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The Enabling Service of the Industrial Design Consultancy

A Change of Focus from Goods- to Service Dominant Logic

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Lund University - Department of Design Sciences

The Enabling Service of the Industrial Design Consultancy

A Change of Focus from Good- to Service Dominant Logic

LUNDS UNIVERSITET

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Licentiate Thesis

Lund University
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Abstract

Design has received increased attention not least of all in the business press and journals. The concept of design thinking – how to approach problems in a designerly way – is sometimes attributed as being the savior of business, making companies creative and innovative. This kind of exaggeration does more harm than good to industrial design consultancies (IDCs) and their client firms (CFs). And yet, the renewed interest in design that the concept of design thinking generates has shifted attention away from the artifact to the activity and with it, the competencies and knowledge of the designer. IDCs still have problems charging for intangible components in their offerings, and the value of their work is mainly restricted to those customers who have experience from working with industrial designers.

This thesis aims to deepen our knowledge of the logics behind the business of industrial design in terms of how it is organized, the competencies of the industrial designer and the perceived role of the IDCs in client firms. The thesis is built on two research papers and a study based on interviews, workshops and a web survey. The empirical results were categorized according to the structure of a conceptual business model and analyzed vis-à-vis service dominant logic.

There is a great interest in the IDCs in growth issues and in raising the profitability of the consultancy. There is a high awareness that this would make the company less vulnerable and provide better margins for development. Large sized IDCs are undergoing a professionalization and have made changes in how they are organized and managed. The literature study described an increased intangible focus of design and an aim to adopt a more strategic role in CFs. Still, the IDC is not giving up any of its previous roles, such as those involved in working with tangible products. The aim of IDCs to adopt a more strategic role in their CFs was confirmed in the empirical study. At the same time, most potential clients, who have little or no experience of working with design, regard the contribution of the industrial design consultancy to be tangible outcomes such as sketches, CAD drawings and prototypes that are delivered at the end of a value chain.

This perspective on design is in line with a goods dominant logic and is a constraint for the growth and development of the IDCs.

This thesis claims that the IDC offers both relieving and enabling service and hence should be viewed from the perspective of service dominant logic. The value resides not in the tangible end product but in the competencies that the IDC contributes with in a value network. Relieving means that a service provider performs a task or series of tasks for another party, which is the logic behind outsourcing. Contributing with the aesthetic competence of the designer exemplifies a relieving service. An enabling service means that the supplying organization helps the other party to do a task in a new and improved way. An enabling service is to a higher degree relationship-dependent, involving a learning situation where the IDC together with the CF cooperate to co-create new knowledge. The enabling service of the industrial design consultancy would thus create higher and longer lasting value in the CF since new knowledge is created by helping the CF enhance its internal and external processes. Service dominant logic enhances the shift from an operative role to that of the greater strategic significance that IDCs aim for. The focus changes to the activity and competence of the designer and can unlock the mental image of the IDC as a problem solver focused only on physical products.

Keywords: industrial design, design thinking, business model, goods dominant logic, service dominant logic

Sammanfattning

Industridesign har uppmärksammats, inte minst i affärspress och management tidskrifter, som ett viktigt konkurrensmedel med en kreativ process som stödjer en innovationsdriven verksamhet. Inte sällan nämns begreppet ”designtänkande” som ett sätt att göra företag kreativa och innovativa och därmed rädda dem från att bli utkonkurrerade av lågprisföretag. Orealistiska förväntningar på ”designtänkande” riskerar skada såväl industri design konsultföretag (DKF) som deras klintföretag (KF). Samtidigt har det förnyade intresset för industridesign som begreppet designtänkande fört med sig förflyttat fokus från artefakt till aktivitet och därmed den kompetens och kunskap industridesignern besitter. DKF har dock fortfarande problem att ta betalt för immateriella komponenter i sitt erbjudande och kunskapen om de tjänster som DKF erbjuder är i huvudsak begränsat till de KF som har erfarenhet av att arbeta med industridesigners.

Denna licentiatuppsats syftar till att skapa en fördjupad kunskap om DKF vad gäller hur de är organiserade, kompetensen i företagen och den upplevda roll de har i klient företagen. Licentiatuppsatsen består av en ”kappa”, vilken vidareutvecklar det teoretiska ramverket, samt två artiklar vilka baseras på en studie i form av intervjuer, workshops och en webbenkät. Resultaten av det empiriska materialet har sedan kategoriserats enligt strukturen i en konceptuell affärsmodell och analyserats gentemot en tjänstelogik.

Studien bakom denna licentiatuppsats visar på att DKF inte bara har växt i antalet anställda utan även på ett stort intresse för tillväxtrelaterade frågor. Det fanns en medvetenhet om nödvändigheten i ökade marginaler och därigenom ökad lönsamhet för att göra företagen mindre sårbara i konjunkturnedgång och skapa förutsättningar för utveckling. Större DKF genomgår en förändring vad gäller organisation, ledning och vilka kompetenser som anställs. Litteraturstudien visade på hur design utvecklats mot ett ökat fokus på immateriella värden i erbjudandet. Samtidigt ger inte DKF upp tidigare roller som arbetet med produktdesign. Många DKF har som ambitionen att anta en mer strategisk roll KF vilket bekräftades i såväl litteratur- som den empiriska studien. Potentiella KF med liten eller obefintlig erfarenhet av design ser dock fortfarande materiella resultat som skisser,

CAD-ritningar och prototyper som det huvudsakliga bidraget och DKF anlitas ofta i slutet av en produktutvecklingsprocess. Detta perspektiv på design är i linje med en produktlogik och är ett hinder för tillväxt och utveckling av DKF.

I denna licentiatuppsats hävdas att erbjudandet från DKF består av ”enabling” och ”relieving” tjänster och bör betraktas utifrån en tjänstelogik. Värdet av en tjänst ligger inte i den fysiska slutprodukten, utan i de kompetenser och kunskap som DKF bidrar med. En ”revlieving” tjänst, vilket är logiken bakom outsourcing, innebär att en tjänsteleverantör utför en eller en serie uppgifter för en annan part. Detta kan exemplifieras med att DKF använder sin estetiska kompetens i utförandet av ett arbete åt KF. En ”enabling” tjänst innebär att tjänsteleverantören deltar med sina kompetenser i det köpande företaget med målet att utföra en uppgift på ett nytt och bättre sätt. Denna typ av tjänst är i högre grad relationsberoende och innebär ett lärande då DKF tillsammans med KF gemensamt skapar ny kunskap. Värdet av en ”enabling” tjänst bör följaktligen generera ett högre värde i KF. Tjänstelogik kan underlätta för DKF att ta den roll av ökad strategisk betydelse i KF som många DKF strävar efter. Detta sker genom förflyttning av fokus från den fysiska slutprodukten till den utförda aktiviteten och därigenom den kompetens som finns I DKF.

Nyckelord: industriell design, design tänkande, affärsmodell, produktlogik, tjänstelogik

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The main purpose of writing this thesis has been to present the results of my research over the past couple of years. It is also a way to present the process of development that I as a PhD student have undergone. Without the help of both inspiring and encouraging people like my supervisors there would have been no thesis. Professor Lisbeth Svengren Holm and Professor Per Odenrick, thanks for all constructive criticism but also for the support and confidence you have shown me through the up and downs that one goes through in postgraduate education.

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Magnus Eneberg – Stockholm, November 2011

Prologue

With an interdisciplinary background consisting of professional and educational experience in business management and courses in art history, applied psychology, product and interior design, I have personally observed how strong the ties to a professional identity can be. This applies not only in the companies where I have worked but also during my university education. Preconceptions about other disciplines seem to be used to demonstrate a “we” versus a “they”, which often has led to barriers when people from different professions are expected to cooperate.

My excursions between different professional cultures or domains have led to an interest in what happens when people who belong to different domains are confronted with each other in organizations. What happens when they meet to discuss or solve a specific subject matter and/or learn from each other? 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 presumed and relationships among different participants change (Robinson and Hacket, 1997).

> *“As change increasingly comes to characterize the world around us, more often than not the problem is that the dominating ideas reflect a ‘reality’ of the past, not the ‘reality’ of the present nor of the future*. “(Normann, 2001, p. 3)

In the study on which this thesis is based, and in design literature, it has been noted that the designers’ views of their contribution and role in the value creation networks they participate in seem to be undergoing a change. Johansson and Svengren Holm (2008) also describe how the experience and cooperation between designers and engineers created a change in their view of design but also in the role of design. Changes in the view of the role of design in client firms have also had an impact on the organization and development of the industrial design consultancy. This thesis discusses these changes and the contribution of the design consultancy to its client firms.

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APPENDED PAPERS

Paper A: Olsson (Eneberg's birth name), M., Svengren Holm, L. (2009), Strategic Growth of Industrial Design Consultancy: A study of changes in ID consultancy in a post-industrial society, The 8th European Academy of Design Conference, Aberdeen, Scotland

Paper B: Eneberg, M., Svengren Holm L. (November 2011) From Goods to Service Logic: Service business model requirements in industrial design firms, submitted to The Design Journal

1 Introduction

It is argued that we live in a post-industrial society with a transition from the production of goods to services. The meaning of the term design is much contested. It can refer to the activity such as planning, sketching, and modeling (Jones, 1981; Lawson, 1998). It can also refer to the outcome of the design process, which is the product. The lowest common denominator for “design” and “industrial” is then the actual product. The two terms would together imply the activity of planning, sketching and modeling products. The word “industrial” connotes mass production of products and, logically “industrial design” also has this connotation. At the same time, paradoxically, the term “design” has a focus on the future or “how things ought to be” as Simon (1996) express it. It is argued that we live in a post-industrial society with a transition from the production of goods to the participation in value networks co-creating value in the form of service. Competition in the knowledge economy is increasing and boarders between disciplines are growing less distinct. Creativity, by its very nature, generates categories or rearranges established ones (Waymire et al., 1995). The role of designers could in this sense promote strategic thinking or improve the interaction between executives and the future. Delléra (2008) argue that the primary role of designers is that of a strategic resource rather than working with styling. The aesthetic perspective is no longer as obvious as it used to be (Ullmark, 2007). Valtonen (2007) claims that industrial designers have changed their role from that of applying their competencies with a focus on product development to that of including strategy work.

Two related issues guided this research on the design industry. One was the perceived role of design among industrial designers and their clients. The other was whether the change in the market and the industrial clients had had an impact on the organization and development of industrial design consultancies. These issues led the co-authors of the appended papers to start an exploratory interview study including respondents from industrial design consultancies and client firms with some kind of experience in working with industrial designers.

During the study, we were contacted by the Finnish-Swedish Design Academy that asked if we would be interested in co-arranging and participating in a workshop with participants from the largest industrial design consultancies in Finland, Sweden and the U.S. The workshop was

to take place in the spring of 2007 and would also involve The Swedish Industrial Design Foundation (SVID). The idea behind the workshops was that the industrial design consultancies could learn from each other. This also gave us as an excellent opportunity to gain further insight into the industry. We were introduced to a Finnish research team studying the same issues in Finnish design consultancies. The results of our joint analysis became the basis for discussions in the workshop. A second workshop took place in autumn of the same year. This enabled us to follow up the results from the first. At the end of 2009, a master degree student conducted a web survey that the co-authors supervised. By comparing the results of the web survey with those from our interviews and workshops, we could analyze differences and similarities in small large industrial design consultancies.

1.1 Purpose and Research questions

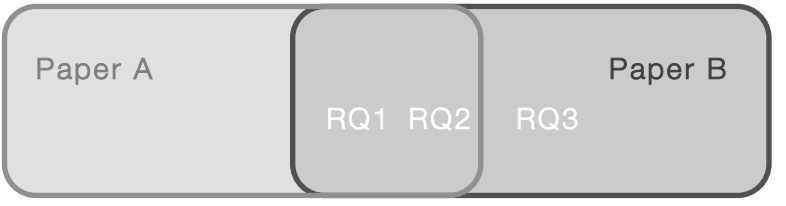


Figure 1. Paper and addressed research question

The overall aim of this thesis is to deepen our knowledge of the logics behind the business of industrial design such as how it is organized, the competencies of the industrial designer and the perceived role of industrial design in its client firms. The purpose of studying the business of industrial design was an observed growth in the industry at the same time as design, its methods, processes and the concept of design thinking received increased attention in the business press and journals. Research questions 1 and 2 are addressed in Paper A and further analyzed and discussed in Paper B.

RQ1: What effect has a possible change in the market had on the internal organization and development of the industrial design consultancy?

RQ2: How are the industrial designers and their clients perceiving the role of industrial design and what are the characteristics of design thinking and hence the competence of the industrial designer?

During our interviews, several respondents mentioned that they experience the problem of getting commissioned and paid for the intangible parts of their offering. One respondent expressed it in the following way.

> *"We are seldom commissioned in that way that they would like to pay for the value of the process. (…) Our next step is to look at how we can get better payment for this kind of service, that is knowledge and strategy service."*

The problem is by no means unique to the industrial design consultancy but also experienced by other companies where the service they provide is not fully understood by the clients. For many client firms it is clear that industrial designers will help them to create a new product, one that is better, especially aesthetically, than the existing one. When the designer pose questions about strategy, brand values and the integration between products and brand building many clients do not understand why the designers raise questions about brand- and corporate strategies. Several studies have shown that lifting up the work of the designer to a strategic level can be of great value in client firms (Nielsén, 2004; Nielsén2008)

This led us to the differences between goods and service dominant logic. We also chose to use a conceptual business model as a way to categorize and analyze our results. The third research question is addressed in Paper B.

RQ3: What would the requisites of a conceptual business model based on service dominant logic look like and is the business of industrial design consultancies in line with service dominant logic?

This research question should not be understood as a search for a prescriptive model but rather a description and comparative model to understand the business logic of the industrial design consultancy.

1.2 Outline of thesis

The thesis is based on two papers. Paper A presents an initial analysis of the changes in the business and role of industrial design. This analysis is taken one step further in Paper B, which also deals with research question

three. Since these conference and journal papers are limited in length, this licentiate thesis presents the papers' theoretical frame of reference in more detail in Chapter 2. Chapter 3 presents the scientific approach, followed by the methods in Chapter 4. Chapter 5 offers a brief summary of the two papers and how they are related. Chapter 6 discusses the results, methods used and how the aim is fullfilled, followed by Chapter 7 with conclusions and future research.

2. Frame of reference

Several of the scholars that have had the strongest influence on the study of design have claimed it to be a science with its own specific thought process (Buchanan, 1995; Simon, 1969; Schön, 1983; Cross, 2006; Lawson, 2006). These scholars 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 what the contribution of design can be. In this chapter, different perspectives on design as a science will be described and put in the context of sense making, reflection in action, communicative action and learning perspectives.

2.1 Design as a science

Herbert Simon is perhaps one of the more renowned scholars who has had an impact on the definition of design sciences. He argues that design is the science of the artificial world, differing from natural science, with the latter's focus on how things are rather than the former's on how things ought to be (Simon, 1996). At the same time, Simon 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." (Simon, 1996, p.138)*

Just as the natural sciences aim at increasing knowledge about natural laws, design sciences aim, from Simon's perspective, at increasing knowledge about rational methods and processes in the creation of the artificial. The technical rationality of Simon is criticized by Schön (1983). Schön claims that the rationality of Simon's science of design can only be applied to well-formed problems, which is not congruent with the problems that the designer faces in practice. The technical rationality of linear processes is also criticized by Horst Rittel. He claims that the problems

addressed by designers are “wicked problems” that cannot be solved in a simple linear design process. Wicked problems are indeterminate, open-ended problems with more than one solution; the information available to solve them shows different perspectives and values (Rittel and Webber, 1973). Schön (1983) describes the design process as a reflective conversation with the situation. He claims that among professionals, knowing is often tacit and thus has a direct connection to action. Knowledge is created in interaction with an object or other humans, and in that interaction, we both shape and are shaped by the environment.

> *“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, p.150)*

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. It can be debated if design can be categorized as a science of its own, or the integrative discipline that Buchanan claims. No matter what, the study of design and design thinking has increased in interest in the last few years, not the least for its significance for innovation. Design and design thinking are said to have a certain set of characteristics that include integrating hands and thought which becomes obvious when talking about design as experimental thinking.

2.2 Experimental thinking and action

A common distinction between the concepts “technique” and “technology”, which is argued for by von Wright (1986), is that technique is the competence necessary to create artifacts (i.e. man-made things). It is knowledge that is practically applied and is close in meaning to the ancient Greek word “techne”, with the distinction that techne in its original sense was also closely connected to art (i.e., both skills and artistic talents) (Johansson and Svengren Holm, 2008). The understanding of design, just as technology, is also frequently linked to the production of artifacts.

Technology on the other hand is based on "logos", which is scientific knowledge about the rational principles behind the methods the technician uses in his or her work (von Wright, 1986). The role of science is then to gain knowledge about natural laws. Technology in this sense corresponds to theoretical knowledge and to what Aristotle called "episteme", which is the creation of general theories through exploratory activity (Johansson and Svengren Holm, 2008). Simon exemplified this view of technology. The aim of design sciences would then be to search for rational methods and processes used by humans in *"changing an existing situation into a preferred one"* (Simon, 1996, p.111).

Dewey (1929) on the other hand argues that technology is *the art of experimental thinking* rather than the knowledge of how to make and use artifacts. There are clear distinctions between the two perspectives on how knowledge is achieved. According to Dewey, knowledge is not achieved through a direct understanding and application of natural laws. Instead, it is based on interaction and on integrating practice and theory with the possibility, not just to imitate nature, but directed towards change since nature is neither fixed nor complete. Or as Dewey (1929, p. 290-291) expresses it:

> *"The old center was mind knowing by means of an equipment of powers complete within itself, and merely exercised upon an antecedent external material equally complete in itself. The new center is indefinite interactions taking place within a course of nature which is not fixed and complete, but which is capable of direction to new and different results through the mediation of intentional operations."*

New knowledge is then created through an ongoing argumentation or dialogue in society. Habermas (1984) argues for the importance of dialogue in his theory of communicative action. The theory basically claims that "truth" is pursued with the help of argumentation. It is a dialectical perspective deeply connected with action and highlights the need to change society, not just interpret it (Kvale, 1997). Experimental thinking as described by Dewey (1929, p. 123) also has a clear connection to action. Experimental thinking is signified by what Dewey calls "*direct activity*" which he contrasts with *"thinking as conceived in the old tradition, as something cooped up within 'mind'."* Through experimental thinking the observed situation or objects are rearranged and thus always lead to change (ibid.).

The integration and interaction aspects in experimental thinking become relevant in the pursuit of new knowledge and change. The epistemological position of Schön (1983) is close to that of Dewey's and his experimental thinking. Schön argues that individuals understand a situation by trying to change it and the actual reflection takes place in action. This can also be compared to action science and action learning which will be addressed in Chapter 3 – Scientific approach.

Argyris (1976), another scholar who has conducted research in the area of learning organizations, divides learning into two categories: double- and single-loop learning. Single-loop learning permits a limited adaption to the environment surrounding the organization as long as prevailing goals and governing values in the organization are not questioned. Double-loop learning on the other hand implies a reflection and correction of errors that have been detected in previous experienced situations. The status quo is questioned in double-loop learning, which leads to learning through exploration and change (ibid.). Argyris also divides action into espoused theory and theory in use. Theory in use describes the actual behavior of individuals while espoused theory describes those actions that individuals claim to be taking. Most individuals are able to detect discrepancies in others regarding espoused theory and the theory they use. There is, however, often a blind spot in detecting the discrepancies in oneself. Studies (ibid.) have shown that most organizations espouse the double-loop model but the general model of behavior is single-loop. One reason for this seems to be a fear of challenging governing values and disturbing the status quo.

Experimental thinking as proposed by Dewey (1929) integrates technique and technology, in other words, practical wisdom and skills with theoretical wisdom, and hands with thought. Integration and (inter)action that lead to a learning situation are central to experimental thinking and also remove the focus on artifacts, which the concept of technology has in its more common use. Technology is, according to Dewey, made up of intentional activities carried out not only in science but also in social and political action. In this sense, technology also corresponds to the Greek word "phronesis", which according to Aristotle referred to practical wisdom with the capacity to make ethical judgments (Johansson and Svengren Holm, 2008). It is in the application of knowledge, values and previous experiences in concrete situations that this practical wisdom can be found

(Norbäck et al., 2006). Dewey (1929, p. 138) explains it in the following manner.

> *"To magnify thought and ideas for their own sake apart from what they do (…) is to refuse to learn the lesson of the most authentic kind of knowledge – the experimental – and it is to reject the idealism which involved responsibility."*

The understanding of the word "design" is, just as technology, frequently focused on the artifacts. The concept "design thinking" on the other hand emphasizes the actual activity of solving problems with a design approach, which is closer to technology as experimental thinking proposed by Dewey (1929).

2.3 From the designed artifact towards design thinking

Although it is not a new concept (Rylander, 2009; Johansson and Woodilla, 2010), design thinking has become a popular concept in recent years (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). Another reason could be the dissatisfaction in the design community with the way, as Boland and Collopy (2008) express it, design as a noun, overshadows design as a verb in the popular press. Of course, visualization and the aesthetics still are important skill that the designers possess but today it is common that industrial design consultancies participate in the work with everything from the vision of the client firm to helping them to launch new products. The offering is thus broader but previous roles have not disappeared (Valtonen, 2007).

Buchanan (1995; 2001) describes the change of focus in the design discipline through four orders or areas of design in the twentieth century. 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 computer display and television, for example. The second order of design is that of material objects, such as tangible, physical artifacts which Valtonen (2007, p. 280) define as *"the archetype of industrial design"*. This area is expanding into the interpretation of physical, social, psychological and cultural relationships between humans and products.

Scholars who have had an impact on design research directed towards the human-made artifact can be exemplified by Lawson (2006) and Cross (2006). It should be noted that the archetype of design has not disappeared but has been supplemented with other offerings by the industrial design consultancy.

Buchanan (1995; 2001) argues that the third order of design is a shift of focus from symbols and product aesthetics to the actual activity, which can be exemplified by a focus on communication instead of on the actual phone as an aesthetic artifact.

> *"But unless these (artifacts and symbols – author's comment) become part of the living experience of human beings, sustaining them in the performance of their own actions and experiences, visuals symbols and things have no value or significant meaning."* (Buchanan, 2001, p.11)

It is also argued that the essence of design is making sense of things (Verganti, 2009; Krippendorff, 1989) and that innovation processes with a sense-making focus follow another logic than traditional ones (Jahnke and Hansson, 2010). This claim highlights the importance of the interaction between product and user. Out of the focus on the activity instead of on artifacts and symbols, a new practice has appeared called "interaction design" (Buchanan, 2001). Interaction design is one example of how the industrial design consultancies are broadening their offering without giving up any role they previously had.

It can also be argued that the essence of design is to facilitate a sense-making process (Weick, 1995) and that the artifact or service is the subject matter or mediator of the designer in his or her interaction with different stakeholders such as organizational actors in client firms. The fourth and final area of design, Buchanan claims, is systems and environments. What is in focus is design as an integrator within human systems.

> *"The focus is no longer on material systems – systems of 'things' – but on human systems, the integration of information, physical artifacts, and interaction in environments of living, working, playing and learning."* (Buchanan, 2001, p.12)

What should be noted is 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. Each of the four orders of design described by Buchanan (1995; 2001) can also be seen as a specific design profession such as graphic design and industrial design. Buchanan argues that it would not be satisfactory to limit each order to a discipline since they are not just design results but places of invention shared by all designers. This can be exemplified through a change of focus from one specific artifact, such as the previously mentioned example with a telephone, to the activity of communicating allowing other media or ways of communication such as MMS or SMS. The four orders are all interconnected. Objects are instruments of action: signs and images are parts of the object and create different perceptions of it. Signs, objects and actions are all organized in complex environments.

By drawing attention to the concept of technology, as defined by Dewey (1929), Buchanan (1995) emphasizes the similarities between design thinking and experimental thinking. By doing so, he emphasizes design thinking as integrative and universal in scope, not having a fixed subject matter and thus may be applied to different areas of human experience (ibid.). With the focus on human systems in the fourth order of design, and the aspiration of the designer to take on the role of a strategic resource of knowledge in the client firms (Delléra et al., 2008; Valtonen, 2007), there is a clear connection between design thinking and management practice and education.

2.4 Design thinking, management practice and education

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 (Martin, 2010; Leavy, 2010; Ungaretti et al., 2009). Management education is often 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). Traditional management practice is criticized for lacking necessary conditions for innovation. Decisions are argued to be based on historical data and solutions are crystallized too soon, not providing any room for experimentation (Martin, 2010; Leavy, 2010; Ungaretti et al., 2009). A design driven approach on the other hand is argued to be a powerful force

for innovation (Verganti, 2009; Cooper and Press, 2001; Bruce and Bessant, 2002) and possesses the abilities that management practice and education are lacking (Martin, 2010; Leavy, 2010; Ungaretti et al., 2009). Of course, this description is a simplified dichotomy; but nevertheless, the two discourses are rooted in different epistemological and educational traditions.

Svengren (1995) argues that design can have the role of catalyst for change and influence visions if it is used at a strategic level in the client firms. How management approaches design is thus essential for the role it receives in the client firm. When designers move from a product development oriented practice towards that of a strategic resource in the client firms, they also move into domains that previously were held by other professions. At the same time, it is claimed that other professionals such as managers would gain by understanding how designers approach and solve problems (ibid.). The manager, as Boland and Collopy (2008) express it, shapes social organizations and economic processes.

The idea of teaching design thinking in business schools is not to make designers out of management students but to provide an additional tool to solve open-ended problems. Design thinking 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).

The concept of design thinking has also been criticized. It is argued to be a management fad that will disappear when the next hype replaces it (Johansson and Woodilla, 2010). One former proponent, Nussbaum (2011), claims that the decade of design thinking is ending and that the concept does more harm than good to the business of design and the companies implementing it. One reason for its failure is that companies implementing it are argued to formalize design thinking to become a linear, step-by-step process making it everything but “designerly” (Nussbaum, 2011). Another is the lack of consensus on a definition of design thinking (Walters, 2011). If these are the reasons for the failure of design thinking then the problem lays not in the lack of contribution but in how the concept of design thinking is used. As a concept design thinking is not in itself problematic for the design consultancies. What is problematic is how potential client firms perceive the contribution of design and hence the role of the designer in their firms. What is needed is not to look for a new fad but 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 (Rylander, 2011; Cross, 2006).

2.5 Characteristics of design thinking

After a literature study about design, its methods and processes and following the discussion about the concept of "Design Thinking" the most prominent characteristics of design (thinking) and thus the competencies of designers mentioned in design literature and journals can be summarized in three categories: integrative, collaborative and experimental. I use "competence" in a similar sense as Prahalad and Hamel (1990): it contains a certain set of skills. I also broaden the definition from a focus on production and technological skills to, as Normann puts it.

> *"moving away from focusing on the competencies required to manufacture and sell a product to a focus on the much broader set of competencies related to the design and functioning of a value creating system"* (Normann, 2001, p. 65)

In this way the concept of competence is closer to service dominant logic (S-D logic) than goods dominant logic (G-D logic), which will be discussed more in detail in section 2.6.

Design thinking is integrative in that it integrates hands with thought and theory with practice. It is argued to be collaborative in that interaction between individuals is a necessity to solve the wicked, 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 the present state.

2.5.1 Integrative

Organizational and cultural traditions have in many cases from Taylor (1911) onward led to dividing labor into thought and hands. As mentioned previously, Buchanan (1995, p.4) argues that the search for a new integrative discipline is one of the central themes of intellectual and practical life in the 20th century.

> *"Designers, are exploring concrete integrations of knowledge that will combine theory with practice for new productive purposes."*

One of the prerequisites of design thinking is that of joining hands, action and the concrete with abstract thought. Ideas are formed at the same time as interaction takes place through the use of sketches and prototypes (Stolterman, 2007). An important element of design thinking is that reflection takes place in action (Schön, 1983). Design thinking is thus taught in action –by doing (Rylander; 2009, Dunne and Martin, 2006).

In design thinking, the focus is on the whole rather than on details in order 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). It is a learning situation aimed at a coherent understanding of various possible solutions. Intuition occurs when thinking with the hands (Boland and Collopy, 2008), and in a sense one could say that technology and techniques, as von Wright (1986) describes the concepts, are integrated with each other and the distinction disappears.

2.5.2 Collaborative

The process of designing is often described as being iterative and focused on understanding the problems from different perspectives rather than finding one determinate solution (Lawson, 2006; Cross, 2006; Edeholt, 2004). The result of the process is often several solutions, each working as an argument in a dialogue with different contexts and perspectives. Designing is also described as a sense-making process (Krippendorf, 1989; Verganti, 2009). This can be exemplified by how the designer aims to integrate different, often contradictory arguments such as limitations in production, with the communication requirements from marketing and branding and the needs of the end user. The ability to facilitate an interaction between different stakeholders is thus a necessity to create new solutions. Empathy for the end user, in the form of the designer being the spokesperson for the end user, is also said to be a typical characteristic of the designer (Cross, 2006; Dunne and Martin, 2006).

Physical models as prototypes and sketches are often used in the design process. Each model represents an alternative reality, perspective or solution that is to be tested against the problem (Boland and Collopy, 2008). 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 (ibid.). Explicit knowledge is as Nonaka (2004) argues for by referring to Polanyi transferable in formal language, while tacit knowledge is difficult to formalize and communicate through words.

Tacit knowledge is heavily rooted in action and can be divided into cognitive and technical elements. The technical elements consist of practical know-how that is tied to a specific context. Cognitive elements are according to Nonaka (2004) different mental models. These include paradigms and beliefs that form the basis of the perspectives that individuals use to define the world around them.

With the help of visualization, the designer facilitates the iteration between explicit and tacit knowledge to explore different combinations of problems, contexts and solutions. The designer internalizes (ibid.) explicit knowledge to tacit knowledge in a kind of dialogue with the object. Externalization (ibid.) of knowledge occurs on the other hand when the designer facilitates an integration of different stakeholders in a process. Multiple models are argued to evoke emotional involvement from participants, which is said to facilitate the process and lead to several possible alternative explanations of a problem (Boland and Collopy, 2008).

2.5.3 Experimental

Designers are innovators who tend to be engaged in the “fuzzy front phase” of various new developments in industry and society (Hargadon and Sutton, 1997). Innovators tend to be venturesome, use multiple info sources, and have a greater propensity to take risks (Ainamo, 2009). Lawson (2006) in his book *How Designers Think*, describes the thought process with its different styles of thinking. He concludes, by referring to Bartlett that designers use a combination of thinking styles, but to a higher degree than other disciplines use what is called “adventurous thinking”. Adventurous thinking is characterized by putting elements together that normally are not related. Further on he argues that designing is a divergent task, in most cases leading to several contextually dependent results rather than one correct answer. Constraints are argued not to hinder creativity but to serve as inspiration and as the impetus to creative solutions (Boland and Collopy, 2008; Dunne and Martin, 2006; Ungaretti et al., 2009). It is also claimed that the designer is constantly switching between an open and inclusive creativity and a critical review of various solutions (Ullmark, 2007). Design thinking is also described as an abductive mode of thinking (Dunne and Martin, 2006; Ungaretti et al., 2009; Edeholt, 2004) which is claimed to be the logic of what might be or as Pierce expresses it (1905 in Dunne and Martin, 2006, p.518).

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

As described, design thinking is characterized as integrative, collaborative and experimental. These characteristics do not limit the business of design consultants to that of an aesthetic practice. As mentioned earlier, some scholars claim that the primary role of designers is that of a strategic resource of knowledge that rather proposes new ideas and stimuli than works with style and form (Delléra et al., 2008), and that the aesthetic perspective is no longer as obvious as it used to be (Ullmark, 2007). At the same time, the designer is mainly considered to create value by styling aesthetical, physical products at the end of a product development process that can be described with the outdated value chain metaphor (Porter, 1985).

2.6 Towards a service dominant logic

The development of business and industries has seen some major milestones that have affected the way business is organized and what is considered to lead to success. Corporate strategies seem to move from a focus on goods towards a system of both intangible and tangible products also called Product/Service Systems (PPS) (Morelli, 2002).

The metaphors we use influence the way we think and act in, for instance, how we organize a value creation process. Porter (1985) has had a great 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"* with a problem to *"integrate the holistic customer perspective"* of design in the sequential logic of the value chain. The chain metaphor is in line with the goods dominant logic (G-D logic) relevant during the industrialism paradigm since, as Normann (2001) points out, a piece of material could only be in one place at the same time. With the logic of the chain metaphor, design was often added at the end of a product development process (Wetter Edman, 2010).

The value star as defined by Normann (2001) is to a higher degree in line with the service dominant logic (S-D logic) compared to G-D logic. The importance of immaterial assets such as information is growing and these assets are liquid in the sense that they more or less can be in several places

at one and the same time. The process of production and consumption is not sequential but different stakeholders add value and exchange knowledge simultaneously in the value-creating system (ibid.). When industrial design consultancies are considered to create value by styling aesthetical, physical products, there is a danger of getting locked in the value chain metaphor and a goods dominant logic.

According to Vargo and Lusch 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'." (Vargo and Lusch, 2008, p. 26)*

The concept of a value network, as described in the value star, is central to S-D logic (Vargo et al., 2008). A value network is a structure of value proposing that social and economic actors interact to co-produce and/or exchange service offerings (Lusch et al., 2010; Maglio et al., 2008; Maglio et al., 2009; Normann, 2001). In G-D logic value resides in the product (Maglio et al., 2009; Vargo and Lusch, 2008). This could be compared with the second order of design described by Buchanan (1995; 2001), focused on the design of tangible artifacts. The third order of design is, according to Buchanan a shift of design towards the activity and the fourth towards integration within systems and environments. According to S-D logic, value is always intangible and occurs in the relation between customer and supplying organization through the competencies of the resources involved (Vargo and Lusch, 2008). In this way, the shift of focus in design resembles S-D logic since both put attention on the activity and relation between consumer and supplier. 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 for carrying the service in the value network. In S-D logic, a crucial aspect is the extent to which the customer is involved in the creation of a service. The service could either be that of enabling or relieving (Normann, 2001). Relieving means that the supplying organization performs a task for the customer that they can do better due to a special competence or scale of advantage. Enabling means helping the customer

to perform a task in a new way different from what they were able to do it before (Norman, 2001; Vargo and Lusch, 2008). Thus, an enabling service involves an element of learning to a higher degree than a relieving service. Enabling in this sense would create a higher value since it generates new knowledge in the client firm.

The resources in the design consultancy possess a specific set of competencies previously mentioned as design thinking or a “designerly” way of solving problems. The challenge lies in how to make the intangible value of the offering visible. This is a necessity if the industrial design consultancies will be able to communicate their expanded offerings such as strategic tasks (Valtonen, 2007), to potential clients and hence get paid for the service they offer.

2.7 Business model canvas

S-D logic has its own set of characteristics. These can be translated into necessary requirements for a business model based on this logic. The S-D logic requirements applied to the business model canvas used in the study are not described in detail here since they are part of the results and can be found in Table 3 in Chapter 6 – Discussion. A short description of the business model canvas, as defined by Osterwalder et al. (2005), and why it was used in the study is however, in place.

The business model canvas as described in Table 1 merges the pillar concept as described by Osterwalder et al. (2005) and how the business model building blocks are named and described by Osterwalder and Pigneur (2009). The business model canvas shows a conceptual abstraction that expresses the goals, motivations, intentions and relationships between different stakeholders (Osterwalder et al., 2005; Samavi et al., 2009). The 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). This means that the resources and competencies that currently reside in an organization are described. These consist not only of internal resources but of those available through partnership and networks (Grant, 1996). Thus, relational aspects are also argued to be a competence in a value system (Normann, 2001).

Table 1. Based on the "business model canvas", Osterwalder et al. (2005); Osterwalder and Pigneur (2009).

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.
	Channels	Describes the various means of the company to reach its customers.
	Customer relationships	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 an organization (Mintzberg, 2000), available knowledge and competencies both internal and external need to be communicated. Weick (1995) argues, by referring to Walsch and Ungson, that an organization is a network of inter-subjectively shared meanings that are sustained by the use of a common language. Tools that communicate how value is created and what knowledge and competencies reside in the organization are for this reason, of major importance. When the knowledge is visualized, it can more easily be communicated, shared and manipulated (Osterwalder et al., 2005).

Networks are constantly reconfiguring – learning, evolving and adapting to changes in the environment (Lusch et al., 2010). What an organization knows influences how it pays attention to and interprets what it finds. An

example of this is how it makes sense of its contexts such as the market (ibid.). The prevailing view of an organization or a value network should always be questioned since it is only valid for a given time and context. This is also true when it comes to the design consultants and their collaboration and partnership with client firms. The implications of a shift from G-D logic to S-D logic will be discussed further in Chapter 6 – Discussion.

3. Scientific approach

The chapter presents the ontological and epistemological assumptions on which this thesis relies.

Nothing has a meaning in itself. Humans are active actors who strive to structure the unknown and construct sensible events (Weick, 1995). This can exemplify an ontological view emphasizing that science is contextual and colored by subjective experience (Alvesson and Sköldberg, 1995). Different ontological perspectives, of course, also have epistemological consequences. According to Kvale (1997, p. 45), knowledge with a post-modern view is seen as:

> *"…social and linguistic constructions of a perspectival reality or life-worlds that is created through social interaction between individuals such as conversations and validated through practice."*

In the sense-making process, both verbal and visual language is the basis for an increasingly important ongoing conversation in our interpretation and negotiation of the meaning of the social world (Weick, 1995). Knowledge is then constructed through action, reflection and inter-subjectively through interaction (Kvale, 1997). The ontological and epistemological assumptions that underlie this study are based on a view of reality as constructed inter-subjectively, which is to say that the meaning of different phenomena is constructed in the relation between the individual and the society (ibid.). This can be contrasted to a more objectivistic ontological view that claims the existence of objective, universal truths (ibid.).

Meanings are socially constructed and multiple realities exist simultaneously (Weick, 1995). Meanings are given to the individual by society since shared meanings become institutionalized and are considered as social facts. At the same time, Silverman claims that the individual actor defines and transforms society through interaction with other actors. The actor point of view is based on a phenomenological approach that tries to understand a social phenomenon from the perspective of the actors involved, what Kvale (1997), by referring to Husserl, calls the life-world of the actor. By using a method called phenomenological reduction, the researcher searches for

what is constant when phenomena alter in their different forms. The authors of the appended papers categorized quotations from interviews and workshops in different tables and in that way searched for similarities in how the respondents perceived their role as designers and the business of industrial design.

From a dialectic and pragmatic perspective, knowledge is deeply connected with action (Kvale, 1997). Kvale refers to Sartre when he argues that knowledge and action are two abstract aspects of one original concrete relation. This view is consistent with the previously mentioned sense-making process and communicative action. When an individual externalizes knowledge and makes it visible to others or internalizes knowledge from the outside, the individual is exposed to reflection and (inter-)action (Nonaka, 2004).

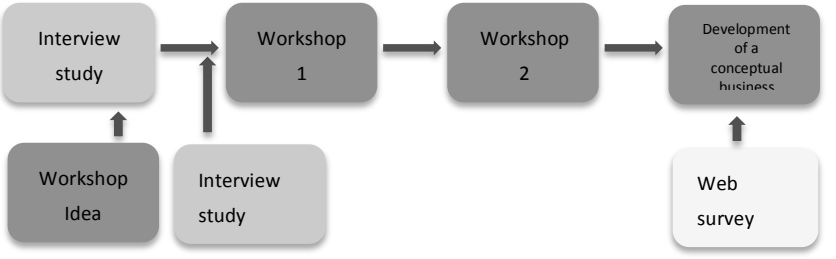
Kurt Lewin, psychologist and one of the pioneers of social and organizational psychology coined the term "action research" (Lewin, 1946). One of the major ideas of action research is to carry out research with, rather than on people or as Bennis (2010, p.23) quote Lewin, *"In order to understand anything, you must try to change it."* Lewin believed that people are more likely to adapt to new ways if they are active in the decisions that affect them. A related concept is "action learning". 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."* Chenhall and Chermack describe four models of action learning. The models describe different aspects of the two workshops we co-arranged. One aspect is that action learning is a social process aimed at gaining knowledge through experience, reflection and observation of action. The learning experience does not rely solely on the individual but also on social interaction. Nonaka (2004) also highlights this in his SECI model. SECI stands for Socialization, Externalization, Combination and Internalization, which are the four modes of knowledge conversion interacting in the spiral of knowledge creation. In the SECI model, knowledge iterates from being tacit to explicit and back again when it changes. Another aspect is that action learning will only take place if professionals adopt a critical attitude towards their practice and test it against the views of others. Action learning will then not only work as a catalyst of change but also help the professional to better understand

his/her professional sphere and in that way enhance future decision making. This could be compared with the “I” and “me” in Meads theory of “the self” as described by Rylander (2007). Mead argues that individuals take the role of “the other” by looking at themselves with the attitude they believe others have of them. By observing ourselves in different contexts we observe ourselves in the interaction with other people, physical objects and places. In this way we construct our organizational self, that is our identity as organizational members (ibid.). Finally, Chenhall and Chermack (2010) conclude that learning is an ongoing process and to have an impact on beliefs, attitudes and values in organizations, action learning should not just consist of one isolated event.

4. Methods

The purpose of this chapter is to describe the methods used in the appended papers on which this thesis is based.

Figure 2. A chronologic picture of how the researched emerged and how the different events led to the final discussion.



Based on the character of the research questions and the epistemological and ontological approach of the previous chapter, the methods of this study are mainly but not exclusively of a qualitative nature. Weick (1995) make language and meaning central concepts in sense making. According to Alvesson and Sköldberg (1994), Silverman proposes an *"actor's point of view"* in social sciences which is mostly based on phenomenology. This point of view emphasizes the need to understand the meaning an actor ascribes a certain situation. Based on these perspectives, the methods used in the study presented in this thesis aim to explore and describe the respondents' views on design and the business of industrial design. The perspectives of the respondents are then compared with how design and a service dominant logic are described in the literature. When studying social phenomenon, a multiple methods approach, also called triangulation, is often used with the aim to strengthen the study by crosschecking the results and in this way increasing the validity (Bryman, 2002; Grix, 2004).

The research presented started with an initial exploratory study with respondents from industrial design consultancies (IDCs) and their client firms. During the study, we were invited to participate and co-arrange a workshop with participants from Swedish, Finnish and American IDCs. The workshop was to take place in New York in the spring of 2007. To prepare

for the workshop further interviews with Swedish industrial design consultancies and some of their clients were done. The results of the interviews were compared with a similar study in Finland by two Finnish researchers, Haltsonen and Tuulenmäki. They conducted 5 interviews with 4 IDCs, and 3 client companies. The results from the joint analysis were categorized into five topics, each containing several propositions that then became the foundation of the workshop discussions. Notes were taken and the workshops were videotaped. A second workshop took place in Stockholm in the autumn of 2007 and the results from the first workshops were discussed among the participants supplemented with new questions regarding the future of the business of industrial design. Data from interviews and workshops were then categorized according to the structure of a conceptual business model. Since the majority of respondents and participants in interviews and workshops had a management position and came from larger sized IDCs, the results were compared and supplemented with data from a web survey (Ålander, 2009). The web survey was carried out as a master thesis project supervised by us. The questionnaire was sent via e-mail to industrial designers employed at IDCs of different sizes. Each study is described in more detail in the next sections.

4.1 Exploratory interview study

Through our initial exploratory interview study (Gummesson, 2004), we aimed at increasing our understanding of how industrial designers perceive their own competencies, role of their discipline, and business situation. We also wanted to capture how client firms perceived the industrial designer, industrial design and its role in product development and innovation in their company. The interview study consisted of fifteen in-depth interviews (Bryman, 2002) each lasting approximately two hours. The interviews were taped and later transcribed. Before the interviews, websites and annual reports were studied to gain an insight into the companies' organizations and their competitive and financial situation. More information about the companies and the number of respondents that participated can be found in Table 2.

Nine of the interviews were carried out in six industrial design consultancies of which the majority were the largest IDCs in Sweden. The respondents were either managers of the companies or senior consultants. The interviews had a semi-structured format (Bryman, 2002; Grix, 2004). The interviews covered following issues:

- Description of the industrial design industry such as competition, customers, and driving forces for changes.
- Description of the industrial design consultancy such as strategy, disciplines employed, management issues, pricing, etc.
- View of the respondent on concepts such as innovation, product development and design.
- Competencies of an industrial designer.
- Processes and methods used by industrial designers.
- Relations and power aspects concerning working in client firms.
- Inter- and intra-company learning.

The other six interviews were carried out in four companies that are clients of the IDCs. All respondents in these companies were in management positions. The questions discussed at the CFs were also in a semi-structured format and the following issues were discussed:

- View of the respondent on concepts such as design, strategy, product development and innovation.
- Descriptions of product development process.
- If and how they work with idea generation and business strategy.
- Role of an employed designer vs. industrial design consultant in their company.
- Strengths vs. weakness of the industrial design consultant.
- Who in the organization are involved in working with the designer and when?
- Learning experiences (if any) in working with IDCs.

4.2 Workshops

The results of our interviews and analysis were compared with the Finnish study that consisted of five interviews with respondents in IDCs, and three interviews with respondents in client companies. We met with the Finnish research team on two occasions and the results of our mutual analysis resulted in five topics. Each contained several propositions. The topics discussed were:

- Vision
- Market focus
- Competencies
- Work methods
- Promotion and brand

The topics became the foundation for discussions at two workshops with participants from Swedish, Finnish and American IDCs. The workshop initiative came from the Finnish-Swedish Design Academy seeing a need and opportunity for growth of the IDCs in Sweden and Finland. The notion was that the American IDCs, especially companies like IDEO and Design Continuum had had a period of growth. The objective of the workshops was that the IDCs could learn from each other. The workshops thus had an action learning purpose. Both workshops had a visionary perspective aimed at starting a discussion about the future of IDCs. Each workshop lasted two days. In the workshop six discussion groups were formed, each consisting of representatives from all three countries. The topics were discussed compared and further developed by the participants in each group. After each discussion the groups made a presentation about the results of their discussions and a comparison among all participants took place. We participated in the group discussions, took notes and video filmed the presentations and the following discussion. In the first workshop twelve Swedish, ten Finnish and nine American industrial designers participated. Our perspective, as researchers, was to study how the industrial designers made sense of the business of industrial design and their role in client firms. In the autumn of 2007, we participated in planning and carrying out a second workshop. Eleven Swedish, ten Finnish and three American industrial designers participated in this workshop. A summary of the discussions from the first workshop was presented and we had the opportunity to follow up the results from the first workshop.

Table 2. Companies involved in the study.

	Interviews	Workshop 1	Workshop 2	Employees (2008)	Turnover 2008 (EURm)	Turnover/Employee (EURm)	Industry
Industrial Design Consultancies (IDC)							
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	Acquired by former Design Communication			
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 (IDCs)		10 (5)	10 (5)		-		
US respondents (IDCs)		9 (9)	3 (3)		-		
Client Firms (CF)							
Sony Ericsson	1			9400	116 28	12.0	Consumer electronics
Electrolux	1			55177	108 37	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

4.3 Survey

The empirical data were supplemented with a web survey (Ålander, 2009). A survey does not capture the same depth in the answers and the possibility to ask counter questions as in an interview study. The role of the web survey was in the context of the whole study presented in this thesis 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 in general. The questions in the master thesis project that were relevant for our study have been compared with the results from the previously mentioned interviews and workshops.

The survey was sent to 389 designers registered on the Swedish Industrial Design list for industrial design consultancies and the response rate was 40 percent. Respondents were employed at IDCs of different sizes, the largest one with more than 40 employees and smaller ones with fewer than 20 employees.

4.4 Analysis

A cross-sectional design of a study involves collecting data on several cases to obtain several categories that are analyzed in order to detect patterns and variations in the data (Bryman, 2002). All interviews were taped and transcribed. The transcriptions were read through several times by the researchers both separately and together and then discussed to find categories of interest. The categories were then added to a table with responses and quotations from each IDC that reflected each category. Later the table was supplemented with company information from annual reports, websites and other written information. If, as mentioned earlier, multiple realities exist simultaneously, it would not be possible to gain an understanding of the design business only by searching for similarities. Similarities would reveal the perspective upon which the different actors agree. As in all disciplines, industrial designers are not a homogenous group but consist of individuals with different backgrounds and experience.

The answers in each category were also compared with the transcribed interviews from client firms. The table could then be used in our analysis in

looking for similarities, differences and contradictions. In our search for contradictions, we aimed to reveal the areas that are or might be drivers for change in the business of industrial design. In this sense, we also used a dialectical approach in the analysis of the transcribed interviews since such an approach aims at revealing contradictions and changes. The results of the analysis of 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.

Both workshops were videotaped and the researchers took notes. 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. These discussions were valuable for the discussions that took place on the second day of the workshops.

Notes from the workshops were supplemented with citations 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.

5. Summary of appended papers

The thesis is based on two papers. Paper A presents an initial analysis of the changes in the business of industrial design and the role of the industrial designer. This analysis is taken one step further in Paper B. Several consultancies perceived a problem in getting paid for the intangible parts of their value creating service. Since value creation is closely connected to the characteristics of design and the competencies of the industrial designer, Paper B also deals with these issues. In addition, Paper B examines the requisites of a conceptual business model based on service dominant logic and if the business of the industrial design consultancy is in line with a service dominant logic.

5.1 Paper A

Title: Strategic Growth of Industrial Design Consultancy: A study of changes in ID consultancy in a post-industrial society

Authors: Magnus Olsson (Eneberg's birth name); Lisbeth Svengren Holm

Status of publication: Published in the Proceedings of the 8th European Academy of Design Conference, 2009, Aberdeen, Scotland

Purpose: The purpose of this paper was to examine whether the definition and understanding of industrial design had changed in the last ten years in both the industrial design consultancy (IDC) and its client firms (CF). We also intended to study whether possible changes in the IDCs studied had an impact on their development regarding organization and management, strategic competence, relationships and alliances with CFs.

Main findings and conclusions: It was clear that there were 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. They showed a great interest in issues concerning growth and profitability. The industry went through a period of layoffs at the turn of the century due to bad market conditions and low profitability. This period led to a great awareness about the need to provide better margins and make

the industry less vulnerable. The IDCs operated in many different industries and had a broad range of offerings from different fields of design such as concept, packaging and service design.

The study showed 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, most likely, affect the small design firms. The design maturity of the client firms is increasing, which will place a higher demand on the professionalization of the design firms. In this effort, and with a growing design industry, there was a perceived need for a professional recruiting process, including human resources. The IDCs also proved to benefit from having professional managers and marketing functions. Several of the IDCs had hired employees with other educational backgrounds than design such as a business.

Another noticeable trend is the internationalization of the Swedish design firms, especially the large ones that receive commissions from foreign multinational enterprises (MNEs). We also noticed self-confidence among the IDCs in respect to their skills of integration, strategic thinking and communication. The integration skills are related to brand and product integration, technology brokering and bridging of competencies and knowledge.

Most IDCs expressed a vision to achieve a strategic role in their client's development processes. The aim of this re-orientation is aligned with an aspiration to move from an operative role to a work of greater strategic impact. Knowledge about what IDCs do and the value of their work is still mainly restricted to those who have experience working with designers. The IDCs seemed to be recognized as a valuable tool for competitiveness in their CFs; however, the strategic role of design was not always clear to the CFs.

5.2 Paper B

Title: From Goods to Service Logic: Service business model requirements in industrial design firms.

Authors: Magnus Eneberg; Lisbeth Svengren Holm

Status of publication: Submitted to The Design Journal, November, 2011

Purpose: The purpose of this paper was to describe the existing business model of the industrial design consultancies (IDCs) studied. We also aimed to describe the requisites of a business model based on service dominant logic (S-D logic) and compare it to the business model of the IDC.

Main findings and conclusions: The study has shown a change in attitude towards seeing the value of design from a systemic level, and as part of a developing industry in post-modern society as discussed by Buchanan (2001). This leads the IDCs into a service logic focused not on the physical products but on the offerings to their customers from a broader perspective or, as described by Vargo and Lusch (2008, p. 26) *"the process of doing something beneficial for and in conjunction with some entity, rather than units of output – immaterial goods."*

Larger IDCs are growing and changing in how they organize themselves, and the new competencies they acquire seem to be in line with the aspiration to move from being a consultancy focused on tangible aesthetic artifacts to one focused on intangible service offerings. Smaller IDCs still mainly consist of designers. The turnover/employee ratio in Swedish IDCs has increased. 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 have other competencies that are better suited to explain the intangible services offered by IDCs. 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. To understand the user on multiple levels is considered one of the strengths of industrial design. The competencies to integrate brand with product were mentioned during interviews as significant in the design process and also the capacity to transfer methods, technology, competencies and material between different sectors.

A service can either be that of relieving or enabling the customer. Relieving means that one entity performs a task for another entity. This can be exemplified with the CF outsourcing to the IDC to work with the aesthetics of a product at the end of a product development process. Enabling helps the other entity to do a task itself more efficiently and/or effectively. This kind of service involves learning situation where the IDC transfers its knowledge to the purchasing organization. Enabling in this sense would

create higher value since it generates new knowledge in the CF. 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 will place emphasis on the value of the intangible services delivered.

The study has shown that industrial design firms are going through a strategic development that will affect their service and relations to customers. This approach can also be the basis for communicating the value of design to clients that are not experienced in working with it strategically. Studies have shown that the design maturity of the customer firms is increasing, which will place higher demands on the professionalization of the design firms. Service logic may facilitate this development as it also unlocks the mental image of the IDC as a problem solver focused on physical products. The theoretical model in the paper that merges the perspectives of service dominant logic and business models can also be useful for other industries undergoing a shift from tangible products to intangible service.

6. Discussion

In this chapter, the study presented in the thesis is discussed from the different perspectives such as findings, contribution, methods and their relation to the research questions.

6.1 Findings and result

Weick (1995) argues, by referring to Walsch and Ungson, that an organization is a network of inter-subjectively shared meanings. Sense making is an ongoing process and the knowledge that resides in the organization needs to be communicated not the least when working with a strategy for the organization. Tools that facilitate communication are thus of major importance. When knowledge is visualized, it can more easily be communicated, shared and manipulated among several participants. This was discussed earlier in relation to prototypes and sketches. The business model is one tool that facilitates communication by visualizing the building blocks of an organization. Table 3 presents a summary of requirements on a business model (Osterwalder et al., 2005; Osterwalder and Pigneur, 2009) based on S-D logic (Maglio et al., 2009; Vargo and Lusch, 2008). The table should not be understood as a prescriptive model but a way to describe, categorize, and analyze the findings in the empirical study.

Table 3. Requirements on a business model (Osterwalder et al., 2005; Osterwalder and Pigneur, 2009) based on service dominant logic (Maglio et al., 2009; Vargo and Lusch, 2008)

Pillar	Business model building block	Requirements
Value propositions	Value propositions	Value is created through the service of an organization and 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 for new customers increases the possibility to move towards 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 than they could do it previously. 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. At the same time, paradoxically, value unfolds over time in the sense that it is consumed over and over again by each participant in the value network.
Financial	Cost structure	As the importance of the possession of resources decreases, the cost structure of each

aspects		contributing organization in a value network will change.
	Revenue streams	Depending on the structure of the business model, the offerings create certain revenue streams and cost structures in the performing organization.

6.1.1 Value proposition

The value proposition, as described in the business model canvas (Osterwalder et al., 2005), gives an overview of a company's offering. Most industrial design consultancies have a broad offering including everything from idea generation to the launching of new products or services. Larger IDCs claimed that their offerings were expanding to include new services such as packaging and strategic services. Strategic services do not imply that the IDCs are commissioned to work as some kind of business consultancy, but rather as enablers of service projects with a high strategic impact in the CF. The large IDCs offer, but have a hard time getting commissioned and paid for activities connected to visionary projects, working with scenarios and concepts without a physical end product. Buchanan (1995; 2001) describes an increasingly intangible focus of design from the symbol and artifact towards a focus on the activity and (human) systems. This shift in focus can also be seen as using the competencies of the designer with different approaches. What should be noted is that this does not imply that the IDC is giving up any of its previous roles, but broadening its offering to include others such as interaction design (Valtonen, 2007).

Buchanan (1995; 2001) points out that the different focuses of design should not be seen as different design results but as places of inventions. One example is the phone: instead of putting the artifact at the center of attention, the focus could be on communication or even interaction between humans. The iPhone is not just an artifact or a tool for the activity of phoning. It covers different sources for communication and interaction. Changing perspectives and medium creates the possibility for innovation. A concentration on the end product instead of the competencies of the designer seems to limit the possible contribution of working with design.

Common views in companies that have little or no experience of working with design are that design has to do with styling of products. This may be

due to the attention the noun “products” receives in the popular press instead of “design” as a verb. At the same time we have seen that smaller CFs that have worked with designers want a broad offering. Respondents argued that they wanted the designer to work with them during the whole process. This was because they often lacked the knowledge and skills the designer offered to the CF. The small sized CFs were often more surprised than larger companies over how design could contribute to their business after a project. It seems that the IDCs broaden the projects they are commissioned to carry out at the beginning of a project. The initial exploratory phase often leads the designer to put the problem the CF needs help solving in a wider context. This often results in a larger project with a greater strategic significance for the CF.

Unlike small CFs, the large ones seemed to want a more specified offering. The IDCs claimed it was harder to get upper management involved in the process and different departments seemed to work more in “silos”. This made it harder to involve and generate cooperation between different disciplines. Large CFs questioned the broad offering by the IDCs since they claimed that nobody has the ability to be best at everything. It seems that the competencies of the designers, what is also referred to as the designerly way of knowing (Cross, 2006), is hidden for most CFs behind the physical artifact which results in a problem in selling the intangible service offered by the IDC. Design thinking as a concept, though, has helped the design community to partly change this imbalance and direct attention to the competencies of the designer. Design thinking as a concept emphasizes the activity of designing and thus the processes and methods of designers. In those cases an IDC is able to sell strategic services, for instance, they can charge a higher price.

According to S-D logic, the actual value a company contributes to a value network resides in the intangible service (Maglio et al., 2009; Vargo and Lusch, 2008). The value resides in the competencies used by one company to do something for or together with another company in a value creating process. Products are seen as tools carrying the service rather than as an output of a process, which is the case in G-D logic (ibid.). The common view of design as the aesthetics of products is from the G-D logic perspective. A problem the IDCs experience is how to be recognized for value creating service based on their unique competencies that are not based on working with products. There seems to be a need to communicate the competencies outside the design industry. In the next

section on customer interface, the value creating competencies of the designer, i.e. the characteristics of design thinking, will be discussed.

6.1.2 Customer interface

The customer interface pillar (Table 3) describes chosen customer segments, how to keep previous customers and reach out to new ones. According to S-D logic, the way to do this is increasingly relationship dependent. Our study confirmed this claim and the respondents argued for the importance of word of mouth from previous customers to reach new ones. The respondents in both IDCs and CFs reasoned about the perceived problem of evaluating the effects of design. The experience of working with design seemed to increase the usage of design, but to reach new customers to present previous cases was of importance.

The importance of finding a specific target segment was rejected by most of the larger IDCs. The claim was that their processes and methods were relevant in all industries. They seemed to work across many different industrial sectors and argued that this was an advantage since they could move new knowledge from one sector to another. This was also confirmed by a study of Hargadon and Sutton (1997) that showed how the designers had a tendency to work as “technology brokers” transferring technical solutions between different industries and in that way contributed to innovation in CFs. Smaller sized IDCs seemed to either limit their offering to one or a few industrial sectors or focus their offering. One respondent in a larger CF argued for the problem of moving between different industrial sectors by raising the need for knowledge about limitations and possibilities in production. Another respondent working in the MedTech industry referred to the need for knowledge about restrictions and regulations. What was also noticed was that larger IDCs had large multinational corporations as clients. American and Japanese companies are increasingly seeking cooperation with Swedish IDCs due to a good reputation. At the same time, new technology simplifies value creation in CFs when the service offered does not include the need to meet in person. We also observed that several of the larger IDCs have opened up offices abroad and started to act as global players. The reason for opening up offices abroad can imply the aim to provide enabling rather than relieving service also to customers abroad.

In S-D logic, the customer is a key partner, co-creating value, rather than a passive consumer. The study also showed that a lack of involvement from different functions in the CF was perceived, by the IDCs, as one of the

major reasons for not succeeding in a project. In S-D logic there are two ways of providing service to a customer and in that way deliver value: through relieving or enabling (Lusch et al., 2010). Relieving means that a service provider performs a task or series of tasks for another party. Enabling is to provide a tool to the other party that enables that party to do a task more efficiently and/or effectively. The value contribution of a relieving service could be exemplified by an IDC performing some part of a product development process on behalf of the CF. This kind of service does not necessarily involve the CF to the same extent as an enabling service. An enabling service is to a higher degree relationship dependent and involves a learning situation where the IDC together with the CF cooperate and co-create new knowledge.

New knowledge is, according to Habermas (1984), created through an ongoing dialogue i.e. communication as an activity. Dewey also (1929) highlights the importance of (inter)action. He argues for something he calls "experimental thinking", which is signified by direct activity and that knowledge is not barely *"cooped up within mind"* but combines theory with practice. Schön (1983) also argues for the need of action in knowledge creation. According to Schön, reflection among practitioners takes place in action. Argyris (1976) divides action into espoused theory and theory in use and divides learning into double-loop and single-loop learning (see in addition the discussion about Argyris's theory of learning in section 2.2). Even if most companies claim otherwise the most common theory in use is asingle-loop learning. The claim is that there seems to be a blind spot that needs to be revealed. The enabling service of the industrial design consultancy would reveal this blind spot and thus create a higher and more long lasting value in the CF since new knowledge is created helping the CF to enhance its internal and external processes with the help of the competencies of the designer.

Design thinking, and hence the competencies of the designer, has in this thesis been characterized as integrative, collaborative and experimental. This categorization and description is by no means a claim that this thesis covers all areas of the competencies of the designer but is rather a categorization of descriptions found in design literature and in the empirical study. The integration of hand and the abstract though and reflection in action (Schön, 1983) is fundamental to the concept "design thinking". Hence the naming of the concept can be questioned since it connotate a thought process rather than action and an integration of different senses.

According to S-D logic acquiring and keeping customers is increasingly relationship dependent. The higher degree of involvement by the CF in enabling service and the learning situation that is created during cooperation would increase the chance for future cooperation. Learning affects how and what the customer pays attention to and how they interpret the offering. Integrating learning activities and dialogue in marketing activities to new customers increases the possibility to move towards selling intangible services. This is also confirmed by previous studies (Nielsén 2008; Nielsén, 2004) showing that companies that previously worked with design consciously and strategically are the ones that invest even more in design. The same study also demonstrated that the companies working with design were more innovative and had to compete less with price. This can be an indication that a situation of double-loop learning, questioning prevailing values in the adaption to the market, has taken place when taking advantage of design competencies through enabling service.

6.1.3 Infrastructure management

The resources, activities and partners that are vital for a company to execute a business model and thus create value are the issues of infrastructure management. S-D logic has a resource-based view were applied resources result in a service for the benefit of another entity. The employees and their competencies are as Vargo and Lusch express it (2008, p. 33) *"the primal source of innovation, organizational knowledge, and firm value."* Hence, the most important resources are not static ones like equipment but the knowledge and competencies that employees in the company hold, and also the competencies key partners in the value network, as customers, provide in the process (Vargo and Lusch, 2008). Key activities in a company revolve around how to manage the use of existing resources and to acquire new resources internally or through cooperation with other firms in the value network. The U.K. and the U.S. have had a number of larger IDCs since the 1980s (Julier, 2000). In Sweden, most IDCs have had less than 10 employees. When the study started, we were facing a growth trend with several IDCs with more than 25 and in some cases almost 50 employees. One of the IDCs participating in the study acquired another large IDC. Unfortunately it did not turn out as well as expected and they are again two separate IDCs. There are several internal perspectives on this specific case but changes like this, of course, place new demands on how the IDC is managed and organized.

It is rather common that IDCs were founded among friends who met at design school and brought in other new owners or employees with the same educational background. This is still the case in smaller IDCs but in larger ones, we observed a tendency to start employing people with other design backgrounds such as engineering, interaction and graphical designers. The reason for employing new design disciplines can be traced to a broadened offering. Another observed change was that some larger IDCs also hired employees with human resource and business backgrounds. One IDC employed a manager with an engineering design background, which is something unique in the Swedish IDC industry. One respondent expressed a need to hire employees with a business background as a key activity. This would make his company less dependent on business cycles by being proactive in its search for new customers and consciously working with a target market. Another respondent claimed that employing people with a business background increased the competence of the IDC to communicate with their CFs. Some IDCs have engaged board members with different professional backgrounds as a further support for their commercial development. These changes are all a response to a need to manage the IDC more professionally.

Another key activity in a business model based on S-D logic is the establishment of relationships with external partners (Vargo and Lusch, 2008). Key partners are the customers and end-users of a service. Consumption and production are increasingly occurring simultaneously. At the same time, paradoxically, value unfolds over time in the sense that it is consumed repeatedly by each participant in the value network (ibid.). Normann (2001) exemplifies this with how the student consumes knowledge while participating in a lecture. At the same time, the knowledge is consumed over and over again as new knowledge confronts the knowledge gained in the lecture. The customer is thus the co-creator of a service and not merely a consumer. Cross-functional and inter-organizational integration is a necessity to co-create value (Vargo and Lusch, 2008). Integration and interaction are also at the center of the third and forth order of design focusing on activity and the integration of human systems (Buchanan, 1995; 2001).

As mentioned earlier enabling service involves a learning situation to a higher degree than relieving service. That is why the integrating

competencies of the IDCs are of greater importance when providing enabling service. Visualization is a skill used by the designer to integrate hands and thought and in that way the enhance transfer of tacit knowledge. In this way the cooperation between the customer and the IDC is facilitated when explicit and tacit knowledge iterates (Nonaka, 2004) to explore different combination of problems, contexts and solutions.

The study also showed that if the designer is able to work across departments in the CFs, working with sketches and prototypes could enhance cross-disciplinary cooperation. One respondent in an IDC expressed the ability to work across different departments, and in that way contextualizing the problem, as one of the conditions to succeed in a project. CFs participating in the study also highlighted the importance of relationship building when they acquire design assignments. They claimed that a long-lasting cooperation was important to be able to make an outsider of an insider. This, of course, could be explained with the amount of time and money that has to be spent to understand production, markets and the competencies that the CF has access to. The designer also need to understand the user and/or customer from multiple perspectives to be able to contextualize (Cross, 2006), which often gives the users the role as co-creator in value creation and thus makes them part of the value-creation network.

Other external partners that were mentioned by the IDCs were different kinds of experts such as medical doctors, specialists in environmental issues and design organizations such as The Swedish Industrial Design Foundation – SVID and the Finnish-Swedish Design Academy. Researchers from academia were also observed as key partners, particularly to the larger IDCs but also to the previously mentioned design organizations.

6.1.4 Financial aspects

The final pillar in the conceptual business model as proposed by Ostervalder et al. (2005) is financial aspects (Table 3). Depending on the structure of the business model, the other pillars create certain revenue streams and cost structures in the IDCs. This pillar is the one that has been least examined in the study but certain conclusions can be drawn from the results under previous pillars.

The relevance of material resources has, according to Vargo and Lusch (2008), less relevance in S-D logic while social and relational aspects have

increased. At the same, time the study showed that smaller IDCs had problems in investing in new technology. This highlights the need of working in a value network and not tying up capital in heavy investments in fixed assets. Today we see companies that previously sold hardware and software creating new business models earning money on their service by licensing and leasing. One example is Dropbox Inc. that offers service to store and synchronize files. Instead of buying hardware, a customer can pay to store information over the Internet. If the predicted development continues and assets become even more liquefied (Normann, 2001), this will make small businesses such as IDCs less vulnerable.

Sometimes the IDCs agree with small startups to get a certain percentage of future profits from a product, so called royalties. These cases are rather uncommon. The most common way to price a project in IDCs is a fixed price agreed upon by the CF and IDC. The fixed price is based on the activities the IDC are to perform such as user observations. In this sense the pricing is in line with S-D logic. However, the problem for most IDCs according to respondents is to make the CFs understand and agree on the actual activities the IDC perceives is necessary to create value. Not seldom, the IDC is commissioned to add value at the end of a value chain (Porter, 1985). An example is when the CF has little or no experience working with design in projects where the IDC provides an enabling service. In other words, there seems to be a problem for the IDCs in getting CFs to understand what competencies they provide or could provide in the value creating process.

The larger IDCs showed a higher turnover ratio per employee compared to the average-sized IDC. One explanation could be that they were working in a more pro-active way with their target market, building relations with potential customers. Another reason could be that the larger IDCs had a broader offering than small IDCs including strategic service (i.e. enabling service that render a higher hourly rate compared to traditional product design service).

6.2 Method

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 perceived situation. In this way we avoided leading questions, which would have affected the reliability of the study (Kvale, 1997). At the same time, we

wanted to make sure that the discussion did not depart from issues we wanted to discuss by having a certain structure. 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 our study (ibid). Our choices may have prevented the respondents from raising questions relevant to how they view the business of industrial design consultancies. With open questions and having a dialogue in different workshop contexts we had the opportunity to take part of the reflection of the designers over a longer time than just the formal interview that lasted two hours.

Out of fifteen interviews, six respondents were from client firms. The objective with client firm interviews was to get perspectives on how clients saw and experienced the role of the IDC. The answers from CFs were compared with the answers from IDCs regarding their perspective on their own role in client firms. We wanted to find out if there were any gaps between how the IDCs and their CFs viewed the role of the design consultant. We also wanted find out if there were any differences in the perceived role of design consultants in SMEs and multinational enterprises (MNEs). Previous surveys (Nielsén, 2004; Nielsén, 2008) had shown a difference in experience and understanding of the role of design between SMEs and MNEs. Finally, the CFs were all from different industrial sectors and sizes. We wanted to make sure that the answers from the respondents were not valid only for a certain industrial sector or a certain sized companies. The CFs consisted of one large global consumer electronics corporation, one large global corporation, which mainly produces household appliances, one small consumer leisure-time products company and one small technical-medical equipment company. The number of CFs is rather small. The purpose was not to get a full cover of how the CFs viewed design, but a contribution to our understanding of how CFs of different sizes and in different industries perceived the role of the industrial design consultant. The focus was on the IDCs in this part of the study.

The workshops directed the focus away from the individual towards a dialogue where knowledge was inter-subjectively created through social interaction. A sense-making process between the different participants could take place and a collective story (Bryman, 2002) could be created. The collective story could then be used by the participants in their quest to understand their own businesses and for us as researchers in our understanding of the business of industrial design. The respondents in interviews were to a high extent the same people as those participating in

the workshops, which allowed for a prolonged period of reflection. The workshops had the form of a focus group discussion with mainly participants from the business of industrial design. One danger with focus groups is that some participants are more talkative than others and hence get more attention on their perspective (ibid.). There is also a danger that the participants only describe the story they want others to hear instead of the reality they experience. Perhaps observations of the everyday life of the design consultant would have given us other results than we received through the observation and participation in workshops. By observing the designers in their everyday lives, we would have been able to see the differences between the story the participant told and their behavior in everyday life. At the same time we as researchers and other external participants were surprised that the participants shared stories about their business to such an extent since they all were competitors.

We as researchers had the opportunity to listen and study the interaction among participants and their sense-making process. One of the major ideas of action research is to carry out research with, rather than on people. A change in the researched group was inevitable or as Lewin (1946) claimed, it is not possible to understand a system unless you change it. 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 participation in the workshops 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 IDCs. 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 kind of impact on the participants. Hence the workshops fulfilled a pragmatic validity criterion (Kvale, 1997).

In the web survey (Ålander, 2009), a response rate than 40 percent were reached after several reminders. If a later investigator follows the exact procedure of a previous investigator, the findings should be the same (Bryman, 2002). Changes in the situation and environment in the population can have an impact on the result though. Questions and procedures were well documented in the web survey project, which enabled an examination of the results. The number of responses were sufficient to eliminate random

errors (Sverke, 2004), such as a respondent marking another answer than the intended one. A pilot survey was conducted first: Two industrial designers were asked to give feedback regarding questions and the alternatives available for response. A revision of the survey was then carried out to ensure that the area to be studied was covered and that it was possible to respond to the questions in a satisfactory manner. The results of the web survey were not just used in the context of the master thesis but also in our study and discussed in Paper B.

All interviews were taped and transcribed. When they were transcribed, they were read through several times by the authors of the appended papers and then discussed to find categories of interest. The categories were then added in a table with responses and quotations from each IDC that reflected each category. The answers in each category were also compared with the transcribed interviews from client firms. When categorizing results there is always a risk to emphasize certain categorizes and deselect others. At the same time we wanted to increase the validity of the study by using quotations instead of interpreting the answers (Kvale, 1997). The table could be used in our analysis in looking for similarities, differences and contradictions. The results from both workshops were compared with the interviews. The analysis method was basically to categorize quotations from different respondents. The analysis is rather superficial in the sense that it is based on building categories, and looking for similarities in the answers received through the different methods. Contradictions were mainly found in the comparison of answers from respondents in the IDCs and respondents in CFs. Other methods of analysis would perhaps have been better in capturing how someone perceived his or her own role in a specific context. A method of analysis that studied the actual words used, and perhaps not used, may have been chosen if the authors had the chance to do it again. The study presented in this thesis is based on an immense amount of empirical data. Perhaps it would have been better to emphasize an in-depth analysis.

6.3 Aim and contribution

Finally, did I achieve the aim and answer the research questions? The answer is yes and no. The overall aim was to expand existing knowledge of the logics behind the business of industrial design. This was to be done by answering the following questions.

RQ1: What effect has a possible change in the market had on the internal organization and development of the industrial design consultancy?

The professionalization of the design industry has led to changes in the organization and development in larger industrial design consultancies. Since most of the respondents were in a management position or employed in larger firms, we cannot claim that smaller firms are undergoing the same change. This is a weakness in the study since the majority of design consultancies have fewer than ten employees and could be categorized as smaller design consultancies.

RQ2: How are the industrial designers and their clients perceiving the role of industrial design and what are the characteristics of design thinking and hence the competence of the industrial designer?

The characteristics of design thinking and hence the competencies of the industrial designer were studied based on a literature review and empirical study to understand how industrial designers perceive their role. The findings were to deliver an outside perspective and to be placed in a wider theoretical context of knowledge creation rather than provide a full picture of the competencies designers holds.

RQ3: What would the requisites of a conceptual business model based on service dominant logic look like and is the business of industrial design consultancies in line with service dominant logic?

The results presented in this thesis should not be understood as a prescriptive solution of how industrial design consultancies should conduct their business. I leave that to all the professionals that daily are working in the business of industrial design. The purpose of summarizing 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. Even if I believe that the analysis of the empirical findings could have been taken one step further, I believe that the study have resulted in new insights on knowledge creation through enabling service and the role of the industrial design consultancy as a service provider.

7. Conclusions and future research

This chapter summarizes the main conclusions of this thesis and how the overall INGO project will progress in stage two.

7.1 Conclusions

The study showed that the respondents had a great interest in growth issues in the design industry. The logic behind this is the awareness that this would make the IDC as a company less vulnerable and provide better margins for development. Offerings are being broadened to include new services and the industry seems to be undergoing a professionalization from a commercial perspective with changes in how the IDC is organized. Employees with educational backgrounds other than in industrial design are being hired. 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. The strategic role claimed, especially by larger IDCs, is not clear to the clients.

Design – its methods, processes and thinking – have a closer connection to S-D logic than G-D logic and the service of the industrial design consultancy could be either that of relieving or enabling (Norman, 2001; Vargo and Lusch, 2008). A relieving service means that the supplying organization performs a task for the other party since the supplier has special competencies or a scale of advantage. Enabling service is to a higher degree relationship-dependent and based on cooperation between the supplier and buyer. The competencies of the supplier are applied in the buying organization to start double-loop learning (Argyris, 1976). This aims at some kind of improvements in the buying organization. Relieving service could be exemplified with the client firm outsourcing later portions of its product development process to the industrial design consultancy, commissioning it to use its designers' specialist skills in working with the aesthetics of a product. In this example, the product is the carrier of the service provided by the IDC. Respondents in several IDCs claimed that they had a problem getting commissioned and paid for the intangible parts of their service. They also claim that their processes and methods enhance innovation and the strategic process in their CFs. The respondents argued that their main contribution in CFs is not that of styling products but in most

cases, they are commissioned to do just that in their initial contact with new customers. The literature review also confirmed the aspiration of the IDC to be that of a strategic resource in their CFs (Valtonen, 2007), and that the focus of design is becoming increasingly intangible (Buchanan, 1995; 2001). The problem to get commissioned and paid for enabling service is shared with other companies trying to shift the focus of their customers from the product to the service offered: from goods to a service dominant logic. Even if the IDC always has been a service company, it has suffered from being forced into the sequential value chain perspective of its customers (Wetter Edman, 2010). Consequently, it has been a part of G-D logic, delivering an aesthetic value at the end of a product development process.

The characteristics of design thinking and design competencies can be summarized as being integrative, collaborative and experimental. Hands and thought are integrated in a reflective dialogue with the situation (Schön, 1983) and the adventurous thinking of the designer puts elements together that normally are not related (Lawson, 2006). The visualization capabilities of the designer have the capacity to generate cooperation and making tacit knowledge explicit, inside the client firm and with users and other stakeholders in a value network. In this way, a dialogue is created integrating often contradictory arguments, such as limitations in production with the needs of end users and communication requirements from marketing. The process is argued to be experimental, switching between an open inclusive creativity and a critical review of different solutions (Ullmark, 2007). The results of the process are often several solutions that consider different contexts. Previous studies have shown that the experience of working with design enhances the understanding of the contribution design can have in client firms. Articulating the building blocks of an organization's business model can be of importance in enhancing strategy creation and organizational sense making. This in turn can enhance the communication with other stakeholder in the value creation network about the value of the service provided.

Studies have shown that the design maturity of customer firms is increasing (Nielsén, 2004; Nielsén, 2008). This will place higher demands on the professionalization of the design firms. Clarifying the service logic of the IDC in the communication with CFs would facilitate this development since it could unlock the mental image of the IDC as a problem solver focused on physical products.

7.2 Future research

Currently up to 23 million enterprises in the European Union fall under the definition of micro, small or medium sized enterprises (European Commission, 2009). About 99.4% of registered Swedish companies have fewer than 50 employees (Ekonomifakta, 2010). At the same time, several studies indicate that small and medium 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; Nielsén2008). 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 design. With reference to the studies, it seems obvious that the design industry has a great opportunity for growth by disseminating their enabling service to smaller sized companies. The same studies show that the companies that had a history of working strategically with design were more innovative, exported more and were not forced to compete as much with price.

With an increasing competitive situation, small businesses seem to gain by collaborating with industrial design consultancies taking advantage of the enabling service they provide. External sources are often needed to initiate improvements and tangible effect through business development (Bergh, 2009). Fridriksson (2008) argue that collaboration should be high up on the strategic agenda for SMEs. The need to better handle an unstable future was expressed by participants from small companies that participated in a Swedish project called krAft. The project was aiming at helping SMEs, to develop individuals and their businesses through the creation of a long-term relationship between SMEs and universities (ibid.). Large client firms often have employees working with strategic issues that in smaller sized client firms take place more ad-hoc. Löfqvist (2009) argues, by referring to Tidd, that a uniform strategy, vision or direction in small companies enhances innovation. A design driven approach is claimed to be a powerful force for innovation (Verganti, 2009; Press and Cooper, 2003; Bruce and Bessant, 2002). The enabling service of the IDC seems to lead to cooperation in and with client firms providing double loop-learning (Argyris, 1976), which leads to learning through exploration and not seldom an adaption and changes in the strategy of the client firm.

The initial portion of the research project, of which this licentiate thesis is a part, has focused on the business of industrial design. The next step in the INGO project (Innovation Capabilities and Growth) will shift the focus to the SMEs, and the relations between the two parties. The aim is to develop the understanding of how collaboration and learning between the designers and their potential client companies can be enhanced. Integration and trust aspects will receive more attention.

Finally, I hope that the contribution of this thesis will lead to a continued dialogue within the design industry and among its client firms. It is my true belief that, as Habermas (1984) argues, it is through an ongoing critical dialogue that new knowledge and understanding is created.

References

Ainamo, 2009, Building the innovation factory: the people dimension in *knowledge, technology and policy*, 22(4)

Alvesson, M., Sköldberg, K. (1994) *Tolkning och reflektion – Vetenskapsfilosofi och kvalitativ metod*, Lund, Sweden: Studentlitteratur

Argyris, C. (1976) Single-Loop and Double-Loop Models in Research and Decision Making, *Administrative Science Quarterly, 21(3), 363-275*

Bennis, W. (2010) Comment on ”Regaining Lost Relevance”, *Journal of Management Inquiry*, 19(1), 22-24

Bergh, P. (2009) Learning Among Entrepreneurs in Formal Networks: Outcomes, processes and beyond, Dissertation, Umeå University

Boland, R. Collopy, F. Lyytinen, K. Yoo, Youngjin (2008) Managing as Designing: Lessons for Organization Leaders from the Design Practice of Frank O. Gehry, *Design Issues*, 24(1), 10-25

Brown, T. (2008) Design Thinking, *Harvard Business Review,* 86(6), 84-95

Bruce, M., Bessant, J. (2002) *Design in Business: Strategic innovation through design*, Essex, England, Pearson Education Ltd.

Bryman, A. (2002) *Samhällsvetenskapliga metoder* (Social Research Methods). (B. Nilsson Trans.). Malmö, Sweden: Liber. (Original work published 2001)

Buchanan, R. (1995) Wicked Problems in Design Thinking in Buchanan, R., Margolin, V., (Eds.) *The Idea of Design: A Design Issues Reader*, (pp. 3-20), MIT Press, Cambridge, Massachusetts

Buchanan, R. (2001). Design Research and the New Learning. *Design Issues,* 17(4), 3-23

Carmel-Gilfilen, C., Portillo, M. (2010) Developmental Trajectories in design thinking, *Design Studies*, 31(1), 74-91

Chenhall, E. Chermack, T (2010) Models, definitions, and outcome variables of action learning, *Journal of European Industrial Training,* 34(7), 588-608

Cooper, R., Press, M. (2001) *The Design Agenda: A guide to successful design management,* Chichester, England, Wiley & Sons

Cross, N. (2006) *Designerly Ways of Knowing*, London: Springer

Delléra C., Marchesi A., Verganti R. (2008) Linguistic Network Configurations: Management of innovation in design-intensive firms, *International Journal of Innovation Management*, 12(1), 1-21

Dewey, J. (1929) The Quest for Certainty: A study of the relation of knowledge and action, New York: Minton, Balch & Company

Dunne, D. Martin, R. (2006) Design Thinking and How It Will Change Management Education, *Academy of Management Learning & Education,* 5(4), 512-523

Edeholt, H. (2004) Design Innovation och andra Paradoxer – om förändring satt i system, Göteborg, Sweden: Chalmers Tekniska Högskola

Ekonomifakta (2010) *Företagens storlek*, http://www.ekonomifakta.se/sv/Fakta/Foretagande/Naringslivet/Naringslivets-struktur/ (retrieved September 10th, 2011)

Eneberg, M., Svengren Holm, L., From Goods to Service Logic: Service business model requirements in industrial design firms, submitted to The Design Journal November, 2011

European Commission (2003) Commission staff working document – on the implementation of commission recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm (retrieved September 10th, 2011)

Fridriksson, H.V. (2008) *Learning processes in an inter-organizational context: A study of krAft project*, Dissertation, Jönköping International Business School

Grant, R. (1996) Toward a Knowledge-Based Theory of the Firm, *Strategic Management Journal*, 17, 109-122

Grix, J. (2004) *The foundations of research* (1st ed.), Hampshire: Palgrave Macmillan

Gummesson, E., (2004) Fallstudiebaserad forskning, in Gustavsson, B. (Ed.) *Kunskapande metoder inom samhällsvetenskapen*, (3rd ed.) (115-144) Lund, Sweden: Studentlitteratur

Habermas, J. (1984) The Theory of Communicative Action vol. 1 reason and the rationalization of society, Boston: Beacon Press

Hargadon, A., Sutton, R. (1997) Technology brokering and innovation in a product development firm, *Administrative Science Quarterly,* 42(4), 716-749

Jahnke, M., Hansson, L. (2010) Innovation of Meaning Through Design, *Design Research Journal, 2, 25-32*

Johansson, U. Svengren Holm, L. (2008) Möten kring design – Om relationer mellan design, teknik och marknadsföring, Sweden: Studentlitteratur

Johansson, U. Woodilla, J. (2010) How to avoid throwing the baby out with the bath water: An ironic perspective on design thinking, *The 26th European Group for Organizational Studies Colloquium*, Lisbon, Portugal

Julier, G. (2000) *The Culture of Design* (1st ed.). London: Sage Publications

Krippendorf, K. (1989) On the Essential Contexts of Artifacts or on the Proposition That "Design Is Making Sense (of Things), Design Issues, 5(2), 9-39

Kujala, S, Artto, K., Aaltonen, P., Turkulainen, V. (2010) Business models in project-based firms – Towards a typology of solution-specific business models, *International Journal of Project Management*, 28(2), 96-106

Kvale, S. (1997) *Den kvalitativa forskningsintervjun,* Lund, Sweden: Studentlitteratur

Lawson, B. (2006) *How designers think: The design process demystified* (4th ed.) Oxford: Architectural Press

Leavy, B. (2010) Design thinking – a new mental model of value innovation, *Strategy & Leadership,* 38(3), 5-14

Lewin, K. (1946) Action research and minority problems, *Journal of Social Issues*, 2(4), 34-46

Lusch, R., Vargo, S., Tanniru, M. (2010) Service, value networks and learning, *Journal of the Academy of Marketing Science*, 38(1), 19-31

Löfqvist, L. (2009) Innovation and Design processes in Small Established Companies, Licentiate thesis, Royal Institute of Technology, KTH, Stockholm, Sweden

Maglio, P., Spohrer, J. (2008) Fundamentals of service science, *Journal of the Academy of Marketing Science,* 36(1), 18-20

Maglio, P., Vargo, S., Caswell, N., Spohrer, J. (2009) The service system is the basic abstraction of service science, *Information Systems and e-Business Management,* 7(4), 395-406

Martin, R. (2010) Design thinking: achieving insights via the "knowledge funnel", *Strategy and Leadership*, 38(2), 37-41

Mintzberg, H. (2000) *The Rise and Fall of Strategic Planning.* Glasgow: Prentice Hall

Morelli, N. (2002) Designing Product/Service Systems: A Methodological Exploration, *Design Issues,* 18(3), 3-17

Nielsén, T. (2004) *Svenska företag om design – attityder, lönsamhet och designmognad* QNB analys och kommunikation AB on behalf of SVID – Swedish Industrial Design Foundation

Nielsén, T. (2008) *Svenska företag om design,* QNB analys och kommunikation AB on behalf of SVID – Swedish Industrial Design Foundation

Nonaka, I. (2004) A dynamic theory of organizational knowledge creation: in Starkey K.

Tempest S. McKinlay A. (Eds.), *How Organizations Learn: managing the search for knowledge* (2nd ed.) (p. 165-201). London: Thomson

Norbäck, L E, Olsson, L-E, Odenrick, P. (2006) Homo Pracademicus: Om att lära om – om sig själv och sin verksamhet, Stockholm, Bilda förlag

Normann, R (2001) Reframing Business – When the map changes the landscape, Chichester: John Wiley & Sons

Nussbaum, B. (2011) Design thinking is a Failed Experiment. So What´s Next?, *FastCo design, 6th of April,* http://www.fastcodesign.com/1663558/design-thinking-is-a-failed-experiment-so-whats-next (retrieved September 19th, 2011)

Olsson, M., Svengren Holm, L. (2008) A Profession in Transformation - The paradox of industrial and design in a post-industrial society, presented at *the 7th Nordcode seminar*, Lund, Sweden

Olsson, M., Svengren Holm, L. (2009) Strategic Growth of Industrial Design Consultancy - A study of changes in ID consultancy in a post-industrial society, *The 8th European Academy of Design Conference*, Aberdeen, Scotland

Osterwalder, A., Pigneur, Y., Tucci, C. (2005) Clarifying Business models: Origins, Present and Future of the Concept, *Communications of the Association for Information Systems*, 15, 2-38

Osterwalder, A., Pigneur, Y. (2009) *Business Model Generations*, Self-published

Porter, M. (1985) Competitive Advantage: Creating a sustaining superior performance, New York, US, The Free Press

Prahalad, C.K., Hamel, G. (1990) The Core Competence of the Corporation, *Harvard Business Review,*

Rittel, H., Webber, M. (1973) Dilemmas in a General Theory of Planning, *Policy Sciences*, 4

Robinson, R., Hackett, J. (1997) Creating the Conditions of Creativity, *Design Management Journal*, 8(4), 10-16

Rylander, A. (2007) Towards an Embodied Symbolic Interactionism, *The 23rd European Group for Organizational Studies Colloquium*, Vienna, Austria

Rylander, A. (2009) Design Thinking as Knowledge Work: Epistemological Foundations and Practical Implications, *Design Management Journal,* 5(1), 7-15

Rylander, A. (2011) Designtänkande – myt och möjlighet, *ADA,* 20th of September, http://www.adasweden.se/nyheter/branschspaning/designtankande-myt-och-mojlighet/ (retrieved September 20th, 2011)

Sawhney, M., Prandelli, E. (2004) A dynamic theory of organizational knowledge creation: in Starkey K., Tempest S., McKinlay A. (Eds.), *How Organizations Learn: managing the search for knowledge* (2nd ed.), 165-201. London: Thomson

Samavi R., Yu E., Topaloglou T. (2009) Strategic reasoning about business models: a conceptual modeling approach, *Information Systems and e-Business Management*, 7, 171-198

Schön, A. D. (1983) The Reflective Practitioner: How Professionals Think in Action. London: Basic Books Inc.

Simon, H. (1996) *The Sciences of the Artificial*, 3rd ed., Cambridge, MA: MIT Press

Stolterman, E. (2007) Designtänkande, In *Under Ytan: en antologi om designforskning* (pp. 12-19) Ilstedt Hjelm, S, (Ed.), Stockholm: Raster Förlag/SVID

Svengren, L. (1995) Industriell design som strategisk resurs: en studie av designprocessens metoder och synsätt som en del I företags strategiska utveckling, Lund, Sweden: Lund University Press

Sverke, M. (2004) Kvantitativa metoder: om konsten att mäta det man vill mäta, in Gustavsson, B. (Red.) *Kunskapande metoder inom samhällsvetenskapen,* (3rd ed.) (47-70) Lund: Studentlitteratur

Taylor, F. (1911) *The Principles of Scientific Management,* Dover Publications inc.

Ullmark, P. (2007) Forskning, Design och Konst. In *Under Ytan: En Antologi om Designforskning* (20-29) Ilstedt Hjelm, S. (Ed.), Stockholm: Raster Förlag

Ungaretti, T. Chomowicz, P. Canniffe, B. Johnson, B. Weiss, E. Dunn, K. Cropper, C. (2009) Business + Design: Exploring a Competitive Edge for Business Thinking, *SAM Advanced Management Journal,* 2, 4-11

Valtonen, A. (2007) Redefining Industrial Design: Changes in the Design Practice in Finland, Helsinki: University of Art and Design

Vargo S., Lusch, R, (2008) Why “Service?”, *Journal of the Academy of Marketing Science*, 36(1), 25-38

Verganti, R. (2009) Design-Driven Innovation: Changing the rules of competition by radically innovating what things mean, Boston: Harvard Business Press

Von Wright, G. H. (1986) *Vetenskapen och Förnuftet*, 3rd ed., Borgå, Finland: Bonniers

Walters, H. (2011) Design Thinking Isn´t a Miracle Cure, but Here´s how it helps, *FastCo Design*, 24th of March, http://www.fastcodesign.com/1663480/design-thinking-isnt-a-miracle-cure-but-heres-how-it-helps (retrieved September 20th, 2011)

Wetter Edman, K. (2010) Comparing Design Thinking With Service Dominant Logic, *Design Research Journal, 2, 39-45*

Weick, K. E. (1995) *Sensemaking in organizations* (1st ed.), Thousand Oaks Cliff: Sage

Wong, V. (2009) How to Nurture Future Leaders, *Business Week*, September 30

Ålander, H. (2009) Förutsättningar för framgångsrika designprojekt: utifrån designkonsultens perspektiv, Master thesis, Stockholm University, Sweden

Paper A

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?

REFERENCES

BROWN, T. 2008, Design Thinking, Harvard Business Review, June

BUCHANAN, R. 2001, Design Research and the New Learning. Design Issues, Vol. 17, No. 4

ECKERSLEY, M., SPAETH, T., BORSBOOM, T., JOHNSTON, N., and HESSE, C. 2003. Where is design consulting headed? Design Management Journal, Vol. 14, No. 3, pp20-26

LAWSON, B. 1998 (1980), How designers think. The design process demystified. 3rd ed. Oxford: Architectural Press.

MINTZBERG, H., 1994, The Rise and Fall of Strategic Planning. London: Prentice Hall

NORMANN, R. 2001, Reframing Business – When the map changes the landscape, John Wiley & Sons

ROBINSON, R., HACKETT, J. 1997, Creating the Conditions of Creativity, Design Management Journal, Vol. 8, No. 4

SEIDEL, V. 2000, Moving from Design to Strategy: the 4 roles of design-led strategy consulting, Design Management Journal, Vol. 11, No. 2

SIMON, H. 1969/1981, The Sciences of the Artificial. Cambridge, MA: MIT Press

STOLTERMAN, E. 2007. Designtänkande (Design thinking). In Under Ytan: en antologi om designforskning. Ilstedt Hjelm, S, ed, Raster Förlag/SVID, Stockholm

VALTONEN, A. 2007, Redefining Industrial Design. Changes in the Design Practice in Finland. Helsinki: University of Art and Design Helsinki

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Paper B

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FROM GOODS TO SERVICE LOGIC:

Service business model requirements in industrial design firms

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ABSTRACT

An increased interest in the concept of design thinking can be observed in academic journals, and business magazines. Instead of using the word design, which is often understood to be an artefact, the concept design thinking emphasize the actual activity of solving problems with a design approach This in turn implies an increased interest in the knowledge and competencies of the designer. At the same time design consultancies still have problems charging for intangible components in their offerings and for a role as strategic consultants. We argue that design thinking as a concept is in line with a service dominant logic rather than a goods dominant logic, and this approach can also be the basis for communicating the value of design to clients. The problem faced by industrial design consultancies is by no means unique and hence the findings can also contribute to other industries undergoing a shift from focus on products towards enabling service.

KEYWORDS - Business model, Industrial design consultancy, Service dominant logic,

INTRODUCTION

A clear definition of design has proven hard to achieve which often makes it problematic for designers to define themselves (Smith and Whitfield, 2005, Press & Cooper, 2003). Knowledge about what industrial design consultancies (IDCs) do and the value of their work is mainly restricted to those who have experience from working with industrial designers. Many IDCs have started to work with service and intangible offerings parallel to the traditional work with physical products. Additionally, IDCs define their service to include not only product development, but also strategic development integrating innovative product development with brand building (Valtonen, 2007). The strategic role of design is, however, not clear to potential client firms. Studies of Swedish companies (Nielsen, 2004 and 2008) showed that especially small and medium sized enterprises still have a view of design as styling and product development. This makes it difficult for industrial designers to claim the strategic role. Although the interest in design thinking that even entered the management arena (Brown, 2008; Martin, 2010), most IDCs still face problems charging for intangible components in their offerings, which in turn also becomes a constraint for their growth. This means that although the value of design is recognized, the IDCs could not take advantage of this development.

The purpose of this study is not only to describe the existing business model of the studied industrial design consultancies but also to compare it with the requisites of service dominant logic (S-D logic). In this paper we claim that design thinking as a concept is in line with S-D logic rather than a goods dominant logic (G-D logic), and this approach can also be the basis for communicating the value of design to clients that are not experienced in working with design strategically. The theoretical model merging the perspectives of service dominant logic and business model should also be useful for other industries undergoing a shift from tangible products towards intangible service.

CHANGES IN THE BUSINESS OF INDUSTRIAL DESIGN

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. Morelli (2002) describe 'that designers´ activities usually have focused on material artefacts … rather than on systemic solutions including services' The aim of this reorientation of moving from an operative role to one of greater strategic impact is thus not always clear.

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. This can be exemplified through a change of focus on a telephone towards the activity (i.e. communicating), freeing the solution totally from the phone. Designers are appreciated for their visualization abilities, innovative viewpoints and skills in concretizing ideas. However, the challenge lies in analyzing, interpreting and operationalizing the results from a customer perspective. 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. What should be noted is 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.

It would be fair to say that industrial design has become a more mature business phenomenon but it is only recently we have seen major changes in the organization of the IDC. The IDC is usually a very small micro-company with a handful of employees. Some IDCs share a brand where each designer has their own legal companies; share an office and other facilities with fellow designers. Worldwide, there are only a few IDCs that employ hundreds of people. In Sweden, the largest one has around 70 employees and there are a handful of IDCs with more than 10 employees. But more importantly, there is a desire to grow and raise the number of people employed (Olsson & Svengren Holm, 2009; Ålander, 2009)

SERVICE DOMINANT LOGIC

According to Vargo and Lusch (2008, p. 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 competences. … 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 only two ways of providing service to a customer and in that way deliver value: through relieving or enabling (Normann, 2001; Lusch et al., 2010). Relieving means that a service provider performs a task or series of tasks for another party. Enabling, on the other hand 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 could involve some kind of out-sourcing of activities by the purchasing organization while enabling could 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 et al, 2008). A value network is a structure of value proposing social and economic actors interacting to co-produce and/or exchange service offerings (Lusch et al., 2010; Maglio and Spohrer, 2008; 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 (Morelli, 2009).

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 has an effect on the whole ecosystem and not just on the organization that buys the initial service. Further on, value is always intangible (Maglio et al., 2009; Vargo et al, 2008). 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.

The most valuable resources in S-D logic are knowledge, competencies, abilities and relationships (Vargo et al, 2008). S-D logic is a resource-based view where applied resources result in a service for the benefit of another entity. The most important resources are not static ones like equipment, but the competence of employees or external competence. Cross-functional and inter-organizational integration of resources is a necessity to co-create value according to S-D logic (ibid.). Resources can create new resources through learning activities such as education and research (ibid.).

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 prevailing view of an organization or a value network should always be questioned since it is only valid in a given time and context. Organizations that adapt and integrate resources in new ways to create appealing value propositions that attract customers are those that survive.

THE BUSINESS MODEL STRUCTURE

This paper uses a conceptual business model (BM) based on Osterwalder (2005) and Osterwalder & Pigneur (2009) to categorize the empirical findings about how respondents in

IDCs and their potential CFs view the industrial design sector. The conceptual business model is referred to as 'the business model canvas' and consists of nine building blocks (Table 1).

Table 1. Based on 'The business model canvas', Osterwalder et al. (2005), Osterwalder & Pigneur (2009)

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.

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 (Osterwalder et al., 2005; Magretta, 2002).

The business model has a resource-based view of organizations (Kujala et al., 2010), just like S-D logic (Vargo et al, 2008). The resource-based 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 argued to be key competencies in the value systems (Normann, 2001).

Since strategy creation is not a top-down process and cannot be detached from the operation of the organization (Mintzberg, 1994; Hamel and Prahalad, 1989 in Seidel, 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 in Starkey et al., 2005). Articulating the building blocks of an organization's business model can be of importance in making tacit knowledge explicit. When the knowledge is visualized, it can more easily be communicated, shared, and manipulated (Osterwalder et al., 2005). This way of articulating tacit knowledge and making it explicit is one of the main competencies of a designer. With the help of visual tools, such as

sketches and prototypes, the knowledge that resides in individuals internally in an organization and externally among other stakeholders in the value creation network, such as customers or suppliers, is integrated.

RESEARCH METHOD

The initial part of the study had an exploratory approach with interviews of 9 respondents at 6 IDCs, and 6 respondents at 3 client firms in Sweden. The objective with client firm interviews was to get perspectives on how these clients experienced the role of the IDC and if it had changed. The results of the interviews were compared with a similar study in Finland by Haltsonen and Anselmäki. They did 5 interviews with 4 IDCs, and 3 client companies. We met and categorized the result of the interviews into five topics and propositions as an input to a workshop where Swedish, Finnish and American IDC would meet to discuss growth. 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. There was a notion that the American IDCs had had a period of growth and the aim of the workshop was that the IDCs could learn from each other and create international contacts. At what became two workshops, one in New York in the spring 2007 and one in Stockholm in the autumn 2007, 12 Swedish and 10 Finnish industrial designers met with 9 American colleagues. The workshops had the function of focus groups (Bryman, 2002). The participants were discussing issues that where pre-defined by the researchers based on the result of the interviews. In the second workshop the IDCs worked on future scenarios of the IDCs consultancy.

The empirical data from interviews and workshops where then supplemented with a survey conducted in a master thesis project (Ålander, 2009) supervised by us. It consisted of a web survey (Bryman, 2002) sent to all industrial designers registered at the Swedish Industrial Design Foundation's list for industrial designers, in total 389. 137 designers answered questions about their perceptions of how IDCs create successful projects. Two reminders were sent. The response rate was 40 percentages. The respondents were employed at IDCs of different sizes, the largest one with more than 60 employees and smaller ones with fewer than 10 employees. The response rate was considered good enough to include in our study. In this paper we have used those parts that were relevant for the issue of growth and business development.

All the materials from the first exploratory study, including the workshops and the survey have been used to develop the business model proposed in this paper.

DISCUSSION OF THE FINDINGS

In this section, we analyze and discuss the results of the empirical studies. The findings of the studies of the IDC are compared with S-D logic and we structure the discussion according to the business model presented in Table 1. The discussion is therefore based on the four pillars: value propositions, customer interface, infrastructure management, and financial aspects. The outcome of this is then presented in Table 2 with key learnings 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 as mentioned earlier. The large IDCs offer service design, that is, 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 strategy of the 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 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 a clear offer that explains the contribution they can make to potential CFs. One IDC tries to solve this by productizing or packaging intangible components in different service offerings which is exemplified in the following way:

> 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. I am starting to get a lot of support for this from my clients in Sweden. When design is used more like a management method it is used more as a synchronizing method. (IDC)

> We have a package named 'design manager for hire'. …We take the design management role, though we perform it from here. … Then we really need to talk to the management team and gain the understanding that this is a role they need. (IDC)

Most IDCs have a broad offering including everything from idea generation to specification of the final product. This is questioned by one respondent in a multinational enterprise (MNEs). He means that this makes the offer of the IDC unclear. One conclusion of the CFs was that nobody has the ability to be best at everything and according to one of the interviewed CFs, the IDCs should work with their business strategy and focus on what they are good at in the offer to CFs.

> 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). Another respondent of an MNE used the IDCs for benchmarking and as vitamin injections to the in-house design resources. 'What we hope that the external input will give us is a boost now and then. The fact is that when you are busy doing the same thing day after day it gets a little harder to look outwards.' (Design manager at large CF)

On the other hand, most SMEs seem to gain from a broad offer since they often lack resources with the competencies and knowledge that the IDCs bring to the table. A respondent in an SME said that the IDC helped them to take the strategy another step forward and that IDCs are good at connecting the product with identity of the company.

CUSTOMER INTERFACE

Most IDCs 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 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 and in that way contributing to innovations. 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'. (IDC) and 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.' (IDC)

One could probably argue that moving between industries also results in other kinds of knowledge transfer that do not reside in a certain kind of technology. 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. One designer argued that they are not experts on everything but experts in how to cooperate with other experts. This claim implies integration competencies that facilitate moving between industries. At the same time, several industries such as companies working with medical technology are tightly controlled by regulations. To posses this kind of specialist knowledge would definitely facilitate cooperation and probably lead to new projects and the possibility 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.' (CF)

A noticeable trend is the internationalization of the Swedish IDCs. The large ones in particular work for foreign MNEs. For instance, American and Japanese companies are seeking collaboration with Swedish IDCs to a greater extent according to our interviews. One explanation can be that internet, CAD/CAM technology, software and printers enable 3D prototypes to be sent as data files by e-mail and printed on the other side of the globe. When information is communicated instantaneously several actors can co-create value simultaneously in different locations without physically being in the same place as was the case in the strategic paradigm of industrialism. Another possible explanation for the increased interest from foreign MNEs is the fact that many Swedish design firms have won international awards and Swedish industrial design has a good reputation. This reputation is based on physical design and could be seen as a barrier for a move to S-D logic when Swedish IDCs start to act globally. But we have also seen that the IDCs would rather base their reputation on their user-focused process.

The majority of customers, particularly small and medium sized enterprises (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 on 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 necessary involve the CF to the same extent as an enabling service. Enabling service involve a learning situation where the IDC transfers its knowledge and competencies in a cooperation with the client organization. Innovation and change requires a shared vision that harness the creativity of all involved staff in a CF (Millward et at., 2006)

The study showed that a lack of involvement from different functions in the CF was perceived, by the respondent in the IDC, as one of the major reasons for not succeeding in a project. Enabling in this sense would create a higher value since it generates new knowledge in the CF.

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 one of the main sources in larger IDCs. Also CFs mentioned the importance of relationship building when they acquired design service and in maintaining the collaboration with a design resource when it comes to making an insider of an outsider. About half of the respondents in the survey claimed that projects based on a previous relationship increased the chances to succeed in projects. According to the IDCs building up relationships with CFs, word of mouth and the presentation of previous cases seems to be of utmost importance when 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 the need to get management involved and committed to design issues to be able to work with design as a strategic tool.

> The most important thing for us is that as much as possible is moved away from the decision-making process of R&D and comes up at the management level. It is there we need to be filtered through. It is awful to work with R&D because they have no money and no understanding of what we are working with. There is a great fear of what we do because in their eyes we are competition. (IDC)

> It is not just that we are positioning ourselves as more strategic, but we cannot work if the clients are not in a position where they think of the good of the whole company, have a long-term perspective and want it to work with the short-term sales and long-term brand building. (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 analyzed 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 do not want the uncertainty. … We have a list of 150 companies ... that we focus our resources on proactively. (IDC)

This example illustrates an active search for value networks and the need to understand the motives and intentions driving actors in the network to be accepted as active participants.

INFRASTRUCTURE MANAGEMENT

IDC operations are dominated by problem solving activities to achieve new solutions for customer problems. Consequently, the key resource in an IDC is without comparison 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 Konstfack ('Art and Design School', authors remark), friends, you could say, and then there was a guy who was trained at IHM market education. We wanted our company to operate in a genuine way. (IDC)

In the U.K. and the U.S. 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 only consist of industrial designers to a higher degree. The greater numbers of employees in larger IDCs that are not industrial designers come from other design disciplines such as interaction design, graphic design and engineering design.

Key resources are with S-D logic not static but relate to knowledge, competencies and relationship building. Thus, key activities involve acquiring, establishing and retaining resources and relationships with key players. Hiring people with the necessary knowledge is one 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 a 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, marketing functions, etc.

The survey showed another difference between large and small IDCs that has to do with information and formalization of communication with CFs. It is more frequent and formalized in larger IDCs. Involvement and communication decreases perceived uncertainty and risk. Customer involvement can also lead to an increased understanding of motives and intentions underlying the choices 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 larger IDCs with employees from different educational backgrounds.
A broad range of competences can make the IDC less vulnerable to defections and other disturbances. The conscious work with a targeted market started in one of the IDCs after the recruitment of business people into the organization. This has resulted in increased knowledge in how they communicate with their CFs.

> 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 it works 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 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 visual tools such as prototypes and sketches 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). By means of 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 can enhance communication and interaction between different disciplines in the process of strategy creation and business innovation.

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

To understand the user on multiple levels is also considered one of the strengths of industrial design. The capacity to integrate methods, technology and material between different sectors

and competence brokering (bridging functions within the CFs), integrate the brand and the product, and integrating the user were mentioned during the interviews to be of significance in the design process.

Access to technology and the position of the CF on the market was perceived as important by the respondents in IDCs to be able to succeed with a project. The lack of involvement from the start by necessary functions in the customer firm was according to the survey perceived as leading to failure according to the respondents. Thus, one key activity in IDCs would be to work as a knowledge broker and create cross functionality in the CF to be able to gather necessary information to succeed in projects. Two IDC exemplified it the following way:

> We are not experts on everything; however, we are experts in 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. ... We try to show different scenarios and say that this is the problem you have had so far. This is the input you have had from the market so far. If we extrapolate this, it will look like that. 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)

> 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 that many examples of IDCs working with external players with the goal of retaining knowledge. There were exceptions, though, in the form of cooperation aiming at integrating the knowledge residing in CFs and among customers of the CF. 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 of pricing projects 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 were 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) (SVID, 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 competences 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 the value delivered visible to the customer and in that way charge for things that are sometimes hard to put on the invoice today, such as, idea generation.

> We are seldom commissioned in that 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 focusing on the aesthetics of artefacts. One explanation could be that enabling services that lead to 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. According to S-D logic, assets will decrease in importance as information becomes liquefied. Companies selling hard 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 defections and other disturbances.

THE BUSINESS MODEL OF INDUSTRIAL DESIGN AND S-D LOGIC

In table 2 below we summarize the analysis and discussion above, showing the requirements for IDCs when working according to a S-D logic. The model is not a prescriptive one but highlights what the IDCs need to think about when developing their own service.

Table 2. Requirements on a business model (Osterwalder et al., 2005; Osterwalder and Pigneur, 2009) 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 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 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 than they could do it previously. 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. At the same time, 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, the offerings create certain revenue streams and cost structures in the performing organization.

CONCLUSIONS

In this paper we argue that the concept of design thinking can be closely connected to S-D logic. The focus is on methods and processes, that is, on the competencies and knowledge of the designer rather than on the tangible aspects of the service offering that carry the service.

A domain is a cultural system bounded by training, practice and shared knowledge. Domains such as all cultural systems change and when that happens, people see the world differently. Things taken for granted are no longer assumed and relationships among the parts change (Robinson and Hacket, 1997). There are several changes in the way industrial designers view their own role and how they see 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 development. The study has also shown 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 (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.

One contribution by IDCs could be 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 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 have noticed a new self-confidence among the IDCs in respect to their integration, strategic thinking and communication skills. The larger IDCs are growing and changing their organization, and the new competences they acquire seem to be in line with the aspiration to

move from being a consultancy focused on tangible aesthetic artefacts to one focused on intangible service offerings. Smaller IDCs still mainly consists 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. Communication channels such as design awards or previous cases based on products signal key players that the industry still is focused on tangible components in the service offerings. If the service the IDC wants to provide is that of enabling rather than relieving, then the customer has to be involved in order to create a learning experience in the customer firm. 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. 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 will place emphasis on 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 to customers. The growth trend will probably continue and most likely affect the small design firms as well. Studies have shown that the design maturity of the customer firms is increasing, which will place higher demands on the professionalization of the 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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REFERENCES

Brown, T. (2008) Design Thinking, *Harvard Business Review,* 86(6), 84-95

Bryman, A. (2002). *Samhällsvetenskapliga metoder* (Social Research Methods). (B. Nilsson Trans.). Malmö: Liber. (Original work published 2001)

Buchanan, R. (2001). Design Research and the New Learning. *Design Issues,* 17(4), 3-23

Delléra C., Marchesi A., Verganti R. (2008) Linguistic Network Configurations: Management of innovation in design-intensive firms, *International Journal of Innovation Management*, 12(1), 1-20

Grant, R. (1996) Toward a Knowledge-Based Theory of the Firm, *Strategic Management Journal*, 17, 109-122

Hargadon, A., Sutton, R. (1997). Technology brokering and innovation in a product development firm, *Administrative Science Quarterly,* 42(4), 716-749

Julier, G. (2000). *The Culture of Design* (1st ed.). London: Sage publications

Kujala, S, Artto, K., Aaltonen, P., Turkulainen, V. (2010) Business models in project-based firms – Towards a typology of solution-specific business models, *International Journal of Project Management*, 28(2), 96-106

Kvale, S. (1997). *Den kvalitativa forskningsintervjun* (The qualitative research interview), Lund: Studentlitteratur

Lusch, R., Vargo, S., Tanniru, M. (2010). Service, value networks and learning, *Journal of the Academy of Marketing Science*, 38(1), 19-31

Maglio, P., Spohrer, J. (2008). Fundamentals of service science, *Journal of the Academy of Marketing Science*, 36(1), 18-20

Maglio, P., Vargo, S., Caswell, N., Spohrer, J. (2009). The service system is the basic abstraction of service science, *Information Systems and e-Business Management,* 7(4), 395-406

Magretta, J. (2002). Why Business Models Matter, *Harvard Business Review*, 80(5), 86-92

Martin, R. (2010) Design thinking: achieving insights via the "knowledge funnel", *Strategy and Leadership*, 38(2), 37-41

Millward, H., Byrne, C., Lewis, A. (2006). Enhancing the Design Capabilities of Small and Medium-sized Enterprises Through Knowledge Transfer, *The Design Journal,* 9(3) pp. 3-13

Morelli, N., (2002). Designing Product/Service Systems: A Methodological Exploration, *Design Issues,* 18(3), 3-17

Morelli, N., (2009). Service as value co-production: reframing the service design process, *Journal of Manufacturing Technology Management,* 20(5), 568-590

Mintzberg, H. (2000). *The Rise and Fall of Strategic Planning.* Glasgow: Prentice Hall

Nielsén, T. (2004) *Svenska företag om design – attityder, lönsamhet och designmognad* (Swedish companies about design), QNB analys och kommunikation AB on behalf of SVID – Swedish Industrial Design Foundation

Nielsén, T. (2008). *Svenska företag om design* (Swedish companies about design), QNB analys och kommunikation AB on behalf of SVID – Swedish industrial design foundation

Nonaka, I. (2005). A dynamic theory of organizational knowledge creation. In Starkey K.

Press, M., and Cooper, R. (2003). *The Design Experience. The Role of Designers in the Twenty-First Century.* Ashgate Publishing Ltd.

Smith, G., Whitfield, T W A. (2005) Profiling the Designer: A cognitive perspective, *The Design Journal*, 8(2), pp. 52-60

Normann, R. (2001). *Reframing Business – When the map changes the landscape*, Chichester: John Wiley & Sons

Osterwalder, A., Pigneur, Y., Tucci, C. (2005). Clarifying Business models: Origins, Present and Future of the Concept, *Communications of the Association for Information Systems*, 15, 2-38

Osterwalder, A., Pigneur, Y. (2009). *Business Model Generations*, Self-published
Robinson, R., Hackett, J. (1997). Creating the Conditions of Creativity, *Design Management Journal*, 8(4), 10-16

Ramaduny-Ellis, D., Dix, A., Evans, M. (2010) Physicality in Design: An exploration, The Design Journal, 13(1), pp. 48-76

Seidel, V. (2000). Moving from design to strategy: the 4 roles of design-led strategy consulting, *Design Management Journal,* 11(2), 35-40

Svensson, L. (2004). Forskningsmetoders analytiska och kontextuella kvaliteter (the analytical and contextual qualities of research methods) In Allwood C.M. (Eds.) Perspektiv på kvalitativ metod (Perspectives on qualitative method). (1st ed.). (pp. 65-94). Lund: Studentlitteratur

Valtonen, A. (2007). *Redefining Industrial Design -Changes in the Design Practice in Finland*, Helsinki: University of Art and Design Helsinki.

Vargo S., Lusch, R., 2008, Why 'Service'?, *Journal of the Academy of Marketing Science*, 36(1), 25-38

Vargo, S. (2009). Toward a Transcending Conceptualization of Relationship: a service dominant logic perspective, *Journal of Business & Industrial Marketing,* 24(5), 373-379

Weick, K. E. (1995). *Sensemaking in organizations* (1st ed.), Thousand Oaks Cliff, Sage

Ålander, H. (2009). *Förutsättningar för framgångsrika designprojekt: utifrån designkonsultens perspektiv* (Prerequisites for successful design projects: from the design consultant perspective)*,* Master's thesis, Stockholm University School of Business.