

Design Performance Measures in the Context of Finnish Design Consultancies and their Client Companies

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Jenny Jonkka
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ABSTRACT

Design and design management is an area which has been gaining attention – not least because design has proved to be a crucial element for competitiveness of companies and economies alike. Design intensive companies tend to outperform industry averages on a variety of measures, including stock price. Being able to justify, account for and measure business investments is elementary input for managerial decision-making. The phenomenon of measuring design outcomes is an important but young research area worth many studies. This is one of them.

The objective of this thesis is to explore how performance outcomes of design consultancy work in particular could be evaluated. To do this, first, a literature review was conducted to look at the value and benefits from design and design consultancy work, how these values and benefits connect to the company performance and how they could be measured. Then, the empirical part of this thesis was conducted as a qualitative research. I collected material by interviewing five representatives of design consultancies and three representatives of companies utilizing design consultancy services. Based on the semi-structured interview material, common themes were identified and analyzed. The findings were summarized in a preliminary model suggesting operational measures for evaluating external design performance. It can act as a guideline framework when design measurement is developed into a more systematic direction in a company.

The design measurement practices in Finnish companies proved to vary somewhat and be on quite a basic level. The obstacles for developing these practices were identified. These are the difficulty of separating design outcomes from the other functions that intertwine in the same processes and variation of the uses and value potential according to different characteristics of companies and industries. The research also identified directions for future research in the area.

Key words

Design, design management, design consultancies, design performance measurement, metrics

TIIVISTELMÄ

Muotoilu ja muotoilujohtaminen ovat saavuttaneet huomiota enenevässä määrin, sillä muotoilulla on todistettu olevan suuri vaikutus niin yritysten kuin kansantaloudellisellekin kilpailukyvyille. Muotoiluintensiiviset yritykset päihittävät toimialansa keskiarvoja useilla mittareilla mitattuna, myös osakekurssissa. Taloudelliset investoinnit on oltava perusteltavissa ja mitattavissa, jotta liikkeenjohdolliseen päätöksentekoon saadaan todennettua tukea. Muotoilun tulosten mittaaminen on alkutekijöissä oleva tutkimusalue johon on syytä pureutua vielä usein tutkimuksin. Tämä tutkielma on yksi niistä.

Tutkielman tavoitteena on selvittää miten muotoilutoimistoiden kanssa yhteistyössä tehtyjä projekteja ja niiden tuloksia voitaisiin mitata. Jotta tavoitteen äärelle päästään, on syytä valottaa muotoilun ja muotoilutoimistojen aikaansaamia hyötyjä ja arvoja, niiden liittymistä yritysten tuottavuuteen ja selvittää, kuinka niitä voitaisiin arvioida ja mitata.

Kyseinen tutkimus toteutettiin laadullisen tutkimuksen keinoin ja materiaali koottiin haastattelemalla sekä muotoilutoimiston viittä että muotoilupalveluita käyttävän asiakasyrityksen kolmea edustajaa. Tehtyjen teemahaastattelujen perusteella suoritettiin analyysi jossa tunnistettiin ja tutkittiin niissä toistuvia teemoja ja relevanttia tietoa.

Tutkimuksen keskeinen tulos on alustava muotoilun mittaamismalli, jota voidaan käyttää lähtökohdana, kun yritys pyrkii pitkäjänteisempään ja systemaattisempaan muotoilun tuottavuuden mittaamiseen erityisesti yhteistyökumppanien kanssa tehtyjen projektien kohdalla. Muotoilun mittaamisen käytäntöjen voidaan arvioida tämän tutkimuksen perusteella vaihtelevan kohtalaisen paljon mutta ylipäättäänkin siinä ollaan melko alkeellisella tasolla. Mittaamisen käytäntöjen kehittymistä hidastavat muotoilun tulosten vaikea eroteltavuus muista yrityksen funktioista, jotka osallistuvat samoihin prosesseihin, ja muotoilun käyttötarkoitusten ja arvonluontimahdollisuuksien erot erilaisten yritysten kesken ja yli alojen. Tutkimuksessa tunnistettiin myös tulevaisuuden suuntia jatkotutkimusaiheiden osalta.

Asiasanat

Muotoilu, muotoilujohtaminen, muotoilutoimistot, muotoilun tuottavuuden mittaaminen, liiketoiminnan mittarit

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1. INTRODUCTION

In this chapter, the research topic will be introduced. It begins by mapping out the background and context and topicality for the thesis, leading to definition of research problems and objectives. Then they key concepts that relate to the research area are presented. Finally, the methodology and the structure of the study are discussed.

1.1. Background

The concept of design management is gaining increasing attention from many angles. In the beginning of 1990s, it was still seen as a fact that most companies did poorly in using the true power of design to their advantage (Sisodia, 1992). Nowadays design management has evolved into existing side by side with other management disciplines like financial, operations and marketing management. Design management discipline emphasizes the strategic management of creative assets and design needs to be regarded not only as a corporate resource but also as a source of strategic advantage. (McBride, 2007)

“Design, in the end, is about creating better things for people. Along the way, it can generate better profits as well.”

- Nussbaum (2010)

A British study from 1988 (Walsh et al.) states that many British companies are suspicious at design's potential and designers, too. In contrast, almost two decades later, Calonijs' (2004: 19) report depicts Great Britain as the pioneer country when it comes to the development of the creative businesses, and the birthplace for the whole term of creative industries. The report also concludes that Finnish design industry has good potential to promote and improve the success of the whole economy.

Whereas technological policy has been successfully rooted into the Finnish economy in the past decades, the challenge to create a long-term and sustainable strategy for development of creative industries remains. Strong industrial design competence and the related product differentiation are

essential for the competitive advantage of Finnish companies, especially those operating in international markets. (Calonius, 2004: 23-24)

Design Forum Finland's managing director has emphasized design linkages with innovation capability and presented as a goal for the Finnish design brand to increase emphasis of design as an innovation driver within the next 5-7 years (Kalhama, 2009). Furthermore, the Innovation Policy by European Commission (2009) states that design is one of the key tools for innovation in ensuring competitiveness, prosperity and well-being in Europe. Studies on the likes of urban design influence on creativity (Hospers & van Dalm, 2005) and physical space design in fostering creativity (Kent, 2007) have been conducted. Moreover, Verganti (2008, 2009) has highlighted how innovation of product meanings (i.e. *design-driven innovation*) can be fostered by strategically employing design processes. The need and benefits of combining design with business, and technology, is also reflected through the founding of our own Aalto University where this trinity is fulfilled.

Being able to justify, account for and measure business investments is early on taught at business universities. Marketing Science Institute (MSI, 2008) has listed accountability and ROI of marketing expenditures as top research priority in the recent years. Similarly, Design and Design Management Valuation has now been placed among the three top tier research priorities by Design Management Institute (DMI, 2010). Also locally, the business impact of design has been gaining attention. One of the two focus themes of 2009 Fennia Prize Design Seminar was in fact impact of design on business (Design Forum Finland, 2009).

Design investments seem to have a similar challenge that exists with marketing more generally: translating soft, intangible values into measurable figures and proving their link to the common profitability ratios used in managerial accounting (Sheth & Sharma, 2001). As design investments are commonly made with the goal of increasing and maintaining future cash flows, it is natural to try to measure and compare the return and profitability of these investments. Design pops up everywhere once we start looking but how and why to use it still lacks a clarifying and unanimous definition (Viladàs, 2009). Further exploration to this important relationship between design and company performance is still needed (Hertenstein et al., 2005). After all, CEOs and design managers alike are both faced with the same issue each day at work: company performance (Borja de Mozota, 2006).

Viladàs (2009) recommends turning to professionals when trying to make sense of why and how design should be used to help the business. A 2006 Finnish report by the Designium Innovation Center of Aalto University School of Art and Design (Designium, 2006) has mapped the design industry in Finland. Both companies that use design and companies that provide design consultancy were studied locally. It was found that 57% of the 113 respondent companies use design, and out of those 72% see it have an essential role. This means that 43% of the respondents found no use for design. Astonishingly, over half of those perceived that it was *irrelevant for the industry they operate in*, though design may potentially benefit any given company in some sense. All in all, the Designium report summarizes that the Finnish companies fail to utilize the capacity of design consultancies, and design should become a more integral part of strategic business activities especially for internationally operating companies.

Overall, research on design management has been scarce even though it is an important concept (Chiva & Alegre, 2009). McBride (2007) states that now is the time for design management to demonstrate its value in the economic context of the time. Especially, quantifying the contribution of design to financial performance of companies is an underdeveloped area of research. This shortcoming has managers and decision-makers relying on intuitive understanding on what design might contribute to their companies. The notation that good design is good business needs more explanation. (Hertenstein et al., 2005)

Studies confirm that so-called design-intensive companies are able to outperform those companies that use design less strategically have been made both internationally and nationally (see e.g. Hertenstein et al., 2005; Nyberg & Lindström, 2005: 15-20). Also the UK Design Council has examined the value of design and use of design in UK companies (Design Council, 2007). The studies confirm a link between design and business performance, showing that increasing design investments increases likelihood of turnover growth and that rapid growth is twice as likely for businesses that regard design as an integral function (Design Council, 2006).

Managers most often agree that well-designed products are what consumers prefer but may be concerned that the expenditures needed to achieve good design rise too high. (Hertenstein et al., 2005) The aforementioned leaves room for design consultancies to better justify their existence and

prove their necessity by measuring the financial impact for the customer. To enable the evolvement of design agencies more research and information is needed regarding their status quo (Tilastokeskus, 2009). Research is also needed to increase theoretical knowledge, accountability and understanding of design investments and their outcomes. There is a gap when it comes to practical theory-based models and tools with which a company could measure its design performance, especially in the case of evaluating outsourced design. Hertenstein & Platt (2000) have presented what seems to be the most comprehensive table of design performance measures. In this thesis that table is modified and augmented to suit the context of assessing design performance outcomes when external design is used.

1.2. Research problem and objectives

The purpose of the thesis is to gain more insight into the value of design and find out how design investment outcomes are and could be measured when it comes to services and work provided by design consultancies in Finland.

The research problem in question form is:

How to measure the outcomes of design consultancy work?

To be able to find the answer, the following sub-problems need to be examined:

- *What kind of outcomes and benefits are induced by design and design consultancy work?*
- *What are the potential ways and challenges for evaluating design performance?*
- *What could be the operational metrics for measuring design performance in general and external design in specific?*

The aim is to examine the mentioned research problems and sub-problems from managerial perspective. The primary audiences include design service providers, as well as executive management, design managers, investment decision-makers and design consultancy service buyers.

1.3. Key concepts

In this section, some of the key concepts related to the thesis are presented. Further concepts and terms are defined as needed upon introduction in the following chapters.

Design

In basic terms, design can be seen simply as the work carried out by professional designers. Design is an art of problem-solving and everything that human beings make can be thought of as a design outcome. The boundaries of design are only bound by the boundaries of problems. A largely cohesive view categorizes design into product design, communication design, interface/information design and environmental design. In addition, these are often accompanied by the emerging, fifth element of service design. (Lockwood & Walton, 2008: xi-xii)

However, design has for long meant different things to different people (Walsh et al., 1988). Therefore, the interviewed informants in this study will also be asked to present their own views on what design encompasses. This way what design entails is not bound with a preconceived definition.

Design Management

Design management can be defined as the bridge between design and business. It entails identifying and allocating creative assets in an organization to create sustainable, strategic advantage. (McBride, 2007) To successfully achieve company's strategic goals, design management calls for understanding of these goals and putting together design tools, methods, teams, planning requirements, passion and enthusiasm (Best, 2006: 12)

Design Consultancies

In this thesis, the term design consultancy is used for companies that provide different design services to their client companies. Design service provider and design agency are used loosely as synonyms for design consultancy.

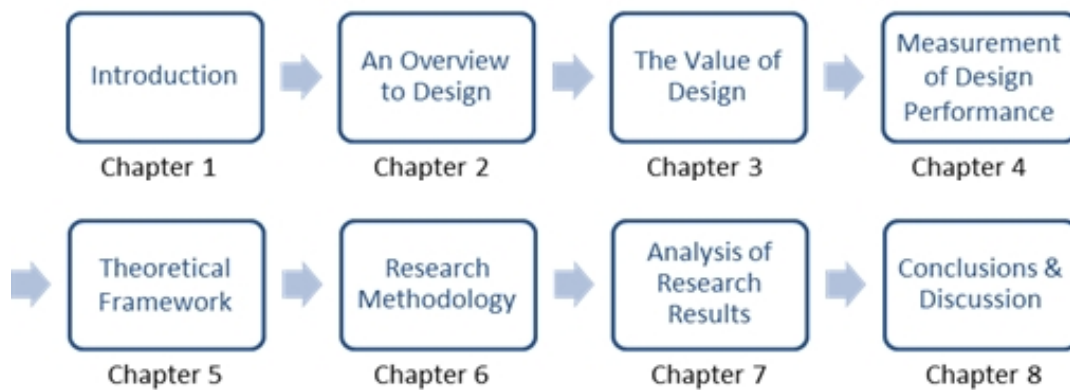
1.4. Structure

The sub-problems also form the main theoretical chapters of the thesis. In the first chapter, an overview to design is being made. Chapter 2 forms an understanding on the benefits and value of design through previous research. Thereafter, how design performance can be measured is looked at in chapter 3.

The main objective of a literature review is providing a picture of leading concepts, theories and data that are relevant to the topic to be examined (Hart, 1998: 173). In this thesis, chapters 2, 3 and 4 outline the main theoretical background of the study through a review of existing literature. The theoretical background is brought together in chapter 5 to form a theoretical framework for the empirical part of the research.

The empirical part of the thesis is then described in chapter 6 and analysed in chapter 7. It entails studying the insights of the informants related to measuring design performance. For this, the qualitative research method of interviewing is used.

The structure of the thesis can be extracted into the following:



2. AN OVERVIEW TO DESIGN

In this chapter overview to design as a whole and to the Finnish design industry are made. What design entails and what it can be used for is studied. Then, design strategy and strategic design is looked into. Next, different ways for a company to organize its design resourcing and use scenarios for external design are presented. Finally, the Finnish design consultancy business will be reviewed.

2.1. The What and the Why

The boundaries of design are somewhat blurry, which is proven by the fact that most often articles on design start by defining design in the given context. In the early stages, design was merely about function and aesthetics. Nowadays, it is becoming clearer and clearer that the design function's full potential is much more multifaceted. (Sisodia, 1992) One way to look at design is to classify design according to the different disciplines it entails. According to one definition, design is broken into product design, brand design, service design and business design. Designing identities and packaging falls under *brand design*, interaction and experience design is the main idea in *service design*, while *business design* is about supporting social and business innovations. (DMI, 2011)

It has also been said that what a supplier puts into the product is design, and value and quality what the customer perceives and obtains from the use of the product (Walsh et al., 1988). The word design is a verb and a noun encompassing both an action or process and an outcome (Best, 2006: 12; Nyberg & Lindström, 2005: 2). Design as an outcome surrounds us as products, services, interiors, buildings and software. On the other hand, design as action is a process of problem solving. (Best, 2006: 12) This problem solving can be triggered with drivers like changes in consumption, taste and commercial imperatives (Bruce & Bessant, 2002: 19), and it is a process involving decision-making from the idea all the way to the outcome (Nyberg & Lindström, 2005: 2). Nowadays, the process also covers the end of the life cycle of the design outcome, for example considering recyclability and environmental issues.

Improving the customer experience, efficiencies and waste reduction strategies are now in the core of design. (Best, 2006: 16). Design is a vital function for new product development (NPD) process alongside with research and development, marketing, manufacturing and purchasing. Its role is to

improve usability, capabilities and appearance – the user interface – of products. (Hertenstein et al., 2005)

According to Sisodia (1992) and Nyberg & Lindström (2005: 2, 5), successful product design can enable for example better manufacturability and added value, improving market position through improving product design, commanding higher prices than competitors (or higher margins with same price) and leveraging strong design to enter new markets. Nyberg & Lindström (2005: 5) add improved usability, eco-friendliness, marketability and salability, and better communication inside the company.

Nyberg & Lindström (2005) find that the use and value of design also varies from one industry to another, between products for consumers (B2C), for businesses (B2B) and services. When the products are for consumers, the emphasis is on appearance and usability and with services the design is often related to communicating and giving cues to the customers for example through design of the shop environments.

2.2. Design Strategy and Strategic Design

An organization needs a shared strategic vision. According to Lockwood & Walton (2008: 1) with design strategy can fill the gap that often exists between the corporate strategy and its execution. Design, and elementarily everything a company does, should support the overall strategy. Beyond this, design has grown into a force that at elevated levels can even inform and guide the development of the overall strategy. (Lockwood & Walton, 2008: 1)

Design can and should be viewed broadly as a way of thinking and a process and also as product, service or communication. Also innovation can be seen to depend on design, as design can bring an invention to the level of innovation by adding tangibility and usability. Improved innovation competencies can be reached by first improving the design competencies. Reaching sustainable advantages through using design calls for integrating design on corporate, business unit and operational level and building an overall design strategy. This can be achieved through appropriate design management. Strategic design does not happen by accident. It requires specific methods and purposes to be developed. (Lockwood & Walton, 2008: 2)

How design is used in companies is an equally important question as *if* it is used (SVID, 2008: 10). Also a Finnish study finds that the benefits of design are linked to how broadly design is used in a company. At best, favorable company performance outcomes will be reached when a company is able to integrate design into its strategy and build processes for using design on a continuous and long-term basis. (Lindström et al., 2006: 11) How design then is used in a company can be assessed on the *design ladder* (see

Figure 1) where a company is placed based on how strategic and intentional its design usage is. According to the country report on Sweden by Swedish Industrial Design Foundation (SVID, 2008: 10), the strategic level of design varied by company type - service companies were higher on the ladder than manufacturing ones. Also some geographic variance was found but contrary to expectations, the capital city region did not outperform the other regions.

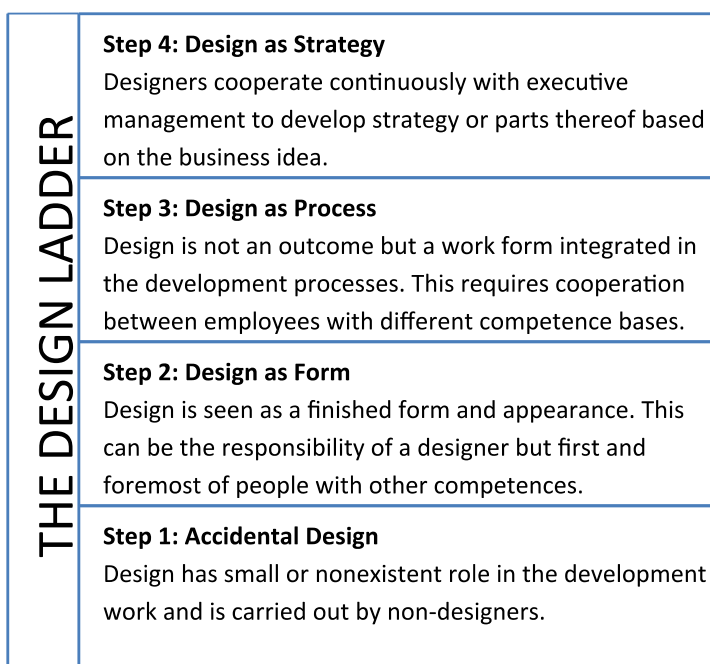


Figure 1. The Design Ladder. SVID (2008: 11).

2.3. External and Internal Design Resources

When it comes to the actual implementation of the design strategy, there are three basic alternatives. A company can either have an in-house design function, outsource design projects to design

consultancies out of house, or use a combination incorporating both in-house designers and consultants. Alanen (2009) adds the fourth often used alternative, where design is done alongside with other work. According to his research on the Finnish design field, there are only few companies that are self-supporting when it comes to design, even though the trend has been more from complete outsourcing towards combining own and external design. Out of the over hundred sample companies that were regarded as design-intensive and widely cover the Finnish business field almost one third had outsourced design entirely. (Alanen, 2009) Alanen (2009) sees that there are no general theories on how to decide between using in-house or external designers. Moreover, increasing the amount of in-house designers often leads to added investment in external designers as well. Alanen (2009) states that especially when design has a considerable effect on the usability and sales of the company's products it will face the need to buy external design services at some point in its growth. Purely judging by the costs Alanen (2009) says it makes no notable difference whether the designers are in-house or external, and none of the respondents listed price as a driver to use external services. To outsource design or not is eventually similar to any other question regarding outsourcing services but at least managing and coordinating design should be left inside the company (Alanen, 2009). This view is also supported by Bessant (2004), who sees that an organization needs capabilities to manage and deliver design to gain full benefits from its design investments or else there is the risk that the external design fails to cooperate with the inside functions.

A company's incentives to use external design resources are manifold. The advantages of hiring a design consultancy are that it is often more objective, does not compete as much for resources with other company functions, can provide fresh ideas, enables access to a wider range of expertise and can better challenge the status quo in the company. In addition to benefits, external design resources have their downside as well. It tends to be a more expensive solution and proposals can lack in relevance and viability in case of inadequate business knowledge. (Best, 2006: 50-51) Von Stamm (2004) states that in some circumstances, outside design is a better or even the only alternative, and lists similar pros and cons with Best (2006). These advantages and disadvantages between in-house and external design are combined and presented in more depth with Table 1. These can imply what alternative should be gone for based on the context and objectives, although not explicitly taking a stand to using a combination of external and internal design.

	IN-HOUSE	EXTERNAL
ADVANTAGES	<ul style="list-style-type: none"> • Cost-efficiency (depending on volume) • Instant and continuous accessibility • Easier coordination with other in-house departments • Company retains control • Designer develops intimate understanding of company • Active stake-holders • Active stake-holders and connected with internal networks and decision-makers • Control and ability to prioritize 	<ul style="list-style-type: none"> • New inspiration • Access to additional skills and expertise • Relieves work load • Accessibility of additional staff • Speed • Opportunities for changing, challenging and exploring different options • Can be bought if and when needed • Objective, non-political and more likely to say 'no' • Can focus solely on the defined problem and solution • Client more likely to listen
DISADVANTAGES	<ul style="list-style-type: none"> • Lack of creativity/new ideas • The need to keep the design team busy—e.g., the need for ongoing development work • Losing touch with external developments • Getting stale and bored • Risk of being self-satisfied and less objective • May need to compete for resources with other units/functions 	<ul style="list-style-type: none"> • Lack of understanding of company-specific issues • Problems of ready accessibility • Problems in the coordination with in-house design and/or other departments • Potential lack of confidentiality • Company needs skills to evaluate the design work • Not-invented-here syndrome • Problems with industrializing the externally developed design • Loss of control • Credibility gap and unviability if design is too far from company's own style • Being made a low priority on agency's agenda

Table 1. Advantages and disadvantages of in-house and external design. Combined from: von Stamm (2004) & Best (2006: 50-51)

Alanen (2009) has also listed four main groups of reasons to use external design resources to complement in-house design: 1. Own forces have limited time to complete all design related tasks and external designers are used to increase capacity and cover for seasonality. 2. Fresh ideas and views from outside are wanted to complement the in-house resource. 3. Some parts of the product development may be outsourced as their own entities, for instance graphic design. When more integral parts of product development are outsourced, the relationship to the service provider is usually a long partnership. 4. In case the products and product concepts are remodelled very seldom, a design consultancy may only be employed when the actual design of the new product collection takes place. These are often large-scale investment products and manufactured in limited

amounts. This group also includes companies whose products do not need extensive design apart from package or graphic design that may be then outsourced.

2.4. Finnish Design Business Industry

A report by ETLA, the Research Institute of the Finnish Economy, divides the design industry sectors in Finland into architectural services, industrial design and graphic design (Lindström et al., 2006: 20). Comparable with ETLA’s classification is the one Statistics Finland put into effect in 2007 dividing the design services between graphic design, interior and spatial design, and industrial design (Tilastokeskus, 2009). The number of companies in these categories is clarified in Table 2 that also shows the company sizes based on revenue.

Number of Finnish Design Agencies Based on Revenue (2007)			
Euros	Graphic Design	Interior Design	Industrial Design
> 1 mn		4	10
0,6 - 1 mn		6	4
0,2 - 0,6 mn	18	40	31
0,1 - 0,2 mn	35	69	48
50 000 – 100 000	81	126	58
20 000 – 50 000	169	261	87
< 20 000	132	205	65
TOTAL	435	711	303

Table 2. Number of Finnish Design Agencies Based on Revenue (2007). Tilastokeskus (2009).

In Table 3 the companies are categorized based on full-time staff calculated through each industry’s average full-time wages. Most of the design service companies are run by 1 or 2 persons, sometimes even as secondary source of income. However, some big companies can be found in each design orientations, most of which in industrial design judging by both revenue and full-time staff. In

practice, the big consultancies offer a wide range of services, often spanning over all three design categories with different emphases.

Number of Finnish Design Agencies Based on Staff (2007)			
Full-time staff	Graphic Design	Interior Design	Industrial Design
5 or more	3	13	16
2 – 4	38	68	59
1	189	306	116
< 1	205	324	112
TOTAL	435	711	303

Table 3. Number of Finnish Design Agencies Based on Staff (2007). Tilastokeskus (2009).

The Finnish Association of Designers Ornamo, a national central organization of designers, represents individual designers in Finland. It was established in 1911 and now hosts over 1700 members (Ornamo, 2010a) out of whom 1220 are members of design division and 500 of art division (Ornamo, 2010b). The divisions entail various member associations from the respective fields. For this thesis, the most relevant of them is TKO, the association of industrial design, a part of BEDA (The Bureau of European Design Associations). According to TKO, the individual designer and design company members engage in various activities like product and concept development, brand management, user interface design and research, ergonomics, furniture and spatial design and innovations, both independently and in cooperation with other professionals. (TKO, 2010)

In 2010, some of the Finnish design consultancies founded the Finnish Design Business Association with Design Forum Finland as its platform. The members of the association consist of design service providers operating in Finland. The objectives of it include developing the design service industry and its societal impact, increasing the understanding and communication on design in the society and business world, supporting the industry vitality and cooperation between its members and to clarify the business impacts of design. (Ornamo, 2010c).

The 2006 Finnish design industry report by the Designium Innovation Center of Aalto University School of Art and Design (Designium, 2006) has studied both companies that use design and companies that provide design consultancy. It was found that 57% of the 113 responded companies use design, and out of those 72% see it have either an essential or significant role. However, still over half of the 43% who did not use design perceived that it was “irrelevant for the industry they operate in”. All in all, the report summarizes that the Finnish companies fail to utilize the capacity of design consultancies, and design should become a more integral part of strategic business activities especially for internationally operating companies. (Designium, 2006)

3. THE VALUE OF DESIGN

In this section, what constitutes the value of design is studied. Increasing understanding on how design can deliver value leads to a better ability to persuade others into exploring how they can benefit from the use of design as well. (DMI, 2011) The value mechanisms are therefore important background information enabling better communication between designers and executive management teams of companies.

First, aspects related to value of design are briefly reviewed. Then, alternative ways to look at the design value creation and its underpinnings are gone through.

3.1. Attaining Design Value

Companies that embrace design competences on conceptual and process levels in different areas of design may improve their success potential. To achieve this, design, marketing and manufacturing functions need to be integrated and combined efficiently. (Walsh et al., 1988) This is supported by Aspara's (2008) view that on top of thorough understanding of users, cooperation between product designers and developers, product and production engineers, supply chain managers, and promotion and advertising developers is essential for achieving success by design. Furthermore, this success is contributed by brand communication and promotion. (Aspara, 2008) Efficient cooperation ensures producing customer value, correspondence with customer needs, efficient production, and enables the use of relevant information at an early stage of the design process saving time and need for modifications later on. (Walsh et al., 1988)

One suggested way to protect the value of design is to register all suitable creative and intangible output as intellectual property (IP). This includes designs but covers also names, images, concepts, music and writings. Trademarks, copyrights, patents, licensing agreements, design rights and transfer of ownership are all means to protect the intellectual property. Registered intellectual property can then provide added revenue through licensing or royalty agreements and provide a valuable competitive advantage when other companies are restricted from copying and ripping off original ideas. (Best, 2006: 172) Restricting competition and copying efforts through transforming designs into IP assets will ensure that their full commercial value is realized. This requires that

design is recognized as a potential asset and carefully planning a strategy for protecting design through the entire design lifecycle preceding and following new product development phase. The phases entail for instance researching patent literature to identify opportunities and risks, generating protectable design concepts and eliminating those that overlap with the IP rights of others, identifying IP risks and ensuring that they are tolerable, protecting potential product improvements and harvesting unused IP rights. (Lockwood & Walton, 2008: 139-145)

3.2. Competitiveness and Innovation

Being competitive is a living condition for companies especially where the markets are extremely saturated and competed. To keep up with competition, a company must grow and change – in other words innovate and compete – and do so continuously. Design can offer a variety of ways to compete in the modern business environment. Apart from providing consumers with more distinctive products and services, design can also help ranging from improving product and service development process to supply-chain management and to the point of sales. (Best, 2006: 118)

Already Walsh et al. (1988) brought forward the idea of design as an enabler of competitiveness. Their typology offers a closer look at the factors at play in price and non-price competitiveness when it comes to utilizing design. These factors and influences are visible in Figure 2, the role of product design in competitiveness.

	<u>Factor in competitiveness</u>	<u>Influence of design</u>
PRICE	Sales Price Life cycle costs	Is product designed for economic manufacture? Is product designed taking into account costs of use and maintenance?
NON-PRICE Product-related	Product specification and quality	Design affects product performance, appearance, materials, finish, reliability, durability, safety, ease of use, etc.
NON-PRICE Company-related	Company image and sales promotion Delivery to time After-sales service	Product presentation, packaging and display design affects image and promotion Is product designed for ease of development and to meet delivery schedules? Is product designed for ease of service and repair?

Figure 2. The role of product design in competitiveness. Walsh et al. 1988.

Competitiveness can be divided between price competitiveness based on cost factors and non-price competitiveness that build on the product attributes and company's image, and marketing, production and service competences. Though design can contribute to all of these aspects, Lindström et al. (2006: 28-29) state that non-price competitiveness is more desirable and pursued with the use of design, and that the aim is traditionally to increase demand and enable price premiums by increasing the value the customers experience through the use of the company's services or products.

Also Borja de Mozota (2006), a widely cited academic in the design management field, has researched design value and created the four powers of design framework for managing design. This model depicted in Figure 3, is a compilation of what advantages design can bring from a management science perspective. De Mozota's categorisation is more up-to-date and comprehensive compared to the typology by Walsh et al. (1988), although some similar building blocks can be identified (e.g. brand building, product attributes, sales and price considerations). De Mozota's model adds to the picture the improvement of processes, support for change and new

opportunities and adds definition to the terminology and business results.



Figure 3.The Four Powers of Design. Borja de Mozota (2006).

In Aspara's (2008) conceptualization value creation and competition on product design takes place on three different levels. These are product category, product (model) and product variant (customization). According to Aspara (2008) for a company to reap the economic benefits out of this value creation system, it must design for fulfilling four goals with respect to competition (the first two) and retaining users' or consumers' payments and cost-efficiency (the latter two):

1. *Superior value-price combination*: At least some target segment has to perceive superior total use value – exchange price compared to competition. Uncertainty of how the total value adds up and fixed value dimensions of an already established product category complicates the requirements for design. At best the company should be able to combine the different value levels in a new way, and add new and/or eliminate old dimensions to reduce competition and induce higher proportion of payments.
2. *Inimitability*: Design for inimitability is a buffer and isolation mechanism against

competition and enables a more sustainable competitive advantage and value capture through design. In practice, inimitability can be secured by e.g. trademarks and patents (Best, 2006: 172).

3. *Manufacturability*: Products have to be designed in a manner that the price they can be sold at exceeds the production costs per unit.
4. *Customizability*: Providing use value through customizability poses another challenge for the design function. A company should design products that can be priced above what the production unit costs, including customizability, are.

3.3. Linking Design with Performance

Hietamäki et al. (2005) have prepared a report for Designium Innovation Centre at Aalto University School of Art and Design. There, the authors present a model for evaluating *strategic impacts of design*. The authors have studied Finnish export companies where design is on a strategic level to link drivers (reasons why design use can be profitable), enablers (issues that companies should consider when implementing design strategies and use) and results (measurement related to realization of strategic goals). The recognised results are threefold: process, customer and financial results. This causal typology is shown in Figure 4.

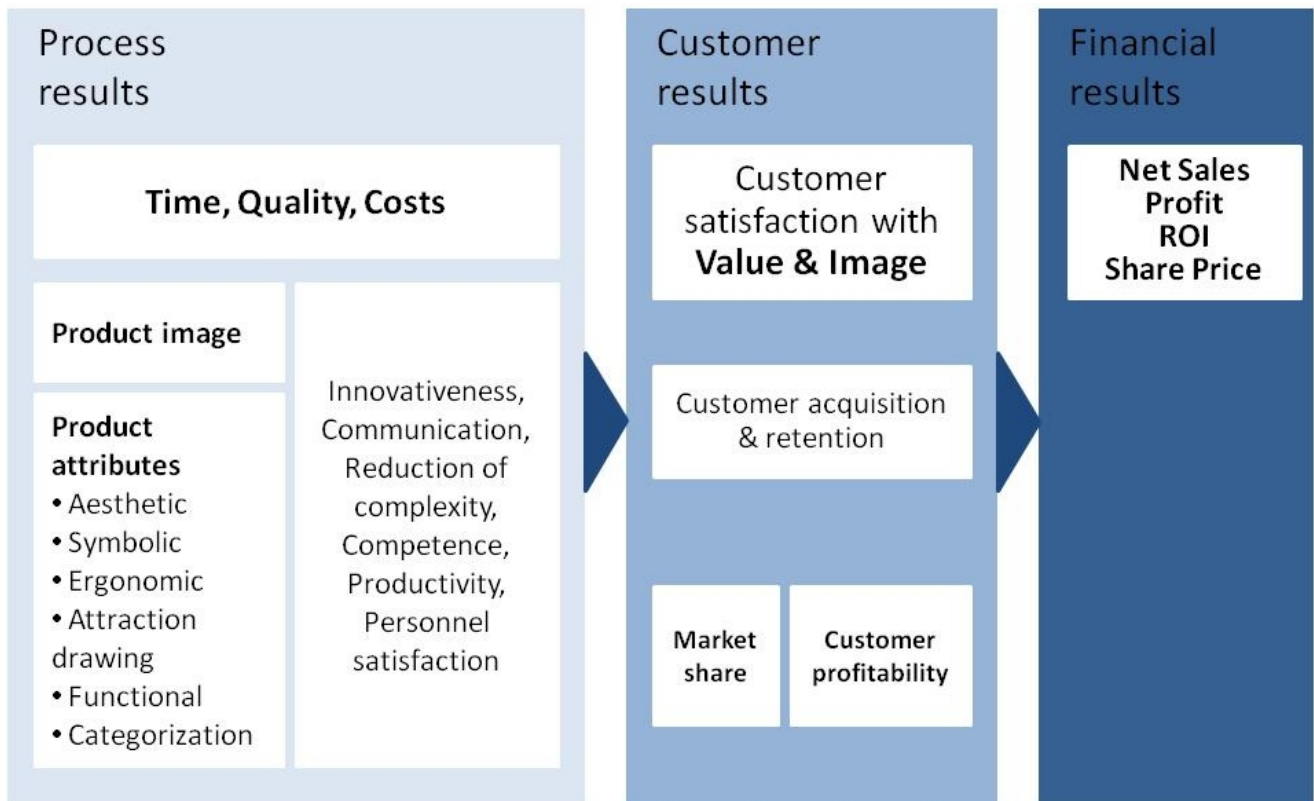


Figure 4. Causal relations of process, customer, and financial results of design. Hietamäki et al. (2005).

Also Hertenstein et al. (2005) have confirmed links between effective industrial design and financial outcomes in their comparative study of companies with low and high industrial design effectiveness ranking. The studied companies with good and effective industrial design scored persistently higher on all measures, and earned a positive return on industrial design investment. The link between industrial design and financial performance is conceptualized in Figure 5. This conceptualization establishes that ultimately, various financial performance indicators can be tracked down to industrial design contribution.

The input functions of the new product development process are in the column ‘corporate inputs’ to the left in Figure 5. It is noteworthy that industrial design is one of the many input functions of the process. All these cooperative functions are expected to contribute positively to the new product development performance of company, as with all important company processes and participating functions. The influence of several functions simultaneously is what makes evaluating an individual function’s contribution in for example the new product development process so complex. (Hertenstein et al., 2005)

Industrial designers work to improve product usability and aesthetic appearance in order to differentiate the company's offering and invoking customer interest. This combined with successful marketing communications increases the perceived customer value generating more demand and/or enabling a higher selling price. Here, pricing is a key factor for optimizing the returns on design investment, as volume alone cannot be counted on to rise and produce increased returns. Increased sales performance needs to be balanced against the costs induced to achieve them. Therefore, designers work with R&D and engineering to achieve production efficiency, defining the production costs and assets required to produce the designed product.

Decisions made on the above-mentioned areas have an impact on sales, expenses and assets, and are directly reflected in the company performance measures listed on the right hand side in Figure 5 under 'financial performance'. The performance is in turn reflected in the stock market performance and returns to stockholders. (Hertenstein et al., 2005) Products are in practice designed typically as a team effort of many actors; for example designers, product development engineers, marketing and business planners. Therefore, to separate the effect and outcome of design alone from the process is a fundamental challenge.

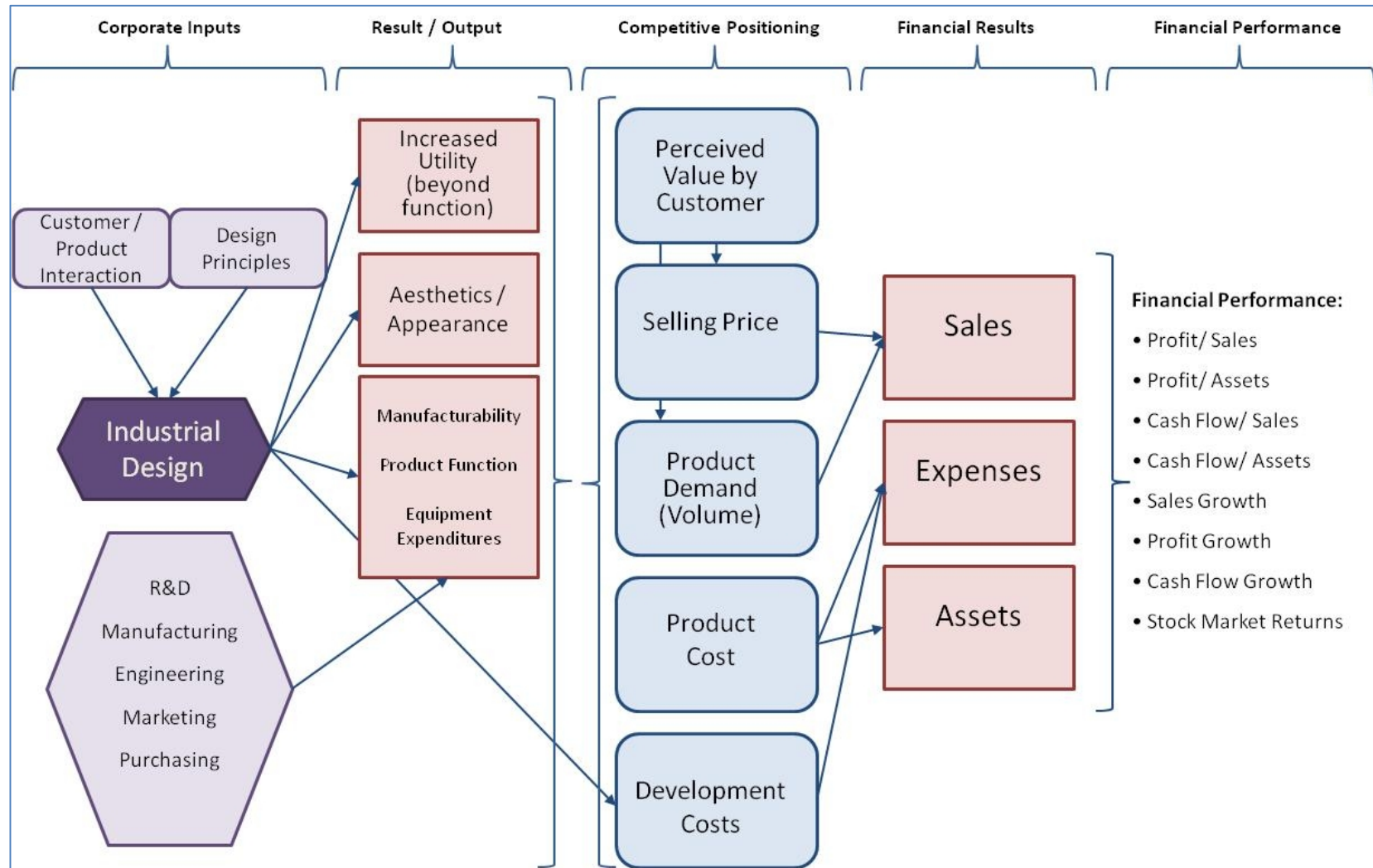


Figure 5. Mapping Effective Industrial Design Outcomes. Hertenstein et al. (2005).

4. MEASURING DESIGN PERFORMANCE AND SUCCESS

Increasing wealth is the prime goal for a company's investors, creditors and owners alike. Profitability is evaluated in each phase and area of operations and the performance goals spread throughout the whole company. (Friedlob et al., 2002: 1) To be able to evaluate strategic decisions objectively and consistently, performance measures are required (Chakravarthy, 1986). However, even though most companies identify design as a source of competitiveness, they struggle when it comes to assessing the exact contribution (Hertenstein et al., 2005).

"What you measure is what you get."

- Kaplan & Norton (1992)

In this chapter, an overview to performance measurement and the measurement of design outcomes in particular is made. Different measuring practices are looked at and important considerations and potential challenges related to design performance measurement are presented.

4.1. Corporate Performance Measurement in General

Performance measurement has been a part of companies' basic management techniques for a long time. However, the traditional performance measures used by companies have their limitations. They can be poorly defined, have a rear-view lacking predictive potential and their extensiveness overloads managers with information. (Neely, 1999) Similarly, Chakravarthy (1986) has criticized conventional, financial accounting based measures of performance (such as return on investment, return on sales, return on total capital, revenue growth) for only considering the history of a company. Moreover, these measures are limited as they also assume that one single measure can measure excellence, focus on outcomes rather than processes, and ignore other stakeholders than stockholders. (Chakravarthy, 1986)

Neely (1999) finds evidence that the practice of performance measurement has started to evolve and undoubtedly has continued to do so to this day. The author states that people and companies are increasingly interested in performance measurement due to seven main reasons: the changing nature

of work, increasing competition, specific improvement initiatives, national and international quality awards, changing organizational roles, changing external demands and the power of information technology. (Neely, 1999)

Moreover, increasing competition in the markets has led to companies adopting strategies that are driven by value rather than cost and pricing. Differentiation is sought with service quality, flexibility, customization, innovation and rapid response. This transition of strategic focus towards non-financial factors calls for a broad understanding and information on several performance dimensions. (Neely, 1999) Companies should not rely only on traditional, financial measures like return on investment because they simply do not provide enough insight and information on how well the company is doing at its strategic activities that provide it with its competitive edge (Neely, 1999; Chakravarthy, 1986). Chakravarthy (1986) sees that maximizing financial ratios may even detract from performance excellence at times, by alienating stakeholders other than shareholders or by impairing the ability to adapt to future business environment.

By adopting the right measures a company can encourage favourable behaviour, support the implementation of its strategy and communicate to its employees what is important. To be able to continuously provide customers with products and services of greater value with lower costs companies have resorted to performance improvement programs such as TQM (Total Quality Management). Again, these programs and different quality awards pose requirements for upgraded performance measurement systems, as the company needs to present detailed performance related data upon application.

In addition, various external regulators and interest groups require companies to gather and show data to prove they meet the required legal and non-legal standards, including sustainability issues. (Neely, 1999) As Chakravarthy (1986) points out, an excellent company should not only maximize stockholder wealth but also balance the interests of all its multiple stakeholder groups. Finally, the ever-evolving information technology is a powerful driver in the performance measurement revolution. Opportunities to capture, analyze and review data and to act consequently have been expanded through the advances in IT. Companies are increasingly combining traditional financial data of the annual reports with non-financial dimensions, and using IT to support performance measurement and data collection. (Neely, 1999) Given that Neely's finding dates back a whole decade of technological development at accelerated speed, this trend has only been accentuated.

Neely (1999) finds that answering the question of how business performance should and could be measured is complicated by two factors:

1. it is not always obvious which measures a firm should adopt, and
2. the measures that will be most relevant to the firm will change over time.

Therefore, a company should first concentrate on deciding which measures to adopt, and second, on managing the evolution of the measurement system. The first one entails the design and implementation of the measurement system and using it to manage the business performance on a continuous basis. The second entails establishing a process for changing the systems in line with changes in the market and strategy. It is as important to delete obsolete measures as introducing new ones as required. (Neely, 1999)

4.2. Measurement of Design Performance

The importance of design in business has increased and thereby also the need for validating design as a source of added value. Although qualitative research offers insights and indications, being able to express and reflect on observations also numerically is important for improved reliability of design performance measurement. Numerical measures are also comparable over time and place. However, to be able to cost-effectively compare results with competitor performance and building a database for benchmarking purposes a standardized research instrument is needed. One version of such an instrument called BNO DesignEffect has been created by BNO, an association of Dutch designers. (Lockwood & Walton, 2008: 147-149)

Some national associations for design have made attempts to assess design ROI and performance, for example the Dutch designer association BNO (Lockwood & Walton, 2008: 149) and UK based Design Council. (Design Council, 2007) The Design Council's Value of Design report, however, is more of a backward looking review presenting the bottom line effects identified by British design intensive businesses and does not provide actual design performance measurement tools as such.

There is quite a lot of research available on how design-intensive companies surpass non-intensive companies on performance indicators like revenue, margins, sales etc, and the industry average indices on the stock market (e.g. Design Council, 2007: 9-21; Gemser & Leenders, 2001; Hertenstein et al.,2005). These streams are also recognized by Lockwood & Walton (2008: 8).

Hertenstein et al. (2005) approach the measurement of design outcomes with examining four areas of financial performance; results relative to sales, results relative to assets, stock market return and growth rates. These four areas were covered with twelve different measures over a seven year period. The length of the time period is important as the results of industrial design effectiveness are realized with a time lag. (Hertenstein et al., 2005) According to some ratios, the more effective industrial design group scored 75% higher than the industry average. Considering that the less effective design group averaged 55% lower than the industry average, the difference is outstanding.

Investment decisions are, however, not only affected by financial factors. Financial analysis is limited to what can be expressed in monetary terms. Therefore, when evaluating investment potential, it is important to combine the financial data with managerial expertise, knowledge and consideration. (Kinnunen et al., 2002: 191) In line with this, Best (2006: 172) brings forward alternative approaches to putting a value on design apart from the basic money and share price thinking commonly prevailing in business.

What prove most interesting and relevant for the research topic of this thesis are the different measurement categorizations where both financial and non-financial aspects are used to evaluate design performance of companies.

“Design may enhance performance but unless there are metrics to gauge that benefit, the difference it makes depends on conjecture and faith.”

(Lockwood and Walton, 2008: 3)

Designers may not traditionally be thought of as numbers people and creative communities need to stop resisting quantification and start emphasizing their importance beyond anecdotal quotes like “good design is good business”. Unfortunately, design is still a mystery ingredient for many executives and therefore, design industry must capitalize on the attention it has gained in the recent times by speaking the language of business managers, i.e. measurements and numbers. There is no single silver bullet metric – companies are unique – but good metrics are characterized by being simple but not simplistic, sticky and actionable. (Lockwood and Walton, 2008: 4)

Categorization of design value measurement (see Table 4) includes areas that are relevant for business criteria and where design has a contribution, according to Lockwood & Walton (2008: 4). This framework has been prepared based on research and thoughts emerged at Design Management

Institute conferences to help in identifying areas where design and design management have a role and in isolating the role. In any design project, one or more categories will be relevant for setting criteria for measurement. (Lockwood & Walton, 2008: 4-5) In this frame, design ROI/Cost savings is listed as its own item, although all the other categories could be seen to contribute to the overall financial performance of design. This again is likely to differ depending individual company reporting practices and between measuring a single design project's outcomes versus measuring the overall ROI of the design function or design ROI of a company.

Ten Categories of Design Measurement

1. Purchase influence/ Emotion
2. Enable Strategy / Enter new markets
3. Build brand image and corporate reputation
4. Improve time to market and development processes
5. Design return on investment (ROI)/ Cost savings
6. Enable product and service innovation
7. Increase customer satisfaction/ Develop communities of customers
8. Design patents and trademarks / Create intellectual property
9. Improve usability
10. Improve sustainability

Table 4. Categories of Design Measurement. Lockwood & Walton, 2008: 4.

What then defines the success of a design project? Different stakeholders may have differing perceptions of the answer. Thus, it is important to anchor the criteria for assessing value in cooperation. This is essential when it comes to evaluating outsourced design services. Together with performance criteria, defined project aims and business objectives are important determinants of success. The value outcome can be measured with bottom-line impact or for example influence in customer perception, i.e. brand value. (Best, 2006: 170)

To measure the success of design outcomes, indicators like number of granted awards, peer and press reviews, improved brand image and awareness, better product and service quality, improved user experience, better customer service and communication or improved customer satisfaction can be used. On the other hand, measuring savings through reduced costs, overheads and customer churn also could be taken into account. (Best, 2006: 173)

While awarding good, innovative design products is relatively easy, indicating the productivity of a single function like design is a challenge. This challenge is emphasized for a company with a complex product and service portfolio. Companies with a single product may have it easier when it comes to quantifying design's impact on performance. (Bruce & Bessant, 2002: 171)

Successful design project outcomes will lead to promoting design in a company. Measuring, demonstrating, advocating and understandably communicating design's value to all stakeholders in the organization will pave the future way for design projects, involvement and working partnerships. (Best, 2006: 174)

Hertenstein & Platt (2000) have prepared a categorization (see Table 5) of in total 43 financial and non-financial measures based on expert interviews and literature reviews. This is the most comprehensive and theoretically grounded framework that was identified in the literature review. It is meant especially for assessing the outcomes of design in new product development process, but given its broadness and that it entails similar areas as the other presented categorizations, it can be concluded that it could be used for assessing design performance overall.

Financial Measures	Non-Financial Measures		
<ul style="list-style-type: none"> • Revenue/ Sales • Product cost • Development process cost - total • Development process cost – phase • Gross profit – total • Gross profit – new products • Cash flow • Net income/ Profit • Economic value added (EVA) • Stock price • Market share – product • Percent sales – new products • Percent sales – new customers • Percent sales – repeat customers • Percent sales – proprietary products • Sales to break even 	<p>Timing Measures</p> <ul style="list-style-type: none"> • Time to market • Cycle time – by phase • Time to revision • Time to break even <p>Design Effectiveness Measures</p> <ul style="list-style-type: none"> • Percent first designs meet needs • Team assessment of design effectiveness • Percent projects that reach production • Assessment of CAD use <p>Design Efficiency Measures</p> <ul style="list-style-type: none"> • Number of design modifications • Frequency of specification changes 	<p>Customer Satisfaction Measures</p> <ul style="list-style-type: none"> • Satisfaction – product • Satisfaction – style/appearance • Satisfaction – ease of use <p>Employee-rated Measures</p> <ul style="list-style-type: none"> • Employee morale • Team assessment of individual contribution • Ratio: #designers / #employees <p>Strategic Measures</p> <ul style="list-style-type: none"> • Alignment: design with company strategy • Achievement of specific strategic goals 	<p>Innovation Measures</p> <ul style="list-style-type: none"> • Number of patents • Number of new products developed • Number of new products introduced • Number of design awards • Peer evaluation of design work • Percent new features <p>Volume Measures</p> <ul style="list-style-type: none"> • Number of products in pipeline • Number of products started • Number of products completed

Table 5. Financial and Non-financial Measures of Design Performance. Hertenstein & Platt (2000).

Further on, Hertenstein & Platt (2000) also examined how frequently these measures are used by manufacturing companies where design outcomes are measured. Out of the 46 attendee companies of a design management conference, 8 fell into this category. The measure usage frequency is listed in Table 6, revealing that the most used financial measures were revenue/ sales, product cost and development process cost (total), and on the non-financial side customer satisfaction measures were at the top of the list.

	<u>Frequency</u> (out of 8)	<u>% Frequency</u>
Financial Measures		
• Revenue/ Sales	7	88
• Product cost	6	75
• Development process cost – total	5	63
Non-Financial Measures		
• Satisfaction – product	7	88
• Satisfaction – style	7	88
• Satisfaction – ease of use	7	88
• Number of patents	7	88
• Number of new products developed	7	88
• Team assessment of design effectiveness	6	75
• Achievement of specific strategic goals	6	75
• Time to market	5	63
• Number of products started	5	63
• Number of design modifications	5	63
• Number of products completed	5	63

Table 6. Frequency of Currently Used Design Performance Measures. Hertenstein & Platt (2000).

4.3. Challenges with Measuring Design Investments

According to Nyberg & Lindström (2005), the link between design and its potential is hard for a company to detect as design might be regarded as part of product development, marketing, advertising and communications or the likes. Also Herstein et al. (2005) find the link between design and performance challenging to prove because other factors and relationships (e.g. marketing and engineering) in the product development process are difficult to isolate from the effects of good design alone. Simultaneously, the authors question to what extent positive effects of design function have falsely been gracing the figures for other functions like marketing or R&D. Conclusively, effective industrial design or any other function alone cannot result in superior financial performance. This interrelatedness and some result variations identified in studies of the field require that several potential influential factors are considered. (Herstein et al., 2005) It is safe to say that to thrive companies need to use all tools at their disposal and excel at not only one activity like design to gain substantial competitive advantage. At best, different functions inside one company should not be subordinated to compete but unfortunately this silo-thinking is reality in many companies as the functions are often merited separately and compared against each other in an unsustainable manner.

Bedford et al. (2006) approached the above-mentioned design performance measurement challenge by neutralizing as many other influencing factors as possible. A project was undertaken to redesign a website and online shop. After implementing the new website design, three selected metrics – number of orders, total value of sales, and value of a sale on average – were compared to the baseline figures established before the changes. There was no advertising, no launch, no new products, no pricing changes, no new stores and no changes in strategy. Seasonality was not skewing the numbers either, as the data was compared to the same time period in the previous year. The result was clear increases in all three metrics and in absence of other influencing factors the increases could be directly linked to the new design. (Bedford et al., 2006) The described approach, however, is unrealistic for long-term use. While it may be viable for examining a single project and its outcomes, the results are not generalizable categorically into other design project outcomes of the company in question. Moreover, better outcomes and company performance might be reached when company functions are aligned and new designs are launched in accordance with well-planned and synchronized marketing efforts.

Another challenge relates to accounting. When design is seen as an expense rather than an investment with long-term return expectations, it will not be recorded as an asset in the balance sheet. This combined with the fact that the results of design often come with a time lag leads to a situation where design related figures are eliminated from profitability calculations. (Hertenstein et al., 2005) Therefore, Hertenstein et al. (2005) do not use the expression RODI, but leave the investment aspect out diminishing it to ROD.

Kaplan & Norton (1992) question the adequacy of traditional financial measures, like return on investment. To include operational measures in companies' performance measurement systems, the authors have constructed the famous Balanced Scorecard tool that includes financial, customer, innovation & learning and internal business perspectives. (Kaplan & Norton, 1992) Surely, for a company to rely solely on historical financial data when making strategic investment decisions is like driving a car only looking at the rear view mirror.

To measure design's contribution and to improve the work position for designers, understanding the mechanisms how good design can yield good financial performance is essential (Hertenstein et al., 2005) Indeed, literature and research has been paying increasing attention to this relationship and there are many studies confirming it. Chiva & Alegre (2009) have examined design investment and its financial contribution to the company, to increase understanding on their connection. They prove that investment in design does not automatically result in increased performance and success, but can be achieved with effective design management.

Bruce et al (1995) also concluded the importance of effective design management in their study. They examined the risks and rewards related to design investment and concluded that the potential rewards outweigh the risks, but can only be realized to full potential by appropriate management. Lack of design management was found to be the most common cause for design project failure. Various best practices related to effective design management that were identified by the study include: top level commitment, clear project objectives, selection of appropriate design expertise, preparation of comprehensive design briefs (including extensive market information) and regular communication between client and design companies. (Bruce et al., 1995) Moreover, the outcome of design can be compromised if other corporate functions are weak and poorly integrated with

design function. (Bruce et al., 1995; Hertenstein et al., 2005) For achieving the commercial benefits, companies must utilize design expertise and make investments in design for long term. (Bruce et al., 1995) Design is not a sure route to success but one strong alternative. Usually companies that are good at design, prove to be good at other functions like marketing and manufacture as well. (Walsh et al., 1988)

5. EVALUATING EXTERNAL DESIGN OUTCOMES

Figure 6 presents a theoretical framework based on the literature and theories presented in the previous chapters. Here, the benefits from using external design consultancies as outlined by von Stamm (2004) and Best (2006: 50-51) (see Table 1) are connected with the advantages that design in general can induce (Hertenstein et al., 2005) (Figure 5). The benefits related to external design consultancy use in particular are itemized under *external design benefits* on the left hand side, and the *general design benefits* that are linked to design investments in general are listed in the middle. In theory, these benefits and the financial value they carry and how well a company performs at pursuing them with investing in design could be evaluated with the measures outlined by Hertenstein & Platt (2000). In Table 5, the dimensions for these are listed to the right in the framework under *potential measurement areas*. These potential measures are extracted in the framework to the top categories.

The opportunities for changing, challenging and exploring different options that external design employment enables may be positively contributed by the other listed benefits as well. New inspiration and objective, fresh views of the external designers bring in a break from the norm challenging the status quo. With the decision to invest in outside consultancy made the decision-makers show signs of openness for new perspectives, and can be seen as more receptive and likely to listen. Therefore, the opportunities for change actually happening are intensified. This together with new inspiration can translate into increased value for customer in the form of new products and services. As conceptualized by Hertenstein et al. (2005) the perceived customer value is then reflected in increased desirability for the company's products that can be sold at a premium and with higher margins, and increasing their demand. Also, new perspectives of design consultants can challenge the way things are done and break the change resisting habits in favor of more efficient ways of working, potentially bringing down the costs as well.

Other big advantage characteristic to design consultancy work is its flexibility in acquiring staff, skills and expertise beyond what is available in the client company internally. This advantage brings with it mitigation to situations where the own people are overloaded with work. The flexibility of access also means that the consultants are able to focus on solving the problem. The consultants are generally sourced with a specific project or mission in mind and do not have the same day-to-day tasks that internal employees would need to dedicate time to. Together these benefits can lead to a

speedier delivery of results and efficiency in the development process, enabling cost reduction.

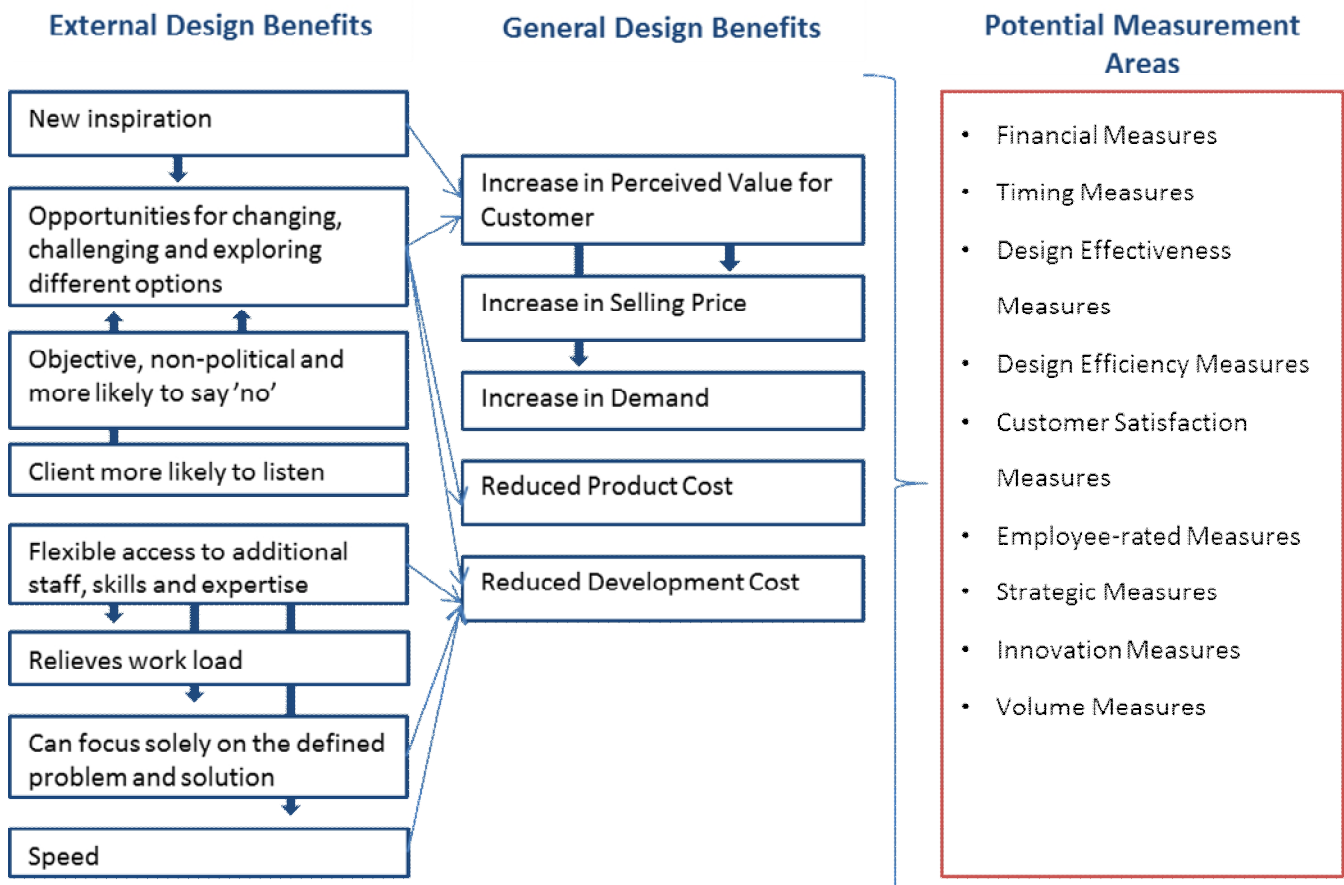


Figure 6. Theoretical Framework for Measuring the Benefits of External Design

Next step in the research is to explore the areas of the theoretical framework through an empirical analysis. With the empirical study, the framework themes will be gathered feedback on by interviewing both design consultancy and their client company representatives. The interest is to especially study the context of using external designers, as this is an underdeveloped area in previous research. Based on the empirical research, a preliminary measurement model suggestion will be prepared. The aim in the empirical part of the study is to specifically answer the following questions:

- How the external and general design benefits identified in the literature review compare to those perceived in practice by the consultancies and their client companies?
- What kind of operational measures are on one hand used, and on the other hand could be used to evaluate these design benefits?

The empirical part of research is explained in more detail next, in chapter 6, research methodology.

6. RESEARCH METHODOLOGY

In this chapter the empirical part of the study is explained. The chosen method is discussed and justified, an overview to data collection and informants made, and then, the quality of the study is reviewed.

6.1. Research Design and Method

The objective for the empirical part of the research is to study how design performance is and could be measured by Finnish design consultancies and their client companies, and to build a framework accordingly. The process for this is presented in Figure 7. First, a framework was prepared on the basis of extant literature on the research topic, as was introduced in chapter 5. Then, empirical research was conducted to gather data on the topics outlined in the framework. The chosen method for the empirical part is of qualitative nature and data is collected with interviews. Based on the analysis, a preliminary model to evaluate design performance outcomes is prepared.

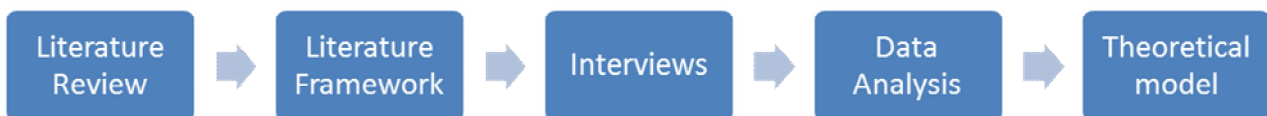


Figure 7. The Process of the Research.

The study will be executed at one single point in time making it a cross-section analysis. The interviewees will act as informants of the analysed companies and will be interviewed on a one-to-one basis. Interviewing reveals things about the world of beliefs and meanings, whereas other qualitative methods like observation are best used to examine the world of actions (Arksey & Knight, 1999: 15-16). As the intention is to specifically study the individual insights that the interviewees have into assessing design outcomes and what they find as suitable measurement methods, the chosen method seems purposeful for finding out more about the researched phenomenon. Furthermore, literature linking design benefits with measurement practices is scarce

and the natural information source for the topic is people who work with providing and acquiring design consultancy services. Qualitative interviewing is not dependent on what the researcher knows to ask about in beforehand. Therefore, interviewing method provides more scope for data collection. (Arksey & Knight, 1999: 151)

Interviews are roughly divided into three main categories. Structured or survey interview is where each respondent is presented with same questions in same order and often with answer alternatives. Open interview is an in-depth form of interview where only the topic for discussion is structured in beforehand. Between these types of interviews is the semi-structured or theme interview. (Koskinen et al., 2005: 104) For the purpose of this study, semi-structured approach is selected. The semi-structured approach is employed as it allows adapting the questions during the interviews where needed. (Koskinen et al., 2005: 104)

6.2. Data collection and Analysis

The design consultancy companies to be interviewed were selected among the members of Finnish Design Business Association (Ornamo, 2010c). The association was founded in 2010 by some of the leading Finnish design consultancies and hosts a variety of member companies providing design services and operating in Finland. Therefore, the interviewees and the data collected from them can be seen to be well representative of the Finnish design business field. One specific benefit of the interview method compared to for example survey method is the possibility to select appropriate interviewees who possess information and experience on the phenomenon at hand (Tuomi & Sarajarvi, 2009: 74). This sampling technique is called *judgment sampling* through which the researcher can focus on rich cases that provide data with quality over quantity. Qualitative research methods are often characterized by selecting only few cases that are then analyzed thoroughly. (Eskola & Suoranta, 2003: 18 & 61)

Furthermore, the design consultancy representatives were asked to suggest potential candidates for interviews among their client companies. This, in turn, can be referred to as *snowball sampling* technique. (Miles & Huberman, 1994: 28).

The research interviews were conducted between 4 May and 6 September 2011. Out of the eight interviews six were conducted at the interviewee's office, one over the phone and one at Urban Office meeting point provided for temporary work by Helsinki city library. Three of the design consultancies are situated in the Helsinki city region, one in Turku and one in Vaasa. Of the client companies two are headquartered in Helsinki and one has its Finland operations located in Lohja. All interviews were recorded and transcribed within a couple of days. Like Tuomi & Sarajärvi (2009: 73) suggest to ensure the success of the interviews, the informants were given a description of the research topic in beforehand either via email or phone. It is also an ethically correct move to inform about the topic and often required by the informants before agreeing to an interview in the first place (Tuomi & Sarajärvi, 2009: 73).

Preliminary interview questions were prepared to match the themes covered in the literature review and the theoretical framework of this study (see chapter 5). Each theme included a pre-formulated set of questions. To begin with, basic questions on company and informant were asked to map the background situation and overall use and experiences of design in general. The second interview theme entailed linking design with competitiveness to find out more about the perceived benefits of design use, both in general and from external design use in particular. In the third part, design performance measurement and actual measurement practices were gone through. After that, the informants' views of the future of design performance measurement were covered.

At the end of the interviews, the informants were also shown the design measurement categorization by Hertenstein & Platt (2000) to get feedback on it. This categorization is one of the most important building blocks of the research framework of this thesis as introduced in the previous chapter. Due to limited amount of available time for the interview the measurement model was not gone through in detail with two of the design consultancy informants. Therefore, the conclusions are based on the remaining six informants' views.

Each interview included but was not limited to the themes and questions that were prepared in beforehand. To enable following the natural path of the discussion further questions were asked where necessary. With this approach the informants' views could be understood more deeply and additional insights gained related to the topics under study. For both the design consultancies and the client companies own sets of questions with some alterations were prepared. The detailed

themes and questions listed under these that were used to gather the empirical interview data are presented in the appendices.

When the eight interviews were completed it could be concluded that the data material reached a level of saturation as several common themes and matters arose and were mentioned by the informants. Data saturation is considered as a signal that there is enough of the acquired data as new informants and interviews cease to bring new information to the research (Eskola & Suoranta, 2003: 62). However, especially increasing the client company sample could have further increased the quality and comparability of the results.

The analysis of the gained research material is done with thematic analysis. This means theming the transcribed material based on what the informants have said or brought up on the predefined interview themes (Tuomi & Sarajärvi, 2009: 99-101). The interview transcripts were printed out, read through as an iterative process, and interesting and reoccurring pieces of data were highlighted. The interview data was then grouped and compared in different ways. The analysis of the data is presented in more detail in chapter 7 together with the research results.

6.3. Overview of the Interviewees

The interviewees represent both design service provider companies and design service user companies. The design service providers are described in

DESIGN CONSULTANCIES				
	Location (# employees)	Main Services	Interviewee Position	Interviewee Education
Consultancy A	Helsinki (16)	Industrial design, spatial design, graphic design, concept design, service design	Design Planner	Master of Science in Economics, IDBM
Consultancy B	Helsinki (26)	Design and marketing; visual identities, product design, package design, branded spaces, retail environments and marketing communication	CEO	Master of Science in Economics, studies in Industrial Design
Consultancy C	Helsinki (4-5)	Service design, industrial design, graphic design, spatial design	CEO, Owner	Master of Arts, Industrial Design
Consultancy D	Vaasa (approx. 8)	Product design, package design, technical documentation, marketing and graphic design	CEO, Owner	Master of Arts, Industrial Design
Consultancy E	Turku (branch office) (3)	Product design, service design	Senior Design Manager, Board Member, Partner	Master of Arts, Industrial Design

Table 7, taking into account the education and current position of the individual informants and the consultancy's location, size and main service offerings. All of the consultancy informants have a master level degree either in business or design, and they represent consultancies with varying service offering emphases and of different sizes, ranging from a three-person branch agency to a 26-person agency.

DESIGN CONSULTANCIES				
	Location (# employees)	Main Services	Interviewee Position	Interviewee Education
Consultancy A	Helsinki (16)	Industrial design, spatial design, graphic design, concept design, service design	Design Planner	Master of Science in Economics, IDBM
Consultancy B	Helsinki (26)	Design and marketing; visual identities, product design, package design, branded spaces, retail environments and marketing communication	CEO	Master of Science in Economics, studies in Industrial Design
Consultancy C	Helsinki (4-5)	Service design, industrial design, graphic design, spatial design	CEO, Owner	Master of Arts, Industrial Design
Consultancy D	Vaasa (approx. 8)	Product design, package design, technical documentation, marketing and graphic design	CEO, Owner	Master of Arts, Industrial Design
Consultancy E	Turku (branch office) (3)	Product design, service design	Senior Design Manager, Board Member, Partner	Master of Arts, Industrial Design

Table 7. Design Consultancy Profiles and Interviewees.

Table 8, in turn, summarizes the backgrounds of the client company profiles and informants. In addition to education and position of the interviewee, it includes the company's operating industry and relation to external and in-house design. The informants have varying education backgrounds and the companies all operate on different industries with inherently different characteristics. All of the companies use external design, and moreover, their internal people work only with coordinating and managing design.

CLIENT COMPANIES				
	Industry	External Design Use	Interviewee Position	Interviewee Education
Company A	Beverages	Package and visual design by different consultancies and subcontractors, no in-house designers	Brand Manager	Bachelor of Business Administration
Company B	Building materials & services	All design by one main partner consultancy (in Finland), no in-house designers	Sales Director	Master of Science in Technology, Structural Engineering
Company C	Consumer products for home, garden & outdoors	Product design always in cooperation with external designers, internal employees with design background but no in-house designers as such	Product Development Manager	Master of Arts, Industrial Design

Table 8. Client Company Profiles and Interviewees.

6.4. Assessment of the Research Quality

Research quality is typically assessed through the constructs of *validity* and *reliability*, although their suitability for qualitative research purpose is questioned and alternative concepts or terms are suggested by a number of researchers. (Arksey & Knight, 1999: 49-51)

6.4.1. Validity

Validity entails whether the research is actually studying what it claims to be studying. The authors state that in interview studies validity can be improved by establishing trust with the interviewees so that they are open for sharing their true views, having prepared relevant questions based on existing theory and encouraging the informants to elaborate on their initial, important views. (Arksey & Knight, 1999: 50-52) In this study, the topic is not that sensitive, and as the research is carried out by a neutral student-researcher, it is unlikely that the informants had any motive to answer untruthfully. The truthfulness can also be seen to be enhanced by conducting the interviews in the informants' mother tongue, Finnish, to avoid misunderstandings. Also, a literature review was conducted before preparing the sets of supporting theme questions to ensure that relevant issues were covered during the interviews. However, as the researcher is a student with no previous

research experience, it might be that in some cases, the interviewees were not prompted enough to elaborate on some cases. Then again, only a few outlying matters were complemented later on by email, and no bigger shortcomings of data were detected in the analysis phase. The relevance was also emphasized by briefly describing the topic to the informants before the interviews, either by email or by phone.

Validity can be further enhanced by selecting an appropriate sample, paying attention to the interview settings, and reserving enough time for the interviews (Arksey & Knight, 1999: 52).

The sample in this study was selected with judgment and snowball sampling techniques, as described before, and can be estimated to represent well the design consultancies. As two of the three client company informants were proposed by the consultancies, it could have resulted in some bias in that sample group. This was, however, a suitable way to get access to companies that use design consultancy services. All the interviews were conducted in private. The interviewer had reserved appropriate amount of time for the interviews but in practice they were to some extent constrained by the interviewees schedules.

6.4.2. Reliability

Reliability traditionally outgoes from the assumption that there is an objective truth that can be found when the research design is reliable and does not corrupt the results. (Arksey & Knight, 1999: 52-53) However, as qualitative research is situational, conditional and the studied phenomena complex and evolving over time, the traditional notion of reliability can be deemed inappropriate. (Arksey & Knight, 1999: 54) Some other researcher or even the same researcher could reach different results with the same data in other circumstances. In order to assess the reliability in the context of qualitative research three areas are suggested: *consistency*, *truth value* and *neutrality* (Arksey & Knight, 1999: 54).

To reach consistency, the reader needs to be able to follow and audit in detail how the research and decisions have been made, and how the consistency of the analysis is reached. (Arksey & Knight, 1999: 54) The research process and design have been elaborately explained previously in this chapter to fulfill this requirement. Moreover, the analysis of the results is thoroughly gone through in the following chapter, research results. Also, full transcription of the interviews was done without delay to be able to note the full views of the informants.

According to Arksey & Knight (1999: 54-55) truth value – that the research captures an unbiased representation of the informants' views – can be enhanced by *triangulation*. Triangulation refers to combining different strategies to investigate the research topic, including methodological, data, investigator and theoretical triangulation. This study can be seen to entail data triangulation, as two different sources have been used to acquire data; the design consultancy group is complemented with client company comparison group. Also, some extent of theoretical triangulation is reached as the research is supported with diverse theories found in the literature review. (Arksey & Knight, 1999: 22-23)

Neutrality, in turn, is about confirmability of the findings. It requires that as the researcher cannot be totally objective but is an instrument of the research, the researcher's thinking and actions must be openly reflected on. (Arksey & Knight, 1999: 55) Similarly as with truth value, also neutrality was supported by using two different data sources to reduce bias.

7. RESEARCH RESULTS

When the informants' views are summarized, design can be defined as thinking things through, focusing on the customer/user, and making things understandable. The informants further see design as a process and approach to problem-solving; a layered discipline where the traditional 'design as art' scope has been extended with dimensions like user-centricity and business focus. Some of the informants mention that design as a whole includes esthetic and visual attributes and outcomes. The CEO of design consultancy B adds that although the design process is important, the main focus of design business should always be on commercial and business results of the projects to accelerate economic growth. For client company G, it has in practice entailed designing complete product concepts, not just individual products.

In this chapter, the research results are discussed. First, what employing external designers can yield is discussed and second, how design impacts value and competitiveness factors is looked into. Then, the actual measurement practices and measures are gone through in two parts; what was spontaneously mentioned by the informants and comments triggered by the Measures of Design Performance model by Hertenstein & Platt (2000). Finally, the challenges for measurement and reasons for why it should be strived for are identified.

7.1. External Design Benefits

All of the design consultancies identified the same two main benefits of employing external design resources, which also correspond exactly with the ones mapped by Best (2006: 50-51) and von Stamm (2004). This also supports the conceptualization of the theoretical framework presented in chapter 5. First, using design consultancies provides resource flexibility as they can be hired when needed to increase design capacity whereas the in-house design resource has its limits and is more rigid. From the client company side, as well, the sales director of company G mentions resource flexibility as an advantage that brings savings in human resources. Second, by hiring external designers a company can bring in a broader understanding, fresh views and knowledge of best practices gained from working across industries. The client company informants shared that view widely. Also a Finnish study found resource flexibility and new ideas as the two main incentives to use external design (Alanen, 2009) The fact that these benefits were mentioned by the informants

confirms that they are also in practice important and reflected positively in the business.

I think that to avoid doing wrong things also has quite a big monetary value. To proceed far in a project if it has wrong premises would often be much more expensive. So questioning what we are about to do... and the kind of second opinion [is valuable]. (Design Planner, Consultancy A)

If we would only do these things internally, the learning from other product categories, brands or especially other industries would surely be more restricted. The field of vision will of course get narrower if you only work with certain products. (Brand Manager, Company F)

According to their Product Development Manager, client company H uses external design services also with the intention to gain broader views from outside. Then again, this benefit is compromised as the internal designers have a deeper understanding of the company's business and ability to reach results faster. Two client company interviewees share the view that as external resources are hired for specific projects with predefined goals, their ability to influence is narrower compared to in-house designers. The downsides from using external design consultants were also in line with the views of Best (2006: 50-51) and von Stamm (2004). To increase the business understanding of the external service providers, one client company interviewee finds it important to form long lasting partnerships with them, and ensure that designers are in connection to the top management.

I do not even think that they are outsourced because we work so closely with them. (Sales Director, Company G)

Moreover, the Sales Director of company G finds ease of use as one advantage of externalizing design compared to own employees trying to work with design side by side with other work tasks and without expertise for it. The deeper the partnership between the service provider and client, the lower the transaction costs of hiring external service providers, states also the Design Planner at consultancy A, and adds that often it is hard for a company to estimate the actual and total costs of using internal resources for a project or task.

In-house design team and manager, too, have to continuously justify design's importance to the executive management and compete for their share of budget with the other functions, as mentioned by CEO of consultancy C. Of course, coming from inside the company they are also in a better

position to do this and were seen to have broader and longer-term influence possibilities and deeper understanding of the business by most of the consultancy informants. Moreover, two consultancy interviewees saw that a company employing internal designers or design managers is a signal and consequence of advanced and established design practices, and understanding the significance and potential of design. However, it was seen that the setup where design manager is outside the executive management group is challenging, as the possibilities for utilizing external design are within the limits of the design manager's mandate and budget, potentially limiting its use.

It is noteworthy that a majority (4/5) of the design consultancy representatives explicitly mentioned that in-house and external design resources are not mutually exclusive alternatives, rather are in practice and at best used side by side as complementary resources, as reflected in the following quote:

I do think that it would have a major impact on the companies' competitiveness if they would have the right design resources in relation to their objectives and right things would be done. I think it needs to be a mutual goal for in-house and external designers that companies' businesses are improved, the types of products are made that better answer the customer expectations and so on. Measurement should not be based on larger margins for design consultancies or some prestige to any individual persons. It's more about promoting a sensible way of thinking that somehow we wouldn't waste companies' time on something that consumes resources, be it then internal or external. (Design Planner, Consultancy A)

7.2. General Design Benefits

One area of interest is the benefits and competitiveness factors that can be in general induced by using design. All apart from one interviewee mentioned that by using design and designers a company is able to better address customer needs and differentiate the products to stand out positively from the rest in the market. According to one consultancy informant view, investing in design can enable entering new customer segments. From the client company side, one informant comments that by having employed a design consultancy to develop a product concept, they now have a narrative that supports the sales efforts and appeals to the customers in an industry where the products are not that differentiated. In a similar way, the Brand Manager of company F states that

for a their kind of company that operates on markets with highly competed products where the actual content of the product is quite similar, the packaging and visual attributes define the user experience and brand identity for the product and can be the ultimate purchase decision triggers.

The improvement in market accuracy and customer value is then reflected in the price premium that can be asked for the products. This is also mentioned by e.g. Borja de Mozota (2006), Hertenstein et al. (2005) and Lindström et al. (2006: 28-29) as a favorable outcome of design. The price premium that the customer is willing to pay due to increased perceived value compared to so-called bulk production can be seen as the single most important result of design investment as every design consultancy and company representative mentioned during the interviews. Hertenstein et al. (2005) note that combining designer work with effective marketing is essential for increasing customer perceived value and enabling increases in demand and price.

The CEO of consultancy B sees the improved market position as the main goal of investing in design. Two consultancy informants see design as an efficient investment which can lead to cost savings in marketing as even free visibility and coverage in media can be gained. The Senior Design Manager at consultancy E also adds that design processes produce user-centered information that leads into more effective marketing communications. Client company F Brand Manager goes on to seeing design investments as investments in building brand identity. Branding aspects were also mentioned by consultancy B representative.

What is sought in practice is achieving a better market position, it can lead to increased sales, emphasize the brand, it can reinforce the brand position, brand awareness, brand loyalty. There are lots and lots to be gained but it can – when done poorly – push customers away. (CEO, Consultancy B)

Also, designers were seen by one interviewee to potentially bring the company significant internal cost savings by reducing time-to-market, bridging different functions and facilitating cooperation and potentially simplifying technical structure requirements. Some of the informants also state that a multi-functional team always functions better than single function alone. The necessity of having different functions come together is reflected in the following:

It won't make an organization or company happy if it gets some kind of product and doesn't know what to do with it or how it should be launched. (CEO/ Owner, Consultancy C)

On my long career I have seen that all of the best results are always reached when a broadminded group, that is led as well as possible, comes together and brings its input. (CEO, Consultancy B)

These views are shared by Hertenstein et al. (2005) who state that balancing the costs of improving the performance requires cooperation between designers, research & development and engineering.

Product Development Manager at company H adds that designers bring internal value by the ability to visualize things and concepts at early stages like ideation and by considering the whole course of experience related to products. According to a consultancy informant, the ‘course of experience’ thinking covers products and services, the difference being that with services the user experience is not connected to a physical product but must be thought of as a service path instead.

Direct cost savings and reduced environmental impact are furthermore brought about when products are designed to use minimal amount of raw materials, as mentioned by two of the consultancies. One consultancy interviewee added that especially when the product entails an artistic contribution it might become a classic and its lifetime longer as the value is retained. Extending the product lifecycle and recyclability were also seen as a goal for design use by one consultancy, but how their performance impact could be verified was seen as a challenge.

Many of the informants from both service provider and user sides see that investments in design can also reflect positively and broadly in the corporate identity and improve the company’s desirability as an employer. Says the Sales Director at company G of a facade board product concept development project:

It has made our personnel really proud that we have these fine new [products] that others don’t, although the colors are similar to competitors but they don’t have the story. – Also the employees at our Czech factory’s production line are talking about this [product] concept although they have never even seen a single [product]. That it has had the impact on own personnel that they are proud of the own products. That I think might be the most valuable [benefit].

Nyberg & Lindström (2005) brought forward consideration relating to differences of design use and value between industries and offerings. Also the informants discussed this. According to the Product

Development Manager at client company H, it is not only in consumer products where design can add value through usability and user experience design as there always exists a user for every product and service. CEO and owner of consultancy D separates the core considerations of design use between B2B and B2C customers. In B2B projects the main goal is to align design with the corporate brand with sub-goals like usability and manufacturability. In turn, B2C side emphasizes trends, novelty factors and innovativeness of the design. Senior Design Manager of consultancy E supports this by stating the following:

The nose easily picks up on two kinds of things, the sort of megatrends with a somewhat ethical aspect -- where big commercial potential lies -- and on the other hand this attractiveness... that the company learns to see where these visual trends and consumption habits and such are.

In addition, another consultancy informant brings forward the view that ethical considerations are more likely included when designers are included in company processes as design typically focuses on the user and human aspects.

Lockwood & Walton (2008: 1) state that a company needs a design strategy to ensure that design supports the corporate strategy, and that design can also bridge the strategy and its execution overall. Designers can help in deriving and developing concrete actionable steps like product concepts from the company's vision and strategy that bear value (Design Planner, consultancy A). From the opposite angle, strategy changes can be supported and communicated through design, for example by a new corporate identity, which at best revitalizes the whole organization with its personnel and is followed by improved external effectiveness (CEO / Owner, consultancy D). An additional benefit that was mentioned by one interviewee was that increase in brand value through using design improves their negotiation power in the supply chain. This industry specific benefit proves that there are differences between perceived advantages related to design use in different industries.

Consultancy A informant adds that to be able to monetize on the value that is inherent in design the company must use it intentionally and target-mindedly and understand what the related investment and output are to be able to assess it. The scope for the design projects and use should also be wider than just individual products to begin with. Only then can all the value potential in the design process be tapped into. Interviewee from consultancy C agrees by stating that design is at its best

and most powerful when it is *in the strategy table*, i.e. at the strategic top level in the company, and that designers should be included in the early stages of the processes for the client company to be able to get the best price-value combination and efficiency. This is also reflected on the client company side; the design services that company H buys must fit their overall and product strategy. The fact that the eventual improvement of performance is dependent on design capabilities (Lockwood & Walton, 2008: 2) and using design in a strategic, i.e. systematic and intentional, way is also evident in the previous literature (e.g. Lindström et al., 2006: 11; Lockwood & Walton, 2008: 2; SVID, 2008: 10).

What was also mentioned as a factor potentially limiting the success of design projects is the lack of business understanding by designers. A company needs to make sure that right processes, project management and focus are in place, and cost structure, target audience and differentiation of the product are under control and clear. (CEO/ Owner, consultancy D) The CEO of consultancy B makes an important notion related to design projects: if the project management capabilities and skills are lacking, the project objectives not clearly laid out and communication poor, it can torpedo the project and prevent using the external design resource in an efficient way. Another issue compromising the full financial benefits from a design project is if the client company's rigid schedules and bureaucracy prevent the design consultancy from moving quickly.

In addition, two of the client companies mentioned that they most often predefine the projects for which external design consultants are hired, at least to some extent, which can impose limitations to the scope of influence of the consultants.

Lockwood & Walton (2008: 139-145) and Best (2006: 172) present intellectual property rights (IP rights) as means to reap the benefits and protect the value of design. When it comes to the views of the interviewees on intellectual property rights and their significance as means of protection from competition, the results were manifold. The topic was discussed with 6 of the informants (excluding consultancy D and company H). Out of these, two of the design consultancy representatives and two from the client company side found design rights important, although not unconditionally. CEO/ Owner at consultancy C pointed out that IP policy's importance is emphasized especially when operating internationally. However, one consultancy and one client company saw that IP rights are an expensive means of protection that drives towards the use of other non-formal means, for example being one step ahead of the copycats with new designs.

Well, in today's mean world not even protection really helps. – It is surely a challenge when they say that almost everything is already invented, what then counts as intentional copying and what not, and what is then modifying and so. All in all, I would see it really great that there would be time to give more value to the original form giver. (CEO, Consultancy B)

The conclusion can be drawn that in the end IP rights do not provide a strong protection against copying efforts. Moreover, it was seen that they benefit some industries more than others. Two consultancy informants saw patents as natural means of protection for large technology intensive companies, whereas company F finds package design rights important in their company's product categories that are characterized by private label intensity.

For sure, if the packaging is seen to have clear advantages, it is of course also our advantage that it cannot be used as such. (Brand Manager, Company F)

7.3. Suggested Design Measurement Areas

For us, the use of design is after all quite new and we haven't been thinking that much about its effectiveness or measurement. But the thing is that you can ask anyone in our company and they will see that it does matter. That it has had effectiveness that we have used design. (Sales Director, Company G)

That design measurement matters has actually been talked about for quite a while now and I don't know if it is... At least I haven't seen any good applications or something that would have made me think "yeah, I see, really nice", so that it would have made an impression. (Product Development Manager, Company H)

I have been in the industry for 23 years and it has been talked about every year and everywhere it continuously discussed that if only we would have some kind of metrics with what we would be able to demonstrate [the value of design]... (CEO/ Owner, Consultancy C)

The above quotes illustrate the overall status quo of measurement that there seems to prevail in

Finland at the moment. When asked whether the informants and their companies measure design project outcomes in some way (for own or for the cooperation company purposes), three of the informants said not really or not at all, while three others do it but on a small scale. Consultancy B tries to follow the impact to some extent, based on inquiring client companies. Almost all design consultancies estimate that the client companies do not make extensive measurement efforts either. The Design Planner of consultancy A assumes that the role that the design consultancy has had in the project is only estimated with a subjective gut feeling, even though overall design performance would be measured in some way in the company. According to consultancy C, lack of design measurement is simply due to absence of measurement tools.

Sometimes with companies that let's say have gotten further in design use we may look at it but it doesn't usually go further than looking at whether the sales curve is rising and how quickly it rises (Senior Design Manager, Consultancy E).

The comment above gives reason to assume that companies where design is at a more strategic level would be more advanced with measuring it too. This is supported by Brand Manager of company F, who connects the current level of design performance measurement to the fact that beverage industry started having more freedom with package design only recently after former heavy industry-wide standardization.

According to the Design Planner at consultancy A, the final outcome of a design project is a combination of how the design consultants have succeeded in their work and how the counterparts in the client company have performed. Both some of the consultancies and some clients admit that they could be more systematic and proactive in evaluating the outcomes of projects with their cooperation companies.

The view by Neely (1999) and Chakravarthy (1986) that to be able to measure how well the company is doing at its strategic activities, it should not only use traditional, financial measures is widely shared by the informants. Most of the interviewees state that side by side with quantifiable measures also qualitative, abstract measures are appropriate and help in including the long-term value aspect. One consultancy representative sees that the qualitative, more image-related measures have a close connection to the financial measures, through the link to price premiums. Human beings make decisions based on both numerical and qualitative information, but in the end, the investment should not go through without quantitative benefits (CEO/ Owner, consultancy D).

However, two of the client company informants have some products in their lines that are not directly profitable products as such but build the brand and support the sales of other products. Solely based on direct financial measures, these products would probably be discontinued.

7.3.1. Design Measures Suggested by the Informants

Here, what kind of measures the informants mentioned spontaneously are discussed and categorized into three areas: measures related to financial impact, internal impact to company itself and external impact related to customers, retailers and image. These categories were specifically mentioned by one interviewee and largely supported by the themes that arose in the discussions with the other interviewees as well. Some of the measures are used in practice and some the informants mentioned as potential measures.

Financial impact

Increase in sales figures or revenue are the top measure judging by the number of informants who mentioned it (7/8). The informant that did not explicitly mention sales or revenue did mention the bottom-line impact that of course is dependent on sales. In addition, sales were among the first measures that were highlighted. For example, sales figures (pieces sold, sales growth, exceeded forecasts) are among the typical information that consultancy A sometimes receives as feedback from its customers, whereas consultancy B in addition mentions the impact on their client's margins, profitability and brand awareness. Two consultancies and two clients mentioned also increased margins for the products. The clients are usually satisfied in case the design project has brought them more sales (CEO/ Owner, consultancy C) and are at the end of the day interested in what is left below the line (i.e. profit), which would according to consultancy D best be measurable in product margins in both euros and percentages.

Executing design projects can also reduce costs in for example raw materials or logistics as brought up by many informants. One client mentions a specific product's gained share of a factory's output when evaluating the success of a product concept made in cooperation with a design consultancy. Some of the interviewed people see stock price as a potentially interesting measure although it may be difficult to decide what companies are the design-intensive ones and identify design's impact on the price.

Internal impact

Among consultancy A's client feedback are also if the design object is not launched or is short-lived on the market or how for example a shop concept is received by the retailers. Retailer feedback is a sign of success especially if the retailers have to buy-in and make an investment to be able to use the concept in their shops. Also expansion in the product line for the created product is seen as an indicator of successful design project.

Executing design projects can also facilitate internal processes, for example shorten production cycle (client H) or the development time, where speed could be a relevant measure (consultancy A). The success of the project can in turn be measured with sticking to the time frame (consultancies D & E) and to the budget (consultancy D). Some of these internal factors are also connected with the external measures. For example, decreasing time-to-market means, in addition to improved internal efficiency, faster incoming cash flow.

Client company G also lists increased capacity and recruitment need as indicators of how much impact a design project can have by rise in product demand. Moreover, it sees that employee satisfaction and enthusiasm, and employee turnover could be used as measures.

External impact

Consultancy E sees design awards as a widely recognized measure that has been to this day used, partly in lack of other feasible measures. Also, how fast a new product finds its place at consumers' lives should be considered, i.e. speed of adoption.

Measures related to external impact mentioned by consultancy A's Design Planner include customer satisfaction and information related to the product appearance or usability. Customer satisfaction is also mentioned by consultancy B and client G. Consultancy C mentions both client company satisfaction and end-customer satisfaction as indicator of their successfulness.

At client company H, focus group tests are carried out to gain consumer feedback. Their Product Development Manager sees that related to work ergonomics, one specific case related measure could be the sick leave days.

Two of the consultancies (A & C) follow media attention and PR gained by the projects/products

that have been completed together with their clients. Also at client company H the non-paid visibility gained for its brand builder products is followed. It is seen as an important channel for sales promotion and forms the corporate image through attention gained without paid marketing. Consultancy A also posts a monthly newsletter to a wide international audience to promote their work and gain their clients visibility.

In addition, CEO at consultancy B brings up brand awareness that can be attained by design projects. For more artistic design classics, consultancy E's Senior Design Manager mentions the inclusion in museum collections as a potential measure.

Design Performance Measure / Indicator	# Informants Design Consultancies	# Informants Client Companies	# Informants TOTAL	% Frequency of Informants TOTAL
Financial Impact				
Revenue/ Sales (volume or monetary)	IIII	III	7	87,5
Sales margin	IIII	II	6	75
Reduction of costs (raw materials, logistics costs)	II	I	3	37,5
Improved stock price	II	I	3	37,5
Profit	II		2	25
Revenue / Sales growth (speed)	II		2	25
No launch or short life on the market	I		1	12,5
Internal Impact				
Speed of internal processes e.g. development, production	I	I	2	25
Sticking to project timeframe	II		2	25
Product line expansion of created product	I		1	12,5
Sticking to the project budget	I		1	12,5
Capacity increase or new investment needs		I	1	12,5
Increased recruitment needs		I	1	12,5
Employee satisfaction / feedback		I	1	12,5
Employee turnover		I	1	12,5
External Impact				
Customer/Consumer satisfaction / feedback	III	II	5	62,5
Media attention	II	I	3	37,5
Client company satisfaction	I		1	12,5
Brand awareness	I		1	12,5
Buy-in/ feedback from retailers	I		1	12,5
Ease and speed of adoption by consumers	I		1	12,5
# Design awards	I		1	12,5
Inclusion in museum collections (artistic designs)	I		1	12,5

Table 9. Design Measures Suggested by the Informants.

The measures and indicators of design performance success that the informants mentioned unaided and spontaneously are summarized in

. The references are first counted separately for the consultancy and client informants and then added together and expressed as frequency percentage out of total eight respondents. No notable differences between client and consultant views can be discovered. The top three measures according to both are sales figures (mentioned by 87,5%) and margins (75%) from financial impacts and customer/consumer satisfaction (62,5%) from external impacts.

7.3.2. Comments to Measures of Design Performance Model

At the end the interviews, the informants were asked to comment on the design measures typology by Hertenstein & Platt (2000) to potentially highlight relevant and additional measures that had not already been mentioned spontaneously by the interviewees. In this section those comments are summarized using the original categorization of Hertenstein & Platt's (2000) model. Due to limited amount of available time for the interview or schedule restrictions the measurement model was not gone through in detail with two of the design consultancy informants, B and D. Therefore, the conclusions are based on the remaining six informants' views (A, C, E, F, G & H).

Overall, consultancy E informant sees that to figure out the input of design, a much more concise list of financial measures should be enough than what Hertenstein & Platt (2000) have listed. If the measure list is too extensive it becomes counterproductive and unrealistic to use. But on the non-financial measure side no sub-categories should be left out. Consistent with this view, also Brand Manager of company F tells that the majority of the financial measures are followed at their company but not as elaborately as Hertenstein & Platt (2000) have listed, while the non-financial area is followed even more imprecisely.

	Design Performance Measure	# Informants Design Consultancies	# Informants Client Companies	# Informants TOTAL	% Frequency of Informants TOTAL
Financial Measures	Product cost	I	II	3	50
	Stock price	II		2	33,3
	Revenue/ Sales	I		1	16,7
	Development process cost – total		I	1	16,7
	Net income/ Profit	I		1	16,7
	Cash flow		I	1	16,7
	Percent sales – new products		I	1	16,7
	Percent sales – new customers	I		1	16,7
	Percent sales – repeat customers		I	1	16,7
	Sales to break even		I	1	16,7
	Timing Measures	Time to market	I	I	2
Cycle time – by phase		II		2	33,3
Time to revision		I		1	16,7
Time to break even		I		1	16,7
Design Effectiveness Measures	Percent first designs meet needs	I		1	16,7
	Percent projects that reach production	I		1	16,7
Design Efficiency Measures	Number of design modifications	I	I	2	33,3
	Frequency of specification changes		I	1	16,7
Customer Satisfaction Measures	Satisfaction – style/appearance	I	III	4	66,7
	Satisfaction – ease of use	I	III	4	66,7
	Satisfaction – product		II	2	33,3
Employee-rated Measures	Employee morale	I	II	3	50
Strategic Measures	Alignment: design with company strategy	II	I	3	50
	Achievement of specific strategic goals	II		2	33,3
Innovation Measures	Number of patents	I	I	2	33,3
	Number of design awards	II		2	33,3
	Number of new products introduced		I	1	16,7
Volume Measures	Number of products in pipeline	I	I	2	33,3
	Number of products started	I	I	2	33,3
	Number of products completed	I	I	2	33,3

Table 10. Measures Highlighted by the Informants.

Those measures that the informants selected and commented on from Hertenstein & Platt’s (2000) categorization are listed in Table 10 above. Number of informants from design consultancies is added up with number of informants from client companies to count the total figure for mentions. The frequency number on the far right in the table is a percentage of total mentions out of the overall number of informants (here, n=6). Next, the comments to the measures in the model are

summarized.

Financial Measures

According to company F, development costs, cash flow and breakeven targets are followed but not on product level. Also, when company F introduces new products, their sales are looked at but not specifically for new customers, only repeat ones. Consultancy A informant highlights the measures related to growth of sales, increase of profitability and even of stock price, and new customer segments, some of which had already been mentioned before introducing the typology. Like consultancy A, also consultancy C brings up stock price, and further addresses *product cost* as something that designers traditionally try to minimize through rationalizing the production process but not always succeeding in except when reducing costs is the project driver and starting point. Client company G interviewee says that even though they have not paid it much attention partly because their design projects have had other primary goals, *product cost* could be a relevant measure. Another client (H) also brings up the cost measure but finds it challenging; what should the cost figures be compared to and how to prove cost savings are accountable to design?

Timing Measures

In connection to *cycle time* measure consultancy E brings up that when the life cycle of a product becomes longer, a company moves up on the learning curve and is able to produce products in a better and more profitable way. When the product entails use value or cultural value its profitability curve does not drop as rapidly or steeply. New product development process efficiency and improving *time to market* is at focus in client company H, but as something that is not necessarily sped up with designers, rather through a multi-functional teamwork. However, company H sees that here using external designers can be a quicker resource alternative than internal ones. Consultancy A brings all the timing measures into attention, to take into account the time dimension.

Design Effectiveness Measures

Consultancy E informant sees that design effectiveness measures are the ones that reflect short-term value and the same goes for the next group, *efficiency measures*, but does not elaborate on them in more depth.

The informant from consultancy A connects this category to the hit accuracy brought up in design competitiveness discussion. It seems that especially the measure *first design meets needs* would

measure this, and *percent projects that reach production* not to focus on as such. Rather the power of designers lies in ensuring that the developed concepts are more complete and ready when they go through to production.

Design Efficiency Measures

According to company H interviewee, *number of design modifications* can be either a good or a bad thing and is therefore not sure if it should be measured. Consultancy A specifies that iterations in product development process are a good thing in the early stages when they can prevent potential errors and problems later on in the process. That means before that certain point after which any specification changes and additional ideas result in added costs, time and hardships imposing a threat to the project. *Specification changes* are always necessary as projects have to fulfill many conditions, says company H informant, and sees this as a measure to minimize.

Customer Satisfaction Measures

According to Sales Director of company G customer satisfaction measures are important - at the end of the day customers keep the factories running. Client company H, too, has a positive take on this measure set and sees that user studies and tests provide good material for decision making. Company F representative says that *style/appearance* of their products has been studied but would want more measures and follow-up to *ease of use* dimension.

Consultancy E interviewee sees that the rate of product adoption that he mentioned spontaneously falls under this category. According to him, *customer satisfaction – style/appearance* and *ease of use* are in the core of their design practice.

Employee-rated Measures

According to consultancy A and clients G and H, design projects can get employees involved and excited about their jobs by bringing wanted variety to the everyday tasks. This can result in increased *employee morale*. Client H says that this is especially the case when working with external designers. For company G's employees, investments in design have also created future confidence as it has been seen as a signal and investment to expanding operations, but this has taken some years to achieve.

Consultancy E informant briefly commented on these measures by stating that they are about

teamwork and internal efficiency.

Strategic Measures

Company G sees that design should support the overall company strategy. At their company, one area of strategy aims at improving the brand, to which design has a clear contribution through for example product development. Consultancies A and C find that having goals for design defined in relation to strategic overall business goals is fundamental for success. Each single short-term project should be derived from and planned to execute the long-term strategic goals and medium-term tactical plans. According to consultancy E, integrating design into the overall strategy does not happen without in-house design people as only they have access to strategy matters, therefore he does not support having it as measure for external design.

Innovation Measures

Out of the innovation measures, Senior Design Manager at consultancy E highlights the *number of patents* and similar measures as something that provide long-term competitive advantage and thus should score 'quite a lot of value points'. Patents are something that a lot of companies measure although at company H they are traditionally more of design rights type. Also, company H mentioned *number of new products introduced* to reveal the activity level of a company.

Both consultancies A and C highlight the traditional design awards measure. It is seen it as recognition of design success from within the industry that is widely used in corporate communications and can be regarded as a signal of quality and internationality. There, the industry specific differences are downplayed and purely design looked at. The power of design awards is fully realized only if a company if it knows how to communicate it and raise attention. Moreover, awards bring the design consultancies credibility. However, according to one client company view, the vast amount of awards granted kind of dilutes their significance and sales volume can eventually be used to assess design success. Company G informant states that they do not focus on innovation measures that much, although they do have some design awards.

Volume Measures

Overall, the volume measures were seen by one consultancy informant to relate to sales numbers but from a different angle. Volume measures are something that will gain more attention in client G's near future as their strategy includes annually introducing a certain amount of new services and products.

Non-mentioned Measures

In total, out of the 43 measures listed in Hertenstein & Platt's (2000) model, 12 were not commented or highlighted by the informants, as listed in Table 11. All of the items in categories timing, design efficiency, customer satisfaction, strategic and volume measures were brought up in the interviews. Although the financial aspect is seen important by the informants, as much as six items on the list were left without mention. This can be seen as a further signal that the informants prefer a handful of carefully selected, accurate measures reflecting the right things. Team assessment of design effectiveness and individual contribution were not explicitly mentioned, but a couple of the informants referred to a 'gut feeling' kind of evaluation, so in practice these type of measures may in fact be in use too. The number of designers over employees was not commented by any of the informants, probably due to its irrelevance as a measure when the focus is on outsourced design. Perhaps the only measure that the passing of time has made obsolete is the assessment of CAD use, as nowadays computer program skills are more or less self-evident.

Non-mentioned Measures
Financial Measures
<ul style="list-style-type: none">• Development process cost – phase• Gross profit – total• Gross profit – new products• Economic Value Added (EVA)• Market share – product• Percent sales – proprietary products
Design Effectiveness Measures
<ul style="list-style-type: none">• Team assessment of design effectiveness• Assessment of CAD use
Employee-rated Measures
<ul style="list-style-type: none">• Team assessment of individual contribution• Ratio #designers / #employees
Innovation Measures
<ul style="list-style-type: none">• Number of new products developed• Peer evaluation of design work• Percent new features

Table 11. Measures Left Without Comment by the Informants.

7.3.3. Combination of Suggested Design Measures

The measures mentioned by informants both spontaneously and based on the measurement model by Hertenstein & Platt (2000) were cross-checked, related measures were combined and those that gained more than one vote were selected to the final model that serves as a suggestion for measurement of design outcomes in case of external design. The resulting list of measures is presented in Table 12.

New measures based on the data gathered from the informants and added to the combined list were sales margin, speed of internal processes (development, production), sticking to project timeframe and media attention.

	Design Performance Measure	# Informants Design Consultancies	# Informants Client Companies	# Informants TOTAL	% Frequency of Informants TOTAL	
Financial Performance Measures	Revenue/ Sales (volume or monetary)	IIII	III	7	87,5	
	Sales margin	IIII	II	6	75	
	Costs (product, raw materials, development, logistics)	III	III	6	75	
	Stock price	IIII	I	5	62,5	
	Net income/ Profit	III		3	37,5	
	Sales / Time to breakeven	I	I	2	25	
	Internal Performance Measures	Employee morale	I	II	3	37,5
Alignment: design with company strategy		II	I	3	37,5	
Achievement of specific strategic goals		II		2	25	
Time to market		I	I	2	25	
Speed of internal processes e.g. development, production		I	I	2	25	
Cycle time – by phase		II		2	25	
Sticking to project timeframe		II		2	25	
Number of design modifications		I	I	2	25	
Number of products in pipeline		I	I	2	25	
Number of products started		I	I	2	25	
Number of products completed		I	I	2	25	
External Performance Measures		Customer Satisfaction – overall	III	III	6	75
		Customer Satisfaction – style/appearance	I	III	4	50
		Customer Satisfaction – ease of use	I	III	4	50
	Media attention	II	I	3	37,5	
	Number of design awards	III		3	37,5	
	Customer Satisfaction – product		II	2	25	
	Number of patents	I	I	2	25	

Table 12. Combined Design Performance Measures

7.4. Challenges and Reasoning of Measurement Efforts

All informants agree that although design can inarguably yield value and benefits the actual measurement of design performance is difficult.

Oftentimes investment in design is a quite efficient of an investment, although it is really hard to measure. – All the lifecycle things... how could you then measure those... For example recyclability. (Design Planner, Consultancy A)

The biggest challenges related to design measurement that could be identified from the study are extracting design related performance improvements from other functions and adapting the set of metrics according to different situational factors. Challenge is also identified because the impact of design is more or less realized in the long run. This is characteristic for investments, although it was noticed that at least one of the client companies (G) lists design expenditure as costs. This challenge relates to accounting principles. Whereas investments and their returns are followed, costs do not entail the expectation of related future profits.

Out of these, perhaps the biggest challenge is how the results could be separated from the contribution of other functions that are involved in the same processes as design, like marketing and engineering. This obstacle is identified both in the extant literature (e.g. Hertenstein et al., 2005; Nyberg & Lindström, 2005) and by most of the informants in this study, as the following quotes reflect.

It is extremely difficult. It will always be challenging and analysis of the results will always be subjective. It will never be completely solid. (CEO, Consultancy B)

Design is part of the product development and if we think about product design, well design is one part of the big picture. How do you separate the technology part and the design part and how do you measure it? (CEO/ Owner, Consultancy C)

It is not an easy thing to create measures merely for why a product succeeds. There are distribution channels, cooperation networks, the broadly understood product, warranties, pricings, financing models, competitive situation, and the works. Everything affects everything else. So it's not simple. (CEO/ Owner, Consultancy D)

When it's deeply integrated work, product development, it is really hard to pick up the elements that would have been caused by design. (Senior Design Manager, Consultancy E)

But extremely many of these things are indeed something that are influenced by other matters as well than only the use of design. (Product Development Manager, Company H)

However, company H informant sees it unnecessary to break the different functions' impacts into parts, and sees that the outcome should be measured and assessed on the whole.

Based on the informants' statements, it could be identified that underlying factors are lack of time for carrying out measurement and competition and jealousy between different company functions in the same process. When the outcome is something good, all sections taking part in the process can try to claim the credit, whereas bad outcomes are not claimed by anyone. This implies that it is important to include relevant people from start to finish in relevant processes to reach better results and induce savings. Company G informant, too, mentions that better results could be reached when the same people would take care of all the tasks related to a project.

One challenge that was identified in this research is how to make distinctions between different types of design projects. Universal metrics would enable comparing the effects of design over industries but in practice room for adjustment is needed so that the selection of the measures can be targeted and narrowed down to clarify the objectives. One consultancy informant suggests that the direct monetary results could be assessed with same measures universally, but the other measure categories should be adapted according to the circumstances. Other consultancy informant comments that some division is required to build credible and reliable measurement, and implies that product, service, graphic or package design operate with different influence areas and therefore also requirements for measurement.

According to Nyberg & Lindström (2005), different industries with different types of products and services for B2B and B2C customers have different use and value of design. Therefore, it is not surprising that the underlying variables that arose during the discussions with the informants are the same, and different measurement practices are called for.

For example, one consultancy mentions that large companies have better opportunities to use design in a more strategic manner, simply because the budgets are bigger. Moreover, big design projects executed by big companies are more readily used as examples of best practices and how things

should be done, while in reality small companies just may not have the money to follow the example. On the other hand, if smaller companies have small budgets as their challenge, larger companies are more likely to have heavy processes that slow the projects down.

On top of company size, the object of design should be taken into account and could be used as a classification basis concluding from what one client states in the following:

When design is thought about – as I said the decisions are made in a quite long run. It's more about... We don't think that much about how long a certain package has been on the market, it is more about the [product inside] and how long a [product] alternative has been there. But these are just these product category and industry differences, clearly. – The package is the main object to design but not our main product. (Brand Manager, Company F)

According to company G's Sales Director, although new products and their success are closely followed, it is not consciously thought of as measuring success of design as such, and when the company's focus will shift more into services, their measurement may need to be thought of separately. This indicates that the measurement practices are far from established and systematic.

The next quotation represents another consideration related to distinctions.

But then when here, too, there are the two different parts: B2B and B2C. For example, we carry out to a great extent B2C design projects, whereas on the municipal side there is a completely own logic there. (Senior Design Manager, Consultancy E)

The issue is modifying the metrics according to the customer and industry specifications. Industry-wise categorization is also supported by company H. Consultancy E informant makes a distinction between consumer and business customer cases, and private and public sectors on the side. Another consultancy representative also makes a difference between consumer and business customer cases; the B2B and technology-intensive products are more often complex making the evaluation of design's role more difficult. Differences were seen between services and products, and between complex high-tech and simple products. According to one consultancy view, the minimum categorization should be business-to-business and business-to-consumer products.

When it comes to what type of measurement efforts the client companies would want the

consultancies to make, company H informant mentions sustainability related measures, and says that at the moment they do not have tools to measure and compare environmental impact between different raw materials. Then again, consultancy A specifically uses recyclability and life cycle matters as example when the design measurement difficulties are discussed.

On the grounds of the interviews, it can be understood that at present Finnish companies use design on really varied levels.

Those companies that have somehow had a wake-up call that brand value must be increased and then understand that brand value is significantly affected by design or service. So that type of companies... it is the most strategic thing how you build your most important equity and that what really redeems the brand promise and so. But then there are those types of companies that have a really narrow view of design.
(Design Planner, Consultancy A)

There is a group of companies who know how to buy design, know that when there's this and this type of job it should be bought from this consultancy or that person and so forth. (Senior Design Manager, Consultancy E)

It is reasonable to assume that the measurement needs also vary along the levels of design use. Companies that have just started to use design might use it for different purposes and on a different level than those where design is a long established function. Also, the impact of design use may be stronger, or at least different, in companies and industries where design is an emerging investment area. This is supported by company H informant, who says that in industries that are far along in design utilization, there are no examples of 'non-designed' products, making it harder to compare the effects of design.

Small companies do not measure... they have simpler measures there – money, how much it has generated below the line. In a bigger company and more strategic project there are a lot of other measures than just the money, I have noticed. (CEO, Consultancy B)

Another mentioned challenge is that measures and metrics may sometimes lie if people are not aware of the background assumptions and what they are based on and interprets them falsely. Often

the design consultants are able to self define the project outcome evaluation because the client companies simply lack the understanding and know-how required for measuring the outcomes (company H).

Consultancy A informant uses the term “areas that can be measured” when she thinks of potential measures that could be used. This carries the implicit notion that there are some contribution areas of design that may need to be left outside quantification and measurement because they just would not go to measure. This can pose a further challenge for efforts to build a comprehensive measurement model. Beside the quantifiable measures, non-quantifiable benefits and outcomes achieved could, however, be described by case facts and anecdotes, suggest two interviewees.

Although challenging, efforts to measure design performance are mainly seen to be positive and to entail some benefits by all informants. Being able to measure design outcomes is seen as an antecedent to understanding the potential and impact design actually can have, how it should be used to gain the maximum value, and contribute to the increased significance of the industry. The relevancy of these things is supported by company G informant, who sees that design is still seen narrowly, although it can entail areas from designing concepts to for example using design consultancy’s expertise for organising a design competition. Company G has witnessed that there is room for increasing the understanding on design potential also on the designer side when it comes to industries or objects where design is not traditionally used in.

In an optimal situation the evaluation could be integrated as part of the process and that way be able to steer the process as well. (CEO/ Owner, Consultancy D)

In the comment above, the informant implies that strong design measurement practices would also enable testing of concepts already during the development process, which would support the selection decisions and potentially minimize the amount of failed projects and getting things right earlier on. Also two other informants found beneficial that measurement information could provide support in making decisions.

However, client company H informant sees that for the design projects they already are carrying out, measurement would not necessarily bring much value because they already find that design service is a core element in the product development. In case design measurement would reveal and prove the benefits of some other applications of design than what is already used, then it would

entail more value and benefits for that company. Also client G questions whether their company would benefit from measuring the use of design separately.

Compared to client company informants, the design consultancy representatives perceive the benefits of measurement somewhat stronger, as for them being able to prove the benefits of design by measuring it is about justifying their existence. However, also the client companies identified some benefits. Being able to quantify the impact of design use may increase understanding of its potential for those people who need further convincing and concretized proof on why increase the investment in design and how.

The measures should be something that are purposeful and useful for the design service buyer companies because the interest and business case for increasing design investments should be based on authentic and right information (consultancies B & D). Consultancy D informant regards investment in design comparable with any other investment that companies assess by its payback time, the value it can add and the savings it could enable, and that is where measurability is necessary.

Secondary benefit that follows is that design business would be better business because at the moment when times get tough also good actors are eliminated from the field (consultancy A). This can be seen as a negative issue for the whole economy as it might have an adverse effect on entrepreneurialism. The societal view was also taken up by consultancy C informant, who sees that creating accurate metrics would lead to increased economic well-being on the whole through optimized design use, and consultancy B informant, who states that increasing the total investment in design would enforce the Finnish design brand. Furthermore, design investments can bring value by bringing work on work. When design work is done well, new projects and more work follows for both design consultancy and the client company.

Being able to measure design projects accurately could according to design consultants be a starting point towards a more sustainable and economically sound basis of billing for design services. Switching invoicing base from hour-based billing to long-term revenue-based would entail risk-revenue sharing between service provider and client, as noted by two consultancy representatives.

However, client H believes that it might be more of a benefit for the design consultancies than the

client companies to be able to measure design performance, because that way they would be able to convince potential customers to not just buying design sporadically and from here and there, but use it in a more comprehensive way. For a buying company, justifying the use of design can become more topical if it considers vast investments in it. There, design performance measurement could sometimes be of support, if accurate. Client H sees that on the software side it has been easier to show that fewer mistakes happen when studies and then testing are carried out.

8. CONCLUSIONS & DISCUSSION

The objective of this study was to explore ways to measure the success and outcomes of design inputs specifically in the context of external design service use. In addition, the aim was to create a framework for measuring outcomes of design projects carried out by design consultancies in coordination with their client companies.

In the theoretical part the existing literature on the value of design, its links to performance and how it could be measured was reviewed, and a preliminary theoretical framework built based on the main related theories. For the empirical part, the primary data was gathered with qualitative methods based on theme interviews. Five Finnish design consultancies and three of their client companies were interviewed to unravel the views of these two different informant groups regarding the research topic.

The practice of measuring external design investment outcomes is still to a great extent in its infancy and entails some important challenges to solve. However, some interesting conclusions can be drawn based on this study and it can pave the way for the future. Next, the conclusions will be presented together with a theoretical model that can be used as a starting point when setting out to evaluate external design investment outcomes. The conclusions are presented along the lines of the analysis chapter, beginning with considerations regarding external design and its benefits and moving on to what design value and competitiveness are founded on and how they could be measured. Finally, challenges related to measurement and supporting factors for the importance of measurement are summarized.

8.1. Value of External Design for the Client Company

The value of investing in design consultancy work for the client company is a product of both benefits relating to external design in particular and benefits of design overall.

The two main benefits of employing external designers mentioned widely by both design consultancy and client company informants, and supported by the extant theories, were gaining new

ideas and perspectives, and bringing flexibility to resource use. These are strong benefits that can create financial value, but also disadvantages were identified. For external resources it takes time to reach understanding of the company's business. This was seen by one client company informant sometimes to even compromise the ability to reach results faster, which contradicts with the benefit of being speedier listed in the theoretical framework. However, business understanding is not the only contributing factor that affects the speed of the design process. To overcome the lack of business understanding, forming long lasting partnerships and connecting the designers with the top management were seen important.

The potential benefits of design are numerous as proven by the extant literature and the empirical analysis of this research. The main benefits from investments in design in general that were identified are for example developing products and services that stand out from the competing offerings and hit home with the customers enabling price premiums, cost savings through reduced product and process costs, improved corporate identity and employer image.

Important notion is that the positive outcomes of external design use are not realized automatically. A company needs to balance between giving the consultants enough influencing possibilities and including them from beginning to end in the relevant processes, and effectively managing and coordinating the consultants. Unless there is a person or persons responsible for doing this, the external design remains, well, external and can fail to integrate with the client company. Systematic and strategic use of design together with other functions yields best results, as does complementing in-house design with external upon need. In the end, the success of the project is a combination of how well the design consultants have worked and how the counterparts have performed in the client company.

8.2. What Makes Design Outcomes Hard to Measure and Why Do It Anyway

To be able to accurately measure and assess design outcomes for both external design and design in general still requires work, as it is a young research field. What poses challenges for creating reliable tools for measurement is the fact that design's value creation and influence potential resides largely in processes where it is intertwined with other functions. Separating the impacts is hard. Also, additional difficulty is brought to the picture by the many uses and applications of design,

which again depends on the industry and company characteristics. The benefits and value creation potentials are different in different strategic levels of design use, company sizes, end customers (B2B vs. B2C), objects of design (product vs. service vs. other), complexity of the designed objects and between single-product companies and companies with large product portfolios. While universal means to quantify and estimate design project outcomes would enable comparisons over industries, the above-mentioned factors make it challenging. However, for example marketing measurement has been under research interest for longer and it has taken big advances. Like design, also marketing's potential lies in developing intangible assets. What can be achieved on metrics and measurement dimension for marketing may often be done with design, too.

What makes the measurement efforts important is that it can have a positive influence on many levels. Individual companies can improve their performance, competitiveness and operating premises when they are able to optimize their investments by basing their decisions on increased understanding. Also, the design business industry would have better prerequisites to operate in case metrics actually able to measure design contribution and returns would be established, because that way investment in design would more readily be seen as an equal investment alternative with for example marketing. Moreover, trustworthy evaluation could enable shifting towards a more sustainable pricing model, from an hour-based to a return-based risk-sharing model between the client and the consultancy.

On societal level, the mentioned impacts would increase the competitiveness of the whole economy and bring new jobs - something that is indeed needed in the coming years when a big portion of Finnish population becomes retired.

8.3. Measuring External Design Outcomes – The Model

The research confirmed that both financial and non-financial measures are needed to properly evaluate design outcomes. To account for value areas that are harder to quantify, even case facts and descriptions could be used. Figure 8 presents the main outcomes of the research extracted into a preliminary measurement model for external design performance evaluation.

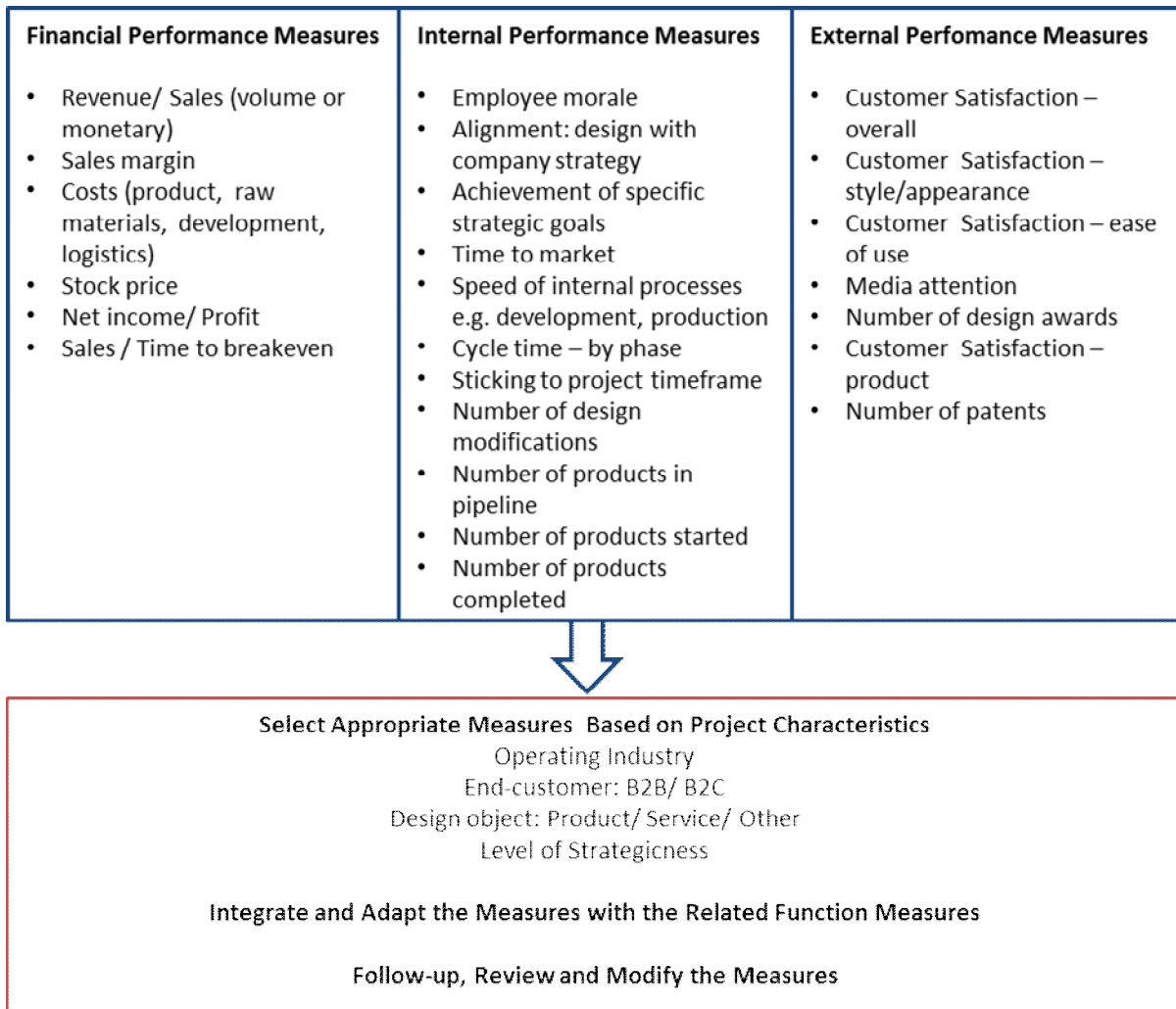


Figure 8. Measurement of External Design Performance

The conclusive measures are divided between financial measures, internal performance measures and external performance measures. Financials include traditional measures out of which revenue or sales both expressed in volume and monetary terms, and sales margins are seen as the most important. Internal measures are mainly related to the efficiency outcomes inside the company and related to its processes. There, employee morale, strategic aspects and time-related measures were the most emphasized ones. External performance is the area where customer satisfaction measures were considered most important.

The measures in the model are listed in frequency order, beginning from the most supported ones, descending to the ones that got less support. The ones that were supported by the client company informants are prioritized on the list. It entails that in case two measures got same amount of votes each, the one that was highlighted by more client company informants will rank higher on the list.

Overall, only those measures that were mentioned by two or more informants are included on the list. Therefore, some of the spontaneously mentioned measures and picked out from Hertenstein & Platt's (2000) model were left out because they did not get direct support from the other informants. Therefore, some measures that could prove out to be good in assessing design project outcomes may have been left out from the final list. For example, before presenting the design measurement model one client mentioned three different employee-related measures, and of the same category, three informants supported the choice of *employee morale* upon presenting the model that could well be further assessed with the measures that were suggested. Moreover, evidence from previous theories and the interviews show that design has a role in brand value creation, yet related measures were not explicitly mentioned by more than one of the informants.

The appropriate set of measures is to be selected bearing in mind the company and industry related situational factors. Then, the measures should be integrated with the other potential performance indicators in the company in question. Follow-up procedures should also be established and measures reviewed and changed upon need continuously, based on internal or external changes.

8.4. Managerial Implications

The potential of design as an enabler of competitiveness and performance success is undoubted. However, it has been found that to reap the benefits it is not enough to use design; it must be used strategically and in a right way. Best performance outcomes can be reached when design is in line with the overall corporate strategy and it is used and evaluated on a systematic way. This study identified that one possible benefit that could follow from increased design measurement efforts would be to increase the understanding on how design should be used to maximize returns and reach the best results. This calls for managerial capabilities, in terms of managing and coordinating the outsourced design resources and cooperating in the design projects in general. The company buying external design services should make sure it is capable in receiving the services, too.

It has been noted in the literature that a good measurement system is hard to form and also the informants in this study stressed that too many and wrong indicators can lead businesses astray and have people focusing on non-favorable tasks, potentially to even consciously grace the figures. Design performance measurement, like any other area of measurement, should be carefully

considered and integrated with the other measurement practices already at use in the companies, giving attention to the metrics in place for functions that relate to design. Moreover, the system should be reviewed continuously and adapted upon need to the changing business environment.

8.5. Limitations and Further Research

This research was conducted with a relatively small sample, especially when it comes to the client companies. Considering that creating credible and usable measurement frameworks and tools, the client companies should be the starting point for which they should be tailored. Therefore, conducting deeper studies regarding the client companies and to test the suggested measurement categories in practical settings, and modifying it accordingly, would be needed. This would also enable establishing more sophisticated and refined metrics both with a financial and a non-financial perspective.

Also, there are two dyads in the supply chain when external design is used. One of them is design consultancy and client company, and the other is client company and end-customer. This thesis focused on design consultancy and client company area, but also the next pair in the supply chain should be studied and researched to reach a complete understanding on all the connections and actors in the design value domain. On top of value, it would also be interesting to account for the risks and disadvantages that may be involved when design and external design investments and their outcomes are modeled.

Reflected in the extant literature (e.g. Aspara, 2008; Hertenstein et al., 2005; Hietamäki et al., 2005) and partially also the informant responses, product design holds its spot as the focus and first thing that often comes to mind when it comes to design. The theoretical framework in this study was also partly based on theories related to industrial or product design. Like Hertenstein et al (2005) mention, whether other domains of design similarly create increased performance than that of industrial, is an interesting consideration. It would be useful and interesting to conduct a comparative study taking into account differences and similarities between different areas of design. Specific attention should be paid on exploring some of the other areas of design also separately. In absence of relevant previous theorizations, this might require even proceeding without previous theory as the starting point.

Out of interest could, in addition, be studies that would take into account the differences between industries and companies, for example related to the level of design's strategic importance, size of the companies and other categorizing characteristics. Moreover, comparisons between external design use measurement and overall design performance measurement would increase understanding of the research area, and establish what measures could be common for both evaluations, and what should be adapted and used especially in either case.

Whereas design measurement is an emerging field in research and practice, some other domains are more advanced in performance measurement. Therefore, to enrich the measurement practices for design, drawing ideas from and benchmarking against other areas, for example marketing productivity measurement should be carried out (e.g. Rust et al., 2004; Ambler et al., 2004). Studying other measurement practices, like marketing, should also be done to align the metrics used for functions taking part in the same processes as design where value is created. It seems that a lot of the principles from marketing metrics could be adopted and modified for measuring design investments too, as they have overlaps in their influence areas, such as brand building.

All in all, the performance measurement coin has its both sides. It is often said that what cannot be measured cannot be managed. With the buzz around performance measurement, return on investment calculations and scrutiny of accountability some have already started arguing against the quest to 'numberize' everything. As was stated by one informant, people make the decisions, and there is always subjectivity, previous experiences and intuition at play. Moreover, there is always the risk that the measurement systems become too rigid and heavy, and counterproductive. Therefore, the future research should also strive for 'vital few' instead of 'trivial many' thinking when nailing down the measures, so that the theory would also translate into executable practice.

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APPENDICES

Appendix 1. Question Themes for Design Consultancies.

GENERAL & COMPANY RELATED QUESTIONS

- Personal background and job description?
- What areas of design do you mainly operate on?
- What type of clients and projects?
- How many employees do you have (full-time / freelance)?
- How would you define design?
- Compare in-house design with external design, and combinations of these?
- How much and on what level are design and design services used by Finnish companies?

VALUE & COMPETITIVENESS QUESTIONS

- What can be achieved by using design in general in a company? Compare in-house design with external design, and combinations of these?
- What are the areas where design can create value and increase competitiveness?
- How do the benefits of design use connect to company performance and translate into monetary value?
- How important are intellectual property rights?

MEASUREMENT QUESTIONS

General

- Do you measure design performance for own use? Is it done for the client companies?
- What is your view of how the client companies measure design performance? What would you assume them to measure?
- What can be achieved by measuring design performance? What are the potential challenges related to measurement?
- Should general metrics for design measurement be strived for or is it even possible?
- What are your criteria for a successful design project?

Practice

- How do you measure the returns of design investments at the moment?
- Is the measuring done project-wise or client-wise?
- How can design outcomes be separated from functions e.g. marketing or engineering?
- What role should both monetary, financial measures and non-monetary, descriptive measures have?
- How should the measures be categorized?
- What are the single most important measures?

FUTURE RELATED QUESTIONS

- Is the design performance measurement at an adequate level? Is something missing or unnecessary?
- What are the needed changes to reach an appropriate level of assessing design performance and outcomes?

- Take a look at the list of design measures by Hartenstein & Platt (2000). Could you comment on it and highlight the ones you find most important? (Appendix 3)

Appendix 2. Question Themes for Client Companies.

GENERAL & COMPANY RELATED QUESTIONS

- Personal background and job description?
- How would you define design?
- The role of the design function in the organization?
- Types of design agencies in use?
- How broadly can the external designers make decisions?
- Criteria for continuing or discontinuing cooperation with design agencies?

VALUE & COMPETITIVENESS QUESTIONS

- What can be achieved by using design in general in a company? Compare in-house design with external design, and combinations of these?
- What are the areas where design can create value and increase competitiveness?
- How do the benefits of design use connect to company performance and translate into monetary value?
- How important are intellectual property rights?

MEASUREMENT QUESTIONS

General

- Do you measure design performance for own use? Is it done by the design agencies?
- What is your view of how design agencies measure their projects? What would you assume or want them to measure?
- What can be achieved by measuring design performance? What are the potential challenges related to measurement?
- Should general metrics for design measurement be strived for or is it even possible?
- What are your criteria for a successful design project or customer relationship?

Practice

- How do you measure the returns of design investments at the moment?
- Is the measuring done project by project or long-term?
- How can design outcomes be separated from functions e.g. marketing or engineering?
- What role should both monetary, financial measures and non-monetary, descriptive measures have?
- How should the measures be categorized?
- What are the single most important measures?

FUTURE RELATED QUESTIONS

- Is the design performance measurement at an adequate level? Is something missing or unnecessary?
- What are the needed changes to reach an appropriate level of assessing design performance and outcomes?

- Take a look at the list of design measures by Hartenstein & Platt (2000). Could you comment on it and highlight the ones you find most important? (Appendix 3)

Appendix 3. Financial and Non-financial Measures of Design Performance.

Source: Hertenstein & Platt (2000). Performance Measures and Management Control in New Product Development. Accounting Horizons. 14: 3, 303.

Financial Measures	Non-Financial Measures		
<ul style="list-style-type: none"> • Revenue/ Sales • Product cost • Development process cost - total • Development process cost – phase • Gross profit –total • Gross profit – new products • Cash flow • Net income/ Profit • Economic value added (EVA) • Stock price • Market share – product • Percent sales – new products • Percent sales – new customers • Percent sales – repeat customers • Percent sales – proprietary products • Sales to break even 	<p>Timing Measures</p> <ul style="list-style-type: none"> • Time to market • Cycle time – by phase • Time to revision • Time to break even <p>Design Effectiveness Measures</p> <ul style="list-style-type: none"> • Percent first designs meet needs • Team assessment of design effectiveness • Percent projects that reach production • Assessment of CAD use <p>Design Efficiency Measures</p> <ul style="list-style-type: none"> • Number of design modifications • Frequency of specification changes 	<p>Customer Satisfaction Measures</p> <ul style="list-style-type: none"> • Satisfaction – product • Satisfaction – style/appearance • Satisfaction – ease of use <p>Employee-rated Measures</p> <ul style="list-style-type: none"> • Employee morale • Team assessment of individual contribution • Ratio: #designers / #employees <p>Strategic Measures</p> <ul style="list-style-type: none"> • Alignment: design with company strategy • Achievement of specific strategic goals 	<p>Innovation Measures</p> <ul style="list-style-type: none"> • Number of patents • Number of new products developed • Number of new products introduced • Number of design awards • Peer evaluation of design work • Percent new features <p>Volume Measures</p> <ul style="list-style-type: none"> • Number of products in pipeline • Number of products started • Number of products completed