Between the two years, I as the researcher was able to influence the SDO activity by suggesting changes to the SDO project management regarding the process and shared action performed in the activity. The SDO Project management implemented the changes and I observed the changes that took place and the results of the changes.

Overview of the data collection process

A multiple methods approach—also called triangulation—was applied to both parts of the research project including methods such as semi-structured interviews, workshops and observations. Part one of the research project is described in Figure 4. It began as an initial exploratory study. We aimed to better understand how industrial designers perceive their own competencies, their discipline's role and their business situation. We also strove to capture how customer firms perceived the industrial designer, industrial design, and its role in product development and innovation in their company. During the study, we were invited to participate in and co-arrange a workshop with participants from Swedish, Finnish, and American design consultancies. The workshop was to take place in New York in the spring of 2007. In preparation for the workshop, more interviews were conducted with Swedish industrial design consultancies

[2] The SDO is an activity that has taken place annually throughout Sweden since 2001. It is organized by SVID, the Swedish Industrial Design Foundation. SVID collaborates with a number of local offices. Each office has a local project manager and an experienced designer who is the instructor. The majority of participating clients' organizations are local small and medium sized enterprises that pay a fee to be part of the seven-week activity. University students, who in this case were all designers, work with concept-oriented assignments and receive a monthly salary and free accommodation. The SDO aims at providing the students with work experience and disseminates knowledge in society about design and its potential as a tool for innovation and development. See more at: http://www.svid.se/en/About-SVID/What-we-do/Summer-Design-Office/

(DCs) and some of their customers. A second workshop took place in Stockholm in the autumn of 2007, and the results from the first workshops were discussed among the participants along with new questions regarding the future of the business of industrial design.

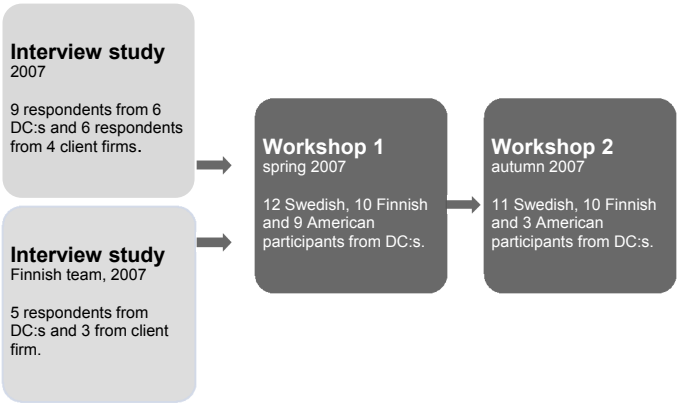

Figure 4. A chronological picture of how the study emerged during the first part of the research project.

During the second part of the research project, I studied relational aspects and conditions for collaboration between designers and small-sized companies. A qualitative, embedded, multi-case study was used (Yin, 2003; Flyberg, 2006). In total, five individual SDO activities were studied in five different companies. Each one of these activities was studied as a separate case. Figure 5 describes the research process. The purpose of the second part of the research project was to increase my understanding of the application of enabling design services in small sized companies. Semi-structured interviews were conducted before and after the SDO both with the design students and respondents from the customer firms. Participating companies and their respondents, named accordingly, are presented in Table 4. All respondents in the thesis were anonymised. The interviews took place before and after the SDO activity, and the main observations were performed during midway and final presentations. During the interviews the companies were also asked to rate a number of statements about design and designers on a scale between one (strongly disagree) and five (strongly agree). An action research inspired approach was then applied with the aim to influence the SDO activities.

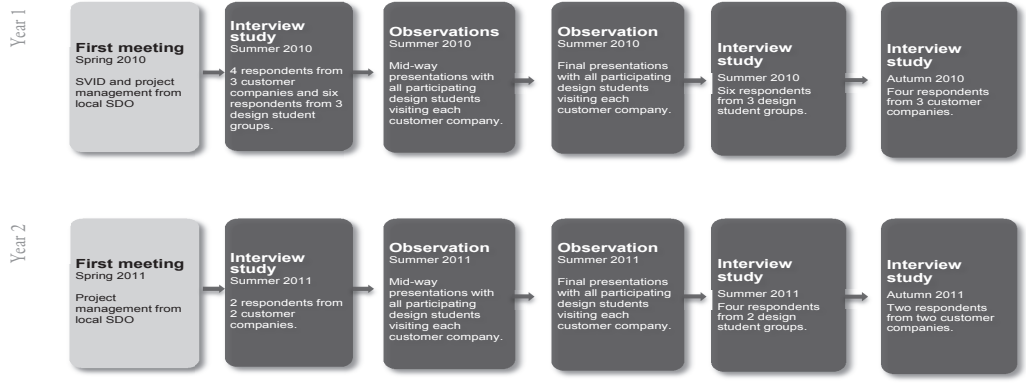

Figure 5. A chronological picture of how the study emerged during the second part of the research project.

Interview study part one

The interview study in part one of the research project consisted of 15 in-depth interviews (Bryman, 2001), each lasting approximately two hours. The interviews were videotaped and later transcribed and the questions can be found in the Appendix. Before the interviews, websites and annual reports were studied to gain insights into the companies' internal structures and their competitiveness and financial situation. Additional information about the companies and the number of participants can be found in Table 3. Nine of the interviews were conducted in six industrial design consultancies, of which the majority were the largest design consultant firms in Sweden. The respondents were either managers of the companies or senior consultants. The other six interviews were conducted in four companies that were customers of the design consultants, and all respondents were in management positions. The customer company interviews aimed at obtaining perspectives on how these companies experienced the contribution of industrial design consultancies. The interviews provided me with insights to the topics discussed in the workshops that will be discussed later in this chapter.

Table 3. Companies participating in the first part of the research project.

	Interviews	Workshop 1	Workshop 2	Employees (2007)	Turnover (2007) (EURm)	Turnover/ Employee (EURm)	Industry
Industrial Design Consultancies (design consultants)							
Ergonomidesign	2	3	2	45	4,98	1.1	
Hampf design		1	1	5	0,24	0.5	
Strukturdesign		1	2	7	0,47	0.6	
Lundberg		1	1	5	0,77	1.5	
Umbilical		1	1	2	0.07	0.4	
Propeller	1	1	1	27	2,13	1,0	
NoPicnic	2	1	1	41	3,92	0.9	
Myra	1			7	0,69	1.0	
Transformator	1			4	0,45	1.0	
Zenith	2	1		23	2,06	0.9	
Cliff		2	2	24	2,42	1.0	
Finnish respondents (design consultants)		10 (5)	10 (5)		-		
American respondents (design consultants)		9 (9)	3 (3)		-		
Customer Firms (customers)							
Sony Ericsson	1			9400	11628	12.0	Consumer electronics
Electrolux	1			55177	10837	1.9	Consumer durables home equipment
Optimus	2			Acquired by Katadyn Produkte AG			Leisure-time products
SHL	2			38	7,28	1.9	Medical technology

Interview study part two

The second part of the research project consisted of an interview study with 25 in-depth interviews of design students and customer companies (Bryman, 2001). All interviews were videotaped and later transcribed. The study took place over a period of two years and the interviews lasted approximately two hours. Interview questions can be found in the Appendix. All interviews during both part one and two of the research project had a semi-structured format in the form of a dialogue (Bryman, 2001; Grix, 2004). However, in the second part, a structured section was added to the initial interviews with customer companies. The companies' respondents were asked to rate statements about design and designers on a scale from one (strongly disagree) to five (strongly agree).

In the first year, 2010, four respondents from three customer firms participated and six students divided into three groups. Interviews took place before and after the SDO. In the second year, 2011, two respondents from two customer firms were interviewed before and after the SDO. Members of the project management team of the local SDO and two student groups with four respondents were interviewed after the SDO ended.

Before the interviews I studied the initial briefs to get an insight into the objects of the activities to be studied. The initial interviews with design students and customer companies took place 1-3 days before the SDO activity started. The final interviews with design students took place 1-2 days after the SDO and with the customer companies 3 months after the SDO. The student interviews had the form of minor focus group discussions in which they shared their reflections in dialogue with each other. Additional information about the respondents can be found in Table 4.

Table 4. Participants in the local SDO. Companies A, B and C participated in 2010. Companies D and E in 2011. DS, PMD, PME and SV participated both years.

Company	Offering	Respondents participating in the SDO	Background of respondents
Company A	Tourism – An umbrella organization with four partners.	CEO = A	Business administration and human relations management
Company B	Braille printing – five active owners and five employees	CEO = BC	Quality management
		Employee = BE	Responsible for graphic design and webpage. No formal education in the area
Company C	Design and production of bathroom fittings – 12 employees	CEO = C	Engineering, internal management education in multinational corporation
Company D	Distribution and installation of windows – four active owners	CEO = D	No formal education. Owner of a grocery store and apartment building
Company E	Lipid chemistry – five owners, one active	CEO = E	Engineer in chemistry
Design students	Design services	DS (Two students working with each company)	Graphic, interaction, and industrial design
Municipalities	Organizer of local SDO	Project manager for design and development = PMD	Industrial design
		Project manager local SDO =PM	Industrial design
SVID	Principal of SDO	SV	Industrial design

Action research inspired methods and observations

The results of the initial interviews during the first part of the research project were compared with a Finnish study that dealt with similar areas such as changes, development and growth of industrial design consultancies (Papers I, II). We met with the Finnish research team on two occasions. The Finnish researchers conducted 5 interviews with respondents in DCs, and 3 with respondents in customer companies. Our mutual analysis resulted in five topics: visions, market focus, competencies, working methods, brand promotion. Each contained several propositions.

The topics were the foundation for discussions at two workshops. One took place in New York in the spring of 2007 and one in Stockholm in the autumn of 2007. Swedish, Finnish, and American design consultants participated in both workshops. The workshop initiative arose from a discussion at the Finnish Swedish Academy of Industrial Design[3]. The purpose of the workshops was to stimulate the design consultancies to develop strategies for growth and for them to learn from each other, so the workshops had an action-learning purpose. We participated in the workshops and observed how the design consultancies reasoned about their own development.

Six discussion groups were formed in the workshops, each consisting of representatives from all three countries. The topics were discussed and developed by the participants in each group. After each discussion, the groups presented the results of their discussions and compared them with each other. We participated in the group discussions, took notes, and videotaped the presentations and the discussions that followed. 12 Swedish and 10 Finnish industrial designers met with 9 American colleagues. In the second workshop in Stockholm, which was partly based on empirical data from the previous

[3] The Finnish Swedish Academy of Industrial Design is no longer an active collaboration. The aim was to promote knowledge about industrial design as a strategic resource to industry, politicians and educators. Another aim was to educate industrial designers about the conditions under which their potential customers are acting. This was to be achieved through activities such as the workshops that took place in New York and Stockholm.

workshop, the DCs worked on future scenarios. 11 Swedish, 10 Finnish and 3 American industrial designers participated. Notes from the workshops were supplemented with citations by analyzing videotapes from the workshops. The results were first compared with those from the initial exploratory interviews but categorized according to the topics in the workshops.

I also applied an action research inspired approach during the second part of the research project. The goal was to influence the process and actions performed in the second year. I met with the project manager for design and development in the municipality and presented suggestions on how to alter the SDO activity. The suggestions were based on learning theory and an initial analysis, conducted after the first year. My recommendations were based on observations during year one. In essence I suggested that the students should involve CFs to a higher degree in shared action using design methods and processes. The CFs were highly involved until the midway presentation but less during the later stages of the activity. I also suggested that more opportunities for reconciliation should be created such as a ninety-percent discussion/presentation. The main observations were performed during the midway and final presentations. The observations were videotaped and analyzed at a later stage.

Data reduction and analysis

Part one of the research project

Data reduction took place as quotes in the transcribed material were coded. The codes can be found in the Appendix. During the process I made comments and notes as I found surprising quotes or quotes that confirmed a theory. The analysis of the collected data during the first part of the research project had a cross-sectional design with several codes, which were then analyzed to detect patterns and variations in the data (Bryman, 2001). The transcriptions were read several times by the researchers, both separately and together, and then discussed to find codes of interest. The codes were then added to a table, with responses and quotations from each design consultants. Later, the table was supplemented

with company information from annual reports, websites, and other written information.

The interviews with industrial design consultants were compared with the transcribed interviews from the customer firms. The results of the analysis of the interviews in the initial exploratory study were used in the formation of issues and propositions that were the foundation for discussions in the two following workshops. The informal evenings provided me with further insight into how the respondents perceived their professional role and business. This was valuable for the discussions that took place on the second day of the workshops. Notes from the workshops were supported with citations obtained by analyzing the videotapes. The results from both workshops were first compared with those from the initial exploratory interviews but categorized according to the topics in the workshops. Later in the process, the results from the exploratory interviews and workshops resulted in a description of the business of industrial design in a conceptual business model that was analyzed according to the requisites of service-dominant logic (Lusch et al., 2010).

Part two of the research project

The data collected from the second part of the research project consisted of transcribed interviews and notes taken while watching the videotapes of them. The data was coded, and each code was connected to quotes from the respondents. The codes can be found in the Appendix. The first group of codes was applied to the verbal questionnaire part of the interview. The aim of the coding was to study the respondents' views regarding other disciplines and the characteristics of subjects belonging to them. As the study progressed, I wanted to obtain an overview of how respondents in the companies made sense of design in general, with particular regard to designers. The second group of codes consisted of the entities that Engeström (1987) proposes in his activity theoretical model. These were complemented with concepts central to an analysis of an activity, such as the needs and desires that motivate an activity. The final group of codes was used to identify the background of respondents and organizations and how the respondent defined a set of concepts. The data consisted of quotations from the respondents, each of which was connected to the codes. These were saved in Excel spreadsheets, with the data divided so as to

offer an overview of the different perspectives. In this manner, I was able to compare the different activities that took place in the companies, analyzing one code at a time. I could also compare how the coded quotations were interconnected for each separate activity. I alternated between three levels of analysis as part of an iterative process. The first was the cultural and historical background of the municipalities, companies, and the design community. The second level of analysis related to the activities that took place in each company. The third level focused on the subjects who performed actions in the activities, that is, the design students and participants from the CFs.

The entities of the shared activities were analyzed with regard to their usage in creating *space* for learning and development, but also as entities used in integrating subjects into a certain company or discipline. The data was chronologically divided to enable a narrative analysis (Aspers, 2011), which allowed me to analyze the changes in how the respondents experienced and interpreted the activity before, during, and after it occurred. I also executed a relational analysis (ibid.) to increase my understanding of the interaction that took place and of how the different subjects interpreted the action performed by other subjects. Analyzing how the entities of the activity were applied not only made contradicting values and norms visible, but also suggested if and how the object was negotiated.

6 Summary of papers

The results of the studies are presented and summarized in this chapter. The thesis is based on five papers. Paper I is an empirical conference paper that is further developed in Paper II, which was published in a scientific journal. The two papers were included in the licentiate that I defended in 2011. Papers III and IV are conceptual papers. Paper III was published in a scientific journal and IV presented at a conference. Paper V is an empirical paper recently submitted to a scientific journal.

Paper I

Paper I explores whether the definition and understanding of industrial design has changed in the last 10 years in both the industrial design consultancy and its customer firms (CFs). We also intended to study whether possible changes in the design consultancies had an impact on their development regarding organization and management, strategic competence, and relationships and alliances with customers.

It was clear that there had been several changes in the way industrial designers view their role and how they see their businesses. This change was related to growth and a broadening of the field of operations. The industry endured a period of layoffs at the turn of the century due to bad market conditions and low profitability, and this led to increased awareness of the need to provide better margins and decrease industry vulnerability. The design consultants operated in many different industries and had a broad range of offerings in various fields of design, including concept, packaging, and service design.

The design maturity of customer firms is increasing, which will place higher demands on their professionalization. In this effort, and with a growing design

industry, there was a perceived need for a professional recruiting process, including human resources. The design consultants also benefited from having professional managers and marketing functions. Several of the firms had hired employees with educational backgrounds outside of the field of design, such as in business.

Another noticeable trend is the internationalization of the Swedish design firms receiving commissions from foreign multinational enterprises (MNEs). An increased self-confidence among the design consultants was also noticed with respect to their skills of integration, strategic development, and orchestrating collaboration inside customer organizations. The integration skills are related to brand and product integration, technology brokering, and bridging of competencies and knowledge.

Most design consultants expressed a vision to achieve a strategic role in their customers' development processes. The aim of this reorientation is to move from an operative role to one of greater strategic impact. Knowledge of what design consultants do and the value of their work are still mainly restricted to those who have experience working with designers. The customers seemed to recognize design consultancies as a contributor to competitiveness, but the potential strategic role of design was not always clear to the CFs.

Paper II

This paper builds further on the study in Paper I and describes the requisites of a business model based on service-dominant logic (S-D) logic in relation to the business of the industrial design consultancy. The study has indicated a change in perspective regarding the value of design as social activity acting on a systemic level. This has led the design consultants into an S-D logic focused not on the physical products but on the offerings to their customers from a broader perspective.

The turnover/employee ratios in Swedish design consultant firms had at the time of the study increased. Larger firms had a higher turnover rate per employee compared to smaller ones, despite having a higher number of employees not working directly in production. This higher rate could indicate

that the larger design consultancies work more actively to establish external relationships and have other competencies that are better suited to explain the intangible services offered by design consultants. In S-D logic, key resources are not static but relate to knowledge creation, competencies, and relationship building. Thus, key activities involve acquiring, establishing, and retaining resources and relationships with key players. One of the strengths of industrial design is in understanding the user on multiple levels. The competency to integrate brand with product were mentioned during interviews as significant in the design process, as was the capacity to transfer methods, technology, competencies, and material between different sectors.

A service can either relieve or enable the customer. Relieving means that one entity performs a task for another entity, such as the customer outsourcing the aesthetics aspect of a product to the design consultant at the end of a product development process. An enabling service helps the other entity to execute a task more efficiently and/or effectively. This latter service entails a learning situation in which the design consultants co-create knowledge together with the customer organization. In this scenario, an enabling service would increase value since it generates new knowledge and competencies in the customer organization. Furthermore, the design consultant firms' approach to charging for their services will also have an effect on the signals sent to other participants in the value network. Charging for key activities instead of physical end products will emphasize the value of the intangible services delivered.

As mentioned in the outline of Paper I, studies have shown that the design maturity of customer firms is increasing, which will place higher demands on the professionalization of the design firms. Service logic may facilitate this development while unlocking the mental image of the design consultant as a problem solver focused on physical products. The theoretical model in the paper that merges the perspectives of S-D logic and a conceptual business model can also be useful for other industries undergoing a shift from tangible products to intangible services.

Paper III

The characteristics of design methods and processes and hence the competencies of a designer is discussed in relation to organizational theory influenced by a sensemaking perspective. The paper is conceptual and based on a literature study. There is an obvious resemblance between the ontological and epistemological perspectives of sensemaking theory and the concept of design thinking. At the same time, they originate from dissimilar traditions and bring different methods and competencies to the table. Seven properties form the basis of sensemaking processes: 1) social, 2) grounded in identity construction, 3) ongoing, 4) retrospective, 5) enactment, 6) focused on and by extracted cues, and 7) driven by plausibility instead of accuracy. The properties are discussed in the paper and compared with the characteristics of design methods and processes. With the help of visualization using mediating artifacts, the designer facilitates the alternation between explicit and tacit knowledge. The designer internalizes explicit knowledge in a kind of dialogue with the artifact. Externalization of knowledge occurs when the designer facilitates an integration of different stakeholders in a process with the help of mediating artifacts. Sensemaking takes place retrospectively. Involving designers in joint activities will enhance an ongoing flow of actions in the customer firm (CF), which can generate conditions for several fictional futures and contexts to be tested—and meanings crystallized—among the participants. The use of mediating artifacts, and the integrating of hands with thought can create experiences that evoke emotional involvement in retrospect and enactment among participants. The design process is driven by plausibility as opposed to accuracy. Designing is a divergent task that leads, in most cases, to several contextually dependent solutions, not to a single correct answer. Several prototypes or sketches are usually developed, and each represents a potential perspective leading to several possible explanations of a problem. The design consultant creates affordance when supporting an environment that allows the individual to perform actions in shared activities and thus facilitates the opportunity for different thought networks to meet and for new competencies to be developed.

Paper IV

In the paper we suggest that a revitalization of organizational development may benefit from the integrative, cooperative, and experimental competencies held by designers. Organizational environments are increasingly ambiguous, complex, with rapid change and therefore, there is a need for an interpretive framework. The meaning of design is expanding and is applied today to what was traditionally viewed as management problems. Designers are considered to coordinate thought with hands and integrate theory with practice. Creating an environment that allows individuals to perform shared actions can enable new knowledge to be co-created. The concept of affordance refers to the perceived properties of an artifact, in which the artifact acts as an intermediary between sender and receiver. With the use of visualization skills, the designer creates action not only to take advantage of the intuitive ability that occurs when people think with their hands, but also to make tacit knowledge explicit. As knowledge becomes explicit, the interaction between actors in a value-creating network can take place. In the design process, different, often varying aspects, such as limitations in production, are integrated with the communication requirements of marketing and branding, as well as the needs of the end user. Designers have the visualization skills that can promote an interpretation and negotiation of perspectives among various stakeholders and actors in the organizational environment.

Paper V

The paper is based on a study of an annual project in which design students are commissioned to apply design activities to customer organizations during seven weeks in the summer. The study spanned over a period of two years and provided examples of design activities motivated by strengthening a *place*, such as a company or discipline, or introducing the individual to a *place*, which is a process of "*becoming*" and identity co-creation. The shared activities also had the object of creating *space* for transformation such as organizational learning and

change. The study presented examples of an outcome that can be characterized as organizational learning and development.

Learning is created in the movement between the internal and external. Changing perspectives and media such as mediating artifacts enable opportunities for learning and change. They can also enhance communication negotiation and collaboration highlighting different perspectives and context. Mediating artifacts also proved to clarify complex problems and emphasize several possible objects with an activity and thus also several contextual dependent solutions to an experienced problem. The study also showed that customer organizations, and specifically decision makers, should be introduced to design methods and processes early in the activity. This can make the customer aware of the contribution an enabling design service, with a focus on the activity rather than aesthetically appealing products. It also creates *space* to explore and continuously reconstruct common objects, which is a necessity to generate expansive learning. It is also noticeable that establishing long-term relationships and commissioning designers to perform implementing activities enables co-created knowledge to become part of the small sized company. In the paper I also argue that collaboration and conditions for learning can be enhanced if design practitioners apply the activity theoretical model on shared activities presented to customer firms and other stakeholders in a value-creating network. The research questions, methods and main results of all five papers are summarized in Table 5 to give an overview of the papers on which the thesis is based.

Table 5. Summary of the five appended papers.

	Research questions	Methods used	Main results
Paper I	RQ1 and RQ2: How have the industrial design consultancy (DC) changed regarding organization and management, strategic competence, relationships and alliances with clients? How do the DCs and their customers perceive the role of an industrial design consultancy?	Interviews with a semi-structured format. 9 DCs and 6 customer firms (CFs). Workshop with 6 discussion groups altogether consisting of 13 Swedish, 8 American and 10 Finnish participants from DCs	We noticed an experienced need for a professional recruiting process, including human resources. The DCs also benefited from having marketing functions and several of the DCs had hired employees with educational backgrounds outside of the field of design, such as with a business background. Several designers stated that their clients do not see how design and strategies are interconnected. Knowledge about how DCs can contribute with besides aesthetical products is still mainly restricted to those who have experience working with designers.
Paper II	RQ1, RQ2 as in Paper I and in addition RQ4: What are the requisites of a business model based on service-dominant logic?	Based on the same study as in Paper I but with an additional workshop with 11 Swedish, 3 American and 10 Finnish participants from DCs.	Charging for key activities instead of physical end products will emphasize the value of the intangible services delivered. In S-D logic, key resources are not static but relate to knowledge creation, competencies, and relationship building. An enabling design service can assist customers to execute a task more efficiently and/or effectively. This latter service entails a learning situation.
Paper III	RQ3 and RQ5: What are the characteristics of design thinking and hence to work in a designerly way? How can the contribution of an enabling design service be understood put in relation to sensemaking theory?	Literature study with results from the study in part one of the research project.	The most prominent characteristics of design methods and processes were summarized as being integrative, collaborative, and experimental (explorative). There is a clear resemblance between ontological and epistemological perspectives of design thinking and sensemaking theory. The integrative, collaborative and experimental characteristics of design methods and processes can contribute to sensemaking processes.
Paper IV	*RQ6:* How can we understand an enabling design service in comparison to organizational change theories and in particular organizational development?	Literature study together with results from the study in part one of the research project.	Complex organizational environments can be considered ambiguous with a need to create *space* for interpretation, dialogue and negotiation. An environment that allows individuals to perform actions helps different thought networks to merge, and thus, new knowledge can emerge. A revitalization of organizational development may benefit of the integrative, cooperative, and experimental competencies held by designers.

Paper V	RQ7: How can an enabling design service contribute to organizational learning and strategic development in small and medium sized enterprises (SMEs)?	The study spanned over a period of two years and consists of semi-structured interviews and observations. An action research inspired approach was applied with the aim to influence the activities and observe potential changes.	The study provided examples on design activities motivated by strengthen a *place* such as a company or discipline or introducing the individual to a *place*, which is a process of "*becoming*" and identity co-creation. The shared activities also had the object of creating *space* for change. The studies presented examples of an outcome that can be characterized as strategic development, organizational development and learning. It is however noticeable that establishing long-term relationship and commissioning designers to perform implementing activities enables co-created knowledge to become part of the small sized company

7 Discussion

This thesis emphasizes design as an activity. It aims to expand the understanding of design as an enabling service that contributes beyond aesthetically appealing products in SMEs. An increasingly ambiguous environment characterized by fast changes and complexity makes companies search for methods and processes that can support their strategic development and ability to meet the challenges they face. Design is argued to contribute to interaction between different cultural, social and technological perspectives in a product-service system (Morelli, 2002). This was confirmed in the study (Paper V). Everyday action was punctuated (Weick, 1995) in both empirical studies, which resulted in sensemaking processes (Papers I, II, V). The punctuation took place among the professional industrial design consultants involved, as well as through the shared activity between SMEs and the design students. The contribution of an enabling design service and the competencies of the designer are discussed below in the context of how they can contribute to introducing people to a certain *place*, strengthening the company or discipline as a *place* or creating *space* for learning and change. Table 6 presents an overview of how the expanding design offer is described by various design researchers (Papers I, II).

Table 6. An expanding design service.

Eneberg	Buchanan	Morelli	Valtonen
The functionality and aesthetics of products.	First and second order of design – symbols and tangible artifacts.	Production of goods.	Operative role – product development-oriented practice.
An enabling design service. Introducing/strengthening a *place* and creating *space* for organizational learning and change.	Third order of design – a focus on the actual activity and the value of design in our lives e.g. communication instead of a phone as physical artifact.	Systemic solutions including services.	Strategic work and working with visions.
	Fourth order of design – a focus on human systems, the integration of information, physical artifacts and interaction in environments.	Interpretation and translation of emerging cultural and social patterns.	

An emphasis on design as an enabling service and as a social activity makes it fruitful to analyze and understand the business of the industrial design consultancy from a S-D logic (Normann, 1992; 2001; Lusch et al., 2010) (Paper II). Enabling services are relationship dependent and based on collaboration between the supplier and purchasing organizations. The competencies of the supplier are applied through shared activities together with the purchasing organization to initiate double-loop learning (Argyris, 1976). The conceptual business model canvas I present in Table 7 is based on S-D logic and highlights motivations, intentions and relationships in a value-network (Paper II). Table 7 should not be understood as a prescriptive model but as a basis for my discussion to increase the understanding of design as an enabling service.

Table 7. Requirements placed on a business model based on service dominant logic. Based on Osterwalder et al., (2005); Lusch et al., (2010).

Pillars	Business model building blocks	Requirements
Value propositions	Value propositions	A service can either be relieving or enabling. Relieving means that one entity performs a task on behalf of another entity. Enabling involves learning activities enabling the other entity to do a task in a new way. Value is created through the service of an organization and usually consists of several offerings that can have both tangible and intangible components. The tangible components are mediating artifacts that carry the service.
Customer interface	Customer segments Channels Customer relationship	An enabling service involves learning activities and co-creation of new knowledge. Acquiring and retaining customers is increasingly relationship dependent. Learning affects how and what the customer pays attention to and how they interpret the offering. Integrating learning activities directed towards new customers increases the ability to sell enabling services. Consumption and production are occurring simultaneously.
Infrastructure management	Key resources Key activities Key partners	Key resources in a company are the competencies residing in people. A key activity in a company is to manage the use of existing resources and to acquire new resources internally or externally. Key activities are to solve problems or enable a sensemaking process rather than production of goods. Cross-functional and interorganizational collaboration is a necessity to co-create value and accordingly, it is important to understand motivations and intentions that drive key partners. Opportunities for learning and development are created through collaboration rather than imposing change on an organization
Financial aspects	Cost structure Revenue streams	As the importance of the possession of resources decreases, the cost structure of each contributing organization in a value network will change. Revenues should be action based

The value proposition, as described in the business model canvas (Osterwalder et al., 2005), provides an overview of a company's offering. According to S-D logic the actual value a company contributes to a value network resides in its intangible service (Maglio et al., 2009; Vargo and Lusch, 2008). DCs are experiencing problems getting commissioned and receiving payment for the intangible components in their service. Most DCs have a broad offering including everything from idea generation to the launching of new products or services (Papers I, II). Buchanan (1995; 2001) states that the different focuses of design should not be seen as different design results but as *spaces* for invention. Changing perspectives and media creates the possibility for innovation and hence *space* for change (Papers I, II). Depending on the structure of the business model, the other pillars create certain revenue streams and cost structures in a company. The most common way to price a project in a DC is to give a fixed price (Papers I, II). The fixed price is based on the activities the DC is to perform such as user observations. In this sense the pricing is in line with S-D logic. However, the studies showed that it was problematic for the designers to get the CFs to understand the competencies they provided and the contributions they can make in the value creating process (Papers I, II, V). The studies also showed that enabling design services are seldom explicitly expressed in the initial contact with DCs but become visible as the designer is working together with the customer in recreating the brief (Papers I, II, V). The problem of getting commissioned and receiving payment for the intangible *components* is shared with other companies that are trying to shift the focus of their customers from the product to the service offered: from goods to a service dominant logic. The communication of design as an enabling service emphasizes the actual activity performed and hence the competencies and knowledge that the designer contributes (Paper II). The growth in turnover and number of employees in larger DCs has resulted in changes in how they are managed and organized. Smaller DCs mainly consist of designers but the larger ones started to employ new competencies, such as people with a business background. Recruiting new competencies enhances the communication with CFs. This is in line with the aspiration to act as a resource in strategic development in the CF (Papers I, II).

One vital goal of an enabling design service is to orchestrate shared action with CFs or other stakeholders that participate in the community of a shared activity. The result of the process is often several solutions, each functioning as an

argument in a dialogue among people from different contexts and with different perspectives (Papers II, III, IV). In knowledge intensive contexts, personal relationships and ambiguity reduction through personal contact are vital (Alvesson, 2004). This was confirmed by the CFs who highlighted the importance of relationship building when they were to acquire design services (Papers I and II). They also reported that a long-lasting cooperation was important. This was also confirmed by CFs in the study behind Paper V. One explanation can be the amount of time and money that has to be spent to retrieve new customers and to be able understand production, markets and the competencies that the customer has access to. The customer interface pillar describes how to keep previous customers and reach out to new ones. The experience of working with design appeared to increase the usage of design. The respondents in the DCs stated the importance of word of mouth from previous customers and of presenting former cases to new customers (Papers I, II).

Value is created through the service of an organization and service is always intangible. The service of an organization usually consists of several offerings that can have both tangible and intangible components. The tangible components are mediators carrying the service in the value network (Vargo and Lusch, 2008; Maglio et al., 2009). Mediating artifacts can be tangible such as products, prototypes and sketches. They can also be intangible such as in the words we use as we reflect or participate in a dialogue in a social situation. The students expressed insecurity about how to communicate their knowledge and competencies (Paper V). They argued for the need to use tangible artifacts to communicate their contribution. The tangible artifacts were given the role of introducing the CFs and hence strengthening the "*design place*". This can be exemplified by how images were used in shared action in an initial workshop, introducing the companies to possible actions in a design process.

An enabling design service that contributes to organizational learning and change

The initial study involving DCs and a literature study of design methods and processes helped me summarize the three most prominent characteristics of design methods and processes: *integrative, collaborative*, and *explorative*. (Papers II, III, IV). In the appended papers, I use the word "*experimental*" to describe one of the characteristics. In the thesis, however, I changed it to "*explorative*" because of the risk of confusing the characteristic with the scientific experiment. In Table 8, the characteristics of design methods and processes are put in the contexts of organizational change theories. This has been done to increase our understanding of the contribution that design as an enabling service can make in a wider epistemological perspective. It presents the major differences and similarities between the perspectives of change management, interpretive organizational development and an enabling design service. Table 8 also highlights how design methods and processes can contribute to organizational change (Papers III, IV).

Table 8. Epistemological differences and similarities between an enabling design service, an interpretive organizational development perspective and change management.

	Change management	**Interpretive organizational development**	**Enabling design service**
Action	Based on scientific management dividing labor into employees working with their hands vs. minds. Often collect and add quantitative data as information to eliminate uncertainty.	Sensemaking is preceded by action. Action leads to understanding, rather than understanding leading to action.	Integrates hands with thought and thus erases a mind-body dualism. An embodied dimension of problem solving. Idea formation and action occur simultaneously via the use of mediating artifacts such as sketches and prototypes.

Collaboration	Employees as passive receivers of information and subjected to change.	Ambiguity requires an understanding that multiple interpretations and perspectives exist simultaneously. Applying participatory methods enables a co-creation of knowledge.	Contributes on a systemic level and orchestrates shared activities in a value-creating network. Creates affordance for collaboration with the help of visualization methods. Integration of brand, strategy and the product or service. Designers work as "*technology brokers*" and bridge competencies between different industries. Externalizing and internalizing in a dialogue with and through mediating artifacts.
Human agency and change	Implementation of planned, episodic change. Top management together with consultant as main agents of change.	Ambiguity based on a fast changing environment and high complexity. The individual forms the environment, as the environment with its different stakeholders forms the individual. Constant change through inter- and intrapersonal dialogues. Several internal and external stakeholders that all are active agents of change.	Different, often contradictory, perspectives are integrated and negotiated during the design process. New organizational frames can be created through participatory methods. Workshops enabling active agents to share their interpretations of a given situation or problem. This enables a sensemaking process and changes in perspectives to take *place* on both an organizational and individual level. A future oriented design activity can contribute and be a complement in change activities such as innovation and organizational learning and change in the client organization.
Creativity	Closed system with an input-process-output sequence. Collecting information that is followed by an analysis produced by specialists and finally implemented in the organization.	Dynamic organizations enabling trial and error enactment processes leading to knowledge creation and development. Creative association and action as multiple frames and hence interpretations are undertaken.	The design process often leads to problem redefinition and several contextual dependent solutions. These function as arguments in a dialogue with different contexts and perspectives relevant to the solutions or explanations of a situation. A search for the plausible rather than the accurate. Designers are explorative, switching between an open inclusive creativity and a critical review of various solutions. The designer searches for and matches patterns by relying on the brain's intuitive ability, combining elements that previously were unrelated. Creating fictional futures to enact upon and in this way enable a sensemaking process of what has not yet taken place.

An activity theoretical framework highlights the contradictions that exist in a joint activity with participants from several activity systems. The activity consists of a number of entities such as rules, community, division of labor and mediating artifacts and subjects (e.g. participants in an activity) (Engeström, 1987). An activity may be motivated by strengthening the *place*, such as a company or discipline, or introducing subjects to a *place*, which is a process of "*becoming*" and of identity co-creation (Bernstein, 1971; Nonaka et al., 2000; Jarvis; 2009). The activity may also have the object to create *space* for some kind of transformation such as organizational change and innovation. One way to succeed in enabling *space* or *place* is by introducing subjects with other professional backgrounds such as designers into an organization. When a *place* such as a company is disrupted and a new discourse is introduced (Räisänen and Linde, 2004), it will create some kind of positive or negative arousal, which was the case in the study described in Paper V.

Strengthen and introduce to a place

Enabling *place* does not imply changes inside the *place* but the making enhancement of the history and culture and hence values, norms, and perspectives that already exist. This is exemplified with when working with corporate identity and when making core values visible both internally inside the CF but also and externally (Paper V). The motivating force behind an activity is based on desires and needs among the participants in the community of the activity system. SVID arrange the SDO with object to increase knowledge about design in society. The design activity may also receive attention in for instance press and blogs. The regions to which the municipality belongs have historically been dependent on heavy industry such as the mining, steel and metal industry. The region has been affected by industry moving to newly industrialized countries. This combined with an increased specialization of skills in production has led to unemployment (Gustafsson, 2009). A variety of regional support activities are today provided to enable companies to establish and grow in the region, which is also, motivates the municipality to organize a local SDO with the object to enable growth in local companies. A need expressed by the students in Paper V was to get an opportunity to practice their competencies. The motive was connected to their identities as designers and thus an object of "*becoming*"

(Bernstein, 1971). The focal point of the students was rather to become acknowledged as design practitioners (Hall-Andersen and Broberg, 2014). Another example of situated learning (Lave and Wenger, 1991) and an existential position on learning (Jarvis, 2009) was the respondent in a CF whose aim was to have her identity as a designer confirmed through the shared activity. Both are examples of learning activities in which individuals participate in order to be part of a *place*, such as a community of practice. Affordance (Gibson, 1969) constitutes the invitational qualities of an activity that determine how individuals are invited to participate and secure the guidance that will assist them to learn tasks they would not otherwise learn on their own (Billet, 2010). In the second example the employee distanced herself from the design community. The students did not create affordance to the degree that the employee needed leading to (Paper V).

Paper V also gave examples of a preconceived view of "*the other*" such as the creative, emotionally driven design consultant versus the rational and business driven company. Shared action, however, led to a more nuanced view as the participants found a common *place* in the applied rules such as being open for a continuous reconstruction of the object. Meanings and values are redefined and undergo constant transition as the borders between individuals and/or the *places* they belong to be crossed though shared action with others (Kaptelinin and Nardi, 2006). Active involvement and collaboration open up for interpretation, sensemaking and learning which may lead to changes in the thought networks of individuals and thus the culture of activity systems; but also in the *places*, such as companies, to which they belong (Papers III, IV, V). Integrating learning activities for new customers increases the possibility for designers to present their contribution through an enabling design service (Paper II). This is also in line with previous studies (Nielsén 2004, 2008) showing that companies that previously worked with design consultants consciously and strategically are the ones that invest even more in design.

Rittel and Webber (1973, p.158) argue that the dominant idea during modernism was efficiency seen *"as a condition in which a specified task could be performed with low inputs of resources."* This idea affected organizational theory resulting in the scientific management movement that led to the division of thinking and doing. This is contrary to a basic rule in design methods and processes that integrates the two through the use of mediating artifacts. Change

management and organizational development (OD) differ on a basic assumption: that change cannot be successfully identified without the participants being involved in the change activity (Papers III, IV). How management approaches design is essential for the role it plays in the client firm (Svengren, 1995; Silverman, 2007; Johansson and Svengren Holm, 2008). The studies highlighted the importance of involving decision makers, and other stakeholder in performing action using design methods and processes (Papers I, II, V). This is due to the necessity to continuously construct and reconstruct the common objects of an activity based on new findings and relevant contexts. Several examples were given of the relationship between experienced satisfaction with the outcome and active involvement (Paper V).

Design as an enabling service can disrupt everyday business in CFs creating *space* for change and learning which also was the result in the second part of the research (Paper II, III, IV, V). An experimental learning environment needs to include cognition, emotion, and to combine thinking and acting. Mediating artifacts and an integration of doing and reflection create experiences that evoke emotional involvement and enactment among participants, which was proven in the Paper V study. Embodied knowledge is situated in a specific context and acquired through doing; it is reflection and action that take place at the same time. The words, signs, and artifacts we use are contextual. Thus, the meanings of a mediating artifact, such as a concept, may vary with the context and culture (Carpay and Van Oers, 1999) in different *places*. The aim of combining images and words was to strengthen the *place* of the client firm by making core values in the companies visible. The use of mediating artifacts also strengthened the companies in the sense that it led to organizational and business innovation. This can be exemplified by new or clearer value propositions, working with visions for the future, or making the experienced corporate identity visible and thus generating internal dialogues about the identity of the company. The shared activity was also one of the parts most appreciated by the customers who reported that it left a lasting impression (Paper V).

Create space for change

The initial objects of the Summer Design Office (SDO) were described in briefs written by the CFs in collaboration with project management in the SDO

(Paper V). The objects were in most cases to receive a relieving service that CFs claimed they were not able to perform due to limitations in competence or time. Two respondents in CFs, however, expressed in interviews that the object of their participation was partly motivated by learning. This confirms the notion that the intangible parts of the design offering are not explicitly expressed in a written form but can become visible when the designer works together with the customer in co-creating the brief. The increasingly ambiguous environments that organizations are facing create a need to understand and apply an interpretive framework to the organization (Paper III, IV). Transformative, expansive learning and the OD focus on the diversity of perspectives are the result of participation, interpretation and negotiation in shared activities (Engeström, 1987; Marshak and Grant, 2008; Kegan, 2009; Werkman, 2010). Our history, identity and culture are essential concepts in this perspective and hence also the understanding of structure, power and human agency (Papers IV, V). In an encultured perspective of knowledge, it is socially co-constructed in a pursuit to achieve shared understanding (Blackler, 1995). Meanings and values are redefined as the boundaries between individuals and/or the activity system are crossed in shared action (Kaptelinin and Nardi, 2006). This opens up for interpretation, sensemaking, and learning and potentially changes (Papers III, IV), exemplified in Paper V. However, as Huzzard (2004) state, power aspects needs to be taken into account. Who has the right to create meaning and who give others the right to act on the new meaning? As subjects from several activity system meets in a shared activity, entities such as the object may be interpreted and combined in new ways leading to innovation and learning. At the same time it may also become a barrier to the same resulting in conflicts and power struggles, which the Paper V study provided examples of. Design students took, in some activities, the role of sensemakers excluding customer representatives from participation. This may be due to insecurity in their role and an effort to strengthen their identity as design practitioners hindering collaboration. I propose however, based on previous studies, that an enabling design service in general can contribute to meaning co-creation, which is a condition for an interpretive framework. The claim is based on the notion that collaboration, knowledge co-creation and learning, not the least between the designer and CF, are preconditions to succeed in activities based on enabling design services (Papers II, III, IV, V). This is partly due to the fact that enabling design services seldom are expressed in the initial object, such as a brief. Instead, they are a

potential result of a co-construction and reconstruction of the object in a dynamic, non-linear briefing process (Murphy and Hands, 2012). The process can potentially result in expansive learning.

The aim of enabling design services is to search for the co-creation of knowledge rather than to solve one defined problem. The services can contribute by creating affordance for a sensemaking process, interpretation and negotiation. This takes place through an integration of doing and reflection in combination with the exploration of new ways of interpreting a context. Exploration refers to a learning process to discover and acquire new knowledge and skills and hence challenges the existing way of approaching a situation (March, 1991; Huzzard, 2004). In this sense the introduction of design as an enabling service can be an example of explorative organizational learning taking place in the customer organization. (Paper V).

A design process often results in several solutions, each functioning as an argument in a dialogue with different contexts (Papers I, II, III, IV). A brief is a mediating artifact presenting the object of an activity. In the studies, the designers expressed a need to create *space* to explore and experiment but also a desire to be able to reconstruct the brief based on new findings and contexts (Papers I, II, V). This rule, however, was not always understood or agreed upon by the CF (Paper V). Involving participants to perform actions together with the designer early in an activity would introduce them to design methods and processes. This provides the designer with an excellent opportunity to deliberate on the enabling service they wish to deliver, and to negotiate *space* for action. The study behind Paper V showed that the CEOs that were involved throughout an activity in the negotiation of a joint object expressed the highest satisfaction and a learning outcome (Paper V).

Artifacts mediate the designer's interactions with and inside CFs (Papers III, IV, V). Visualization is a skill used by the designer to integrate hands and mind and in that way enable both internalization and externalization of knowledge (Nonaka, 2004). Several participants in the studies argued that designers have skill to use a "*universal language*" through tangible artifacts such as prototypes, moodboards and sketches (Papers I, II, V). As mediating artifacts are put into use through joint action they become instruments of learning and sensemaking (Papers III, IV). The manipulation of material has a long tradition and is an essential part of the design process (Ramaduny-Ellis et al., 2010). Through the

use of mediating artifacts, the designer enables exploration of different combinations of problems and solutions. The interpretation of an artifact may change through joint action performed by several subjects. It may also lead to a simplification and clarification of complex problem and enhance communication (Papers II, III, IV) as presented in Paper V. Mediating artifacts, specially those that "*are in the making*" (Hall-Andersen and Broberg, 2014), enable collaboration and negotiation among different disciplines in the process of strategy creation and business innovation, which was confirmed in the Paper V study as the students orchestrated a shared dialogue inside client organizations. Coughlan (2007) states that shifting from abstract ideas and plans toward concrete, tangible artifacts enhance organizational learning and development. A change in the physical context that is acted upon has the potential to lead to experimentation, exploration, communication of new ideas, and transformation because experience and behavior vary according to situational context.

Concluding discussion

In one study we observed a variance between the different participants in regard to the learning and change outcomes of the activities (Paper V). This was partly due to how well desires and needs that motivated the subjects were met. Another explanation is the congruency regarding how to use and interpret the entities introduced by subjects into the activity system. Boarders between activity systems are crossed when the systems are confronted with each other. Adding more information through a relieving service may decrease uncertainty. Enabling services may, on the other hand, contribute in ambiguous environments since this enhances sensemaking, interpretation and negotiation (Papers II, III, IV, V). But to succeed it is necessary to make contradictions visible in regard to how the entities that make up an activity system are interpreted and used. Structures in societies and organizations may limit action but they can also act as a protected *place*. Further on we need to understand human agency in order to create *space* for action and change (Paper V). The cultural and historical background of activity systems has an effect on how subjects make sense of a learning activity. We observed contradictions, tensions and lack of negotiation regarding what entities were introduced and how the entities that make up an

activity were interpreted (Paper V). In the thesis, I suggest that an activity theoretical model can be a powerful tool, not the least for designers, to analyze desires and needs that motivate the object of the activities. It also highlights values, norms and perspectives, and how and what entities—such as rules, division of labor and mediating artifacts—are applied in activities. An activity theoretical framework may highlight, negotiate and support design consultants to get commissioned and paid for the action necessary to reach the common object of an enabling design service.

Due to the short timespan of the activities studied, the outcomes can only be considered to be milestones in a continuous change process. However all but one CF expressed that they had experienced some kind of change regarding their view of designers, how designers work and the contribution of design (Paper V). The studies showed that the CF would gain by commissioning designers to perform implementing activities and in this way make the co-created knowledge their own, and hence strengthen their *place*. The processes and methods of design need to be introduced and incorporated into the identity, culture, norms and values of subjects and the activity systems they participate in. Creating conditions for a learning situation is hence essential.

Method discussion

The research process was not sequential but iterated between literature studies, data collection and analysis. The theoretical framework both expanded and become more focused based on the interpretation of the empirical data. At the same time the theoretical framework has had an effect on what received attention during observations, interviews and analysis. An intentional and contextual understanding and thus interpretation is grounded in our pre-understanding. The pre-understanding I brought to the research project was mainly based on theoretical knowledge in the areas of management and organizational theory but also design management. To understand the current development and role of design in CFs and society in general, I needed to increase my understanding of the historical context and epistemological foundation of the design discipline, its methods and processes (Papers I, II).

Knowing is a process of meaning reconstruction and co-construction (Weick, 1995).

A multiple methods approach—also called triangulation—was applied throughout the research project. Several different data sources and methods were used to crosscheck the results and increase the validity of the study (Bryman, 2001; Grix, 2004). In the initial exploratory interview study (Paper I, II), we chose a semi-structured format. Through collaboration with the Finnish research team we were able to compare our results from our first exploratory study (Paper I, II) to ensure that they were not just valid for Swedish DCs. With open questions and by having a dialogue in different workshop contexts (Paper I, II), we were able to take part of the reflections of the designers over a longer time. The workshops also directed focus away from the individual towards a dialogue where knowledge was inter-subjectively created through social interaction. We as researchers were able to observe a sensemaking process between the different participants (Bryman, 2001) Even if our aim was not to conduct action research but to study the discussions, our actions led to changes in how the participants perceived their business. Our workshop participation steered the discussion by setting the propositions that were discussed. Through contact with participants afterwards, we know that the workshops resulted in minor and in some cases major changes in the participating DCs. One company radically changed its business and offering. They later merged with another company to be able to better utilize their resources. Other companies grew in terms of number of employees. It is not possible to claim that these changes were due to the workshops but it is possible to claim that the workshops had some impact on the participants. Hence, the workshops fulfilled the pragmatic validity criterion (Kvale, 1997).

New insights rendered new research questions with an increased emphasis on design as an enabling service (Papers III, IV, V). I brought with me a pre-understanding about the application and contribution of design methods and processes out of the perspective of the industrial designer into the second part of the research (Papers III, IV, V). To increase my understanding about design as an enabling service, I needed to expand the study to include potential CFs in shared activities with designers (Paper V). By doing so I could highlight contradictions and similarities in how the different participants interpreted the shared activity and how different perspectives and negotiation affected the

outcome of the activity. The case study approach was chosen, as it is appropriate when the units of study are multifaceted, concrete experiences, which are difficult to isolate from real-life contexts (Yin, 2003; Flyberg, 2006). Case studies often contain an element of narrative that enhance our understanding of the complexities and contradictions of real life. The studies also proved this (Papers I, II, V).

During the initial interviews (Paper V), the companies were asked to rate a number of statements about design and designer. This structured element was included in the interviews to elicit fast answers that were not reflected on. This reduced my influence on the responses and the answers about design and the design discipline could be compared with the semi-structured elements of the interview. The final interviews (Paper V) with design students took place 1-2 days after the SDO, and with the CFs 3 months after the SDO. I waited 3 months in order to create a space for reflection. Another reasons was to study the degree to which the learning outcomes remained after some time had passed, and if other results of the activity had been further developed and used. The decision to interview the students 1-3 days after the activity was because they would soon leave the municipality and be scattered all over the county. However, since the student interviews were in the form of minor focus group discussions, reflections were enhanced through a shared dialogue between the students. One danger with focus groups is that some participants are more talkative than others and hence get more attention; another is that the participants only describe the story they want others to hear instead of the reality they experience (Bryman, 2001). Since each group only consisted of two students, it was possible to ensure that both respondents were given space to express their unique experiences. The observations conducted during presentations (Paper V) were vital to receive an in-depth understanding of the outcome of the activities. However, the main reason was to study reactions and interactions that took place during the presentations. In this way I could compare and look for similarities and differences between the immediate reactions to the outcomes during the presentations in contrast to the reflected statements given during the final interviews. At the same time, observations of the everyday life of the design consultants or the interactions throughout the SDO activity would have given us other results than we received through the observations and participation in workshops and presentations.

An action research inspired approach was applied (Paper V). The goal was to influence the process and actions performed during the second year. However, I as researcher did not participate in implementing the suggestions. This was because I wanted to step back and not take a management role when the action was performed during the activity. Instead, I wanted to study how and if the participants, mainly the design students, would respond to the suggestions. It proved to be fruitful because the way they responded answered questions such as, why the clients were not permitted to participate during the last parts of the design process? Coding the quotes in the transcribed material and collecting the codes in Excel spreadsheets reduced the data. This provided me with an overview of the data. The coding and analysis was an iterative process going back and forth in order to analyze the data from several perspectives. This included how the respondents viewed their own situation, but also that of "*the other*". The aim was to find similarities, differences and contradictions in interpretation and experiences among the respondents.

Our choices of questions and codes have, of course, affected the results since issues may have been excluded that could have been relevant to the study (Kvale, 1997). Our aim, though, was to facilitate the interview situation and make it possible for the respondent to change focus. This enabled us to capture different aspects of the perceived situation. A multi-method approach was used to compare the quotes in the data. Ordering the data chronologically enabled a search for changes in how the respondents experienced and interpreted the activity before, during, and after. Most interviews in the research project were in Swedish. This means that the quotes presented in the papers are translated from Swedish, which means they may not convey what the respondent actually wanted to express. This was avoided by translating concepts as close to the original Swedish sentence as possible. I did some minor linguistic editing removing expressions and pauses during speech that were not related to the essence of what was said.

Finally, the studies took place in context-specific settings, which makes the question of generalization challenging. The question of validity is related to the possibility to transfer the results of the study to other situations. But the aim here is neither to present a sample of population extrapolation (Firestone, 1999), nor to predict or prescribe. The generalizability of the results presented in the thesis and the five appended papers can instead be regarded as a case-to-case

translation, and the similarities of the research project and its applicability to other cases is left to the reader. It is impossible to claim that our interventions in themselves resulted in changes or learning. However, we know that the activities we participated in resulted in minor and in some cases major changes. This may be regarded as the fulfillment of a pragmatic validity criterion (Kvale, 1997).

8 Conclusions, contributions and future research

The research project described in this thesis was divided into two parts. The focus of the initial part was on the business and service offerings of industrial design consultancies. The second part expanded the focus from the design consultancy to include the application of design services in collaboration with small and medium sized enterprises (SMEs). Design as an enabling service is considered in relation to organizational learning and ontological and epistemological development in organizational change theories.

Main conclusions

- The design industry seems to be undergoing a professionalization from a commercial perspective with changes in how the industrial design consultancy is organized. Employees with educational backgrounds other than in industrial design (such as business) are being hired. Recruiting new competencies enhances communication with customers. This is in line with the aspiration to act as a resource in strategic development within customer organizations.
- Industrial design consultancies have a broad offering including everything from idea generation to strategic service. However, there seems to be a discrepancy in how the industrial designer and his or her clients perceive the role and value of industrial design. Knowledge about how DCs can contribute with besides aesthetical products is still mainly restricted to those who have experience working with designers.

- Understanding design from a service-dominant logic as opposed to a goods-dominant logic may bridge this gap. Artifacts in a design service such as products, prototypes and sketches are mediators carrying the service.
- It is necessary to introduce the CF, and especially decision makers, to design methods and processes early in the activity. Enabling design services are seldom explicitly expressed in written form but become visible as the designer is working together with the customer, for instance, in co- and reconstructing common objects. A reinterpretation of objects is also a prerequisite for expansive learning. Shared action can also reduce a preconceived view of *"the other",* such as how a designer and employee in a SME view each other. This can in turn enhance the collaboration and create conditions for learning.
- An enabling design service can be motivated by strengthening a *place*, such as a company or discipline, or introducing an individual to a *place*, which is a process of *"becoming"* and identity co-creation. It can also be motivated by and contribute to creating *space* for some kind of transformation such as organizational learning and change.
- Mediating artifacts clarify complex problems and emphasize several possible objects with an activity, and thus several possible contextual dependent solutions to an experienced problem. Enabling design services can contribute by creating affordance in an ambiguous situation.
- The study demonstrated a need to establish long-term relationships and commission designers to perform implementing activities. This will make the co-created knowledge part of the small sized company.
- The most prominent characteristics of working in a *designerly way* can be summarized as integrative, collaborative, and explorative. The competencies that designers are trained in contributed to sensemaking processes, and change and learning activities. The outcome of the activities resulted in enabling services that can be characterized as business and organizational development.

Contribution and future research

The thesis adds to the ongoing activity among researchers with the aim to increase our understanding of the contribution of design as an enabling service moving *"beyond the product"*. It contributes to the field of design management in the context of organizational learning and change activities in SMEs. On a societal level, we need to support the development of SMEs, which currently account for 99 percent of the companies in the European Union. Studies have proven that companies working strategically with design are more innovative, export more and are not forced to compete as much with price. It seems obvious that both design consultants and smaller companies can benefit by collaborating in the shared learning and change activities that can be the outcome of an enabling design service. This thesis can be seen as part of this development.

The characteristics of design methods and processes were studied in a literature review and empirical study. The findings deliver an outside perspective and can be placed in a wider theoretical context of encultured and embodied perspectives on knowing. They are not to be regarded as providing a full picture of design competencies though. The purpose of presenting a conceptual business model based on the requirements of S-D logic was to categorize and analyze the results in order to describe the empirical and theoretical findings. However, I argue that such a business model can also serve as an inspiration for practitioners in their communication about the contribution of design as an enabling service. I also argue that the application of an activity theoretical model can be a valuable instrument, not only for researchers, but also practitioners. Participants from several activity systems meet in the (design) activity motivated by desires and needs. They also carry with them encultured and embodied knowledge that can become visible through the use of the proposed activity theoretical model. Highlighting the entities, such as rules and mediating artifacts, that are introduced in a shared (design) activity and how they are interpreted can improve the condition for organizational learning and change through an enabling design service.

Cultural-historical activity theory has traditionally ignored how power may manifest itself in activities. The heritage from the Soviet regime has led to an objectivist, instrumental and mechanistic orientation. The application of the

concepts of *space* and *place* can contribute to an activity theoretical framework and increase our understanding of structures as well as human agency in activities. Further research is needed to develop the theory's application on transforming culturally heterogeneous activity networks. One way would be to reintroduce *activity games* (Rotkirch, 1996) that declined in the beginning of the 1990s due to the perceived lack of a need for social reorientation. The "*truths*" on which we have built our society are currently in question. The ambiguous environment we live presents an opening for the reintroduction of activity games with the aim of reflection and organizational and social transformation. This is also in line with my observations as lead teacher responsible for a course module called *Outlooks* at the Master's Degree Program in Design at Konstfack, the University College of Arts, Crafts and Design. I have supervised several interesting collaborations between design students and non-profit, public and private organizations. The students have been asked to develop mediating artifacts to be used in the context of workshops together with their case organization. In several cases it has led to a continued collaboration. My interpretation is that there is a need of tools for reflection, interaction, interpretation, and negotiation to be able to handle the ambiguous situations that often characterize organizational activities. It would be interesting to take the theoretical reasoning about embodied and encultured perspectives on learning using design methods and processes as tools and applying it to activity games.

Finally, I hope that the contribution of this thesis will result in a continued dialogue in the design industry and among researchers. It is my true belief that, as Habermas (1984) argues, it is through a continuous dialogue that new knowledge and understanding is created.

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Appended papers

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Paper I

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STRATEGIC GROWTH OF INDUSTRIAL DESIGN CONSULTANCY

A STUDY OF CHANGES IN ID CONSULTANCY IN A POST-INDUSTRIAL SOCIETY

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ABSTRACT
Based on a study of Swedish and Finnish industrial design consultancies (IDCs) we discuss how changes in industry have affected id-consultancies cope with growth, organizational and management issues. The traditional industrial designer worked in a small consultancy mainly with clients focusing on mass-produced products. The clients were basically domestic even if they operated worldwide. Investment in technology, for instance CAD and rapid prototyping, required larger investments and many id-consultancies saw a need to expand in order to afford these investments. The growth trend will probably continue, with further demands on management skills and this will also, most likely, affect also the small design firms. The design maturity of the client firms is increasing which will put a higher demand on the professionalization of the design firms. Although design has received more attention and is recognized as a valuable tool for competitiveness, the knowledge about what IDCs do and the value of their work is still mainly restricted to those who have experience working with designers. Many designers still argue that their clients do not see how design and strategies are interconnected. The question is whether the IDCs know how to communicate their competence and contribution to business development and strategy creation. The strategic role of design is not always clear to the client firm, but the question is also if the IDCs are clear about what strategy means in a corporate perspective.

Keywords: Industrial design consultancy, Organization, Change, Management, Strategy

1 INTRODUCTION

With the recognition in the last decade of design as an important strategic tool for increased competition by many different industrial sectors, we have seen a change in the way the Industrial Design Consultancies (IDCs) organize themselves. If the IDCs are supposed to achieve the strategic role they often argue for this is probably a change that is needed. The IDC is usually a very small, so called micro-company with a handful of employees – or a shared brand where each designer has his/her own legal company but shares an office and other facilities with fellow designers. In Sweden the largest one has about 60 employees. Being so small, they rarely have had sufficient resources to acquire global clients, so these IDCs have traditionally worked domestically, even locally. In recent years, the typical Swedish IDC, however, has changed due to changes in the industrial context, as well as to a general globalization of education and society. There is also a new desire to grow and to act in a more business-like fashion with professional managing directors, internationalization and expansion of the field of operations. The questions we wanted to investigate were how the Swedish IDCs have changed regarding organization and management, strategic competence, relationships and alliances with clients. Our interest is not in the change of the industrial design profession, but of the development of the industrial design consultancy firm, although changes in the firm are also influenced by changes in the profession. In this paper we discuss how the IDCs reasoned about and viewed these issues and the consequences for the future design consultancy.

1.1 Method

The analysis in this paper is based on interviews with nine of the largest IDCs and six client companies (CF) in Sweden and Finland, and one workshop where we compared the development of the IDCs in Sweden, Finland and the U.S. The interviews were carried out in preparation for the workshop. They were analyzed by the researchers and presented as a subject for discussion by the

IDCs during the workshop. These discussions were then summarized and analyzed. The workshop was organized with six discussion groups, each consisting of representatives from all three countries and different consultancies. In total there were thirteen Swedes from nine consultancies, ten Finns from five consultancies and eight Americans from eight consultancies. A majority of the participants had been among those interviewed by the researchers. The results of the initial interviews were categorized into four issues with some propositions. These propositions were then discussed, compared and further developed by the participants. After each discussion the groups reported and a further discussion and comparison among all participants took place. We participated in the group discussions, took notes and video filmed the presentations and the following discussion.

2 CHANGES IN THE BUSINESS OF INDUSTRIAL DESIGN

Researchers and practitioners conclude that the role of the industrial designer has changed (cf. Valtonen, 2007; Eckersley et al, 2003) due to new demands and changes in the marketplace. Valtonen (2007) concludes that the role of the industrial designer has changed from a product-development oriented practice to also include strategy work, thus defining themselves as strategic designers. The aim of this re-orientation is aligned with an aspiration to move from an operative role towards work of greater strategic impact. This is especially related to the increased importance of brands.

Buchanan (2001) describes the change of focus in the design discipline through four orders of design in the twentieth century. Industrial design grew out of a concern for symbols and tangible, physical artifacts which where the focus of the first- and second-order of design. Instead of focusing on symbols and things, designers have turned to reflect on the value of design in our lives. They have turned toward the actual action, which is the third-order of design. Designers are appreciated for their visualization skills, innovative viewpoints and skills in communicating ideas. However, the challenge lies in analyzing, interpreting and operationalizing the results from a customer perspective. The idea or thought that organizes a system or environment is, according to Buchanan, expected to be the focus of the fourth-order of design. Industrial designers have always been knowledge workers and consequently would fit in the post-industrial economy. During the industrial paradigm, knowledge was "frozen" in products. At the same time paradoxically the term "design" has a focus on the future. It would be fair to say that industrial design has become more of a mature business phenomenon that fits well in the boardrooms as well as on the factory floor, testing the possibility for new ideas.

Design has reached a higher status in industry compared to the situation ten, maybe even five years ago. This change has occurred at the same time as the manufacturing industry has been changing at an accelerating pace. More and more manufacturing has closed down in the domestic market and moved to Asia. The logic behind this is reduced costs and increased margins. This, of course, also affects the business of industrial design consultancies.

3 THE RESULTS OF THE RESEARCH

3.1 Growth

Many designers are in the business because of its creativity, because it is fun. Hence, one reason for growth is because it can lead to more interesting projects and it is easier to attract employees. But growth can mean different things.

3.2

3.2.1 Growth in turnover

The turnover/employee ratio in Swedish IDCs has increased. The average for Swedish industrial design firms shows a lower turnover/employee ratio (approximately € 85000) compared to the interviewed IDCs (approximately € 103000) which leads us to believe that larger IDCs have a higher turnover per employee compared to smaller ones. With a strategic approach and a differentiation of the service into technical/ engineering, design and strategies, it is also possible to differentiate the price tag. The IDC that only focuses on strategic design shows a higher turnover/employee than those selling more traditional design, which could be explained by the higher price tag on strategic design in all companies that offer it.

Growth in income/sales means that you have to deliver more value. But it could also mean that the IDC can charge for things that are sometimes hard to put on the invoice today, for instance, idea generation.

3.2.2 Growth in number of employees

In the U.K. and the U.S. there have been a number of large industrial design consultancies for many years. These have grown not only in size but also in terms of operations and strategy. Countries like Sweden and Finland with small design consultancies are now seeing a similar trend and we can find several industrial design based firms with more than 10 employees, the largest with more than 50. Several of the interviewed companies have increased the number of employees in the last couple of years. In some cases it has even doubled. The employees are not only industrial designers but come from other disciplines as well; other design disciplines, e.g. interaction design, but also business disciplines, e.g. marketing and branding. These consultancies also work with foreign clients and establish subsidiaries abroad. This growth is a response both to a need for change to manage a changing market, but also a desire to grow with better business skills. The growth and transition of the industrial design firm is, however, not an easy journey. In general there is a lack of business skills and of strategic thinking for their own firms in many of these design consultancies.

3.3 Management and organization

Some fifteen years ago one of the largest Swedish industrial design firms, IDC A, selected its managing director among the partners in the company. A somewhat reluctant industrial designer took the role and tried to make the best out of it by, for instance, still trying to find some time to do design. Some ten years ago this firm decided to hire a professional managing director and advertised for this. This was the first time in Sweden that an industrial design firm sought a professional management director and was willing to be led by someone who was not an industrial designer. The person recruited had an engineering design background, but more importantly, he had held management positions in the industry. Ten years later, the company has more than doubled in size. It no longer only recruits industrial designers but also engineers, web designers, graphic designers, business administrators, marketers, and strategists. Other IDCs have chosen to continue with one of the partners/owners as managing director. The IDCs are genuinely flat organizations. Furthermore, they are typical project organizations – projects are the DNA of the firms and each project has a manager, but managers shift between projects.

3.4 Competences in the IDC

Besides outstanding design skills, customers require additional competences and practices to ensure smooth cooperation, such as project management. Many IDCs were the product of friends who got together and formed a company. In the professionalization of the IDCs and with a growing design industry there is a need to have a professional recruiting process, including human resource development. Additionally, IDCs seem to benefit from having professional managers, marketing functions, etc.

A broad range of competences can make the design firm less vulnerable to defections or other disturbances. IDCs, as most consultancies, are highly dependent on business cycles. A response from one of the IDCs was to work with their market strategy and specify a number of target companies that they continuously analyze to be able to get them as client firms (CFs). In this way they try to flatten out the cycles with a constant flow of orders. The conscious work with a targeted market started after the recruitment of business people into the organization. This has also led to increased knowledge in how they communicate with their client firms.

3.5 Market focus

Most IDCs have a broad horizontal offering. This means that they work across many different industries with one – or a slightly adapted process. The claim is that the offerings (processes and methods) are relevant for all industries. One advantage is clearly that through experience from different industries the IDC can act as a broker, transferring (technical) solutions from one industry to another and in that way contributing to innovations. This broad approach could be a disadvantage if the CF needs specialized knowledge of the conditions and constraints in the operations. Specialization in, for example, material or customer contexts could be an advantage in this case.

Vertical broadening for an IDC could mean that it focuses on one or a few industries and broadens its offering (i.e., the whole process from idea generation to launch). It could also mean that the IDC offers several different design services such as industrial design, packaging design, retail design, interaction design, etc. IDCs are also expanding to include service products (i.e., a service without any physical product), although the cases are still few. Packaging design is to some extent a new field. Traditionally in Sweden, the 3D packaging design is a technical and economic issue carried

out by large global companies, e.g Tetra Pak. Advertising agencies take care of the graphic design. There is a trend to change this and industrial designers, with their three-dimensional design, are getting more involved. Visionary products, scenarios or concept products are other types of projects that are involving more industrial designers. This could also be linked to strategy process services since visionary thinking often affects the long term strategy of the CF. Some IDCs offer design manager services that, for example, hire out design managers to the CF for shorter or longer periods. Engineering design is quite common among the larger IDCs today, which means that they can deliver more detailed specifications for the production. Some of these engineers have a background as engineering designers from technical universities or colleges, which mean that they are capable of understanding technical issues, but need not be experts.

The trend among IDCs seems to be broad both horizontally and vertically. This means that the IDCs operate in many different industries and have a broad offering both from a process perspective and in different design fields, such as concept, packaging and service design. From the interviews with Swedish and Finnish CFs, it is obvious that there is no straight answer if the IDC should be broad horizontally or vertically. Some general conclusions were that SMEs want an IDC that is broad vertically and sometimes horizontally. On the other hand large, global companies want a horizontally broad IDC, with experience from different industries to make them more creative. The IDC should understand the strategies of the client but not interfere with them.

3.6 The strategic role of the IDC

Designers are – mostly – known as visionary people (Lawson, 1998; Stolterman, 2007). It is therefore natural to link design thinking to strategic thinking (Brown, 2008). In other words, the term "design" has to do with ideas about the future. But also with value-creation in terms of "how things ought to be" (Simon, 1969). The same is argued when it comes to the term "strategy". A strategy is about value creation (Normann, 2001) and a long-term plan of action designed to achieve a particular goal (Mintzberg, 1994).

According to Buchanan, the idea or thought that organizes a system or environment is expected to be the focus of the fourth-order of design. The designer as facilitator of the process of business development and strategy creation can be seen as a movement towards the fourth-order of design. This is also in line with the third paradigm of business that, according to Normann (2001), is the reconfiguration of value-creating systems. Strategy creation is not a top-down process and cannot be separated from the operation of the organization (Mintzberg, 1994; Hamel and Prahalad, 1989 in Seidel, 2000). The consequence of this is a need to involve people with very different skills and specialist knowledge in the creation of strategies. This in turn can cause communication problems. Tacit knowledge resides in people and the knowledge can only be shared in social interaction. The visualization tools of the designer could enhance communication and interaction between different disciplines in the process of strategy creation and business innovation.

4 CONCLUSIONS

A domain is a cultural system bounded by training, practice and shared knowledge. Domains like all cultural systems change and when that happens, people see the world differently. Things taken for granted are no longer assumed and relationships among parts change (Robinson and Hacket, 1997). It is obvious that there are several changes in the way industrial designers view their own role and how they see their businesses. This is related to growth, a broadening of the field of operations and a new self-confidence about the role of the IDCs. There is a great interest in growth and in raising the profitability of the IDCs. There is a high awareness that this would make the IDC as a company less vulnerable and provide better margins for development, for investing in new technologies, for following clients also globally. But it is also a change in attitude towards seeing the value of design from a systemic level, and as part of developing industry in the post-modern society as discussed by Buchanan. This leads the IDCs into the service industry with a focus not on the physical products but on the offerings of their clients from a systematic perspective and, with the terminology of Normann, from a value-creation perspective.

This study has shown that industrial design firms are going through a strategic development that will affect their services and relations to clients. The growth trend will probably continue, with further demands on management skills and this will also, most likely, affect also the small design firms. The design maturity of the client firms is increasing which will put a higher demand on the professionalization of the design firms. There are many designers who still want to focus on designing and one way of solving this is to hire or employ people with management skills, not necessarily with a

design background. Another trend that is noticeable is the internationalization of the Swedish design firms, especially the large ones that receive commissions from foreign MNEs. American and Japanese companies, for instance, are seeking collaboration with Swedish design firms. This is to some degree based on the fact that many Swedish design firms have won international design awards and Swedish industrial design has a good reputation. Furthermore, some Swedish design firms have also established offices in Asia, other European countries and created alliances with US IDCs.

One obvious contribution by IDCs to business development and strategy creation is the one of acting as a facilitator of the process in their client firms. They have integration skills and in addition to this, through the design tools, good visual communication skills. The integration skills are related to brand and product integration, technology brokering and bridging of competences. The communication skills are connected to visualizing problems, opportunities and ideas. Prototypes, sketches, etc., are powerful tools that enable communication between different disciplines and are fruitful to use in abstract problem solving activities. Related to this we can notice a new self-confidence among the IDC s in respect to their skills of integration, strategic thinking and communication skills. As a consequence of this it is today more common that the IDCs demand the participation of people with a technical and marketing background from the CF, and sometimes also top management when a new project starts.

Although design has received more attention and is recognized as a valuable tool for competitiveness, the knowledge about what IDCs do and the value of their work is still mainly restricted to those who have experience working with designers. Many designers still argue that their clients do not see how design and strategies are interconnected. The question is whether the IDCs know how to communicate their competence and contribution to business development and strategy creation. The strategic role of design is not always clear to the client firm, but the question is also if the IDCs are clear about what strategy means in a corporate perspective?

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Paper II

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From Goods to Service Logic: Service Business Model Requirements in Industrial Design Firms

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ABSTRACT The design thinking concept emphasizes the actual activity of solving problems with a design approach, associating it to the designer's knowledge and competence instead of the intimate link between design and the physical object. Yet design consultancies still have problems charging for intangible components in their offerings and for the role of strategic consultants. We argue that the design thinking concept is in line with a service-dominant logic rather than a

goods-dominant logic, and that this approach can be the basis for communicating the value of design to clients. The problem faced by industrial design consultancies is not unique and hence the findings can contribute to other industries undergoing a shift from a focus on products towards enabling service.

KEYWORDS: business model, design thinking, industrial design, service-dominant logic, strategic consultancy

Introduction

Knowledge about the activities of industrial design consultancies (IDCs) and the value of their work is mainly restricted to those who have experience working with industrial designers. Many IDCs have started to work with service and intangible offerings parallel to the traditional work with physical products (Valtonen, 2007) thereby further contributing to the confusion of industrial designers' area of knowledge. Additionally, IDCs define their service to include strategic development integrating innovative product development with brand building (Valtonen, 2007). The strategic role of design is, however, not clear to clients, which is shown by studies of Swedish companies (Nielsén, 2004, 2008), especially small and medium-sized enterprises (SMEs) in manufacturing technology who view industrial design as a discipline working with aesthetics at the end of a product development process. As stated by one designer:

> This study describes the existing business model of industrial design consultancies we studied and compares its fit with the requisites of service-dominant logic (S-D logic). Design thinking as a concept in the sense of approaching problems the way designers do by working in a 'designerly way' (Cross, 2006) is in line with S-D logic rather than a goods-dominant logic (G-D logic). This approach can also be the basis for communicating the value of design to clients inexperienced in working with design strategically. The theoretical model that merges the perspectives of service dominant logic and business model is also relevant to other industries in understanding the value networks they operate in as they undergo a shift from tangible products towards intangible service.

Changes in the Business of Industrial Design

The interest in the concept of design thinking has increased in recent years both in academic journals and business magazines (e.g. Boland *et al*, 2008; Brown, 2008; Leavy, 2010; Martin 2010). One reason is due to its significance for innovation (Jahnke, 2013; Verganti, 2009). However, there seems to be a lack of consensus

on a definition of design thinking (Walters, 2011), and there is a need to understand how design can contribute to companies that implement it and what is typical and 'designerly' with design thinking (Cross, 2006; Rylander, 2011). Eneberg (2011) argues that the most prominent characteristics of design thinking mentioned in design literature and journals can be summarized in three categories: integrative, collaborative and experimental. Integrative is that it integrates hands with thought and theory with practice; collaborative through visualization which enhances interaction between individuals, which is a necessity to solve wicked, open-ended problems. Finally, it is experimental in that its methods and processes aim at ingenuity and focus on how things ought to be (Simon, 1996) rather than on the present state.

The focus of design is changing (Buchanan, 2001; Eneberg, 2011; Morelli, 2002; Valtonen, 2007). Morelli (2002) states 'that designers' activities usually have focused on material artefacts … rather than on systemic solutions including services'. Some scholars claim that the main role of designers is to put forward new ideas and stimuli (Delléra *et al*, 2008), and that the aesthetic side of the design offer is no longer as obvious as in the past (Ullmark, 2007). In Table 1 we compare Eneberg's study of the development of industrial design with the arguments brought forward by Buchanan (2001), Morelli (2002) and Valtonen (2007).

Valtonen (2007) concludes that the role of the industrial designer has changed from a product development-oriented practice in the 1970s to include strategy work in the 1990s, without giving up any of the roles in between. Thus, when defining themselves as strategic designers they still identify themselves as problem solvers with a physical product or in some cases intangible services as the solution.

Eneberg (2011) argues that the industrial designer, just as their client firms, worked according to a goods-dominant logic during the industrial era. In most cases this meant working with aesthetics at the end of the product development process. The claim of designers today is that they have the capacity to contribute throughout the product development

Table 1 The focus of design

Eneberg	*Buchanan*	*Morelli*	*Valtonen*
Goods-dominant logic – aesthetics	First and second order of design – symbols and artefacts	Material artefacts	Operative role – product development oriented practice
Service-dominant logic – relieving and enabling services	Third order of design – activity or the value of design in our lives Fourth order of design – idea or thought that organizes a system	Systemic solutions including services	Strategic work and working with visions

process, working together with the client with innovation, and that their offerings have a strategic impact in their client firms that enable them to work more efficiently and/or effectively. This claim is closer to a service-dominant logic.

Buchanan (2001) describes the change of focus in the design discipline through four orders of design. Industrial design grew out of a concern for symbols and tangible, physical artefacts that were the focus of the first and second orders of design. Instead of focusing on symbols and things, designers have turned to reflect upon the value of design in our lives. A result of this is a focus on the actual activity, which is the third order of design. According to Buchanan, the ideas or thoughts that organize a system or environment are expected to be the focus of the fourth order of design. It should be noted that Buchanan describes an offering that is becoming increasingly intangible. One could say that the knowledge of the designer is thawing out whereas in the industrial paradigm, it was frozen in products. At the same time, artistic processes are a central part of design competencies including visualizing techniques such as sketching and prototyping (Johansson and Svengren Holm, 2008).

Service-Dominant Logic

According to Vargo and Lusch (2008: 26), service-dominant logic (S-D logic) is the basis of economic activity and is defined as follows:

> In S-D logic, service is defined as the application of specialized competencies … S-D logic uses the singular term, 'service', which reflects the process of doing something beneficial for and in conjunction with some entity, rather than units of output – immaterial goods – as implied by the plural 'services'.

There are two ways of providing service to a customer and in that way deliver value: through relieving or enabling (Lusch *et al*, 2010; Normann, 2001). Relieving means that a service provider performs a task or series of tasks for another party. Enabling means that the supplying organization helps the other party to do a task more efficiently and/or effectively. In a business-to-business environment, relieving can involve the outsourcing of activities by the purchasing organization, while enabling can involve a learning situation where the supplying organization transfers its knowledge or competencies to the purchasing organization.

The concept of value network is central to S-D logic (Vargo and Lusch, 2008). A value network is a structure of values that proposes social and economic actors interacting to co-produce and/or exchange service offerings (Lusch *et al*, 2010; Maglio *et al*, 2009; Normann, 2001). Normann (2001) claims that a critical capability in existing strategic paradigms is that of organizing value-creating systems. In these systems, customers are no longer passive receivers as in the industrialism paradigm but are active co-producers.

Service is always relational and based on social interaction (Morelli, 2009) in the sense that each organization involved in the value network contributes with its resources in a business ecosystem (Vargo, 2009). The contribution of each organization affects the whole ecosystem and not just the organization that buys the initial service. Further on, value is always intangible. This does not imply that a service offering only consists of intangible components; tangible components can be a part of the offer as a tool carrying out the service in the value network.

S-D logic has a resource-based view where applied resources result in a service for the benefit of other entities. Valued resources are relevant knowledge, competencies, abilities and relationships as they are harder to imitate than static resources such as equipment (Normann, 2001; Vargo and Lusch, 2008). Prahalad and Hamel (1990: 5) express it as follows:

> Core competence does not diminish with use. Unlike physical assets, which deteriorate over time, competencies are enhanced as they are applied and shared.

Further on, cross-functional and inter-organizational integration of resources becomes a necessity to co-create value according to S-D logic. Resources can create new resources through learning activities such as education and research (Vargo and Lusch, 2008).

Value networks are constantly reconfiguring (i.e. learning, evolving and adapting to changes in the environment) (Gunasekaran and Ngai, 2004 in Lusch *et al*, 2010). All organizations learn and what they know influences how they pay attention to and interpret what they find (e.g. how they make sense of its context, such as the market) (Sinkula, 1994 in Lusch *et al*, 2010).

The Business Model Structure

This paper applies a conceptual business model (BM) to categorize the empirical findings about how respondents in IDCs and their potential client firms view the industrial design sector. It is based on Osterwalder *et al* (2005) and Osterwalder and Pigneur (2010). The conceptual business model is referred to as 'the business model canvas' and consists of nine building blocks (Table 2).

The use of the BM canvas to structure our findings will explain how a business works and how pieces of business fit together to create value as a system (Magretta, 2002; Osterwalder *et al*, 2005).

The business model has a resource-based view of organizations (Kujala *et al*, 2010), just like S-D logic (Vargo *et al*, 2008). This view perceives the firm as a unique bundle of resources and competencies. The main task of management is to maximize value by optimizing the use of resources available to the firm both internally and externally through partnerships (Grant, 1996). These relational aspects are also considered key competencies in the value systems (Normann, 2001).

Table 2 Based on 'The business model canvas' (Osterwalder *et al*, 2005: 18; Osterwalder and Pigneur, 2010: 16–17)

Pillar	*Business model building block*	*Description*
Value propositions	Value propositions	Gives an overall view of a company's bundle of products and service.
Customer interface	Customer segments	The target audience for a business' products and service.
	Channel	Describes the various means of the company to reach its customers.
	Customer relationship	Explains the kind of links a company establishes between itself and its different customer segments.
Infrastructure management	Key activities	Necessary activities to execute a company's business model.
	Key resources	Outlines the resources necessary to create value for the customer.
	Key partners	Portrays the business alliances with other companies necessary to efficiently offer and commercialize value.
Financial aspects	Cost structure	Sums the monetary consequences of the means employed in the business model.
	Revenue streams	Describes the way a company makes money through a variety of revenue flows.

Since strategy creation is not a top-down process and cannot be detached from the operation of the organization (Mintzberg, 2000), the knowledge residing in an organization needs to be communicated. According to Walsch and Ungson (1991 in Weick, 1995), an organization is a network of inter-subjectively shared meanings that are sustained by the use of a common language. This can also be compared to how individuals create meaning through language. Tools for communicating both explicit and tacit knowledge are for this reason of major importance. In knowledge management externalization, this is known as the process of articulating tacit knowledge into explicit knowledge (Nonaka, 2005). Articulating the building blocks of an organization's business model can be important in making tacit knowledge explicit. When the knowledge is visualized, it can more easily be communicated, shared and manipulated (Osterwalder *et al*, 2005).

Methodology and Research Methods

The ontological and epistemological assumptions underlying this paper are based on a perspective that the meaning of different phenomena is constructed in the relation between the individual and society. It is based on a phenomenological approach that tries to

understand a social phenomenon from the perspective of the actors involved. A chronologic picture of how the research emerged and how the different events led to the final discussion is presented in Figure 1. The initial part of the study had an exploratory approach with interviews of nine respondents at six IDCs, and six respondents at four client firms in Sweden. The client firm interviews aimed at obtaining perspectives on how these clients experienced the role of the IDC and if it had changed. Transcribed interviews were read through several times both separately and together and then discussed to find categories of interest. The categories were added to a table with responses and quotations from each. The answers in each category were also compared with the transcribed interviews from client firms. The table was then used in our analysis where we looked for similarities, differences and contradictions. The aim of the analysis was to reveal the areas that are or might be drivers for change in the business of industrial design.

We met up and compared our results with two Finnish researchers, Haltsonen and Anselmäki, who conducted a similar study in Finland. The reason for this was that we were going to use our results at a workshop with Swedish, Finnish and American industrial design companies in New York. The Finnish researchers conducted five interviews with respondents in IDCs, and three respondents in client companies. The Finnish study dealt with similar areas such as changes, development and growth of industrial design consultancies. We were thus able to compare the results from our first exploratory study to ensure that our initial results were not just valid for Swedish IDCs. We met and categorized the result of the interviews into five topics and propositions as an input to a workshop in the form of a focus group (Bryman, 2002[2001]).

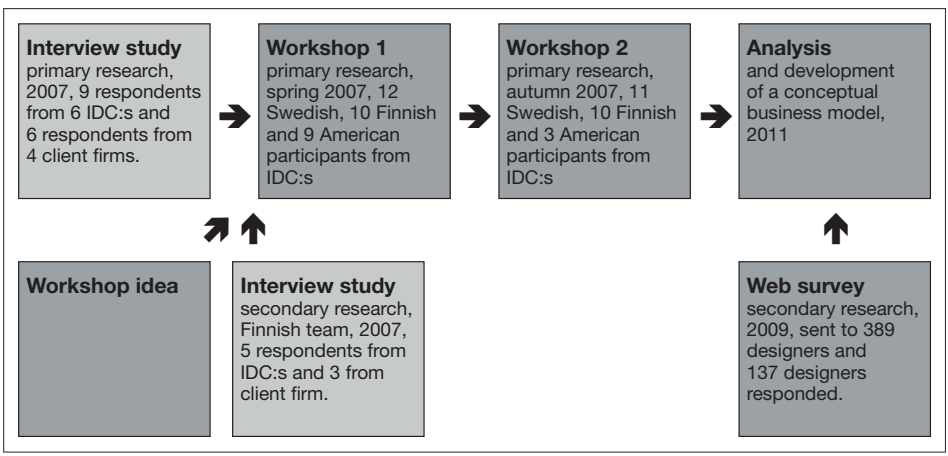

Figure 1
A chronological representation of how the research emerged and how the different events led to the final discussion.

The five topics were: vision, market focus, competencies, work methods and promotion of the IDC. In the workshop, six discussion groups were formed, each consisting of representatives from Sweden, Finland and the USA. The idea to mix Swedish and Finnish IDCs came from the Swedish-Finnish Design Academy who saw an opportunity for growth of the IDCs in Sweden and Finland. The American IDCs had had a period of growth and the workshop aim was that the IDCs could learn from each other and create international contacts. At what became two workshops, one in New York in spring 2007 and one in Stockholm in autumn 2007, 12 Swedish and ten Finnish industrial designers met with nine American colleagues. In the second workshop in Stockholm, which was partly based on empirical data from the previous workshop, the IDCs worked on future scenarios of the IDCs consultancy. In this workshop 11 Swedish, ten Finnish and three American industrial designers participated. Each workshop lasted two days with social events in the evenings. The informal discussions that took place during the evenings provided us with further insight into how the respondents perceived their professional role and business. Notes from the workshops were supplemented with citations by analysing videotapes from the workshops. The results were first compared with those from the initial exploratory interviews but categorized according to the topics in the workshops.

The empirical data from interviews and workshops were then supplemented with a survey conducted in a master's thesis project (Ålander, 2009) supervised by us. It consisted of a Web survey sent to all industrial designers registered on the Swedish Industrial Design Foundation's list, in total 389. A total of 137 designers answered questions about their perceptions of how IDCs create successful projects. Two reminders were sent. The response rate was 35 percent. The Web survey was to validate the results from interviews and workshops with answers from employed industrial designers, since the previous studies mainly consisted of respondents in a management position in IDCs. In this paper, we have used those portions that were relevant to the issue of growth and business development.

Limitations of the study

In our initial exploratory interview study we chose a semi-structured format. Our aim was to facilitate an interview situation that made it possible for the respondent to change focus to capture different aspects of the questions. Our choices of questions have, of course, had an effect on the reliability of the study since we may have excluded issues that could have been of relevance to the study (Kvale, 1997).

The workshops directed the focus away from the individual towards a dialogue between the managers of the IDCs where knowledge was intersubjectively created through social interaction. The respondents in the interviews were to a great extent the same people as those participating in the workshops, which allowed for a prolonged period of reflection for the people we had interviewed. The workshops had the form of a

focus group discussion. One danger with focus groups is that some participants are more talkative than others and hence their perspective gets more attention (Bryman, 2002). There is also a danger that the participants only describe the story they want others to hear instead of the reality they experience. Observations of the everyday life of the design consultant might have given us different results than those we received through the observations and participation in the workshops. At the same time we, as researchers and other external participants, were surprised that, despite the fact that they all were competitors, the participants discussed problems and shared stories about their business to a great extent. The workshop method, of course, has limitations regarding reliability, as it is not possible to repeat the same workshop.

Through contact with participants afterwards, we know that the workshops resulted in minor and in some cases major changes in the participating IDCs. One company radically changed its business offering and work today on a more strategic level with their clients. Other companies started to plan for growth and increased the number of employees. It is not possible to claim that these changes only were due to the workshops but it is possible to claim that the workshops supported the participants' development. Hence the workshops fulfilled a pragmatic validity criterion (Kvale, 1997).

The role of the Web survey was, in the context of the whole study, rather small. It was included to validate the results from interviews and workshops that mainly consisted of respondents in a management position working in larger IDCs. We wanted to look for differences between smaller and larger IDCs in how the respondents perceived their role as industrial designers and the business of industrial design in general. However, we could not see any major differences that would change the result of our analysis and therefore believe that the results of our study are valid to the context of industrial design.

All interviews were taped and transcribed. When they were transcribed, they were carefully read by the authors and then discussed to find categories of interest. When categorizing the results there is always a risk of emphasizing certain categories and deselecting others. To illustrate our analysis and thereby increase the credibility of the study we use quotations from the interviews. The results from both workshops were compared with the interviews looking for similarities and contradictions in the answers received through the different methods used in the study.

Discussion of the Findings

In this section, we analyse and discuss the results of the empirical studies. The findings of the studies of the IDC are compared with S-D logic (Vargo and Lusch, 2008) and we structure the discussion according to the business model canvas (Osterwalder *et al*, 2005) presented in Table 2. The discussion is thus based on four pillars: value propositions, customer interface, infrastructure management and financial aspects. The outcome is presented in Table 3 showing

key learning regarding requirements in a service business model for IDCs.

Value propositions

According to S-D logic, artefacts are the carriers of service and the actual value resides in the service. This could also be compared with Buchanan's third and fourth order of design mentioned in Table 1. The large IDCs offer service design – products on a system level or that address service companies such as hospitals, although such cases are still few. But what IDCs also offer to typical manufacturing companies can include intangible services such as visionary products, scenarios or concept product systems.

To work with visionary thinking can also be linked to a strategy process since visionary thinking often affects the long-term business strategy of the client firm (CF). One vision expressed by many IDCs has been to achieve a strategic role in their client's development processes. Many designers argue, however, that their customers do not see how design and business strategies are interconnected.

> Today everyone knows that they should work with design, but few people know what it really means to work with design … The link to a strategy is often non-existent today, that is to say, the link between brand management, product design and innovation is often non-existent. (IDC)

To be able to obtain new clients and attain growth in turnover, IDCs need to have clear offerings that explain the contribution they can make to potential CFs. One IDC tries to solve this by productizing or packaging intangible components in different service offerings, exemplified as follows:

> The service we call 'design-pull management' has to do with visionary projects. We help our clients to define where they want to be in ten years and to fill in the steps in between today and the future. (IDC)

Most IDCs have a broad offering including everything from idea generation to specification of the final product. This is questioned by one respondent working in a multinational enterprise (MNE) in Finland. He thinks that this makes the offer of the IDC unclear.

> The only thing I do not like is when consultants come in and say we can do everything; we know everything and you need help … It is much better to come and say that we are five designers and we are very good at this but cannot do that. Then I know exactly how to use them. (Design manager at large CF)

A respondent in one of the MNEs expressed one obvious problem with the IDCs having broad offerings. They experienced the IDCs as lacking knowledge about limits in production, regulations in the CF industry and other restrictions (e.g. environmental restrictions). On the other hand, most SMEs seem to gain from a broad offering since they often lack resources with the competencies and knowledge that the IDCs bring to the table. A respondent in an SME claimed that the IDC was good at connecting the product with the identity of the company and thus helped the SME to develop their business strategy and brand.

Customer interface

The IDCs claim that their offerings (processes and methods) are relevant for all industries. One clear advantage can be that through experience from different industries, the IDC can act as a broker (Hargadon and Sutton, 1997), transferring (technical) solutions from one industry to another. One IDC expressed it this way, '… and that is how we often do it. We have knowledge of a technology in one area and can then transfer it to a new area.' Another IDC pointed out that, 'We have the strength that we have been in so many industries that we, for instance, can say, "This is how it is done in the medical industry." We give them new ways of looking at things.' According to S-D logic, resources create resources and value unfolds over time since it is consumed repeatedly. This S-D logic can be exemplified by how the IDC works as a broker of technology and competence between industries; value in this way unfolds in new contexts.

At the same time, several industries such as companies working with medical technology are tightly controlled by regulations. Having this kind of specialist knowledge would definitely facilitate cooperation, possibly lead to new projects and has the potential to increase the price tag on the service offered by the IDC. As one CF pointed out, 'We work with medical products and have special quality systems … The designers need to conform to this. If they do not have the knowledge, they gain the knowledge.'

The majority of customers, particularly SMEs working in a business-to-business environment, still see the contribution of the IDC as that of working with styling and perhaps functionality in artefacts. This could either be a view of the contribution of the IDC based on G-D logic or imply a focus on relieving (i.e. outsourcing) the visual communication to the IDC. This kind of service does not necessarily involve the CF to the same extent as an enabling service. The latter involves a learning situation where the IDC transfers its knowledge and competencies in cooperation with the client organization. Innovation and change require a shared vision that harnesses the creativity of all involved staff in a CF (Millward *et al*, 2006). At the same time, tangible artefacts such as prototypes and presentations of previous cases function as carriers of the design service. They enhance the opportunity for the CF to evaluate the IDC and hence are of high importance in selling a design service.

In accordance with S-D logic, channels for acquiring and retaining customers are increasingly relationship dependent. The survey showed that previous customers were the main way for the small IDCs to acquire new projects and a main source in larger IDCs. CFs also mentioned the importance of relationship building when they acquired design service and of maintaining the collaboration with a design resource when it comes to making an insider out of an outsider. About half of the respondents in the survey claimed that projects based on previous relationships increased the chances of success. According to the IDCs, in building up relationships with CFs, word of mouth and the presentation of previous cases seem to be of utmost importance for selling intangible services.

> This thing with design and strategy is still … it is just as design was ten years ago; you have to be a missionary about it. There is no one who knows about it. What you sell is commitment … You need to be good at convincing people and show that you really can contribute. (IDC)

Several IDCs expressed for need of commitment at the top management level to be able to work with design as a strategic tool.

> The most important thing for us is that we, as much as possible, move away from the R&D decision-making process and move up to the top management level. It is there we need to be. (IDC)

IDCs, as most consultancies, are highly dependent on business cycles. A response from one IDC was to work with its market strategy and specify a number of target companies that it continuously analysed to be able to get business. In this way, IDCs try to even out the cycles with a constant flow of orders.

> This business is very dependent on business cycles … We have built a sales organization and we have a sales strategy as any other company. It is the first time we have done it in a systematic and planned way … We have a list of 150 companies … that we focus our resources on proactively. (IDC)

> We usually have a reason to contact them. We have seen, for example, that a company has just launched an environmental cooperation with five others in the industry … We continuously work with business intelligence on a daily basis. (IDC)

This shows an industry maturing, having a professional sales function. It also illustrates an active search for potential client firms and the need to understand their motives and intentions to be accepted as active participants.

Infrastructure management

IDCs usually contextualize problems taking into account several perspectives so they have the potential to create a sense-making process in the CF.

> … we try to show different scenarios and say that this is the problem you have had so far … Working with engineers and marketing people in this way gives them the same vision of the company's products three or five years in the future. (IDC)

The key resource in an IDC is without question the people working in the company. Many IDCs were founded by friends who met at a design school.

> Yes, we were six people in 1993. There were five industrial designers from the College of Arts, Crafts and Design; friends, you could say. (IDC)

In the UK and the USA there have been a number of large IDCs since the 1980s (Julier, 2000). Countries like Sweden and Finland with small design consultancies are now facing a similar trend with several industrial design-based firms with more than ten employees, the largest with almost 70. The larger IDCs employ people from different disciplines while the smaller ones to a higher degree only consist of industrial designers. Most employees in large IDCs that are not industrial designers come from other design disciplines such as interaction design, graphic design and engineering design.

In S-D logic, key resources in an organization relate to the knowledge and competencies that employees hold and the capacity to build relationships with other actors. Thus, key activities involve acquiring, establishing and retaining resources and relationships with key players. The customer needs to be viewed as a co-creator rather than a passive client. The briefing process is a powerful learning tool if it is a joint effort, since what the customer pays attention to is dependent on the knowledge residing in the CF (Eneberg, 2011). Two respondents in different IDCs explain how they work with the briefing process.

> The manner in which we transfer knowledge then is in the context of the design brief … we want to position ourselves as a potential partner; we want to show that we have the right qualifications for it and that we understand their problems … and then it is almost always phone calls and work meetings until we are in a position … to formulate a specific brief that we are asked to submit a quote for. (IDC)

> We are now trying to arrange meetings to discuss the brief. We ask them to gather all the information they have on the technical side, all on the marketing side, and all on the strategic

> side. We gather the people here, talking for a day or two about what we are after and then we write the brief. (IDC)

Hiring people with new knowledge that enhances communication with CFs is another solution. We have seen examples of this in the larger IDCs hiring people with business and human resource management skills. This growth can be seen as a response to the need to manage the IDCs more professionally and a desire to grow with better business skills. Additionally, IDCs seem to benefit from having professional managers, sales and marketing functions since design services are mainly sold through networking and by presenting previous cases.

The survey showed another difference between large and small IDCs: information and formalization of communication with CFs is more frequent and formalized in large IDCs. Involvement and communication decreases perceived uncertainty and risk. Customer involvement can also result in an increased understanding of the motives and intentions underlying the choices that customers and other key players make, which can generate new business opportunities. One reason for this difference can be due to the broad competence base in large IDCs with employees from different educational backgrounds. A broad range of competencies can make the IDC less vulnerable to disruptions.

> Karin [new employee; authors' remark] has an MBA and has also worked on the customer side for a number of years. So she is familiar with how things work in big companies and has the knowledge to provide sensible basic data for decision-making to the management teams … Today, when we present to management teams, we still have the amazing images but we have complemented this with a few other things, which makes it easier for businessmen to understand and use for decisions. (IDC)

The capability of employees to work with visualization, using for example prototypes and sketches to enhance communication and experimentation, are shared by all IDCs. The manipulation of material has a long tradition and is an essential part of the design process (Ramaduny-Ellis *et al*, 2010). Through visualization, the designer achieves a simplification and clarification of complex problems. Tacit knowledge resides in people and the knowledge can only be shared in social interaction. The visualization tools of the designer enhance communication and interaction between different disciplines in the process of strategy creation and business innovation.

> We also have the knowledge to facilitate our customers' internal processes. We use design as a universal language that makes it easier to g*et al*l these functions to understand each other … visualization is the backbone of what we do. It is our language. (IDC)

The respondents state that it is necessary to get different functions in the CF involved from the start to create new knowledge in the CF and a product or service that is appreciated by the end user. Thus, one key activity in IDCs would be to create cross-functionality in the CF and work as knowledge brokers. Two IDCs exemplified it as follows:

> We are not experts on everything; however, we are experts on how to cooperate with other experts. We must take the strengths that engineers and marketing people have and turn them into a forward driving force. (IDC)

> What we do today is that we always put together a project team and a decisions group. The project team works operatively and the decisions group at the management level. (IDC)

Establishing relationships with key partners and introducing them to the value-creating network would be a key activity to acquire necessary knowledge and competencies in a company. Our study did not provide many examples of IDCs working with external players with the goal of retaining knowledge. There were exceptions, though, in the form of cooperation aimed at integrating the knowledge residing in CFs and among their customers. One key activity can then be to work with disseminating knowledge among key partners in the value network about the intangible service IDCs have to offer. This was also suggested by one of the IDCs, arguing that the knowledge in CFs of the connection between design and strategy was almost non-existent.

Financial aspects

The most common way of pricing projects in the IDC is a fixed price. It is related to activities specified in the brief and the hours expected to complete each activity. A less common way is at an hourly rate without a fixed price. The IDCs sometimes agree with small start-ups to earn a percentage of future profits on a product instead of payment for the services rendered. The survey showed a clear correlation between the sizes of the IDCs that the respondents were employed at and how they perceived their financial success. The smaller the IDC, the poorer the perceived financial success.

The turnover/employee ratio in Swedish IDCs has increased. The average for a Swedish industrial design firm is a lower turnover/employee ratio (approximately 85,000) (Nielsén, 2008) compared to the IDCs interviewed in this study (approximately 103,000). This leads us to believe that larger IDCs have a higher turnover per employee compared to smaller ones in spite of having a higher number of employees not working directly in 'production'. This could mean that they work more actively in establishing external relationships and also have other competencies that are better suited to explain the intangible services offered by IDCs.

Growth in income/sales means that you have to deliver more value or make it visible to the customer and in this way charge for services that are sometimes hard to list on an invoice, such as idea generation.

> We are seldom commissioned in the way that they would like to pay for the value of the processes … Our next step is to look at how we can get better payment for this kind of service, that is, knowledge and strategy service … How we can package them better than we do today? (IDC)

Even if the IDCs aspire to be remunerated for the knowledge they have that resides in methods and processes and not just in products, it is still difficult. As previously mentioned, there seems to be a need to productize the offerings and to explain how the design can contribute in the value network. At the same time, intangible service offerings such as design strategy seem to render a higher price tag than traditional industrial design, which focuses on the aesthetics of artefacts. One explanation could be that enabling services resulting in learning activities in the CF creates a higher value in the value network than tangible relieving services, such as outsourcing of product design.

The smaller IDCs have had problems investing in new technology such as 3D printers. According to S-D logic, assets and ownership of technical facilities will decrease in importance. Companies selling hardware and software on the market will instead find new business models for earning money (i.e. by focusing on a service offering such as leasing and licensing). This in turn will make the smaller IDCs less vulnerable to the susceptibility of having committed capital into machinery.

The Business Model of Industrial Design and S-D Logic

Table 3 summarizes the analysis and discussion above, showing the requirements for IDCs when working according to an S-D logic. The model is not a prescriptive one but highlights what the IDCs need to consider when developing their own services.

Conclusion

A domain is a cultural system bounded by training, practice and shared knowledge (Robinson and Hackett, 1997). Domains change over time and when that happens, people see things differently. Things taken for granted are no longer assumed and relationships among the parts change (Robinson and Hackett, 1997). There are several changes in the way industrial designers view their own role and their businesses, but also in how they organize themselves. This is related to growth, a broadening of the field of operations. The study has shown a high awareness that growth and better profitability would make the IDC less vulnerable and provide better margins for further development also from a business perspective.

Table 3 Requirements for a business model (Osterwalder *et al*, 2005; Osterwalder and Pigneur, 2010) based on service-dominant logic (Vargo and Lusch, 2008)

Pillar	*Business model building block*	*Requirements*
Value propositions	Value propositions	Value is created through the service of an organization and service is always intangible. The service of an organization usually consists of several offerings that can have both tangible and intangible components. The tangible components are tools carrying the service in the value network.
Customer interface	Customer segments	It is important to define target segment(s) to decide the channels for acquiring and retaining customers.
	Channel	Learning affects how and what the customer pays attention to and how they interpret the offering. Integrating learning activities and dialogue in marketing activities towards new customers increases the possibility to move towards in selling intangible services.
	Customer relationship	The customer is a key partner, co-creating value, rather than a passive consumer. A service can either be that of relieving or enabling the customer. Relieving means that one entity performs a task for another entity. Enabling helps the other entity to do a task in a new way. According to S-D logic, acquiring and retaining customers is increasingly relationship dependent.
Infrastructure management	Key resources	Key resources in a company are the competencies residing in people.
	Key activities	Key activities in a company are to manage the use of existing resources and to acquire new resources internally or externally.
	Key partners	Cross-functional and inter-organizational integration is a necessity to co-create value and accordingly, it is important to understand motivations and intentions that drive key partners. Consumption and production are increasingly occurring simultaneously. Yet paradoxically, value unfolds over time in the sense that it is consumed over and over again by each participant in the value network.
Financial aspects	Cost structure	As the importance of the possession of resources decreases, the cost structure of each contributing organization in a value network will change.
	Revenue streams	Depending on the structure of the business model regarding what service is offered, the resources involved in value creation, and how customers are acquired and retained, etc., the offerings create certain revenue streams and cost structures in the performing organization.

The study has also shown a change in attitude towards seeing the value of design from a systemic level, and as part of how industry can deal with the logic of the postmodern society as discussed by Buchanan (2001). This leads the IDCs into service logic with a focus not on the physical products but on the offerings to their customers from a systematic perspective and, in the terminology of Normann (2001), from a value-creation perspective.

There is a need to increase our understanding of how design and design thinking can contribute to companies implementing it and what competencies the designer brings to the table, especially from a strategic perspective. The key to achieve this is creating relations with managers at the client firm. One contribution by IDCs is that of acting as a facilitator of the process in their client firms. They not only have cross-functional but inter-organizational integration skills and, through the design tools, good visual communication skills. The integration skills are related to brand and product integration, technology brokering and bridging of competencies. Communication skills are connected to visualizing problems, opportunities and ideas. Prototypes, sketches, etc., are powerful tools that enable communication between different disciplines and are fruitful to use in abstract problem-solving activities, but these are skills used during the process rather than as arguments for what the designers are being paid for. The designer needs to develop arguments explaining the intangible rather than tangible aspects of their offering and connect these to the vision of the client firm.

In this paper we argue that the concept of design thinking can be closely connected to S-D logic. The advantage of industrial design is based on methods and processes, that is, on the competencies and knowledge of the designer, rather than on the tangible aspects of the service offerings that carry the service. These dimensions of the offerings should also be the basis for negotiations with clients.

Related to this, we have noticed a new self-confidence among the IDCs with respect to their integration, strategic thinking and communication skills. The larger IDCs are growing and changing their organization, and the new competencies they acquire seem to be in line with the aspiration to move from being a consultancy focused on tangible aesthetic artefacts to intangible service offerings. Smaller IDCs still mainly consist of designers, and inter-organizational integration mainly consists of cooperation with customers and end users.

The IDCs still seem to have a problem being trusted as a supplier of intangible services such as design strategy. One obvious way to charge for intangible services would be to productize them. At the same time, the change of focus in the IDC needs to be communicated to other key players in the value network of which they are a part. If the service the IDC wants to provide is that of enabling rather than relieving, then the customer has to be involved as co-creator to create a learning experience in the customer firm. Working together with the CF in co-creating the brief provides the IDC with an excellent opportunity to deliberate on the enabling service they wish to deliver. Further on, how IDCs charge

for their services will also have an effect on the signals sent to other participants in the value network. Charging for key activities rather than for physical end products emphasizes the value of the intangible services delivered.

This study has shown that industrial design firms are going through a strategic development that will affect their service and relations with customers. The growth trend will probably continue due to the increased interest in the concept of design thinking. Studies have shown that the design maturity of customer firms is increasing, which will place higher demands on the professionalization of design firms. Service logic will facilitate this development as it also unlocks the mental image of the IDC as a problem solver focused on physical products.

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Biography

Magnus Eneberg holds a Licentiate of Philosophy with the specialization design management and MSc in management and organizations. At the time this study was conducted he was a PhD candidate at Lund University, Department of Design Sciences and lecturer at University College of Arts, Crafts and Design, Stockholm. His publications include research areas such as design as an enabling concept, organizational theory, organizational learning, design management and innovation.

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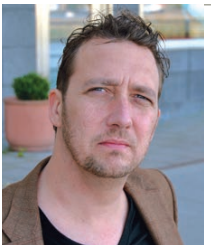
Eneberg, M. (2012) Organizational Sensemaking through Enabling Design Services, *The Design Research Journal, 2(12).*

Paper III



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ORGANIZATIONAL SENSEMAKING THROUGH ENABLING DESIGN SERVICES

BY MAGNUS ENEBERG

ABSTRACT

It is argued that the focus of design is becoming increasingly intangible. At the same time as design consultants are expanding their offerings with new services aimed at enhancing innovation and the strategic process in client firms, studies indicate that industrial design consultancies have a problem getting commissioned and paid for the intangible parts of their service. One possible explanation is that design is regarded as providing a relieving service that delivers aesthetic competence at the end of a product development process. This indicates a problem in communicating the contribution of enabling design services to client firms.

The aim of this paper is to increase the understanding of enabling design services. This is done by comparing the characteristics of design thinking, its methods and processes with sensemaking theory as described by Weick (1995).

INTRODUCTION

This paper presents and positions organizational change theory influenced by a sensemaking perspective with the concept of design thinking, two perspectives with different epistemological origins that seem to have common denominators. The results of a literature study regarding the characteristics of design thinking, and hence the competencies of the designer (Eneberg, 2011), are compared with the properties that Weick (1995) argues form the basis for a sense-making process. The purpose is to clarify the role of the designer in organizational sensemaking and thus the contribution to organizational development in client firms. Sensemaking theory originates from Weick (1995) who in this way brought social construction into organizational theory (Hatch, 2006). Basically, sensemaking highlights how individuals and society create each other. The individual makes sense of experiences through an ongoing inter- and intrapersonal dialogue, which in turn creates the culture of, for instance, an organization. This paper does not present a complete picture of design competencies, but aims to be part of an ongoing dialogue among design researchers and within the design industry about the enabling service contribution the industrial designer provides.

According to Verganti (2009) the essence of design is making sense of things. However it can also be argued that the designer can facilitate the sensemaking process through an enabling service, and that the artifact mediates the designer's interactions with and inside client firms. Designers have integrative and visualization skills that promote the negotiation of perspectives among organizational actors and hence create affordance in the social environment (Norman, 2002). A service can be either relieving or enabling (Norman, 2001; Vargo and Lusch, 2008). A relieving service means that the supplying organization performs a task for the other party, which is the logic behind outsourcing. A relieving service can be exemplified by an industrial design consultancy performing some part of a product development process on behalf of a client firm. An enabling service, on the other hand, is more relationship dependent and based on cooperation between the supplier and buyer. The competencies of the supplier are applied in the customer organization with the aim of making some kind of improvement or change. Designers who use their competencies to facilitate a sensemaking process in client firms demonstrate an enabling service (Eneberg, 2011). This could further be exemplified with the designer using their visualization skills to externalize tacit knowledge and hence enhance interaction in client firms.

THE CHANGING FIELD OF ORGANIZATIONAL DEVELOPMENT

One field in organizational theory that has been the subject of an intense debate, both in the community practicing it but also in the scientific community, is organizational development (OD) (Bradford and Burke, 2005; Marshak and Grant, 2008; Werkman, 2010). It has been criticized for its positivistic origin, relying on a methodology based on quantitative data in search of an objective truth in contrast to the subjective perception of organizational actors. Classical OD is argued to treat deviations from an objective truth as misperceptions that are to be corrected (Marshak and Grant, 2008). OD as a field is argued to be undergoing a change of its ontological view and the methodologies used (Bradford and Warner Burke, 2005; Marshak and Grant, 2008; Ford and Ogilvie, 1996). Part of this change is the acknowledgement that multiple realities can exist simultaneously among different organizational actors. Nonaka (2004) argues that organizational theory has been dominated by a paradigm that views organizations as closed systems that process information and solve problems in a simple input-process-output sequence.

According to Nonaka, individuals in an organization are co-creators of the problems that are to be solved and the information that is used in problem solving. The reality of a situation is the result of a negotiation among participating actors. This perspective is in line with Dewey's (1929) understanding of the internal and external world as something that is not complete but created through the

mediation of intentional operations. Action has always been an important part of OD. In literature about "new" OD, (inter)action and the facilitation of a sensemaking process (Weick, 1995) are at the very center of attention (Marshak and Grant, 2008; Werkman, 2010).

THE EXPANDING SCOPE OF DESIGN

The concept of design thinking has become popular not the least in business press (Carmel-Gilfilen and Portillo, 2010; Martin, 2010; Leavy, 2010; Ungaretti et al., 2009; Brown, 2008; Boland et al., 2008). One reason for the boosted interest in design thinking may be that it is argued to be a potent force for innovation (Verganti, 2009; Cooper and Press, 2001; Bruce and Bessant, 2002). Several scholars argue that the role of industrial design is expanding from being a product development oriented practice towards also contributing as a strategic resource of knowledge proposing new ideas and stimuli in client firms (Delléra et al., 2008, Valtonen, 2007). The aesthetic perspective is no longer as apparent as it used to be (Ullmark, 2007). With the changing role of design there is a need to understand the characteristics of design or in other words what is typically "designerly" (Rylander, 2011: Cross, 2006)

According to Buchanan (1995), the search for a new integrative discipline that will complement arts and sciences is one of the central themes of intellectual and practical life in the 20th century. By drawing attention to the concept of technology, as defined by Dewey (1929), Buchanan highlights the similarities between design thinking and experimental thinking. He emphasizes design thinking as integrative and universal in scope, not having a fixed subject matter and thus it may be applied to different areas of human experience. In addition, Buchanan argues that design thinking can be applied to different kinds of problems and that the meaning of design itself is expanding. Dewey signifies experimental thinking with what he calls "direct activity", which he contrasts with "thinking" as something cooped up within the "mind". In this sense, design *action* would be a more suitable term than design *thinking*.

Through a literature study I found that the concepts *integrative, collaborative and experimental* summarize the competencies of the designer (Eneberg, 2011). Design is integrative in that it integrates hands with thought and theory with practice. It is collaborative in that interaction between individuals is a necessity to solve the complex, open-ended problems they face. Finally, it is experimental in that its methods and processes aim at ingenuity and focus on how things ought to be rather than on how they are.

The integrative and collaborative characteristics of design are closely connected to the concepts of affordance (Norman, 2002) and what Döös (2007) calls "relatonics"; affordance in the sense of creating an environment that allows an individual to perform actions and relatonics as a key concept for organizations to develop competencies and hence facilitate innovation. From the perspective of relatonics, competencies in an organizational are constantly changing since they exist in relations between human beings. Individuals take their experiences and expertise with them when they enter and leave organizations (ibid.). According to Döös, "relatonics concerns the inter-related existence of ongoing relational processes that bear and develop competencies" (2007: 142). An individual's understanding can be described as a thought network. Thought networks are "cognitive structures, open to change through the questions the individual poses, and as a result of the actions involved" (Döös, 2007: 146). Different thought networks merge in the relation and through interaction between individuals as a sensemaking process take place. With the help of the integrative and cooperative characteristics of design this interaction could be enhanced.

DESIGN THAT FACILITATES SENSEMAKING

Sensemaking takes place inside individuals and through interaction between individuals. Weick claim that individuals are active agents that construct sensible events and he argues for seven properties, which are grouped into 4 headings in this section of the paper. The properties that form the basis for sensemaking processes are 1) social and 2) grounded in identity construction, 3) ongoing and 4) retrospective, 5) enactment and 6) focused on and by extracted cues, and finally, that sensemaking is 7) driven by plausibility rather than accuracy. In the section below, Weick's sensemaking properties are compared with Eneberg's (2011) characteristics of design summarized as collaborative, experimental and integrative.

Social and grounded in identity construction

All humans have several identities, what Mead (1934) calls a *parliament of selves*. Identities are created in interaction with other individuals. The development of a common language and social interaction are vital components to maintain the network of inter-subjective agreements of which an organization consists. Within an organization, identities are partly constructed based on how the individual experiences how others view the organization (Weick, 1995). An organization that is perceived as creative enables the

individuals to project a creative identity. Designers are mostly known for being creative, and collaboration with a designer has the potential to help individuals inside an organization, but also end users, to project an identity of creativity.

Sawhney and Prandelli (2004) claim that new knowledge is created when it iterates between being tacit and explicit, that is, between being individual and social. Explicit knowledge is, as Nonaka (2004) argues by referring to Polanyi, transferable in formal language, while tacit knowledge is difficult to formalize and communicate through words. With the help of visualization, the designer facilitates the iteration between explicit and tacit knowledge. The designer internalizes (ibid.) explicit knowledge in a kind of dialogue with the object. Externalization of knowledge occurs when the designer facilitates an integration of different stakeholders in a process with the help of visualization skills (Eneberg, 2011). Boland et al. (2008) argue that multiple models evoke emotional involvement from participants, which facilitates the process and leads to several possible alternative explanations of a problem. Further on, the collaborative characteristic of design can be exemplified by how the designer aims to integrate dissimilar, often contradictory perspectives from different stakeholders such as limitations in production, communication requirements from marketing and branding, and the needs of the end user (ibid.). Visualization tools such as prototypes or sketches are often used during a design process. Several models are developed and each model represents an alternative perspective to be tested (Boland et al., 2008). This offers a potential to expose organizational actors to different perspectives. Thus, the collaborative characteristics of design (Eneberg, 2011) would question what is taken for granted in the client organization by introducing new perspectives at the same as it would enhance an institutionalization of new shared perspectives (Selznick, 1949).

Ongoing and retrospective

Weick (1995) argues that sensemaking is an ongoing process but at the same time, the ongoing flow of action is punctuated when we focus on the past from a point beyond it. It is in these moments that meanings are crystallized in, for instance, an organization. Weick claims, by referring to Berscheid, that arousal is triggered by interruption of an ongoing activity. Arousal leads to a search for answers and to make sense of the situation. Individuals understand actions after they have taken place. Attention is always directed backwards in time and sensemaking is based on the memory of what has already happened. Hence, everything that affects the memory will influence a sensemaking process.

By moving into a fictive future, it is possible to make sense about what has not yet taken place (Weick, 1995). A focus on what has already happened leads to the problem of creating something new. Dunne and Martin argue by citing Pierce that "The process of forming an explanatory hypothesis is the only logical operation which introduces any new ideas" (2006:518). The experimental characteristic of design (Eneberg, 2011) highlights the skill of an abductive mode of thinking (Dunne and Martin, 2006; Ungaretti et al., 2009; Edeholt, 2004). Several hypotheses are often developed, each working as an argument in a dialogue with different contexts (Boland et al., 2008). In this way, several futures or as Simon expresses it, "how things ought to be" can be tested (1996: 114).

Enactment and extracted cues

As individuals we are often caught in a Cartesian anxiety and thus a mind-body dualism is created. We understand the world as stable and objective and hence are only on a quest to understand an objective and complete reality that we believe exists outside of ourselves (Weick, 1995). Another ontological perspective would be to understand the individual as co-creating the world at the same time as it creates us.

> The inquirer's relation to this situation is transactional. He shapes the situation, but in conversation with it, so that his own models and appreciations are also shaped by the situation. (…) he is in the situation that he seeks to understand. (…) he understands the situation by trying to change it, and considers the resulting changes not as a defect of experimental method but as the essence of its success (Schön, 1983: 150).

Sensemaking is often understood as the product of the process rather than the process itself. One reason is that sensemaking is instant as we use extracted cues that come from familiar structures created out of earlier sensemaking. The context of the situation is of significance since it is the context that determines what cues are to be extracted. The context also affects how we understand the situation. An event may have several meanings just as words may have several meanings depending on the context in which they are used (Weick, 1995).

During a design process, the focus is on the whole rather than on details to gain an overall understanding of different contexts relevant to the solution of a problem. The

designer searches for and matches patterns by relying on the brain's intuitive ability (Ullmark, 2007). Thinking with the hands facilitates intuition, integrating hands with thought (Eneberg, 2011; Boland et al., 2008). As mentioned earlier, Buchanan claim that design is an integrative discipline: "Designers are exploring concrete integrations of knowledge that will combine theory with practice for new productive purposes" (1995: 4). Ideas are formed at the same time as interaction takes place through the use of sketches and prototypes (Stolterman, 2007) and as reflection takes place in action (Schön, 1983).

Driven by plausibility rather than accuracy

Accuracy is not necessary in sensemaking. What is necessary is something that preserves plausibility, coherence, embodies past experience and resonates with other people (Weick, 1995).

> What is necessary in sensemaking is a good story. (…) a good story, like a workable cause map, shows patterns that may already exist in the puzzle (…) patterns that could be created anew in the interest of more order and sense in the future (Weick, 1995: 60-61).

Design is experimental in nature (Eneberg, 2011) and designers are innovators intend to be engaged in the fuzzy front phase of various development and change activities in industry and society (Hargadon and Sutton, 1997). Innovators tend to be venturesome, use multiple information sources, and have a greater propensity to take risks (Ainamo, 2009). Designing is a divergent task, in most cases leading to several contextually dependent results rather than one correct answer; the designer is constantly switching between an open and inclusive creativity and a critical review (Ullmark, 2007). Past experience is embodied in sketches and prototypes and the physical object can be used in the creation of shared stories and plausible explanations in client firms.

CONCLUSIONS

The seven properties of sensemaking have been compared with the three characteristics of design thinking to reveal similarities and differences and hence the contributions of an enabling design service. An enabling design service involves elements of learning and interaction to a greater extent than a relieving design service and thus would create a greater value since it generates new knowledge and competencies in the client firm. In contrast to relieving design services, the full potential of design is utilized in an enabling design service.

OD in contrast to design has had a history of treating deviations from an objective truth. Using a sensemaking perspective of OD moves the focus away from the search for an objective truth towards the existence of multiple perspectives. This view stresses that problems and the information used to solve them are not something that exists outside an organization but is co-created by the individuals inside the organization and the value network in which the organization participates.

Design on the other hand has had a focus on integrating dissimilar, often contradictory perspectives and contexts. The design consultant creates affordance when supporting an environment that allows the individual to perform actions and in this way facilitate the opportunity for different thought networks to merge and new competencies to be developed. In this context the design consultant would provide the client organization with a tool to enhance iteration between tacit and explicit knowledge, integrating hands with thought, and thus provide a common visual language that can facilitate intra- and inter organizational interaction.

Design education is argued to train students to become experimental and use an abductive mode of thinking with several explanatory hypothesis of the future. This could be contrasted to management education that often is characterized by an inductive or deductive mode of thinking. Since sensemaking takes place retrospectively (i.e. after an action has occurred), organizations would gain by using an abductive mode of thinking and hence the competencies of the design consultant in the OD process. By doing so, the ongoing flow of actions in the client organization is punctuated and the conditions created to present several fictional futures and contexts to be "tested" and meanings crystalized among the participants.

There is an obvious resemblance between the ontological and epistemological perspectives of organizational change theory influenced by sensemaking theory and the concept of design thinking. At the same time, they originate from dissimilar traditions and hence bring different methods and competencies to the table. In this paper some of the characteristics of design thinking have been discussed in a sensemaking context and hopefully this will contribute to the ongoing dialogue about the contribution of enabling design service in client organizations.

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Paper IV

Eneberg, M., Svengren Holm, L. (2013) Design Thinking and Organizational Development: twin concepts enabling a reintroduction of democratic values in organizational change, *Proceedings of the 10th EAD - European Academy of Design conference*, Gothenburg, Sweden

Design Thinking and Organizational Development - Twin concepts enabling a reintroduction of democratic values in organizational change?

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Abstract

Design Thinking is a rather new concept for increasing innovation capabilities in organizations. Organizational Development is a concept from the 1950s aiming at modernizing organizations through participatory methods. As organizations struggle with constant change and to become more innovative we will compare and discuss design thinking and organizational development and explore what we can learn from these concepts that have many similar aspects. Design is argued to be moving into new territories, changing its focus towards the ideas that organizes a system or environment (Buchanan, 2001). At the same time there are clear resemblances to new organizational development not the least regarding participatory methods (Eneberg, 2012). In this paper we describe the ontological and epistemological development of organizational theory, change, and development with the aim to discuss the role of design thinking as an enabling concept in the revitalization of organizational development that includes a reintroduction of democratic values in organizational change.

KEYWORDS: organizational change, organizational development, ambiguity, enabling design

Introduction

There is a struggle to ensure that Organizational Development (OD) is not considered a management fad and a historical parenthesis. Organizational Development emerged as a movement in the 1950s based on participatory methods and active involvement of employees of the organization. It was envisioned that OD would democratize life in organizations (Greiner and Cummings, 2005). This would be achieved by implementing changes through action and empowerment, which in turn would lead to economic return in the organizations applying it (Werkman, 2010; Marshak and Grant, 2008; Bradford and Burke, 2005). OD diminished in importance in the 1980s and 1990s when change management, which proposed change that was planned and led by top management, grew in popularity (Argyris, 2005). New knowledge was to be implemented in organizations rather than co-created. Today several researchers (see for instance Clegg, 2005; Bradford and Burke, 2005; Marshak and Grant, 2008) mean that a new OD, still based on its basic principles of democracy and empowerment, could provide a valuable concept for the need of today's companies.

Design thinking has become a popular concept in recent years not the least in business press (Carmel-Gilfilen and Portillo, 2010; Martin, 2010; Leavy, 2010; Ungaretti et al., 2009; Brown, 2008; Boland et al., 2008). One reason for the increased interest in design thinking may be that it is argued to be a powerful force for innovation (Verganti, 2009; Cooper and Press, 2001; Bruce and Bessant, 2002). As organizations struggle with constant change and a need to become more innovative it would be valuable to compare the two concepts and discuss whether both design thinking and organization development could support democratic values and an innovative development of companies facing new challenges.

Design is argued to move into territories focusing on the idea that organizes a system or environment (Buchanan, 2001) and has certain resemblances with organization development. At the same time, design thinking, just as organizational development is at risk to disappear as one among other management fads (Johansson and Woodilla, 2010). Design thinking is an ambiguous concept that can be used with different meanings and in different contexts. In this paper it is defined as a human cantered approach to problem solving that is erasing the distinction between thinking and action (Kimbell, 2011). The focus in this paper, which is based on a literature study, is on the characteristics of design thinking and how it can be used as an organizational "resource" in the context of organizational development. The purpose is to discuss theories and historical development of organizational change and development. An initial discussion is presented on design as an enabling concept and how this can be part of the revitalization of OD as a concept with aspirations to democratize organizations. The arguments presented in this paper are currently being explored in an empirical study.

Organization theories

Organization theories embrace different perspectives based on diverse epistemological and ontological assumptions. Hence, the phenomenon we call "organization" or "the process of organizing" is understood and explained in different ways. Hatch (2006) divides organizational theory into *modernist, symbolic interpretivist* and *post-modernist perspectives*. This categorization should, of course, not be understood as an evolutionary process where different theories replace each other; instead, these perspectives coexist in different contexts and combinations.

Modernist organizational theories consider the organizational environment as something that exists outside the boundaries of the organization, providing it with input such as resources and absorbing outputs such as products (Hatch, 2006). Nonaka (2004) argues that this leads to a view of organizations as closed systems that process information and solves problems in a simple input-process-output sequence. Based on these assumptions, uncertainty is solved by increasing the amount of information about an objective reality that exists inside the organization but most importantly, outside the boundaries of the organization. Rittel and Webber (1973) argue that system analysts of the modernist era diagnostically tried to discover the true nature and hidden character of a problem and then eliminate the roots that cause the problem.

Nonaka (2004) claims that individuals in an organization – and thus organizations – are co-creators of not only the information that is used in problem solving but also the problems that are to be solved. Hence, the information is not out there to be found but the reality of a situation is the result of a negotiation among several perspectives of the participating actors. The symbolic interpretivist epistemology behind this assumption, in contrast to modernism, considers the environment as socially constructed (Hatch, 2006). According to a symbolic interpretivist environmental analysis and institutional theory, organizations adapt and conform both to the values in the internal group as well as the values in the external environment.

Weick (1995) on the other hand means that there are no organizations just organizing. With this claim, he questions the notion of a stable organization that is to be managed from top-down and argues that organizations are under constant change because organizational actors enact, co-create and recreate the organization. In the interpretivist view there is a distinction between "uncertainty" and "ambiguity". Uncertainty derives from a state of limited knowledge and can partly be solved by a search for more information. Ambiguity cannot be solved by collecting additional information but requires an understanding that multiple interpretations exist simultaneously (Ford and Ogilve, 1996:54).

In a post-modernist perspective, the grand narratives and myths of modernism, such as constant growth and the existence of universal truths are questioned. Through a deconstruction of the organizational reality that is co-created by participating organizational members, power aspects are revealed and in this way radical change is possible (Hatch, 2006).

Organizational change

Managing change is one of the core tasks of leaders. Organizational change, as a subfield to organizational theory, shifts attention from theories about stable organizations towards those of dynamic organizations with theories focused on practice and reflection through action (Hatch, 2006).

Two of the most prominent theories in the field of organizational change are Lewin's model for change through *unfreezing – movement – refreezing* and Weber's theory of *routinization of charisma* (in Hatch, 2006). Both theories have been of importance for more recent theories in the field. The theory of change as proposed by Lewin (1946) aims at balancing forces driving and restraining change. During the *unfreezing* phase, existing behavioral patterns of organizations are destabilized to overcome resistance to change. The *movement* phase influences the direction of change. The final *refreezing* phase institutionalizes new behavioral patterns. Hatch (2006) states that in Weber's theory of routinization of charisma, the leader has a prominent role in introducing new ideas. Leadership is linked to what could be referred to as almost supernatural powers that the average employee does not hold. The ideas that are introduced by the leader are connected to the power structures that exist in the organization through a negotiation about how to interpret and implement them. In this way cultural changes are routinized (ibid.). Weber and Lewin do not necessarily imply that new knowledge is out there to find in the search for a universal truth. At the same time, there is a risk with a positivistic perspective of perceiving individuals as passive receivers that are to be changed rather than as interpreters of new situations and co-creators of new knowledge.

In the 1950s new group-based methods of learning and change were introduced in a movement called "organizational development" (OD) (Greiner and Cummings, 2005). The movement was influenced by Levin's participative methods and by Maslow who argued for the potential of individuals to pursue self-actualization (ibid.). Classical OD has been criticized for its positivistic social science methodology and epistemology (Marshak and Grant, 2008). Rittel and Webber (1973:158) mean that the dominant idea during modernism was efficiency seen 'as conditions in which a specified task could be performed with low inputs of resources.' This idea has 'been guiding the concept of civil engineering, the scientific management movement, much of contemporary operations research; and it still pervades modern government and industry.' The notion in classical OD was that change is episodic and can be created and planned by collecting and applying valid, often quantitative data. At the same time OD introduced democratic aspects with the assumption that change cannot be successfully identified without the involvement of organizational actors on all levels. OD was very much based on the values and language of humanism and social psychology (Bradford and Burke, 2005).

In the 1980s and 1990s management consultants expanded their practices offering standardized business process reengineering services and OD partly lost importance as organizational change concept (Harvey, 2005). "Change management" is planned action led by managers who often use consultants as agents (Marshak, 2005) and view that new knowledge should be implemented

through a controlled process. The values and language of change management are very much based on the language of business with the aim to increase efficiency (Bradford and Burke, 2005). From an OD perspective change management is incomplete in the sense that it is impossible to engineer change in a situation and environment characterized by complexity without involving organizational actors as active participants (Harvey, 2005).

Hatch (2006) uses a matrix to describe the relation between information, complexity and rate of change in an organization environment (see figure 1 below). According to the model there is a correspondence between the rate of change and amount of information needed. In a situation of high complexity, the model claims that organizations face an overload of information and in combination with a high rate of change, it is problematic to define what information is needed. One interpretation is that high complexity is connected to ambiguity rather than uncertainty (Ford and Ogilve, 1996), which in turn can imply that several interpretations of a situation are possible. This conclusion would suggest the need to have an interpretive perspective in solving complex situations.

Figure 1: Links between conditions of complexity and rate of change in the perceived environment and need for information (Hatch, 2006:79)

		Rate of change: *Low*	Rate of change: *High*
Complexity	*Low*	Needed information is known and available	Constant need for new information
Complexity	*High*	Information overload	Not known what information is needed

The revitalization of organizational development

Today several scholars call for a reinvention of organizational development and reintroducing humanistic values into organizational change (Clegg, 2005; Bradford and Burke, 2005; Marshak and Grant, 2008). As a field, OD is undergoing a change in its ontological view and the methodologies used (Bradford and Burke, 2005; Marshak and Grant, 2008; Ford and Ogilvie, 1996). The claim by for instance Bradford and Burke (2005) is that through OD opportunities for learning and development are created in the organization by pursuing collaboration rather than imposing change which means that those affected by the change process should be involved in designing and implementing it (Bradford and Burke, 2005).

Action based methods

Action based methods has always been an important part of OD. Ford and Ogilve (1996) claim that ambiguous environments require interpretation and trial-and-error enactment processes. They have an action-based perspective with the view that 'understanding does not lead to action, but rather action leads to understanding' (Ford and Ogilve, 1996:54). This notion is consistent with the claim by Weick (1995) that sensemaking always is preceded by action.

Interaction

In "new" OD, (inter)action and facilitation of a sensemaking process (Weick, 1995) are at the very centre of attention (Marshak and Grant, 2008; Werkman, 2010). Part of the change in OD is the acknowledgement that multiple realities can exist simultaneously among different organizational actors. New knowledge and change is co-created in inter(action) as organizational actors negotiate different perspectives on organizational reality. This perspective is in line with Dewey's (1929) view of the internal and external world as something that is not complete but created through the mediation of intentional operations. Ford and Ogilve (1996) argue that a systems-structural view has been the dominant paradigm underlying organizational analyses; instead, they call for an interpretive epistemology (see their comparison in Table 1 below).

Table 1. Organizational learning outcomes resulting from systems-structural and interpretivist epistemologies (Ford and Ogilve, 1996:59).

	System Structural View	**Interpretive View**
Action	Outcomes of routines sanctioned by system-structural assumptions.	Outcomes of creative actions sanctioned by interpretivist assumptions.
Knowledge acquisition	Attempts to reduce uncertainty produce internally directed performance that monitors routines undertaken by specialists.	Attempts to create meaning from ambiguous environments result in externally directed creative actions undertaken throughout the organization.
Information distribution	Rigorous analyses produced by specialists are distributed primarily within functional hierarchies.	Lessons from experience are distributed horizontally within and across the project or service teams as they attempt to develop creative associations.
Information interpretation	The sanctioned organizational frame guides linear and rule bound interpretations.	Multiple frames lead to recursive and informal interpretive processes that help produce creative insights.
Organizational memory	Lessons from experience reinforce sanctioned interpretations and current routines.	Lessons from experience produce diverse information and perspectives that can be utilized to support multiple interpretations and creative actions.

Rittel and Webber (1973) argue in their analysis of wicked problems of social policy, which also can be applied to OD, that:

> *The systems-approach "of the first generation" is inadequate for dealing with wicked-problems. Approaches of the "second generation" should be based on a model of planning as an argumentative process in the*

course of which an image of the problem and of the solution emerges gradually among the participants (Rittel and Webber, 1973:162).

An open actor framework is necessary to understand all sorts of connections between stakeholders in value creation (Petrella, 2005). The actors in a value network impose their interpretive framework on the organization as they enact their interpretations on the organization. An interpretive perspective has an explicit focus on the different actors as active agents (Weick, 1995), and the patterns of sensemaking that take place on an individual level and on intra- and inter-organizational levels.

Creative action

As the organizational environment is under constant change, creative actions that facilitate development and learning are necessary to provide variation and to enact shifting aspects of the environment (Ford and Ogilve, 1996). Without creative actions experience only occurs from unexpected external events, which makes the organization reactive. Actions that include an ability to imagine multiple perspectives and interpretations of an ambiguous environment are highly valued. This is due to a need to increase the ability to quickly redirect efforts when feedback from actions indicates that a different interpretation is needed (ibid.).

We are in an interesting situation. We live in a world where organizations are struggling as never before to make change. (…) Meanwhile we have a discipline supposedly centred on the issue of how to make change, and we seem to have little influence. Something is wrong. Quinn (1996:4)

This quote from Quinn, describing the development of organizations, might as well have been a quote from an industrial design consultancy today.

Enabling design

Buchanan (2001) argues that design thinking can be applied to different problems and that design itself is expanding its meaning. Some scholars claim that the primary role of designers is that of being a strategic resource of knowledge that rather proposes new ideas and stimuli than works with style and form (see for instance Delléra et al., 2008), and that the aesthetic perspective is no longer as obvious as it used to be (Ullmark, 2007). It is also argued that companies would gain from applying design thinking to management problems (Dunne and Martin, 2006; Boland et al., 2008; Ungaretti et al., 2009). This leads us to an interesting question regarding what is the basic epistemology that design thinking brings to the table? In a previous study design thinking was summarized as integrative, collaborative and experimental (Eneberg, 2011).

Integrative

Practice and thinking, two aspects of knowledge creation discussed by countless researchers. Dewey (1929) argues that knowledge is created through what he calls experimental thinking.

Experimental thinking is based on interaction and on integrating practice and theory directed towards new knowledge and change. The relation between thinking and practice is discussed among others by Schön (1983). He argues that individuals understand a situation by trying to change it and that actual reflection takes place in action. A central premise in Scion's theory about the reflective practitioner is the concept of "tacit knowledge" introduced by Polyani (1966), who states that we as individuals know more than we can tell. Tacit knowledge becomes explicit through action in practice. The practitioner becomes aware of the variety of available frames that (s)he places on reality through action (Kinsella, 2007) and hence reflection can take place. What Dewey, Schön and Polyani do is to propose an embodied dimension on reflection and criticize the Cartesian myth of a dualism between mind and body: The body, things and events belong to the visible external world while the mind is internal. This perspective leads to an assumption that intellectual operations always take place in our minds prior to action. The result of this can be seen in scientific management where labour is divided into hands and thought.

Designers are claimed to integrate hands with thought or as Buchanan (1995:6) expresses it, *'Designers, are exploring concrete integrations of knowledge that will combine theory with practice for new productive purposes.'* Intuition occurs when thinking with the hands (Boland et al., 2008). As action takes place, ideas can be shaped with the use of sketches, prototypes and other visual artefacts. Design education is in most cases taught in action, that is, by doing (Rylander; 2009, Dunne and Martin, 2006).

Collaborative

According to sensemaking theory, the individual forms the environment and the environment with its different stakeholders forms the individual. Individuals make sense of experiences through on-going inter- and intra-personal dialogues and enact their perspectives in the environment (Weick, 1995).

The concept of affordance, as proposed by Normann (2002), refers to the perceived properties of an artifact where the artifact acts as an intermediary between a sender and a receiver. Creating an environment that allows individuals to perform actions help different thought networks to merge and thus, new knowledge can emerge. The ability to facilitate an interaction between different stakeholders is a necessity to generate new solutions. Different, often contradictory perspectives are integrated during the design process such as limitations in production with the communication requirements from marketing and branding as well as the needs of the end user. Designers have the visualization skills that can promote a negotiation of perspectives among different stakeholders and actors in the organizational environment.

Experimental

Design is described as an abductive mode of thinking (Dunne and Martin, 2006; Ungaretti et al., 2009; Edeholt, 2004). This mode of thinking aims at finding possible explanations or hypotheses. Abduction is argued to be the logic of what might be or as Pierce expresses it (1905 in Dunne and Martin, 2006:518):

> "the process of forming an explanatory hypothesis. It is the only logical operation which introduces any new ideas."

Lawson (2006) argue that designers are experimental often using a thought style called "adventurous thinking". Adventurous thinking is characterized by putting elements together that normally are not related. Further on it is claimed that the designer is constantly switching between an open and inclusive creativity and a critical review of various solutions and matching patterns by relying on an intuitive ability (Ullmark, 2007).

The challenge for organizations is to create conditions for a creative environment, inter-action and meaning creation since organizations constantly struggle to become more innovative. The designer seems to have competencies that can enhance this process.

Discussion

The positivistic epistemology and methodology of classical OD is aimed at implementing objective knowledge often deriving from quantitative methods. It is based on positivistic social science, which has focused on episodic change inside a stable organization. At the same time, the OD movement introduced a democratic aspiration to involve organizational actors on all levels of the organization. The OD movement was more or less replaced with change management in the 1980s and 1990s. Change management was more focused on implementing change derived and steered from top management.

Neither design nor more recent directions in OD deal with finding an objective knowledge that is to be implemented in an organization. New OD regards change as an on-going process that takes place in complex organizational environments. Through a negotiation of different stakeholder perspectives, new knowledge is created. It is with an interpretative perspective on OD that design serves as an enabling concept can be of use in the revitalization of OD by reintroducing democratic values into organizational change.

Experimental thinking as proposed by Dewey integrates practice with theory, and hands with thoughts, thus an embodied dimension on reflection through action. With the use of visualization skills, the designer creates action not only to take advantage of the intuitive ability that occurs when thinking with the hands but also to make tacit knowledge explicit. As knowledge becomes explicit, interaction between actors in a value-creating network can take place.

Not only organizations but also whole value creating networks are under constant change and to talk about organizations is rather useless as it would be more relevant to talk about the process of organizing. Using the concept organizing rather than organization highlights the process of constant change and how knowledge is co-create in inter(action) between active agents. This process can rather be categorized by ambiguity than uncertainty and hence it is not enough to increase the amount of information. Instead of using uncertainty to characterize the situation of an organizing process, ambiguity is better as a term as it demands a higher level of interaction and

a participative style of organizing. Design is claimed to be a planning activity that is dictated by commercial and political interests (Thackara, 1988). In this sense it is important for designers to uncover and understand power structures and what is acceptable to say, and by whom, to be able to succeed with their service. Design often resolves contradictions between different perspectives, shifting the focus from action to interaction. In highlighting relational aspects and different perspectives it is possible to dissolve the boundaries of the organization but also between different subgroups in the organization to let different "thought" networks meet. Organizational environments that are categorized as ambiguous call for an interpretive perspective where the designer can be seen as one of several active agents facilitating an intra- and inter-personal dialogue and a negotiation process. Affordance created in this way is facilitating development and learning through the enabling design service. Collaboration and co-creation can thus take place rather than change being imposed.

To confront the wicked problems organizations are facing and the ever-increasing need to be innovative, there is a need for trial-and-error rather than finding the one and only solution. Designers are claimed to have an abductive mode of thinking, aimed at finding several alternative hypotheses or explanations. Creative action can be developed as experiences are distributed both intra- and inter-organizationally. When individuals, as active agents, enact their interpretation of the organizational environment, multiple frames can meet and several new alternative paths of a possible future can be generated.

Conclusions

Organizational environments are increasingly complex with rapid change resulting in a need to become more innovative. Complex organizational environments can be categorized by ambiguity rather than uncertainty and hence there is a need for an interpretive framework. This paper proposes that an enabling design service can contribute in creating the conditions for such an interpretive framework. The meaning of design is expanding and is applied today to what was traditionally viewed as management problems. The revitalization of organizational development and the reintroduction of democratic values in organizational change seem to benefit from the integrative, cooperative and experimental competencies held by designers.

	Change management	Interpretive organizational development	Design thinking
Action	Dualism between mind and hand, thinking and action. Scientific management dividing labor into employees working with their hands vs. minds. Collect and add often-quantitative data as information to get rid of uncertainty.	Sensemaking is preceded by action and reflection takes place through action. Action lead to understanding rather than understanding lead to action.	Integrative - Integrate hands with thought and thus erase a mind and body dualism. An embodied dimension on problem solving.
Interaction	Employees as passive receivers of information subjected to change.	Ambiguity requires an understanding that multiple interpretations and perspectives exist simultaneously. Applying participatory methods enabling co-creation of knowledge.	Cooperative - Different, often contradictory, perspectives are integrated during the design process. With the help of visualization methods promote a negotiation of perspectives. Through visualization tools as artifacts and sketches as intermediaries create affordance between sender and receiver in a dialogue.
Change	Implementation of planned, episodic change	Ambiguity based on high complexity. The individual forms the environment as the environment with its different stakeholders forms the individual. Constant change through inter- and intra-personal dialogues.	New organizational frames can be created through participatory methods. Workshops where different active agents have the possibility to share their interpretations of a certain situation or problem enables a sensemaking process and changes in perspectives to take place both on an organizational and individual level.
Creativity	Closed system with input-process-output sequence. Collecting information that is followed by an analysis produced by specialists and finally implemented in organization.	Dynamic organizations enabling trial and error enactment processes leading to knowledge creation and development. Creative association and action as multiple frames and hence interpretations is undertaken.	Organizations are facing an ever-increasing need to be innovative and to solve wicked problems in an ambiguous environment. The design process is often leading to problem re-definition and several contextual dependent solutions. Design thinking is argued to be experimental switching between an open inclusive creativity and a critical review of various solutions and putting elements that normally are not related.
Change agents POWER	Top management together with consultant as main agents of change.	Several internal and external stakeholders that all are active agents of change. Aiming at democratizing organizational life, which in turn can lead to development and innovative organizations.	The design process is depending on a collaborative approach Different perspectives can be utilized to support knowledge creation and development. At the same time there is a risk of making designer the main agent of change in the current discussion about design thinking.

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Eneberg, M., Odenrick, P. Space and Place for Learning: Design competencies in shared activities with small and medium sized enterprises. (Submitted to scientific journal.)

Paper V

Eneberg, M., Odenrick, P., Space and Place for Learning: Design competencies in shared activities with small and medium sized enterprises. (Submitted to scientific journal.)

Space and Place for Learning
Design competencies in shared activities with small and medium sized enterprises

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Magnus Eneberg holds a Licentiate of Philosophy with a specialization in design management and an MSc in organization and management. At the time that this study was conducted, he was a PhD candidate at the Department of Design Sciences at Lund University and a lecturer at the University College of Arts, Crafts, and Design, Stockholm. His publications cover research areas such as design as an enabling concept, organizational theory, organizational learning, design management, and innovation.

Per Odenrick is a professor of working environment technology at the Department of Design Sciences, Lund University, Sweden. In his research, he focuses on action research and change processes in working life. His publications cover learning processes at workplaces, innovation capabilities, participation, and leadership.

Purpose – The paper expands our understanding of how enabling design services can contribute to organizational learning and strategic development in small and medium sized enterprises (SMEs).

Design/methodology/approach – The paper presents a study of an annual project in which design students are commissioned to work in joint activities with small and medium sized companies. The study spanned a period of two years and consisted of semi-structured interviews and observations. An action research inspired approach was applied to influence the activities and to observe potential changes. The data collected consisted of transcribed interviews and notes from watching videotapes. The data were coded and analysed in an iterative process.

Findings and practical implications – Introducing customer organizations, and specifically their decision makers, to design methods and processes early in the activity provides the designers with an opportunity to deliberate on the enabling services they are offering. By establishing long-term relationships between a company and the designers, and by commissioning them to carry out implementing activities enables the knowledge that is co-created to become part of small sized companies. Learning is created in the movement between the internal and external. Changing perspectives and media, such as mediating artifacts, enables opportunities for learning and change. Mediating artifacts such as prototypes and mood boards can also simplify and clarify complex problems. The study provides examples of design activities motivated by strengthening a *place*, such as a company or discipline, or introducing the individual to a *place*, which is a process of "*becoming*" and of identity co-creation. The shared activities also had the purpose of creating *space* for some kind of transformation such as organizational learning and change. The study presents examples of an outcome that can be characterized as organizational learning and strategic development.

Originality/value – The paper adds to previous research in the field of design management about the contribution of design on a system level. It is also argued that collaboration and conditions for learning can be enhanced if design practitioners apply the activity theoretical model presented to share activities with customer firms and other stakeholders in a value-creating network.

Keywords: Organizational learning and change; Activity theory; Enabling design services; Small and medium sized enterprises.

Article Classification: Research paper

Introduction

In an increasingly ambiguous and competitive environment, small and medium sized enterprises (SMEs) need to create conditions for continuous learning to be able to respond creatively to new situations. Reactive behavior to innovation is more common than proactive behavior in SMEs (Lindman, 2002). The meaning of design is expanding and is applied today to what was traditionally viewed as management problems. This is important in ambiguous environments since the methods and processes are argued to enhance interpretation, sensemaking (Weick, 1995), and collaboration between multiple stakeholders (Bruce and Bessant, 2002; Gay and Hembrook, 2004; Valtonen, 2007; Verganti, 2009; von Stamm, 2010; Jahnke, 2013). An enabling design service can assist in performing a task in a different and possibly better way by questioning current organizational frames; hence, it contains an element of learning.

SMEs that have a history of working strategically with design are more innovative, export more and are not forced to compete as much with price (Nielsén, 2004; 2008). The same studies indicate that smaller sized companies have less experience of working with design and less understanding of how design can contribute to their business than larger companies.

This paper emphasizes design as an activity. Its purpose is to expand our understanding of how design methods and processes can contribute to learning and change in SMEs. Shared activities between designers and participants from SMEs were investigated. Organizational learning theories with an embodied and encultured view of knowledge are discussed with references to the concepts of *space* and *place* and design as an enabling service.

Design services that enable organizational learning

De Certeau (1984) describes the dialectic relationship between temporary stability and change using the concepts of *place* and *space*. The *place* we surround ourselves with and participate in carries established meanings and values that organize our world. *Space*, on the other hand, is connected to human agency, action and change (de Certeau, 1984, 1984; Tuan, 2011). Organizations are adaptive inter-subjective forms that can be characterized as tension systems with a dominant tension between innovation and control (Weick, 1995).

Argyris (1976) divides learning into two categories: single- and double-loop. Our frames of references are questioned in double-loop learning. Single-loop learning, however, only permits a limited adaption to the environment surrounding the organization, provided its prevailing goals and governing values are not questioned; *place* is hence protected. Knowledge is embodied (Blackler 2004) in a certain *place*, which can be a company or even an individual. Situated learning theory (Wenger, 2000) describes how learning is situated in a community of practice (COP). Ideas and practices are institutionalized through the development of shared tools, symbols, stories and routines. This takes place between the defined competencies of a COP and the experiences of the individuals. The focal point is becoming a practitioner rather than learning about practice (Hall-Andersen and Broberg, 2014). Huzzard (2004) argues that the shortcoming in situated learning theory is its narrow focus on routine labor processes and the mastery of a certain task.

Tuan (2011) exemplifies how physical space is experienced with his example of how movement, when we perform action such as kick our legs creates a sense of direction. This can be compared with the functions of action and goals, as proposed in activity theory (Engeström, 1987). The aim of activity theory is to understand how individuals construe consciousness through action (Kaptelinin and Nardi, 2006), that is, how they create space for change.

Enabling design services have the potential to enhance collaboration and communication. Joint action in workshops and the use of mood boards and prototypes (Lawson, 2006) can contribute to making boundaries in organizational frames visible. Values, norms, and perspectives are confronted and may be questioned and exposed to resistance and change. The designer searches for and matches patterns by relying on the brain's intuitive ability, combining elements that previously were unrelated (Lawson, 2006). The process is exploratory, as it moves between open and inclusive creativity and a critical perspective of different solutions (Ullmark, 2007). The outcome of the process is several solutions that function as arguments in a dialogue with different, often contradictory contexts and perspectives relevant to the solutions or explanations of a situation.

Actions are characterized by ambiguity and have the potential to transform our interpretations of situations. Learning is not just about what we know, but also relates to how we can know. Over the course of our lives, we undergo changes in epistemological terms (Kegan, 2009). We struggle to "*become*" (Bernstein, 1971) and in this process whole clusters of schemes and patterns may be restructured . An individual's understanding can be described as a thought network: "*Cognitive structures, open to change through the questions the individual poses, and as a result of the actions involved*" (Döös, 2007, p. 146). Human agency can be defined as the need and ability to act and that actions are directed toward an object[1] which is motivated by the needs and desires of individuals (Kaptelinin and Nardi, 2006).

Learning is understood as a continuous process in an encultured perspective on knowledge (Blackler 2004). Experiential learning involves the formation of ideas through experience as we interact with the environment (Kolb, 1984). Change processes take place in an alternation between routines and explorative actions. What is suggested is a switch from learning through exploitation to learning through exploration (March, 1991). Exploitation refers to a learning process to refine and extend existing knowledge in an organization. Exploration refers to a learning process to discover and acquire new knowledge and skills and hence challenges the existing way of "mastery over a particular task" (Huzzard, 2004, p. 353). A fundamental idea behind both transformative and expansive learning is the focus on and need of a diversity of perspectives (Engeström, 1987; Kegan, 2009). According to expansive learning it is in the tension between perspectives and contradictions that lead to re- and co-construction of a new, shared object. It is the result of participation, interpretation and negotiation in shared activities and leads to expansive learning. To be able to understand how actions lead to change, it is essential to recognize organizational learning as an activity that is affected by structures, history, and cultures. An activity theoretical model consists of a number of entities such as mediating artifacts and rules (Engeström, 1987). As a network of activity systems meet in a shared activity, the participants introduce both tangible and intangible entities and how these are to be applied and interpreted. Activities are in this way always exposed to contradictions, negotiation, and possible transformation. A fundamental idea behind transformative and expansive learning and organizational development (OD) is the focus on the diversity of perspectives instead of the use of authority and coercion in a learning process OD (Engeström, 1987; Kegan, 2009; Marshak and Grant, 2008; Werkman, 2010). Gay and Hembrook (2004, p. 9) suggest that design methods and processes may enable interaction in a network of activity systems:

> *Systems do not exist in a vacuum but rather are situated in a broader context of networks of interacting systems. Design questions and practices revolve around the interactions and interdependence of these nested environments. These interactions and their interrelatedness constitute the complexities of design.*

The theory of expansive learning (Engeström, 1987), which is based on an activity theoretical framework, highlights the need to study the local discursive construction of the knowledge creation of shared objects. The entities of the activity theoretical model are: subject, object, community, rules, mediating artifacts, and division of labor (Figure 1).

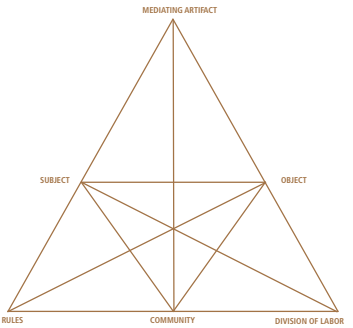

Figure 1: Activity theoretical model, based on Engeström

[1] An object is according to an activity theoretical context "the 'raw material' or 'problem space' at which the activity is directed." (Kaptelinin, 2005, p. 10) An object is both a projection of the subject on the external world and the projection of the external world on the subject (Kaptelinin, 2005). An object can be a material thing or intangible as a common idea as long as the object can be shared and transformed (Virkkunen and Kuutti, 2000).

In an activity theoretical framework, an object is considered to be object-oriented. (Engeström, 1987; Kaptelinin, 2005). Virkkunen and Kuutti (2000, p. 298) express it as follows.

> *The subject does not perceive the given thing or process as such, but as a culturally determined object of activity, as material for producing something, as a specific problem to be solved, etc.*

An object is constantly negotiated and reconstructed. Rules regulate activities, and functioning both as a divisive entity and as the glue between subjects and community. The rules can be implicit or explicit, defined as laws, routines, and/or guidelines. Consultant imposing their knowledge on an organization without creating shared rules can lead to failure. This was the case in a study by Räisänen and Löwstedt (2014). The practitioners started to question the legitimacy of the consultants and their competencies to understand the industry in which the organization was operating. The division of labor builds on formal and informal hierarchical structures in a community. The subjects are assigned a task and take a certain role; they contribute to the joint effort to reaching a certain outcome. The human mind and the culture we live in are intrinsically related and shaped by activities that are based on the needs, desires, and intentions of the subject. A community consists of subjects from several activity systems and can be characterized by instability, contradictions, and conflicting values and norms. In this sense, barriers between different activity systems may affect the interaction within an activity via the subject. Similarly, the differences may lead to change and innovation.

As individuals we do not only create abstract *places* in our minds (Tuan, 2011), we also embody our feelings and thoughts in tangible forms such as mediating artifacts. Knowledge is iterated between being externalized (i.e., made visible to others), and internalized from the external environment (Nonaka et al., 2000). The use of mediating artifacts such as prototypes has the potential to integrate physical action and thought (Boland et al., 2008; Schön, 1983) and hence creates affordance (Gibson, 1969). Affordance is the invitational qualities of an activity that determine how individuals are invited to participate and secure the guidance that will assist them to learn tasks that they would not otherwise learn on their own (Billet, 2010). However even if management aims to create a mind-set in the organization that all employees should contribute to innovation, this is rather limited in stimulating explorative activities and systematically making use of diversity in competence and skills (Nilsson et al., 2014).

Coughlan (2007) argues that shifting from abstract ideas and plans toward concrete, tangible artifacts enhance organizational learning and development. When the knowledge is embodied in mediating artifacts, it can more easily be communicated, shared, and manipulated (Osterwalder et al, 2005). The use of physical artifacts—such as prototypes and mood boards—is also suggested to accelerate learning and reduce the costs associated with failure (Coughlan et al., 2007).

Case description and method

This paper reports on a study that took place in 2010 and 2011. The focus was on an annual activity called the "*Summer Design Office*" (SDO).[2] The organizer arranged for us to meet with a local SDO and study the organizations involved that were in line with the purposes of the study. The respondents and customer organizations are presented in Table 1.

[2] The SDO is an activity that has taken place annually throughout Sweden since 2001. It is organized by SVID, the Swedish Industrial Design Foundation. SVID collaborates with a number of its local offices. Each office has a local project manager and an experienced designer who is the instructor. The majority of participating clients' organizations are local small and medium-size enterprises that pay a fee to be part of the seven-week activity. University students, who in this case were all designers, work with concept-oriented assignments and receive a monthly salary and free accommodation. The SDO provides the students with work experience and disseminates knowledge about design and its potential as a tool for innovation and development. See more at: http://www.svid.se/en/About-SVID/What-we-do/Summer-Design-Office/

Table 1: Participants in the local SDO. Companies A, B and C were active in year one of the study (2010), and D and E in year two (2011).

Company	Offering	Respondent participating in the SDO		Background of respondent
Company A	Tourism – An umbrella organization with four partners.	CEO – A		Business administration and human relations management
Company B	Braille printing – five active owners and five employees.	CEO – BC		Quality management
		Employee – BE		Responsible for graphical design and webpage. No formal education in the area.
Company C	Design and production of bathroom fittings – 12 employees.	CEO – C		Engineering, internal management education in multinational corporation.
Company D	Distribution and installation of windows – four active owners.	CEO – D		No formal education. Owner of a grocery store and apartment building.
Company E	Lipid chemistry – five owners, one active.	CEO – E		Chemical engineer.
Design students	Design services.	Design students	Two design students working with each customer organization.	Graphical, interaction and industrial design
Municipality		Organizer of the local SDO.	Project manager for design and development	Industrial design
			Project manager local SDO	Industrial design

In year one, four respondents from three customer firms participated, and six students divided into three groups. In year two, two respondents from two customer firms were interviewed before and after the SDO, the project manager and two student groups with four respondents after the SDO ended. All interviews had a semi-structured format with a character of a dialogue. However a structured section was added in the initial interviews with customer companies. The companies were asked to rate a number of statements about design and designers on a scale between one (strongly disagree) and five (strongly agree). Student interviews were in the form of minor focus group discussions in which they shared their reflections in a dialogue with each other. An action research inspired approach was applied to influence the development of the process between the two years (Sunding and Odenrick, 2010). The project management team in the local SDO was given suggestions for how to alter the process. The suggestions were based on learning theory and an initial analysis of the data from interviews and observations, conducted after the first year. All interviews were taped and transcribed. The observations were videotaped and analyzed at a later stage. The study design is described in Figure 2.

The data collected consisted of transcribed interviews and notes resulting from watching videotapes. The data was coded, and each code was connected to quotes from the respondents and

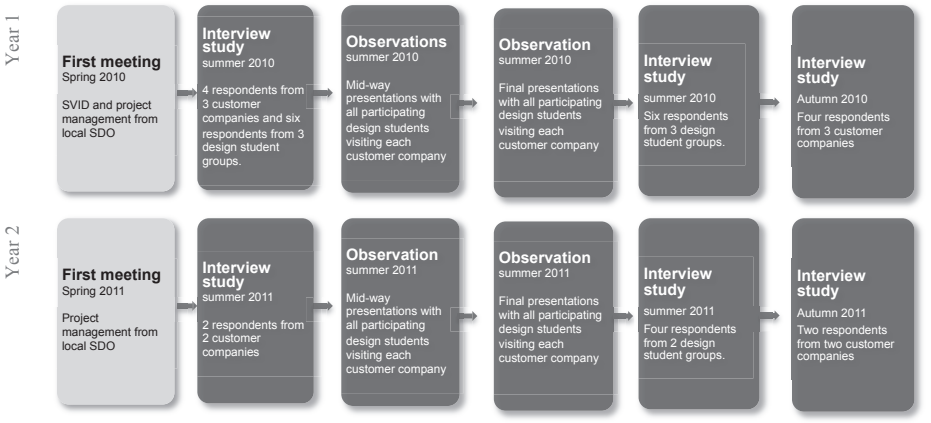

Figure 2. A chronological picture of how the study emerged.

saved in Excel spread sheets. This made it possible to compare the different activities that took place in the companies by analyzing one code at a time. It was also possible to compare how the coded quotations were interconnected for each separate activity. The entities of the activities were analyzed with regard to their usage in creating *space* for learning and development. Then they were analyzed from the perspective of how they were used to strengthen a *place*, such as a company, and introducing subjects into a *place,* such as a discipline or company. The data was chronologically divided so as to enable a narrative analysis (Aspers, 2011), which allowed an analysis of changes in how the respondents experienced and interpreted the activity before, during, and after it occurred.

Results

The initial object for each company was defined in a written brief, which was authored by the companies in collaboration with the SDO local office project management. The design students were not involved at this stage. All of the student groups expressed a desire to regard the brief as a starting point, which would be altered during the activity. The brief differed in several cases from what was expressed during our initial interviews with customer companies, such as a desire to learn through active involvement and perform actions together with the design students.

All of the companies regarded designers as being creative and a fundamental part of a product development process. During the initial interviews, respondents C and E also stated that they viewed designers as being rather vague and emotion-driven. All of the student groups expressed concerns that they would not be given space for exploration during the activity, based on preconceived notions in the companies and that the companies used processes which differed from the students' way of working. The students argued that involving the companies early in the process, and in that way introducing them to design methods and processes, would resolve these issues. However, customer firm respondents expressed a similar sentiment about creating space for exploration. Respondent A argued that she often explored different opportunities for business, stating that, "*I am never out of ideas*". Respondent D stated that he did not want the students to be limited by too many rules. Respondent E claimed he was accustomed to experimenting in his work as a chemical engineer and saw a problem with processes that were too highly structured. It is noteworthy that the students who worked with company E continuously visualized several possible objects with the activity. They called the visualization a "*map*" and used it together with respondent E to discuss how to proceed in the activity. This opened up for negotiation and dialogue around a common object.

Company B has a strong focus on measuring time and expenses against revenue for all projects. Respondent BE rated the statements that *"design is time consuming"* and *"associated with high risk*" higher (strongly agree) than the other companies. During the final interview, respondent BC argued that the outcome was far from what she expected, and referred to the brief as something to be strictly followed or renegotiated.

> *We gave them a brief […] we should have received something back immediately. […] How will you do this? How many hours will it take? What is the cost? [...] Then you have something to work from.*

During the mid-way presentation, respondent BC asked the students how they, as professional designers, perceived the logotype. The students stated that it looked "*a little homemade"*. It should be noted is that respondent BE, who participated in the presentation, was responsible for the original design of the logotype. Respondent BE was dissatisfied with the outcome of the activity, stating that the students did not listen to her and that she was not allowed to participate to the extent that she wished. She claimed that it was difficult to comprehend the changes that the students made between the meetings. The students who worked with company B argued that it was problematic when a responsible person who had the power to make final decisions was not involved in the process.

> *You get comments on things that have been dismissed by someone else. [...] But that's always a problem when you work with people who are not decision-makers [...] it's always difficult when you attempt to gain support for things.*

A rule set by SVID is that the outcome of an SDO is only to be conceptual so as to not compete with design consultancies. The students however claimed that it was difficult to explain to the companies that had little or no experience of design what a conceptual outcome is. The students who worked with

companies B and C expressed a desire to create concrete physical artifacts to be presented to the companies. This was due to an experienced need to explain their competence and knowledge to client firms, which, they claimed was difficult to do through words alone. However, respondent E argued that designers have the ability to use images and other visualization tools as a form of universal language.

All companies were involved in some kind of joint action with the design students. Combining words and images to visualize the core values of the companies was mentioned by respondents A, C, and D as being one of the most appreciated aspects of the SDO, making a lasting impressions. The students continued to refine the results of the joint action into graphical material to be used by the companies, both internally and externally. In companies A and D, the outcome was a new company name, and suggestions for logotypes were developed. The outcome of the activity with company C was in line with the initial object to create product design concepts and rough sketches. Other conceptual and physical artifacts included marketing material, such as a kit containing puzzle pieces of a lipoid to be assembled and information pertaining to the services of the lab.

The students that worked with company E expressed a sense of insecurity regarding working on a strategic level in client organizations.

> *We know how to work with business strategy from a design process perspective that we can apply to it. At the same time, it feels like we need to know more about business life to be able to apply it.*

However, respondent E claimed that the activity changed his view of how designers work and the contribution of design. He also stated that the students contributed with business development activities. The activity in company A resulted in structuring the ideas and business areas that the CEO was involved in. The students who worked with company D highlighted the need for internal discussions about the internal organization and core values. Later, they expanded their focus to incorporate the entire process, from order to delivery.

The majority of the students claimed to have learned a lot from the companies. The students who worked with company E were surprised that their client worked in such an explorative manner, and called him *"a designer on a molecular level".* All respondents in the companies, except B, stated that they had undergone a change in their learning process. In the final interview, respondent BC stated that she would never have joined and paid for the activity if she had known what the outcome would be. A, C and E expressed their learning experiences in the following ways:

> *It has been great to be part of this process. It's been… well, I call this my competence development. (A)*

> *In my head there were some clashes […] after a while I realized that it was probably very important for me to receive a paradigm-shifting perspective on some things. (C)*

> *It may be that when I think in a certain direction, I might take into consideration some of this knowledge and the use of design in its different forms. (E)*

Respondent E also stated that he was impressed with the results, but that the outcome was different from what he expected. Both respondents D and E stated that they would definitely use design resources in the future if the opportunity presented itself. However, the project manager of year two stated that:

> *The companies own the outcome, but I am not sure that they know how to handle the results. […] Their fascination with the results and process might contribute to them not knowing how to handle the results.*

Discussion

An increasingly ambiguous environment characterized by fast changes and complexity makes companies search for methods and processes that can support their strategic development and the ability to meet the challenges they face. Introducing new competencies such as those of a designer will create some kind of positive or negative arousal and enactment. Everyday action is punctuated resulting in sense-making processes (Weick, 1995) in temporary local activities. The purpose of this

paper was to expand our understanding of how design methods and processes can contribute to learning and strategic development in small and medium sized enterprises.

We argue that the competencies of a designer can contribute to strengthening a *place* (de Certeau, 1984; Tuan, 2011), such as a company or discipline, by making core values visible or by introducing individuals to a *place*, which is a process of "*becoming*" and identity co-creation. The study gave examples of an existentialistic position on learning (Jarvis, 2009) as participants aimed at being acknowledged as design practitioners. It also showed failure to do so due to conflicts about who was responsible for performing a given action. The students were imposing their knowledge on the organization without creating shared rules (Räisänen and Löwstedt, 2014) and failed in creating affordance (Gibson, 1969) to the degree that an employee in a customer organization needed.

An activity can also have as an object to create *space* (ibid.) for some kind of transformation (ibid.) such as organizational learning and strategic development. The activity theoretical model (Engeström, 1987) used in the study highlighted the relation between how the participants experienced the outcome and how the entities that make up the activity system were interpreted and negotiated. A diversity of perspectives is the result of participation, interpretation and negotiation in shared activities according to expansive and transformative learning (Engeström, 1987; Kegan, 2009; Werkman, 2010). Contradicting values and norms are embodied in entities in the form of rules and mediating artifacts. The use of an activity theoretical model in shared design activities can emphasize differences and enhance how participants relate to each other and thus improve collaboration.

Enabling design services are seldom explicitly expressed in written form but need to be reconstructed and co-constructed as the designer is working together with the customer. The design students found it difficult to explain their competencies and were insecure about how to express their contribution on a strategic level as opposed to creating physical end products. The study, however, presented examples of an outcome that can be characterized as organizational learning and changes in the customer organizations.

One vital object of an enabling design service is to orchestrate shared action with customer firms or other stakeholders that participate in the community of a shared activity and hence a sense making process rather than solving one defined problem. The study proved that by involving participants, such as decision makers in the customer organization, early in the design activity in performing shared action enhance the collaboration. It also provides the designer with an opportunity to continuously construct and re-construct common objects. Shared action reduced the preconceived view of "*the other*" which enhanced the collaboration. It was also a way to create space for exploration and to explain how they in their role as designers can contribute beyond the aesthetically appealing product. Exploration refers to a learning process to discover and acquire new knowledge and skills and hence challenges the existing way of "mastery over a particular task" (Huzzard, 2004). In this sense the introduction of design as an enabling service can be an example of explorative organizational learning taking place in the customer organization. Mediating artifacts enabled a process of internalization and externalization (Nonaka et al., 2000). Joint action in workshops and the use of mood boards and prototypes contributed to making boundaries in organizational frames visible. The initial problem experienced was contextualized, resulting in involvement and a dialogue about several possible objects in the activity. Embodied knowledge (Blackler, 2004) is situated in a specific context and acquired through reflection and action taking place at the same time. Changing perspectives and physical environments, such as the use of artifacts, enables opportunities for learning and change (Blackler, 2004; Coughlan et al., 2007).

Design as an enabling service may potentially disrupt everyday business in customer firms enabling *place* and creating *space* for change and learning. However, the study highlighted the problems in making the new methods and the new knowledge part of the customer organization. There is a need to establish long-term relationships and to commission designers to perform implementing activities.

Conclusions

It is necessary to introduce the customer organization, and especially decision makers, to design methods and processes early in the activity. This provides the designer with an opportunity to deliberate on the enabling service they wish to deliver. An enabling design service is seldom explicitly

expressed in writing but becomes visible as the designer works with the customer, for instance, in co-constructing common objects. Expansive learning takes place as the object is reconstructed. Shared action can reduce a preconceived view of "*the other*", such as how a designer and employee in an SME view each other. This can in turn enhance the collaboration and create conditions for learning. There is also a need to establish long-term relationships and to commission designers to perform implementing activities and in this way make the co-created knowledge part of the small sized company.

Design activities may be motivated by strengthening a *place*, such as a company or discipline, or by introducing an individual to a place, which is a process of "*becoming*" and identity co-creation. A design activity can also be motivated by and contribute to creating *space* for some kind of transformation such as organizational learning and change. Mediating artifacts clarify complex problems and emphasize several possible objects that motivate an activity and thus also several contextually dependent solutions to an experienced problem.

We also argue that an activity theoretical model can be a powerful tool, not the least for designers, to analyze desires and needs that motivate the object behind activities. Such a model also highlights values, norms and perspectives and what rules, division of labor and mediating artifacts are applied to the activity and how they are applied.

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Appendix

Appendix 1. Respondents in Industrial Design Consultancies

(Part one of the research project)

Background

1. Respondent
2. Company information
3. Changes during the last 5 years in regard to how you are organized and conduct business?
4. Your role in the customer organizations?
   - Your offer?
   - Commissioned to do?

The design industry

1. Development?
2. What forces are driving the change?
3. What kind of actors are playing /could play role in this development?

Business development/organization development/ innovation/strategy

1. How are the concepts related and how do they differ?
2. Who do you perceive to be responsibility and make decisions in the customer organizations regarding innovation/business development/strategy decisions, respectively?
3. What are decisions based on?
   - Quantifiable basis?
   - Intuition?
   - Other?
4. What is intuition to you?
5. What areas/competencies are involved in activities aiming at some kind of change ? When, where, how?
6. Attitudes and obstacles in the customer organization.

Learning

1. Learning within your own company? Let the respondent present their view first.
   - By doing things together? - Example?
   - Verbally through discussions
   - Using visualization tools?
2. How do you work with creativity in your organization?
3. How do you contribute to learning in customer organizations?

Communication/Information/Dialogue

1. How does communication takes place in your organization?
   - In what form?
   - Procedures and rules?
   - Informal communication?
   - Are there any problems / barriers to communication?
     - With whom and why? (Such as language, geographic location, formal organization, different educational background.
2. How do you involve and communicate with customers?
   - In what form?
   - Procedures and rules?
   - Informal communication?
   - Are there any problems / barriers to communication? With whom and why? (Such as language, geographic location, formal organization, different educational

Processes

1. Your design process or are your part of the product development process (PD) of your customers?
2. If the client companies PD process, how do you get integrated into the PD.
3. If your design processes - how to communicate them to the company and integrate company representatives?
4. Communication during PD - how; frequency; formalization?
5. Are you generally involved in all PD phases

Interdisciplinary work

1. How close do you work with customer companies?
   Characterize the relationship: business, distance, shared action, very close?
2. What does interdisciplinary and multidisciplinary work mean to you?
3. Do you use your own premises or your customers during share action?
4. Which departments in the customer company contact you in general?
   What role has the marketing function?
   What role has the R&D department?
   Which groups in the company do you feel most associated with?
5. Who do you involve during the process?
6. How involved are decision makers?

Risk-taking

1. Customer companies' willingness to take risks?
2. Future oriented activities or products for launch in the near future?

Learning

What is your role in regard to learning in the customer organization?

Appendix 2. Student Respondents

(Before the summer design office started)

Education

1. Where did you receive your education?
2. What design discipline do you belong to?

What is your experience from previous work as a consultant?

1. What are your perceived weaknesses and strengths?
2. What is your role as a designer?

Business development/organization development/ innovation/strategy

1. How are the concepts related and how do they differ?
2. Who do you see in an organization who has the responsibility and makes the innovation/business development/strategy decisions, respectively?
3. What areas/competencies are involved? When, where, how?
4. Attitudes and obstacles in an organization.

Learning

What is your role in the customer company?

Communication/Information/Dialogue

How do you plan to work with these questions?

Appendix 3. Student Respondents

(After the summer design office ended)

Previous experience of projects (actual cases)

1. Selling design services
2. Building relationships and integrating knowledge in an external company "as a consultant"
3. Conscious plan to establish client trust

Process

1. Company brief.
2. Describe the process.
3. Preparations to clearly explain to the customer what design is and what they can expect.
4. Demarcation of what are your responsibilities and what are the client's.
5. How much was the client involved?
6. Check-off points
7. Updating the brief
8. Shared action

Information, communication, trust building

1. Who did you have contact with at the company?
2. How was information disseminated?
    - Meetings
    - Workshops
    - Phone contact
    - Text/brief
    - One-way or two-way
    - Other?
3. Describe the midway report meeting
4. Did you feel that that there should have been more/less communication?
5. Other social activities?

Learning

1. Did you observe any change in the company concerning knowledge of design methods/ processes during the summer?
2. Did the questions change?
3. Did you work with visualization? For example, prototypes, sketches, moodboards?

Concepts

1. Business development, innovation, strategy, organization development and learning
2. What is creativity?
3. What is intuition?
4. Define design thinking.

Attitudes and obstacles

1. Were there any?
2. How did you get around them?
3. Did you experience any change in trust from the client?
    - What do you think it was due to?
4. Anything else you would like to highlight?

Appendix 4. Respondents in Companies

(Before the summer design office started)

Background

1. Respondent
2. Company information

Business development/organization development/ innovation/strategy

1. How are the concepts related and how do they differ?
2. Who do you see in an organization that has the responsibility and makes the innovation/business development/strategy decisions, respectively?
3. What are decisions based on?
   - Quantifiable data?
   - Intuition?
   - Other?
4. What is intuition to you?
5. What areas/competencies are involved? When, where, how?
6. Attitudes and obstacles in an organization.

Learning

1. Learning within the company? Let the respondent present their view first.
   - By doing things together? - Example?
   - Verbally through discussions
   - Use visualization tools?
2. Do you learn from others?
   - Who? Suppliers, customers, etc.
   - How?
3. How do you work with creativity in your organization?

Communication/Information/Dialogue

1. How does communication takes place in your organization?
2. In what form?
3. Procedures and rules?
4. Informal communication?
5. Are there any problems / barriers to communication?
   - With whom and why? (Such as language, geographic location, formal organization, different educational background.

Consultants

1. External actors that are important for your development?
2. Experiences of working with consultancies in general?
3. Experiences of working with designers?

Questionnaire-like format (but administered orally)

1. Briefly describe what you associate with design.
   - 1.1. What is a designer like (characteristics)?
     - 1.1.1. Qualities
     - 1.1.2. Strengths/weakness in knowledge and performance
2. What brand would a designer be if he/she were a car?
3. If he/she were a tool, which one would it be?

4. What is an engineer like (characteristics)?
   4.1. Qualities
   4.2. Strengths/weakness in knowledge and performance
5. What brand would an engineer be if he/she were a car?
6. If he/she were a tool, which one would it be?
7. What is a marketing specialist like (characteristics)?
   7.1. Qualities
   7.2. Strengths/weakness in knowledge and performance
8. What brand would a marketing specialist be if he/she were a car?
9. If he/she were a tool, which one would it be?
10. Do you work with design in your company?
11. Which of the following is true of how design is used in your company?
    11.1. in work with the company's strategy
    11.2. organization development
    11.3. in business development
    11.4. in idea generation
    11.5. customer surveys
    11.6. product development
    11.7. at the start of production
    11.8. in the middle of production
    11.9. at the end of production
    11.10. launching
12. Who is responsible for design assignments in your company?
13. Does he or she work with design issues alone or do they cooperate with others in the company?
14. Have you worked with designers before?
15. If yes: Have they been employed internally or externally?
    15.1. Briefly describe your experience with this.
    15.2. If your experience was positive, why isn't it still?
16. Is design discussed by management?
17. If yes: What kinds of design issues/questions are usually taken up?
18. Which of the following statements do you associate with a designer?
19. On a scale of 1 to 4 where 1 means "strongly disagree", 2 means "agree to a small degree", 3 means "agree a lot" and 4 means "agree to a very high degree".
    19.1. Creative
    19.2. Easy to communicate with
    19.3. Easy to work with
    19.4. A designer is used only to design a product.
    19.5. A designer has a major impact on appearance, function and audience targeting.
    19.6. It is difficult for designers to be concrete and keep within the limits.
    19.7. A designer values/appreciates other things than I do.
20. Which of the following statements do you associate with design?
21. On a scale of 1 to 4 where 1 means "strongly disagree", 2 means "agree to a small degree", 3 means "agree a lot" and 4 means "agree to a very high degree".
    21.1. A large and important part of the company's success.
    21.2. The work carried out by the designer.
    21.3. An integral part of a product realization chain.
    21.4. Taking on a high risk.
    21.5. Associated with high costs.
    21.6. Time demanding.
22. I am going to read some statements and I want you to answer with one of the following alternatives. In some cases, I am going to ask you to justify your answer.
23. On a scale of 1 to 4 where 1 means "strongly disagree", 2 means "agree to a small degree", 3 means "agree a lot" and 4 means "agree to a very high degree".

23.1. There is a clear, positive correlation between investing in design and profitability. Please justify.
23.2. It is difficult to measure design's contribution to the company's profitability. Please justify.
23.3. Design generates good competitive advantages. Please justify.
23.4. Our competitors invest heavily in design.

24. Several authors in the field of design think that design can be used for much more than designing concrete products. What do you think about this claim?

Appendix 5. Respondents in Companies

(After the summer design office ended)

Experience

1. What made you want to work with designers from the start?
2. Did you write the brief entirely on your own?
   How much did it change along the way and who participated in the process?
3. What did you find rewarding during the process?
4. What was less successful?
5. Did you get the outcome you expected?

Participation, dialogue and trust

1. Your group activities (in the evening). What is your view on that?
   Did it help you to get to know one another?
   Did it effect you so that you were able to express your views and opinions more directly?
2. How did you participate during the design process?
3. Were the company proposal's listened to?
4. Were your suggestion listened to in direct contact ?
5. Were others in the organization allowed to participate in any way?

Learning and trust

1. Do you feel that you learned anything new?
2. Did you agree on some rules that would apply to:
   Process
   Coordination
   Etc.

Change

1. Has the activity led to changes in how you do things today?
2. Change/enrichment on the personal level?
3. Have you started to use some of the expressions that the designers used when you talk to each other?
4. Has it affected how you organize yourselves and work as a group?
5. Has it broadened your view so that you look at other things in the world around you today? Have you had any "aha" experiences like, "Yes, of course! We can also look at that"?

Feedback

1. Did the students give good descriptions of the project and results?
2. Have you had any contact with the students afterwards?
3. Did you have any contact with project management in the municipality afterwards?
4. Did you have the chance to discuss the experiences from the project sufficiently with each other at the completion of the project?
5. How have you gone forward after the concept presentation?
6. Is there anything that should have been done differently?

Appendix 6. Coding

(Level one is only for company representatives.)

Level 1, Questionnaire-like format (but administered orally)

1. Briefly describe what you associate with design.

2a. What is a designer like (characteristics)?

Qualities

Strengths/weakness in knowledge and performance

2b. What brand would a designer be if he/she were a car?

2c. If he/she were a tool, which one would it be?

3a. What is an engineer like (characteristics)?

Qualities

Strengths/weakness in knowledge and performance

3b. What brand would an engineer be if he/she were a car?

3c. If he/she were a tool, which one would it be?

4a. What is a marketing specialist like (characteristics)?

Qualities

Strengths/weakness in knowledge and performance

4b. What brand would a marketing specialist be if he/she were a car?

4c. If he/she were a tool, which one would it be?

5. Do you work with design in your company?

6. Which of the following is true of how design is used in your company?

a) in work with the company's strategy

b) organization development

c) in business development

d) in idea generation

f) customer surveys

g) product development

h) at the start of production

i) in the middle of production

j) at the end of production

k) launching

7. Who is responsible for design assignments in your company?

8. Does he or she work with design issues alone or do they cooperate with others in the company?

9. Have you worked with designers before? If yes: Have they been employed internally or externally?

Briefly describe your experience with this.

If your experience was positive, why isn't it still?

10. Is design discussed by management?

If yes: What kinds of design issues/questions are usually taken up?

11. Which of the following statements do you associate with a designer?

On a scale of 1 to 4 where 1 means “strongly disagree”, 2 means “agree to a small degree”, 3 means “agree a lot” and 4 means “agree to a very high degree”.

a) Creative

b) Easy to communicate with

c) Easy to work with

d) A designer is used only to design a product.

e) A designer has a major impact on appearance, function and audience targeting.

f) It is difficult for designers to be concrete and keep within the limits.

g) A designer values/appreciates other things than I do.

11. Which of the following statements do you associate with design?

On a scale of 1 to 4 where 1 means “strongly disagree”, 2 means “agree to a small degree”, 3 means “agree a lot” and 4 means “agree to a very high degree”.

a) A large and important part of the company’s success.

b) The work carried out by the designer.

c) An integral part of a product realization chain.

d) Taking on a high risk.

e) Associated with high costs.

f) Time demanding.

12. I am going to read some statements and I want you to answer with one of the following alternatives. In some cases, I am going to ask you to justify your answer.

On a scale of 1 to 4 where 1 means “strongly disagree”, 2 means “agree to a small degree”, 3 means “agree a lot” and 4 means “agree to a very high degree”.

a) There is a clear, positive correlation between investing in design and profitability. Please justify.

b) It is difficult to measure design’s contribution to the company’s profitability. Please justify.

c) Design generates good competitive advantages. Please justify.

d) Our competitors invest heavily in design.

13. Many authors in the field of design think that design can be used for much more than designing concrete products. What do you think about this claim?

Level 2, Activity theoretical entities and related concepts

1. Mediating artifact (tool, sign, language, gesture, etc.)
2. Rules
3. Division of labor
4. Community
5. Subjects

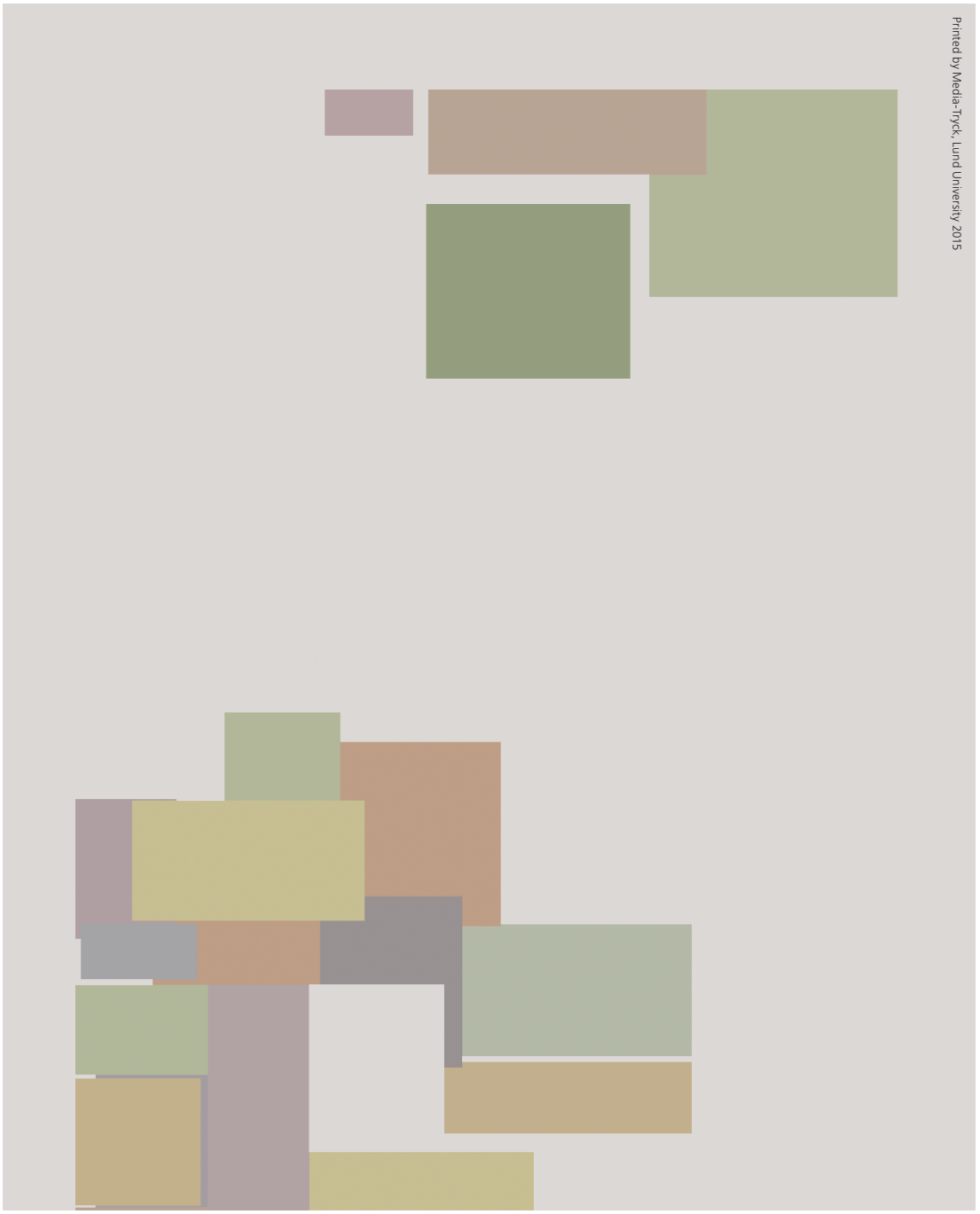
6. Object
7. Goal
8. Motive
9. Need and desire
10. Action
11. Activity
12. Praxis – Knowing and doing
13. Transformation vs. reproduction
14. Uncertainty and ambiguity
15. Contradictions, conflicts, negotiation, power
16. Local history

    Discipline

    Company

Level 3, Background and concepts

1. General
   - 1.1. Respondent
     - Position/Role in company
     - Educational and professional background
     - Other
   - 1.2. Company
     - Industry
     - Size
     - Ownership
     - Other
2. Concepts
   - 2.1. Innovation and strategy
   - 2.2. Organizational change and learning
   - 2.3. Creativity
   - 2.4. Decision making and trust
   - 2.5. Intuition
   - 2.6. Communication



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