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Master's Programme in International Design Business Management

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**Using design to foster startup growth
- a multiple case study**

Master's Thesis

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Abstract

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Nowadays, the impact of design in supporting business growth and technology development is by far self-evident. Research from both academic and industry leaders has pointed to the same conclusion: to succeed and outperform your competitors, companies need to use design. However, when it comes to using design in startups, there is a certain degree of resistance. Compared to wealthy, resourceful corporations, startup teams might have a slightly different view on the use of design, especially in the beginning of their venture. Design, with its highly intangible values and impacts, appears difficult to sell to many startup founders as an important ingredient for their business strategy.

For this thesis 7 company founders and design leaders from six different companies were interviewed. All participating companies are recognized as highly design-oriented and are based in Helsinki region. The interviews focus on the participants' observation and evaluation on the impact of design in their organisation, including their approach on applying design in business strategy and operational activities. The results offer new perspective on the role and values of design in startup teams, and a detailed analysis on startups' current design practice.

The roles of design in startups were identified in five key aspects: product development, business strategy, branding, culture, and operation. Design appears to play an important

role in different stages of product development, ensuring that the process is user-centered and design solution efficiently covers user needs. Designers are involved in different activities of business strategy development to support the founding and management team clarify the core questions. Design has also proven to be the key element in shaping brand image. For some companies, having design presence in the company has a strong impact on their company culture and can greatly enhance their operational productivity.

Companies approach on using design were studied in three main themes: use of design resources, how companies measure design impact, and common challenges that startup teams often face when investing design, as well as designers' challenges. Based on the analysis from each theme, a list of key practices was proposed, in order to help business founders and founding teams to better prepare and utilise the advantages of design.

The role of design is constantly and increasingly recognised in different aspects of business development. For startups team, the need for using design has becoming as clear as ever. This study attempts to narrow the bridge between business entrepreneurs and design professionals in order to generate productive and efficient use of design in startup setting.

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Helsinki, March 2019

Chi Pham Ngoc Lan

*“It is not enough that we build products that function,
that are understandable and usable, we also need to build
products that bring joy and excitement, pleasure and fun,
and, yes, beauty to people’s lives.”*

– Don Norman

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1. Introduction

1.1 Background

The role of startups in the economic scene, especially in Finland, is critical and growing rapidly. On one hand, the application of design thinking in business has gained more attention and been adapted into a variety of organisations, from big corporations into small businesses. Design has proved to be an effective method in developing innovative ideas and delivering applicable solutions. If successfully integrated, design can foster the business growth and give to companies a strong competitive edge. On the other hand, even though most companies highly value the benefits of design, many have tried and failed to integrate design into their systems. This occurs more often to startups who are in their early stage, where time and resources are often under tight restrictions.

1.2 Purposes

The purpose of this thesis is to take a closer look into the practices of using design in startups and growth companies, and analyze the roles of design in fostering their business development process.

The thesis studied a number of highly design-oriented businesses in order to identify the drivers for having a strong focus on design. The study also aimed to understand how these companies are applying design principles and methodologies to achieve their goals.

The outcomes of this research could potentially support multiple key players involved in the startup ecosystem. For startup founders, understanding the benefits of design can help them to make better decision on design investment and facilitate their strategy planning. For design professionals, this research may give them a better understanding on the roles and responsibilities of a designer in startups, the way of working, and the possibility to expand their options when making career-related decisions. For startup accelerators, design consultancy, and other service providers, the results of this research could offer an overview on companies' design needs and capabilities, thus contribute to the opportunities of providing new services.

1.3 Structure

The thesis is divided into five chapters. Chapter 1 presents the background and purpose of the research. Chapter 2 provides the theoretical framework and knowledge related to the topic. It includes general knowledge on startups, fundamental concepts of design, different design disciplines, and the use of design in startups from different perspectives. Chapter 3 explains research methodology, how the case studies were selected, and the methods of collecting and analysing data. Chapter 4 presents detailed findings from each case study, and a cross-case analysis from all the case data. Chapter 5 discusses the theoretical and practical implications of the research findings, and gives suggestions on how future research can be conducted to support the continuation of the topic.

2. Literature study

2.1 Startups

2.1.1 What is a startup?

Blank (2010) defines “A startup is a temporary organization designed to search for a repeatable and scalable business model”, which suggests that a scalable and repeatable startup has the potential to become a high growth, profitable company by entering a large market and taking share away from incumbents, or by establishing a new market that can grow rapidly. In order to do that, startups often need a significant amount of “risk” capital to create market demand and to scale up. Compared to well-established companies, startups operate in a “Search” mode where most of the important business aspects are still unknown and require validation. This includes customer behaviors, product-market fit, essential product features, and others. Thus, it is typical for startups to be built by a team of talented and committed people who are capable of taking tremendous risks.

Ries (2011, p. 27) provided a simpler and more applicable definition: “A startup is a human institution designed to create new products and services under conditions of extreme uncertainty”. This definition strips away many important aspects related to business: the size of the company, industry, economy sector. The key elements are: human, new products and services, and uncertainty. By emphasizing the chaotic and fluctuated condition that startups have to face in their early stage of development, this definition excludes all medium-sized and large companies that have already reached a certain level of stability.

Considering bureaucratic hierarchies are the main obstacles in big organizations that hinder innovations to happen, Thiel (2014, p. 10) specified: “Startups operate on the principles that you need to work with other people, but you also need to stay small enough so that you can actually get stuff done.” Both suggested that startups should be small and nimble enough so that there is space for innovations to thrive.

Paul Graham (2012), founder of the start-up accelerator Y-Combinator, defines a

startup as: “A startup is a company designed to grow fast. Being newly founded does not in itself make a company a startup. Nor it is necessary for a startup to work on technology, or take venture funding, or have some sort of “exit.” The only essential thing is growth. Everything else we associate with startups follows from growth.” He believes that for a company to grow really big, it must (a) make something lots of people want, and (b) reach and serve all those people. Applying this concept to startups would mean that they need to have a novel idea to be delivered to a large market, since any idea which can be that valuable often already existed.

Although overlapping, each of these definitions provides an essential characteristic of a startup: scalability, high growth, uncertainty, nimbleness, and novelty. In the context of this research, it is necessary to recognise these core factors in order to see how they affect the company’s business strategy, thus enhance the roles and values of design in the organisation.

2.1.2 Startup lifecycle

Though the concept of startup is fairly popular nowadays, there has been very minor research that clearly defines the lifecycle of a startup: how the entrepreneurship starts, how many development phases a startup normally goes through, and when a company is no longer considered a startup. Below are a few of the most widely accepted models when discussing about the startup journey.

According to Graham (2012), the growth of a startup usually has three phases:

- An initial period of slow or no growth while the startup tries to figure out what it is doing.
- A period of rapid growth when startups have figured out their value proposition and business model, basically how to make something lots of people want and how to reach those people.
- Eventually, a successful startup grows into a big company.

Blanks (2015) provides a similar model: a startup goes through three main phases: Search, Build, Grow, before becoming a large company. In the first ‘Search’ phase, the goal is to look for a repeatable and scalable business model. It starts with Customer Discover, goes through multiple iterations and pivots to find product/market fit, validates these hypotheses, and after they manage to get Customer Validation, startups are ready to exit and go to the next ‘Build’ phase. In concrete numbers, during the Search phase, the size of a startup is normally less than 40 people and may or may not have

funded with a seed round and/or Series A. In the second 'Build' phase, the company has validated their business model, and the aim is to actively generate positive cash flow and increase users. Startups may need to hire more people. The organisation may become more chaotic and less effective than before, which requires the founding team to start putting processes in place, building up culture, training, procedures, and so on. Series C, D, and later happen during this phase. In the last 'Grow' phase, the company has achieved liquidity, either an initial public offering (IPO) or has been bought or acquired by a larger company, and is growing by repeatable processes. Key Performance Indicators (KPIs) are set and processes and procedures are in place.

Understanding the development phases of a startup helps in mapping out the different position of each case startup in this research. This helps to understand the context of using design and to analyse the connection between a startup's growth rate with their decision to invest on design activities.

2.1.3 Common tools and practices

In the process of building and developing a scalable business model, startups often have to apply multiple tools, processes, and methods to achieve their goal, whether it means to map out their business model, identify business value proposition, or validate their products and/or market. Over the years, some of these practices and framework have proven their effectiveness and become fundamental for the survival and success of many startups. It is necessary to understand how these practices work to be able to pinpoint the impact that design may have on a startup's growth. Next some of the tools are described in more details.

Business Model Canvas

The Business Model Canvas is a strategic management template for developing or documenting business models (Osterwalder & Pigneur, 2010). It is presented in the format of a visual chart, which consists of different elements that describe a company's or a product's value proposition, infrastructure, customers, finances (Figure 1). The Business Model Canvas is considered a global standard that has been used by millions of companies and entrepreneurs.

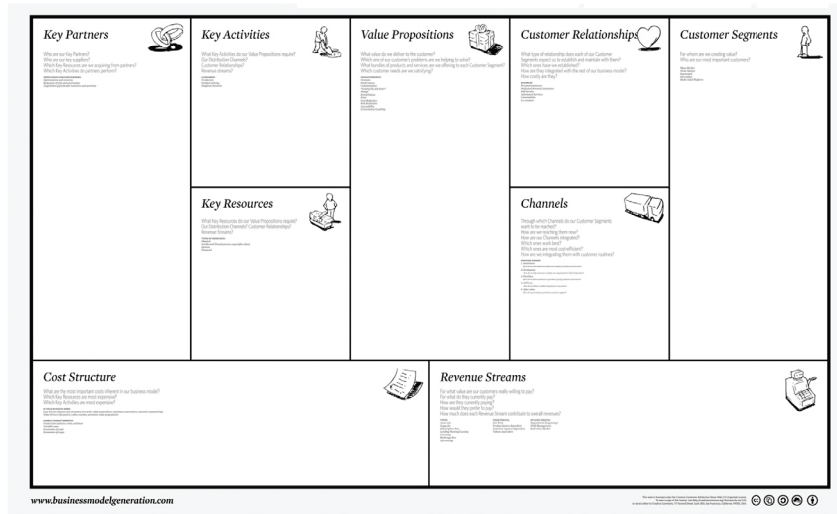


Figure 1. Business Model Canvas (Osterwalder & Pigneur, 2010, p. 44)

Value Proposition Canvas

The Value Proposition Canvas (Osterwalder, Pigneur, Bernarda & Smith, 2014) is a tool to help companies understand what customers want and ensure that their products and services create a perfect match with customer needs (Figure 2). The Value Proposition Canvas focuses on collecting customer information that can support the design of business models. One of the key value of the Value Proposition Canvas is to make sure that companies do not waste time and resource on developing ideas that customers may not be interested in.

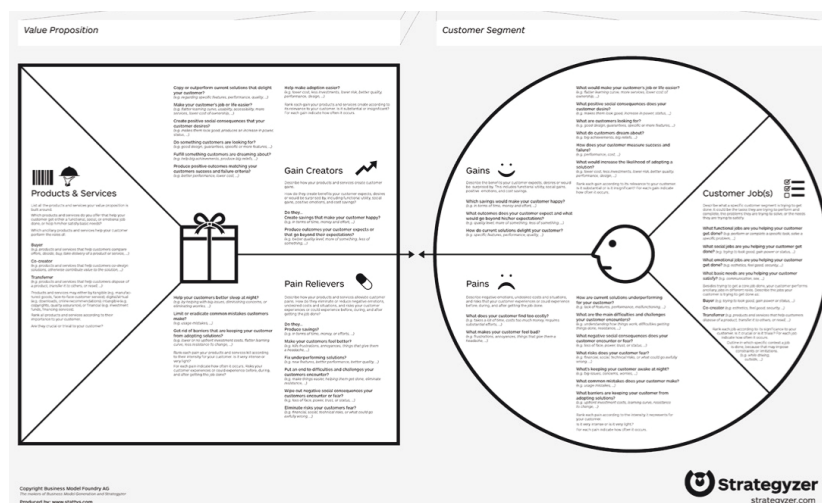


Figure 2. Value Proposition Map (Osterwalder, Pigneur, Bernarda & Smith, 2014, p. 8-9)

Lean Startup Framework

Lean Startup is a methodology for developing products and businesses, with the aim of shortening product development cycles and quickly discover if a business model is viable (Ries, 2011). The framework provides a scientific approach to create and manage startups and deliver product to customers faster. It has become the common framework for any startup founder.

The method has three key principles. First, instead of investing on planning and research, entrepreneurs accept that what they have in the beginning just a series of untested hypotheses. They summarise their hypotheses using the Business Model Canvas to show how the business can generate and capture values. Second, having in hand their unexamined hypotheses, business founders go out and test them with potential users, customers, and partners asking for their feedbacks. To quickly collect these feedbacks, they develop a lightweight version of the project just for testing, called minimum viable product. With the feedbacks collected, companies redesign their offers, make more adjustments and alter their strategy direction to align with the market, which illustrates the third principle: agile development. By developing the product while listening to customer feedbacks in a constant loop, agile development allows companies to eliminate wasted time and resources.

Build-Measure-Learn

At the core of this method is the Build-Measure-Learn feedback loop (Ries, 2011). In brief, it consists of the following phases: build a product, get it into the real world, measure customers' reactions and behaviours, learn from this, and use these learnings to build something better. The goal of Build-Measure-Learn is not to build a final product to ship, but to maximise learning through iterations and pivots.

Minimum Viable Products (MVP)

An MVP is the simplest version of the product, with the essential features that development team can show to customers and gain the most learning at the point (Ries, 2011). MVP is often misunderstood as a simpler product with fewer features causing confusion as shipping an unready prototype into the world. In practice, an MVP can simply be a PowerPoint slide, paper sketches, clay model, and so on. Essentially, MVP is a tool to help development team collect market feedback as early as possible (Gother & Seiden 2016). There can be multiple versions of MVP for the purpose of testing or measuring a key feature. The goal is to validate, not to build.

The Lean Startup method helps to reduce a number of factors that often cause the failures of startups including: the high cost of developing the wrong product, the cost of resources on long technology development cycles, and the lack of systematic approach under high level of uncertainty (Blank, 2013).

2.1.4 Startups failure

Despite various success stories, research has confirmed that most startups fail (Crowne, 2002). An industry research in 2011 stated that in average 90% of startups fail, with 74% of high growth internet startups fail due to premature scaling, and 93% of startups that scale prematurely never break the \$100k revenue per month threshold (Startup Genome, 2011).

CB Insights (2018a) reported: 70% of upstart tech companies fail, usually about 20 months after first raising financing. For consumer hardware startups, the stake is brutally higher: 97% of seed or crowdfunded companies eventually die or go into a plateau state of no growth or a sustaining profit, which makes the odd of becoming an “unicorn” startup is 1% (CB Insights, 2018b). The top five reasons why startups fail include: the lack of market need, companies run out of capital, not having a competent team, get outbeat by competitors, and having issues with pricing/cost, which could be the result of a wrongly defined business model (CB Insights, 2018c). Other causes in the top ten reasons include: poor product quality, not having an efficient business model, the lack of marketing effort, customers are ignored, and the wrong timing for products to be released into the market.

Graham (2007) discussed that most startups die because they run out of capitals. Other fundamental problem with startup failures lies in management methods and practice, which can enhance how startups spend resources and develop new products (Ries, 2011). According to Gómez (2007), startup failures occur due to a range of common reasons, including: lack of finance, management problems, lack of business understanding, shortage of technical advantages. Other research on startup problems and challenges also indicated the causes in relation to financial issues, lack of human resources and support mechanisms, and lack of attention to environmental elements, such as existing trends, market limitations, legal issues (Salamzadeh & Kesim, 2015).

Being aware of these problems can be the first step to analyse how design can make an impact on startup development, which can be beneficial for both business leaders and design professionals. Knowing the primary goals and challenges of a startup will create great opportunities for designers to contribute to its success.

2.2 Design

2.2.1 Definitions of design

Design as a discipline has moved from the traditional concept of visual and tangible artefact to experiences, from single interactions to system transformation (Buchanan, 2001). As an organisation becomes more mature, the design challenges also matures and the use of design naturally becomes more sophisticated (Buchanan, 2001) . Together with the growing scope and scale of design challenges, the way people look at design has also changed rapidly. Depending on the context, design as a concept can be described from different angles. In this research, design is considered as a helping tool, if not an essential constituent of business structure. The definitions of design written below were selected based on this perspective.

Design Management Institution (2015) put it: “Design is a method of problem solving. Whether it is an architectural blueprint, a brochure, the signage system at an airport, a chair, or a better way to streamline production on the factory floor – design helps solve a problem.”

Design Council (Mathers, 2015) identified design’s basic roles as: “framing”, “problem solving”, “form and function”, and “style”, stating that while there are different weightings depending on the design specialty, problem solving and the form and functions are definitely the core elements.

According to Best (2015), the word “design” itself is both a noun as an outcome and a verb as an activity. The outcome of a design project can be seen in the products, services, interiors, buildings, and digital media. The activity of design is people-focused and is considered a problem-solving process.

Within the scope of this research, design as a problem solving method is a valid definition to support the analysis on the roles of design in business.

2.2.2 Design Thinking

In the past, design was a process applied to physical objects. The most famous designers in history designed trains, houses, furniture, logos, and other objects. Nowadays, design has significantly increased its important role in the success of commercial goods, and companies have adopted the power of design in various contexts. Designers are now hired to enhance the look and feel of user-interface software, improve customer

experiences, direct business strategy, connect stakeholders, so that operations can run more efficiently as a whole.

As a result, design process has gotten more complicated and more sophisticated. Quite often, design has been used to tackle a holistic experience, rather than a single aspect, in a system. As the scope and depth of design challenges extend, a distinct discipline has emerged by adapting different tools into one new domain: Design Thinking (Brown & Martin, 2015).

History of Design Thinking

The history of Design Thinking dates back to the 1950s and -60s within the fields of architecture and engineering. It is associated with the ideas of solving “wicked problems”, a term coined in the mid-1960s by the design theorist Horst Rittel (Buchanan, 1992) to describe ill-defined or tricky problems. According to Rittel, because of these complex and multi-dimensional problems, a collaborative methodology is required to gain a deep understanding of humans (Buchanan, 1992). Over the years, various design firms, design leaders, practitioners, and theorists had studied and practiced different design processes in order to formulate a holistic approach that can address the issues of collective problem solving and find solutions for broader problems.

Tim Brown (2008) defines design thinking as “a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity”.

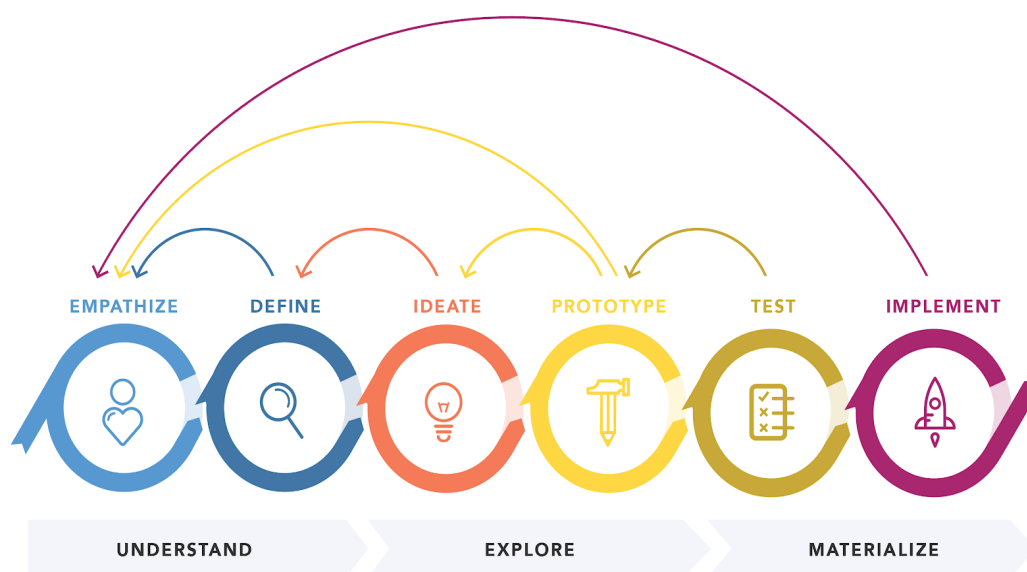


Figure 3. The Design Thinking process (Gibbons, 2016, p. 1)

According to Brown (2008), Design Thinking relies on the human ability to identify patterns and develop ideas that are meaningful emotionally and functional. It encourages design teams and organisations to focus on people and it is best suited to address problems where multiple knowledge domains are involved. Some examples of these complex problems include: redefine business value, identify the quality of life, address problems affecting diverse groups of people, address issues related to corporate culture, or to cope with complex societal issues (Koria, 2015).

Design Thinking has the potential to help entrepreneurs to overcome the challenges that often get in the way of innovation, such as: innovators biases, making sense of a large volume of qualitative data, team members diversity, ambiguity about the future (Liedtka, 2018). In business management context, the structure of Design Thinking was perceived as a range of core principles, practices, and techniques that can be enacted in organisations. They include: user focus, problem framing, visualisation, experimentation, and diversity (Carlgren, Rauth & Elmquist, 2016). The structure of Design Thinking creates a natural flow to immerse the customer experience, transform data into insights, and help the design team to brainstorm solutions (Liedtka, 2018).

Design Thinking can be used by everybody at every level of a business (Brown, 2009). It is not only for designers, but also for engineerings and business leaders who want to use design to tackle a vast range of challenges.

2.2.3 User-Centered Design

User-Centered Design (UCD) emerged from the idea that product development should be more focused on the user, as a response to the growing frustration of users towards complex electronic systems (Norman 2013). The term “user-centered design” originated in 1980s and became widely used in the field of human-computer interaction (Norman & Draper, 1986). It is an iterative design process in which users are involved throughout each phase via a variety of research and design techniques so that the final solutions can be highly usable and accessible for them (Benyon, Turner & Turner, 2005). Its core principles are defined in the International Organization for Standardization (ISO), the most recent one being 9241-210 (ISO 2010). The principles include:

- The design is based upon an explicit understanding of users, tasks, and environments
- User are involved throughout design and development
- The design is driven and refined by user-centred evaluation

- The process is iterative
- The design addresses the whole user experience
- The design team includes multidisciplinary skills and perspectives

User-centered design methods vary upon the context and user needs (Holtzblatt & Beyer, 1993; Cooper, 2004), but in general include:

- User research methods: e.g. contextual inquiry, interviews, observations, questionnaires
- Data analysis methods: e.g. affinity diagrams, personas
- Design methods: e.g. rapid prototyping, interactive mockups
- Testing methods: e.g. cognitive walkthrough, heuristic evaluations

These methods share a lot in common with the characteristics of the Lean Startup method, which was based on agile product development principles: iterative, faster, more customer-oriented development cycles (Womack et al., 2007).

2.2.4 Design resources and operating context

Inside an organisation, design exists as an in-house team working alongside or embedded within other functional units (Best, 2015, p. 50). Outside an organization, design can function as consultancy or agency (Best, 2015, p. 50). It is common for an organisation to utilise design resources from both inside and outside.

While both can contribute to the great success of a business, each has their own strengths and drawbacks that need to be taken into account. Best (2015) provides a summary of pros and cons of using in-house and out of house design teams (Table 1).

Table 1. The pros and cons of using design teams (Best, 2015, p. 51).

	Advantages	Disadvantages
In-house design team	<ul style="list-style-type: none"> • Designers are active stakeholders in the organisation. • Working with one “client” produces a focused experience. • Proximity to other business units can enable rich multidisciplinary team working and a shared sense of purpose. • Can influence company’s design culture. • Easier access to internal decision makers and power holders. 	<ul style="list-style-type: none"> • At risk from insularity, complacency or becoming less objective. More likely to say “yes”. • Having to juggle balancing the status quo with pushing boundaries. May be competing for resources with other business units.
Out of house design team	<ul style="list-style-type: none"> • Working with multiple clients produces a breadth of experience. • Objective, non-political, and more likely to say “no”. • Clients more likely to listen. Often bring a challenging perspective to problem-solving. • Can concentrate solely and intently on the problem and thus produce tightly focused solutions. 	<ul style="list-style-type: none"> • Tends to be a more expensive option. • Consultancies can come up with new ideas, but they may be “off brand”, unsupportable or unviable as a business offer.

2.2.5 Measuring the impacts of design

The increasing interest in using design subsequently evokes the discussion of how to evaluate the impact of design when it is applied in different aspect of business: how companies in general and business leaders can measure the correct influence of design with regards to their success, how designers or design team can demonstrate their results in a way that could convince investors and business owners? In order to answer these questions, design metrics are needed. However, until this point, the topic of design measurement and methods of evaluating design has been scarcely researched.

The Danish Design Ladder

In 2001, the Design Ladder (Danish Design Center, 2015) was introduced as a communicative model to illustrate and rate a company's use of design (Figure 10) . The Design Ladder consists of four steps:

- Step 1: Non-design
Design is an invisible part of the business. Design is not involved in product development or the tasks are handled by people who are not trained as designers. Users play no role in developing the concept.
- Step 2: Design as form-giving
Design is perceived at a surface level, as the final stage of form-giving. Designers are only involved to make the products look “beautiful” and do not have an influence in the product development process.
- Step 3: Design as a process
Design is considered as an approach that is integrated early in the development process. Solutions are designed and driven by user needs. The process applies a wide range of different design skills and methodologies and may involve the participation of different stakeholders.
- Step 4: Design as strategy
Design has a key role in redefine the business concept or business strategy. Design is considered as one of the key elements that drive business vision and affect how the company generate and capture values.

Since its introduction, the Design Ladder has become an important framework that is widely used in the design discourse to measure and evaluate the maturity level of design in business organisations.

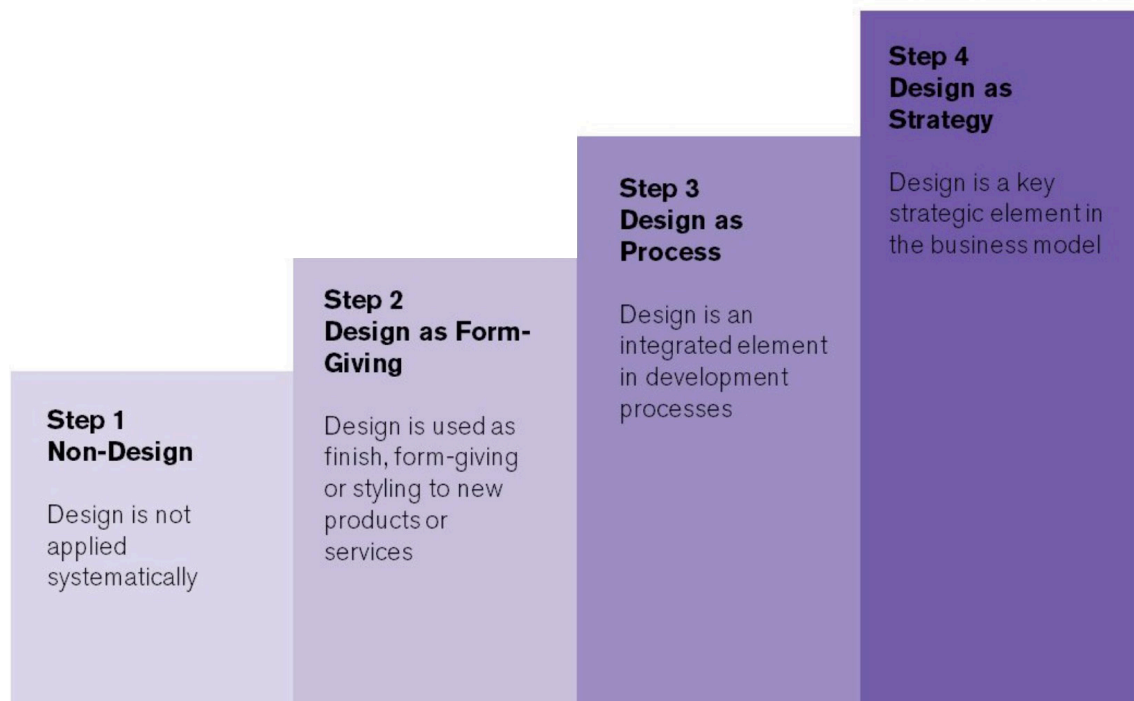


Figure 4. The four-step Design Ladder (Danish Design Center, 2015, p. 1).

Measuring design impacts

Based on the framework of the Design Ladder, a recent study was conducted to collect and organise the most common methods of measuring design, as shown in Figure 11 (Björklund, Hannukainen & Manninen, 2018).

The study suggests that design measurement methods can be divided into two groups: external and internal measurements. In external measurements, metrics rely on company financial performance and valuation of the company in terms of acquisition value, revenue, or profits; customer related metrics such as customer feedback, brand perception; and others. Internal measurements include design indicators, project outcomes related, and development process related metrics (Björklund, Hannukainen & Manninen, 2018).

The results of this study has given a foundation for researchers, as well as business owners and design leaders to have an overview on the existing design metrics.

Performance and operations		LEVEL 1 Non-design	LEVEL 2 Design as form-giving	LEVEL 3 Design as process	LEVEL 4 Design as strategy
External	Financial performance and valuation of the company	Benchmarking other, more design-centric, companies: Share prices Turnover growth Performance Acquisitions of design agencies Amount of innovations	Sales Revenue Return-of-investment (ROI)	Market valuation and market share Growth profitability	
	Customer related metrics		Customer satisfaction and feedback	Lifetime customer value Net promoter scores (NPS) Brand loyalty Brand perception Brand equity Conversion	
	Other		Product/service awards		Entering new markets
Internal	Design extent and emphasis indicators		Ratio of designers to developers Growth in the design budget	No. of projects No. of concepts finished No. of people trained in design	Seniority/rank of design positions within the organization
	Project outcomes		Cost savings Reductions in time to market	ROI per project Value and novelty of resulting service or product (averaging anonymous internal ratings) Usability metrics of resulting service or product	
	Development process			Internal feedback Amount and frequency of contact with users (running total of days without interaction with user, amount of users interacted with, amount of user categories interacted with) Amount and concurrency of prototype iterations (list with open/closed status)	Team collaboration (e.g. Interaction Dynamics Notation) Team effectiveness
	Employee outcomes			Customer centricity Responsiveness Empathy	Employee satisfaction Employee motivation Employee engagement

Figure 5. Metrics for the impact of design on each level of the Design Ladder

(Björklund, Hannukainen, Manninen, 2018, p. x)

2.2.6 Challenges of using design

Very little research has considered the challenges of implementing design in business settings. Carlgren, Elmquist & Rauth (2016) discovered seven types of challenges in terms of using Design Thinking in mainstreams operations:

- Misfit with existing processes and structures: difficulties of finding resources; design-focused tasks are de-prioritized by daily business; loose connection between design and development team, which leads to limited integration on influence and outcomes.
- Resulting ideas and concepts are difficult to implement: lack of competence to handle innovative concepts; design projects have limited flexibility as defined goals are set in advance; design solutions require involvement across multiple functions, resulted in unclear responsibilities.
- Value of Design Thinking is difficult to prove: the challenge of finding meaningful key performance indicators for design make it difficult for designers to prove their success to skeptical managers.
- Design Thinking mindsets clash with organizational culture: the cultural elements of Design Thinking, which focuses on experimentation and iterations, embraces failures and uncertainties, were perceived as difficult in companies with a strong culture of avoiding risks.
- Existing power dynamics are threatened: in certain cases, the establishment of a Design Thinking focused team was perceived to challenge other development functions, as people felt threatened in their areas of expertises.
- Skills are hard to acquire: the common design tools and practices such as visualization or iterative working process appeared to be difficult to learn and became a barrier to daily use. The multidisciplinary approach which is often required in design process also posed a challenge in recruitment.
- Communication style is different: interviewed firms confirmed that there was a communication barrier between the fundamental design practices and the traditional way of working. When information was not translated directly into technical requirements, development managers might have difficulties implement them into a project.

These challenges were also discussed as barriers of radical innovation (Assink, 2006), which are mostly related to process and way of working inside organisations.

2.3 Business values of design

The roles and values of design has been studied in different research, especially in the domain of design management. Borja de Mozota (2006) proposed a a value model for design based on her research on design-oriented European SMEs. In this model (Borja de Mozota, 2006), design possesses four powers:

- Design as differentiator: a source of competitive advantage on the market regarding to brand values, customer loyalty, pricing, customer awareness.
- Design as integrator: design can enhance new product development process, reduce time to market, build consensus in teams using visualization skills. Design supports innovation process.
- Design as transformer: using design, business owners can generate new business opportunities, increase the company's ability to adapt to change, and leverage their position in the market.
- Design as good business: using design can increase sales, gain better margins, acquire more brand value, extend market share, and increase return on investment.

According to Borja de Mozota (2006), the values of design are well integrated into business value model. Through design, companies can develop strong competitive advantages that are valued by the market.

From the industrial side, in October 2018, McKinsey, one of the world's giantest consultancy firm, published a report where they tracked the design practices of 300 publicly listed companies over a five-year period in multiple countries and industries (Sheppard, Sarrazin, Kouyoumjian & Dore, 2018). In the report, design is emphasized as the key driver of business success and is mentioned as "the only way that companies can stand out from the crowd".

From the responses, the firm uncovered 12 activities that showed the connection between design and improved financial performance. These activities are grouped and divided into four broad themes, which then formed the foundation for McKinsey Design Index (MDI). MDI was used as a quantitative tool to rate companies by how strong they are at design and how their design activities affect actual business value (Sheppard, Sarrazin, Kouyoumjian & Dore, 2018). Once again, the results confirmed what researchers have been implied for years: companies with the top MDI scores also excel in the growth and the performance across all three industries that participated in

the study (medical technology, consumer goods, and retail banking).

The four themes of design activities are (Sheppard, Sarrazin, Kouyoumjian & Dore, 2018, p. 7):

- Analytical leadership: companies with the best financial performance also have a strong support for design from the top management level. Executives in top companies often have a genuine interest in knowing the user needs and as a result in these organisations, design often sits in the same table with business and technology leaders.
- Cross-functional talent: the best performing companies do not keep designers in a silo. Instead, designers are integrated and embedded with other functions. They also invest significantly on tools, research, and prototyping to avoid costly mistakes later on.
- Continuous iteration: the top companies have strong design culture embedded. Designers are encouraged to learn, test, and iterate ideas with users.
- User experience: top quartile companies also actively utilise and invest on the broad range of user experience. They focus on observing and gathering data to support the needs of users along the entire customer journey and even outside of their ecosystem.

The report contains relevant facts and data for designers regarding the impact of design on revenue growth. Its results demonstrated the strong connection between design and business activities.

2.4 Framework of the study

Several studies have been conducted around the topic of design values in business and its related subjects. However, their focus has been mainly on the practices of design in corporates and SME environments. Design in startups has been actively discussed at a practical level but there is a lack of extensive research on the subject. At the same time, there is a pressing need for startups to capture the different roles of design to help solving business challenges. Their constant pressure to grow under a highly fluctuating environment requires a set of tools that can help them adapt to change and pivot quickly. Design is potentially one of the most relevant tools for startups to utilise. For startup founders and design enthusiasts in general, there is a need for the in-depth analysis and concrete examples on the real-world applications of design expertises in

startup setting. The objective of this study is to identify the strategic values of using design in startups, with an emphasis on how design can be used to support business growth. Furthermore, this study also focuses on how design strategies and design applications differ in different business contexts, and how startup teams apply design practice within their organisation in order to achieve the best results. Thus, the research aims to answer the following research questions:

- RQ1: What are the roles and value of design in startups?
- RQ2: How are startups using design in practice?

In order to achieve this objective, the study needs to build a framework that could be used as a reference when conducting the empirical research. Having a framework enables the researcher to investigate qualitative data in a consistent, uniform manner across different interviewed businesses. The framework consists of several parameters, based on previous literature studies.

In terms of design roles and values, the impact of design is considered across different levels in an organisation, according to the Design Ladder: design as form-giving, design as process, design as strategy (Danish Design Center, 2015).

- Design as form-giving: how design impacts contribute to the look and feel of products or services.
- Design as process: how design methods affect development and operation process.
- Design as strategy: the role of design in defining the business strategy.

In terms of design practices, key parameters include: design resources, metrics, and challenges.

- Design resources: this is an important characteristic in analysing the use of design in different business settings. The use of design resources is considered in regards to two main operating context: inside and outside an organisation (Best, 2015). Inside organisations, design resources are perceived as in-house designers. Outside organisations, design expertise is drawn from external resources, such as design consultants, advertising agency, design studio.
- Metrics: this attribute plays an important role in helping the companies manage and navigate the direction of design resources. According to

Björklund, Hannukainen & Manninen (2018), design metrics can be considered as, again, internal and external groups of measurement methods, with regards to design impacts inside and outside the organisation. Within each group, there are a variety of prominent attributes that categorise these methods further.

- Challenges: the challenges of implementing design in practice can reveal crucial aspects of how and why companies are hesitant to adopt design methodologies to develop their core business. The seven design challenges proposed by Carlgren, Elmquist & Rauth (2016) are used as a reference framework in comparison with the design challenges that may occur in startup settings. Due to the different nature of business contexts (large technology firms and growing startups), it is predicted that there might be significant variety related to challenges in ways of working, while a certain level of similarities would remain in regard to cultural and mindset challenges (Carlgren, Elmquist & Rauth, 2016).

3. Research design and methods

3.1 Research scope

The scope of this research is limited within Helsinki region, Finland. Helsinki is the home of Slush – one of the world-leading startups event; Junction - European biggest hackathon with the participation of hundreds innovative startup teams; and a wide range of growing startup accelerators, incubators, events and so forth, making the city a welcoming place for venture capitalists. The thriving startup ecosystem in Helsinki enables easy accessibilities to some of the most interesting tech startups in the world, with high global venture investments and high level of diversity in terms of new product and service development.

On the other hand, in 2012, Helsinki was named the World Design Capital and two years later received the UNESCO City of Design title. Since then, design has been integrated as a part of the city's strategy program. Helsinki has a reputation for the popularity of applying design know-how in social sector and business operations. Design as an accelerator of the corporate growth and SMEs was actually one of the three key design-related development activities of the city.

In brief, Helsinki provides the ideal landscape for the purpose of this research. The city's mature startup scene allows the researcher to identify a number of highly design-committed startups that have been running for an adequate amount of time, thus allowing the researcher to capture valuable insights from their design practice. Within Helsinki region, 10 startups were contacted and 6 companies had agreed to participate in the research.

3.2 Research methodology

The study utilises qualitative methodology with an inductive approach, in an attempt to generate new and meaningful knowledge on the subject. Since the subject of the study is highly contextual, a qualitative approach can provide dependable and trustworthy data while maintaining an adequate level of flexibility for new knowledge to emerge. A qualitative approach also allows the researcher to obtain a holistic view on the topic while studying the perceptions of participants about design values. According

to McLeod (2017), qualitative research is used essentially to gain understanding of underlying reasons, opinions, and motivations. The method can provide valuable insights to develop ideas or hypotheses, or uncover emerging trends. In this research, the aim includes not only developing general knowledge about design in startups, but also detecting patterns that can produce the basic structure for a framework of integrating design in business. For these reasons, the research is undoubtedly qualitative by nature.

Multiple case studies method was applied to study the relationships between the research themes and startups organisations and business. According to Stake (2010), case studies can prove invaluable in adding to understanding, extending experiences and increasing conviction about a subject. Yin (2003) described the case study approach as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between a phenomenon and a context are not clearly evident. Thus, case study is an ideal method to explore subjects and issues where relationships may still be ambiguous or uncertain. According to Gray (2018), case studies method is ideal when a “how” and “why” questions are being asked about a contemporary set of events, which the researcher has no control. For these reasons, case studies are suitable method for the purpose of this research.

During the research, the case studies had been designed following an exploratory (inductive) approach, where the focus of subsequent studies are slightly shifted according to the new findings generated from previous studies (Gray, 2018). Results from the case studies will be presented and discussed individually, and at the end, a cross-case analysis will be conducted.

3.3 Data sampling

The research applied the criterion sampling method in order to identify cases that can be information-rich. Criterion sampling involves selecting cases that meet some predetermined criterion of importance (Patton, 2002). For the purpose of this research, interviewed companies were invited from a wide variety of industries that meet at least one of the following criteria:

- Startups that have a high level of design leadership (design presence at management level)
- Startups with at least one designer in the founding team
- Startups with a strong design presence, internally and externally

In other words, participated companies need to have a high level of commitment to

design, which can be identified by the various representations of design in their business and organisation. Design representations can be demonstrated by either their presence at management level, their brand value, or customer experience values perceived by outsiders.

Using the researcher's own networks, a number of young and growing startups that matched the criteria were contacted. The assumptions on selecting them were mainly based on their public recognition of using design, product or service design reputation, and the structure of their core team. The nature of business was not taken into account as a deciding factor. Companies participated work in a wide range of industries, from physical products to digital services, both B2B and B2C. The high amount of diversity in the companies interviewed suggests that findings can be relatively contextual.

For the purpose of the research, both the design leaders (for example, Head of Design, Lead Designer, and so forth) and the CEOs of the company were identified as potential candidates for the interviews. After the potential candidates were found, an invitation was sent to each person via emails or LinkedIn In-mail, specifying the purpose of the research, reasons why their company was selected, examples of core questions that the researcher would want to address, and suggested time length of one hour. If the contacted person was interested, further details were discussed via emails to agree on the schedule. Due to time restrictions, in most cases only one person from the company participated (Appendix A).

3.4 Data collection

Semi-structured interviews was the primary method for data collection and unobtrusive study on the companies websites was the secondary method.

According to Gray (Gray, 2018), if the objective of the research is largely exploratory, for example, the examination of feelings or attitudes, then interviews would be the best approach. The use of semi-structured interviews allows the researcher to 'probe' for more detailed responses where the respondent is asked to clarify what they have said. A list of issues and questions to be covered was prepared prior to the interview, but not all of the questions would be addressed in each interview. The order of questions change depending on what direction the interview takes. Additional questions may be asked as new issues arise. This method is ideal for probing of views and opinions so that respondents can expand their answers. Validity of the interviews can be directly addressed by ensuring that the question content concentrate on the research objectives.

The method fits the topic perfectly well, as the object is to explore the various roles of design and discover new meanings of using design in startups. Also, since the practice of design may vary significantly in each case due to their specific context, semi-structured interview method allows the researcher to adjust the flow of the conversation based on the current discussion and expand the range of questions organically, allowing new knowledge to emerge.

The interview skeleton is roughly divided into two parts, addressing the two main research questions: the roles and values of design, and the practice of using design. In each part, the questions are grouped into sub-categories, where the topic is divided into more focused themes. In the beginning of the interview, the researcher would start by explaining the background information of the research, level of confidentiality required, following by background questions about the interviewee and the company before diving into the core research questions.

Also, in the beginning, the researcher would ask for permission to record the interview, using her mobile device's audio recording function for the purpose of the research. Only when the interviewee agreed, the recording would be used.

Each interview took one hour in average, with the presence of only the researcher and the interviewee. In addition to the records, sometimes the researcher also used pen and notes to document or re-address some key points during the discussion. A skeleton of the interview questions can be found in the Appendix section (Appendix B).

Unobtrusive research refers to methods of collecting data that do not interfere with the subjects under study (Gray, 2018). In certain cases, unobtrusive research allows the researcher to go back to the source of the data to gather more information, or let her correct some problems in the original data collection (Gray, 2018). In the context of this study, unobtrusive research consists mainly of researching public news, blog posts, and articles on the companies websites and others to support the understanding of companies background.

3.5 Data analysis

Each interview recorded for the study was transcribed entirely for further analysis. The answers were first grouped into two groups according to the research questions (A and B). Within these groups, data was coded into sub-categorised topics according to the interview skeleton. New issues that arose during the interview were also coded, especially if they started to come up more frequently throughout the process. Finally, within each

coded group, the key points of each answer (quote) are noted down. This helped the researcher to navigate the quotes throughout the entire transcriptions.

To analyse the data collected, the researcher applied an inductive approach using thematic network method. The method consists of different stages. For example, to understand the roles and values of design, the researcher first identified and grouped all the answers related to “roles and values of design” from the interview transcriptions (Table 2, Appendix C). Within this group, the issues discussed were categorised according to their key topics: “roles”, “responsibilities”, “impact”, “benefits”, “advantages”, “goals”, “application”. Answers were quoted accordingly, and these quotes were used as the starting points for applying the thematic network method. The quotes were used as ‘basic themes’ to draw out their ‘organising themes’. From the organising themes, data were grouped at a higher level to identify ‘global themes’.

COMPANY	BASIC THEME	ORGANISING THEME	GLOBAL THEME
Case 1 Funzi	<i>"I think design helps in the beginning to make sure we had those strategic levels focused and choice of what are we aiming at."</i>	Help to define business strategy	Business strategy
	<i>"We have, first of all, very little technology in our product so that's not our leverage in the market. So it needs something else to become better. For us it's really the understanding of this special market."</i>	Leverage product value proposition	Business strategy
	<i>"Basically we have used design in all 3 main levels. Visually, we have a product that hopefully looks nice. We spent a lot of time to make sure that it makes sense for users, so they understand how it is supposed to work. For that we need to do research as well. We use design to focus on the product itself because it's the core of the business."</i>	Developing products functionality and visibility	Product development
	<i>"Just having design discipline helps to frame the discussion so that we are able to end up on the conclusion faster than what would have been otherwise."</i>	Facilitate discussion to increase productivity	Operation
Case 2 Holvi	<i>"His (Miko, co-founder) vision from the start was always want us to be very strongly design-focused. He has been all the time emphasised the importance of UX, not just beautiful aesthetics but also the usability and utility of everything that we do, that we need to provide world-class service via UX."</i>	Ensure world-class service quality	Business strategy
	<i>"Design is considered as a real tool that can change the numbers, even though it's not directly tangible."</i>		
	<i>"Now we are doing quite big overhaul. We keep the functionality, but try to make the look and feel as consistent as possible in different platforms. We spend a lot of time and effort on this and also streamline the function, make it easy for users to understand the benefits they can have."</i>	Streamline product features and increase consistency across platform	Product development
	<i>"I only need to ensure that the thing is developed the way that we agreed. Developers can get the big picture before we go to pixel-perfect. Mainly it's about discussing and facilitating. The way I see it, it's somehow digging ideas and information from people."</i>	Facilitate discussion to support brainstorming and efficiency	Operation
	<i>"You give the impression of much more established and much more mature product instead of a new service from the scratch. It gives credibility that it can stick around for a longer time. Your audience can see that it's more well made. You can look much more credible with great design."</i>	Strengthen brand image	Branding

Table 2: Thematic coding on the roles and values of design, extracted from Appendix C.

Collected data was analysed and presented individually for each case. After that, all cases were compared with each other in a cross-case analysis. The result is presented in a table consisting of the subcategories the research questions. Based on the coded data, the research questions were answered by identifying the major findings and common patterns that were acknowledged from the responses.

3.6 Research procedure

The study underwent a five-stage process, which includes:

Stage 1 - Review literature

Before diving in the topic, the author studied previous literature studies to establish a foundation for the research. During this period, interview skeleton was created and criteria for selecting case companies was identified.

Stage 2 - Sample data

At this stage, the researcher created a list of potential startups that matched research criteria, identified potential interview candidates and sent them invitations for participations. After this, an interview schedule was agreed.

Stage 3 - Interview and collect data

The researcher visited the companies premises or otherwise agreed meeting points and conducted the interview. Data was recorded during the interview. During this process, an iterative loop is created where the interview skeleton is adjusted and modified based on input from previous interviews.

Stage 4 - Analyse and review data

Interview transcriptions were coded and analysed using qualitative analysis methods. After this, initial case reports were generated and sent to case companies for reviewing. At the end, a cross-case analysis was conducted.

Stage 5 - Discuss results

Findings from individual case reports and cross-case analysis were presented and discussed in comparison with previous literature studies. Based on these findings, the researcher proposed a number of theoretical and practical implications of the research, and suggested potential directions for future research in order to elaborate on the topic.

4. Findings

4.1 Case Funzi - a mobile learning service

Funzi is a mobile learning service provider that creates mobile-friendly courses using provided content, mobile pedagogy, and gamification. Founded in 2014 by Tero Salonen, Aape Pohjavirta and Miemo Penttinen, Funzi's services develop new skills and empower co-creation and collaboration between mobile users and experts.

Funzi's mobile application is free to download. Mobile users get compact learning cards (a mix of theory and visual learning) daily on their phone, take quizzes to assess their skills and receive an official certification once they finish the course. A fee is only taken for the certification and can be paid by a third party like the government or an employer.

At the time of the interview, the company had nearly six million all-time users from Africa, Asia, and the Middle East. Their customers includes: businesses who want to create training for employees, public entities who want to reach target audience and deliver intended programs, UN, NGOs, and CSOs that want to deliver skills building programs to create behavior change.

The roles and value of design

At Funzi, design expertise is used in four key roles: design takes part in developing business strategy, design is used to leverage product value proposition, design participates in developing products, and design is used as a tool to facilitate discussion and improve efficiency.

First, design helps to clarify business strategy in order to to minimise risk and ensure that they have product-market fit.

“I think the founding member knew that design has something to offer to all of these aspects, but when push comes to shove, they easily forget that design is something else than just UI. It took us a while to have a common understanding that we need to figure out the core questions first. I think design helps in the beginning to make sure we had those strategic levels focused and choice of what are we aiming at.”

Second, design was used to leverage their product value proposition to compete with others in the market. For Funzi, technology was not considered as a strong differentiation factor in their service offering, so design becomes the key competitive edge. The team applied design methods to ensure that they understand the target customers and the market.

“We have very little completely unique technology in our product so that's not our leverage in the market. So it needs something else to become better. For us it's really the understanding of this special market.”

Third, design was used to improve and refine product design at different levels.

“Basically we have used design in all the main levels. Visually, we have a product that hopefully looks nice. We spent a lot of time to make sure that it makes sense for users, so they understand how it is supposed to work. For that we need to do research as well. We use design to focus on the product itself because it's the core of the business.”

Finally, design was used as a tool to facilitate discussion and improve the efficiency of decision making process.

“Just having design discipline helps to frame the discussion so that we are able to end up on the conclusion faster than what would have been otherwise.”

Applying design in practice

Use of design resources

As a startup with only one designer, the lead designer covers a broad range of functions: product development, marketing, and business strategy. In his opinion, designers working in startups need to be able to handle different types of work and have a strong sense of flexibility, as startups are often limited in their resources. It is important for designers to prioritise their time according to the bigger business development picture. Thus, designers in startups need to be hands-on.

“As a single person I need to do quite a broad range of work in a startup. Most of my time goes into leading all of the product work we do, to make sure we are heading into the right direction with the product. So that it would make sense – business-wise – for the company, and makes sense for end users. I also do other things related to design, for example marketing materials, sometimes shooting photos for the courses that we have.”

Depending on the need, the company also works with a number of freelancers and

consultancy. They often help with executing the design need, but are not involved in planning the core design strategy.

“It might be a bit problematic for startups to hire freelance designers to be part of core strategic design. In many cases they don’t get the full responsibilities that they need to step out on the field. Again when you are involved on a short time project, your reach and scope is limited.”

In general, working in startups would give designers prior access to the business landscape, thus allows them to gain wider and deeper knowledge of the company.

“Designers in consultancy approach design in that we would like to do this really large-scale when there is a clear research phase, after that we moved on the analysis phase then move to execution. That sometimes happen, if that's a large enough client that understands how design overall works. In many cases we just have to cut corners still. And then it's difficult because when you are consultant you don't have any kind of prior knowledge of the business, and then if you don't have the research phase, there's lot risks and you may make incorrect assumptions. But when you work in a startup, you sort of know your business areas and your expected clients, at least, in a later phase, much better.”

Having an in-house designer ensures the company to finds the right expertises when working with a consultancy. The in-house designer may act like a bridge to connect the consultant with the inside knowledge about the company and its business, thus enables more productive and efficient collaboration to happen.

About hiring prospects, it is believed that startups should hire designers with a more generalist approach in the beginning and more specialist roles later on.

“Hiring somebody who are somewhat confident in all this areas of design. Every generalist comes with their own special area, with some lacks of skills in others. In general, early startups should hire more generalists than specialists because you need to do a lot of different kinds of things. Then later on when you start scaling then you can look for more specialised people.”

Measuring impacts

The impact of design is measured by their finance performance and the return of investment. Besides, the team also keeps a track of user behaviors when interacting with their products by following different product metrics: the rate of completion, an user activeness, time spent on courses, and so forth.

“At this point, we are mostly evaluating the success of the business in general by the amount of cases we won vs how much activities we are doing at the sale front. What we really focus on is the product KPIs whether users use the product actively and whether they complete them within the expected timeframe.”

Challenges

By default, the team's most common challenge is the lack of time and resources. The team applies different approaches to overcome this. For collecting user insights, they rely on the available knowledge within their team: members who had previous experience working in similar market. When it is suitable, they try to use shortcuts to reduce the pressure on resources.

“We were in a lucky position that we have a lot of expertise and understanding on the target market and audience to begin with. We didn't do any kind of field trip to Africa for example, which could be really useful, of course. But other team members in the founding team have been working in the region earlier and two of the Indian co-founders actually have built a product when they did a lot of research. So we were sort of able to fall back on that.”

The second challenge lies in the risk of using shortcuts. While taking shortcuts often greatly enhance efficiency in a small team with limited resources, it may be harmful for startups to cut corners without carefully considering the trade-offs. In certain areas, taking shortcuts may actually be a risk if it affects the core values or important product qualities.

The third challenge for Funzi is about their customers' geographic distance. Since they focus on Asia and Africa, their geographic distance with the customers raise difficulties for the team to communicate or understand user behaviors. Apart from flying to the location, they would need to search for less expensive alternatives to connect with users. Sending surveys accompany with online interviews is one example.

“You should never skip seeing end-user using your products. That would bring much more feedbacks to your developers than any other kind of surveys or other more distance-based feedbacks systems that people do. Of course that phase is much easier if your audience is not so far away. You can go to a coffee shop, start asking people with your prototypes and your questions, asking for feedbacks, it's really inexpensive and effective.”

Conclusion

Compared to larger companies, it was perceived that it is easier for startups to apply design thinking and design methods. Design can help to minimise the risks that a startup may have when working with uncertainties.

“Startups usually don't have the luxury of making too many major mistakes in their products, and design is one of the most guaranteed tools to make sure your product will fit. Lots of startup culture have components borrowed from design. That's sort of built in the overall startup ideology. In the sense, the combination of design in startups might be easier in more matured companies which have been business-driven or engineer-driven for centuries.”

4.2 Case Holvi - a modern banking service

Holvi provides banking services that incorporated bookkeeping and money management in a simple interface. Users can associate multiple different accounts to their profile and see the status of their finances. The service allows users to manage invoices and run an online shop in a single, integrated platform.

The company was launched in August 2012, with Kristoffer Lawson and Tuomas Toivonen as the two co-founders. Number of employees at the time was 9. In 2016, the company was bought by the Spanish banking group BBVA. Target customers include: small business owners, freelancers, sole traders, project workers, and independent entrepreneurs.

The roles and value of design

At Holvi, the roles of design include: shaping the company's mission, simplifying product portfolio, supporting communication and facilitating discussion, and creating the brand image.

First, design has a central role at Holvi as the company sets on their mission to achieve the quality of a world-class service. The customer experience is at the core of every activities. The management team believes that leveraging the user experience can have a strong impact on business results.

“We just had a weekly meeting with the company and reviewed how well we are doing against the targets. In some areas, the choice for that was not adding more costs or spending more money on advertising but it's more like we need to do something about UX in this area to improve the number. Design is considered as a real tool that can change the numbers, even though it's not directly tangible.”

Second, design plays a key role in helping the company simplify their product portfolio. As the company has gone through different stages of growing and expanding in 7 years, their product portfolio has been developed organically on the way. To continue growing successfully, there is a need to simplify and synchronise all the products in offer, cut down the inactive ones — products which are not frequently used and not generating money, and place focus on the main products that fit the company growth strategy.

“Now we are doing quite big overhaul. We keep the functionality, but try to make the look and feel as consistent as possible in different platforms. We spend a lot of time and effort on this and also streamline the function, make it easy for users to understand the benefits they can have.”

Third, design is used as a tool to support their communication process helping the team to explore ideas and get to the solution faster. The designer often takes the role of being a facilitator, using design methods and design principles to help facilitate the discussion with different stakeholders and ensure that everyone understand the big picture.

“I only need to ensure that the thing is developed the way that we agreed. Developers can get the big picture before we go to pixel-perfect. Mainly it’s about discussing and facilitating. The way I see it, it’s somehow digging ideas and information from people.”

Last, design helps to create their professional brand identity, which returns in credibility and long lasting customer awareness and increase their chance of winning customers.

“You give the impression of much more established and much more mature product instead of a new service from the scratch. It gives credibility that it can stick around for a longer time. Your audience can see that it’s more well made. You can look much more credible with great design.”

Applying design in practice

Use of design resources

On the product side, the company has a team of four designers, working on user research, visual graphics, design system, and so forth. Compared to the beginning, their design team has grown from one designer who covered a broad range of work to a medium-sized design team with more specialised roles.

“We have three designers and then there’s one person focusing mainly on research, interviews, all kinds of test, and one copywriter who works across functions. Now we are actually looking for new visual designer to do the same for the graphics. We had some preliminary design system documented. We look for a person who can maintain, develop, and document the changes.”

“During two and a half years, we have been scaling fast. Our only designer at that time, he had been quite overloaded with the work. Basically even when you would be able to cover all other aspects required, at some point you need to get a bit more diverse set of designers.”

The company collaborate with freelancers and consultants to help with daily design work, allowing the in-house team to focus on the product. An external agency also helps with collecting user insights while the analysis work is done in-house.

“When the company first started, there was a lot of daily work to do, so there was one freelance designer based in Berlin who was somebody’s friend. He was working for us for almost one year. As an external resources he was accessing all Slack channels and things like that. The only difference is that he was sending us invoices instead of having a fixed salary.”

At the current stage, designers are embedded in the product development unit by sitting in smaller task teams. The lead designer acts as the coordinator and the manager to synchronize the tasks and ensures the teams collaborate efficiently with each other. The decision making process takes place in a triangle consisting of technology, business, and design persons. Similar structure is also applied in the task teams to ensure that business goals are aligned.

Measuring impacts

Design impact is measured in a tight relation with product performance by using Net Promoter Score comparing their product performance with other competitors.

“The most common one we use is the NPS (net promoter score). We compare how well we do to our competitors. We measured different areas. We try to all the time follow the same metrics we can somehow track the trend to see whether we are going in negative or positive direction.”

At a higher level, the impact design is evaluated by following customer experience feedbacks. User feedbacks when using the service is considered as the most important indicator for the team.

“So it's actually written in the very core of the strategy. Everybody strives for good customer experience. It's not just growth rate, margin, etc. Apart from those the most single important metric is how much our customers actually like us. Or how much they perceived value from our service, in everything that we do.”

Challenges

At Holvi, their major challenge is to demystify the role of design. Design thinking and its toolset are not understood by other team members in the company. There is a strong opinion that design is an exclusive domain and design methodologies can only be performed by a group of people with designer titles. Traditionally, design is often seen as “magic” that comes at the last step and changes the final look and feel of a product. On another hand, designers might also contribute to the problem by maintaining a single mindset. Having a single mindset makes it difficult for them to apply their skills in new areas, while in fact their capabilities should be considered as a general set of skills and tools that can be used to solve various types of problems. These are typical perceptions that can hinder an organisation to adopt design thinking mindset, and generate barriers that discourage non-designers to use design tools in their work.

“I guess it's about internal selling and demystifying the role of design. How I see it, design is often considered as some magic ingredient that you applied when everything else is already done to put on top. In my opinion, it's exactly the opposite. It's about solving simple or complex issues with common senses. Make things as easy as understand as possible. When it comes to internal selling, design has some kind of mystified.”

The solution, in this case, is for companies to actively promote the use of design, educate people about design thinking; and for the design team to explain their process and tools in a simple way so that everyone can understand the role of design as a problem-solving tool.

“It's about how to clarify the role of design in the whole organisation. Provide some really simple to understand, simple to use tools for the organisation to cope with design related challenges. We try to document our design decisions, for instance, in our brand guidelines to avoid chaos. Provide and maintain some internal awareness and established structure. We have started the process, instead of a brand manual, to explain the WHY part instead of WHAT. Once a week we had a demo where we present the new feature of the product, we explain our design, we did this because of this. We dared to present unfinished stuff and explain and explain why and what we do.”

An unique challenge that the team at Holvi encounters is matching the balance between design needs and the design capability. The company has been known for its bold, dynamic brand in the banking industry. Their brand identity showcases bold images and visual elements that represent their target of young, creative and independent entrepreneurs. While it has surely helped the company to gain its reputation, they also realise that it might have taken their image a bit further from the typical customer expectation. As a banking service, the team still wants to emphasize on trust and credibility above all, which may require them to reduce the brand to a more restrained tone. The challenge here for startups is to effectively evaluate the risks and benefits of investing on a strong brand image and meeting customer expectations.

“Another interesting aspect is that, Holvi has been quite open and fearless to applying design. But it seems like we have been taking it a bit too far. In that sense, the outcome has been quite complex, lots of special effects, animations. We are now in the process of making something that is in sync with customer expectation. It's not an Instagram or Snapchat that needs to be flashy, it's about trust and credibility. So we are trying to make it a bit more boring. Again, doing too much design, you can actually miss the usability or utility it can be a wrong direction as well.”

Conclusion

Design is considered as one of the tools in the toolbox to develop their ideas. However, the role of design is often misunderstood as only limited to a specific domain and is only

needed at the last stage. For designers, a multidisciplinary mindset and the capabilities to apply a versatile set of tools would be highly valued in startups.

“The design education in Finland, quite common, is practice-oriented. It was hands-on without mentioning what else could you do with the same tools and way of thinking that you absorbed during this year. You have a single mindset. While those same design principles and way of approaching problems, they are kind of universal. 95% of creative process is the same. The last 5% is depending on the field where they are applied to. The high level the way you approach problem is basically the same across all disciplines.”

“In a way, it’s not only the designers, but how society wants to categorise the creative and design work. I graduated architect school ten years ago, on a weekly basis people still ask me what does an architect do in a bank. I’m doing exactly what I was doing at the university, it’s just the outcome is not a building but a digital service. In a way it’s the same, building things that make people life easier. It’s kind solving very similar problem at the end of the day.”

4.3 Case Varjo - a technology company

Varjo Technologies develops headsets capable of both virtual and augmented realities. The company's headset offers resolution in the center of the screen that is good enough to hide individual pixels. The company was founded in 2016.

Varjo is testing its hardware and software technology with Airbus, Audi, Lilium, Saab, Sellen, Volkswagen and Volvo Cars to optimize VR technology for their industries. The headsets are aimed at industrial designers working in the fields of simulation and training, architecture, automotive, aerospace, manufacturing, engineering and construction, among other disciplines.

The roles and value of design

At Varjo, design plays an important role in four different aspects: ensuring that the company is consumer-led, crystallising company mission and vision, ensuring the product's high quality, and shaping the brand image.

According to the CEO of Varjo, their business strategy has been focusing on consumers from the beginning. Even though they started their business working in the high-end section, the company wants to ensure that they keep the end-users in mind when building their products. The value that they want to create for their end-users was placed above all and that is why design was involved in the process from day one. The role of design is to ensure that the team is developing substantial values for end users and make the products appealing to consumers.

“But we had a vision that where we want to be is eventually a consumer product, even though we started from the high-end. Technology always trickles down, and unless you keep in mind the consumer from the early on, you end up being stuck in the professional segment. That's why we wanted that all of our design needs to be appealing to consumers from day one.”

Another strategic role of design at Varjo is to help the founding team crystallize the company mission and vision. Very often, a company mission and vision is understood at a highly abstract level, written down in a document hardly read by employees. For Varjo, they visualised their vision by putting it in a physical form, including a real model of the VR headset in their office and a premium quality brochure that they can bring to meetings with investors and stakeholders. It is believed that having a concrete vision can produce a number of benefits: first, it ensures that the company story and vision be well understood by everyone in the team; second, it helps investors to understand what the team wants to achieve and helps persuade them to make the investment decision; third,

it establishes a solid foundation for the team to start building up their MVP.

“By having a strong design team, you start to the right direction in the beginning. It is a really good and strong thing to have a concrete vision in the beginning. It helps all the rest of the organisation to be having a North Star and grow towards that one. Then again, everything is so much simpler when you know that this is the way we want to go forwards and you cannot do it unless something really put it in a clear story, easy to understand image. It means you have understood as a company what you want to do. When you are able to create the design, it means you know what you are doing.”

At the product level, design helps guarantee a high level of product quality. Designers are involved in every step of the product life cycle, listening to user feedbacks and making suitable adjustments, ensuring that their feedbacks are implicitly integrated. It is also to ensure that designers and engineers will be working hand-in-hand, so that the technical implementation will not affect critical design decisions during the development process.

“You need to do inside out design, where the design is actually involved in the decision of what is going on inside the product, whether it’s software or hardware. People think that designers are only supposed to create the form but they really need to be involved in creating the function. Being involved in the function and then creating the form as a result. So it’s an iterative loop.”

Design also plays an important role in shaping the company brand image. The goal was to generate the impression of a professional and experienced team with strong capabilities to achieve their goals. As a result, the company has successfully gained interest and attraction from both international customers and investors.

In fact, Varjo was being approached by their potential customers from automotive and media industries instead of coming to them first. Using design was their strategic decision to make sure that their name appears at the same level as big corporations’ names. Their aim was to have the same quality level in all aspects of the business and design has an active role in that.

“We decided in the beginning that we like to act like a big company. And big companies always make sure that they have professionals handling their products. We thought about that: product must be great, also marketing must be on the same level as if we are actually on the same level with Nokia or Microsoft.”

Applying design in practice

Use of design resources

With their powerful capital capability, Varjo utilises a diverse team of designers, each with a specific role. Same as in other functions of the company, designers working in the team are highly experienced professionals who have been working in their field for at least 5 years, due to the company's emphasis on quality. Most designers work on the product side while there is one person working on product manuals and visualisations.

“We have 4 UX designers, 2 industrial designers, and 1 graphic designer. They all inherently integrate in the workflow. Graphic designer mostly work on manuals and some smaller visualisations, so not directly linked to the development team.”

For their marketing activities, the company uses their network of advertising and design studios from previous contact.

Measuring impact

Design effort is linked directly to user experiences, and thus it is measured by following customer feedbacks after using their prototypes. The company has a “pool” of testing partners to test and evaluate their headsets.

“We are sending software update to these companies, getting them to report issues that they are facing. This way, we built hundreds devices for beta program and send them to best companies in industries, asking them to try and tell us what's wrong.”

One of the key indicators to show that their investment on design has subsequent impact, is the fact that they were approached by numerous potential customer and partner companies. The company considers product high quality and the attention to details are reasons that won their reputation.

“Companies that I show you, if we have been acting like a startup, they would never have even called us. They approached us. And it's because they feel that they can trust us as a company, that we are going to be work enough to work with. Partially it comes from the quality of marketing, but really it all goes to the materials that we were showing that everything needs to be super high quality.”

Challenges

From the business point of view, the biggest challenge for startups is to justify their investment on design, whether it is about having a full-time designer or spending a large amount of money on marketing activities. Varjo received €50M on funding after two rounds, which was both the initial goal and the expected result from their strategy. The company's founding team understood the importance of having enough capitals

so that they can spend a significant amount on design and they were set on achieving that. However, for many startups, this is still a difficult decision that requires careful evaluation and planning. It is believed that if one company aims to be globally impactful and has a clear strategy for that, then they definitely should invest on design from day one.

“I have been working in Microsoft, me and Niko, we had 10 persons of Microsoft R&D, which means even when had a prototype project, the budget for that is easily a couple of millions, from that you know if you want to do anything to be on the same quality level of the big company, you need to have capital. Many people would say 15k is a pretty good start or 100k, the reality is they would have locked their hands to do some hacking work. They would be struggling with how to manufacture and so forth. For us, we could do many things even on the earliest day. Now we have almost 50M on funding at the moment. So it's a very different story.”

Conclusion

Different from a typical startup ideology to “start small, act local, grow slowly” or the concept of “Lean Startup” which has become the textbook for many startup founders, Varjo’s CEO firmly believes on the importance of thinking big and acting globally right from the beginning. This is the key idea that explained the company’s bold investment on design at the very early stage. In his opinion, the idea of building a small and nimble startup has led to the birth of many small companies that focus on solving the same, small problems. Aiming big from the beginning will set startups free from the restriction of having a small team and a small budget, allowing them to develop innovative ideas that can tackle bigger problems.

“Our vision is that in 10 years’ time, Varjo has more impact on people in everyday life than any other company in the world. We have been thinking big from day one. When you make the decision, we think about whether to take the safe road, or to take the one that is closer to that goal. It makes it easy to make the decision.”

“If you really think that the startup is the beginning of something big, of something that creates a huge impact, then you cannot think too small. You need to think big from the beginning. Then your first step also should not be too small.”

4.4 Case MaaSGlobal - a smart mobility service

MaaS Global Ltd is a mobility operator that designs and develops a mobility as a service (MaaS) based on an application, which integrates public and private transportation providers into a single mobile service. Through an app called Whim, Maas Global lets customers order transportation from point A to point B and then guarantees it will be provided using a combination of trams, buses, taxis, rental cars and car-sharing services. The monthly fees vary depending on how much transportation is needed. The company was founded in 2015 and is based in Helsinki, Finland.

The roles and value of design

Design has five important roles at Maas: help the company to understand users, leverage product value proposition, strengthen collaboration between design and development, enable design culture, and strengthen the company's image as consumer-led and user-focused.

The role of design at Maas, first and foremost, was to understand users. Understanding user needs helps the company to achieve two important goals: ensure that the service is user-centered, and communicate the product values in a way that can shift customers' mindset from owning transportation to accessing mobility, in which design has a key role as the discussion is now from the user perspective rather than from the transportation perspective.

“Transportation sector is so much focused on the machines, these things that move, whereas user-centered design comes from a different angle where we are trying to observe user behaviours such as: what is my need today, what is my need in the evening, what is my need tomorrow, and how do I fulfill those needs. And that's the idea of service like Whim. So we are trying to understand user needs and make it more user-centered mobility solution.”

Second, by focusing on the user experience, the team wants to leverage their product offering and increase their competitive advantage. Design is used to ensure that the product delivers substantial values to customers, which would increase the customer satisfaction and differentiate their service in the market.

“Anybody could do a transport app, have the same API and stick it together. But design is about adding the layer of customer experience. which is what customers are willing to pay for. I am not going to sign up to Whim just because it gives me a ticket. I want to use this because I believe it would work better for me in my life. The role of design is to add that value on top so that people's needs are better met.”

Third, design helps to strengthen the collaboration between design and development, ensures that products and MVP are continuously iterated for better results, and support the communication flow. From the business point of view, a tight connection between design and development helps to increase efficiency, save costs, and fasten time-to-market, as findings from design research can help developers to focus on essential components.

“Good designers can save you a lot on tech. Especially when you are in this state, you may have your tech guys spend twice as much time on a solution that might not get right the first time. If you have your design research and validation in place, you can end up saving much more and the tech people can focus on doing what they are actually good at. When you go to market, you end up having more ready products.”

Fourth, involving designers early enables the company to build up a design culture. This means that everyone in the team gets to adopt a design thinking mindset early on, people are more comfortable with using design tools to solve problems, and the team would develop a natural tendency to be user-focused.

“If you are a startup, you should involve designers early on, so it goes to the company culture. As startups grow into bigger organisation, they lose that company culture elements, or it's stuck with whatever in the starting seeds. So, it's good to have design in the mix of those starting seeds, so it grows into the company and then everybody are then consumer led.”

Fifth, design helps strengthen the company image as customer-focused and customer-led. By presenting the image of a company that understands the values of design and shows commitment to tackle user problems, the company establishes trust and credibility to investors and outsiders, which helps in getting funding as well as gaining new customers.

“I took different talks, meetups, and conferences, and I presented the work we are doing. So that's also the role of design to show that we are a customer focus company and that helps when it comes to get funding. Investors get an idea that these guys know what they are doing and they are not throwing money into something where they have no clue.”

Applying design in practice

Use of design resources

At the time of the interview, the design team consisted of two designers: a senior designer and a junior designer. Both focus on the product side. There was an ongoing process to hire a senior visual designer to work between product and marketing side.

In the beginning, there was only one in-house designer who handled various product-related tasks. As the team scaled up, the first designer's responsibilities switched towards more strategic roles, while the junior designer supports him to implement the design ideas. However, it was specifically mentioned that their roles can be adapted dynamically and everyone is expected to take the lead if necessary. It was important for designers to be hands-on and ability to switch between different roles when working in startups, due to limited time and resources.

“I guess for startups it's quite organic in that sense when it comes to doing work. Depending on what you need to do, somebody has to take up the tasks can-do, doesn't matter how simple or how complex it is generally. So it doesn't matter if you are a 20 years experience designer, you still get to design an icon and give it to developers. It doesn't mean you find someone junior to do it for you. You have to be hands-on and have the flexibility to switch between roles as a designer.”

The company also maintains a regular connection with external consultants. The role of an agency and a consultancy is important when there is a big volume of work that needs to be handled. Also, working with an external agency is considered as a way for the team to gain fresh insights on the latest trends.

“When we have to get some larger work done then we work with an agency because you definitely need more than one person to look at the bigger concept. For example, when we were doing a visual branding of our app, we need the whole UI assets done, we decided that it's better to do it with an external agency who is really skilled at doing visual design and understand UI standard, who has been involved with doing a lot of app design and so on. So we can get fresh insights into what is the latest trends in iOS and Android apps and get the feedbacks into our work.”

When discussing about what are the requirements for hiring a designer, Sampo mentioned that they need to be active and self-initiative. There is always a lot of work to be done in a startup, and designers need to be able to handle the stress. On the other hand, they get a lot of space to explore ideas and express creativity. The potential candidate's interest in the company's vision is also highly valued. Their motivation is considered as an important factor that would engage designers with their work, which would result in their performance.

“We don't really expect one designer that can do everything. They need to be quite active, self-initiative to make the questions themselves. So, the space is much wider and can bring also more stress because the speed is also fast. You need to come up with design solutions all the time, so you need to be able to handle the stress. On the other hand, there's much more freedom for creativity.”

“For a startup, I think the most important thing is to find people who are passionate about the work or the field that the startup is in. You need talented people of course, but you also need people who understand the field and believe in the field they are working. Unlike a big company, a startup

is also about the enthusiasm of people who work there. You can't get the same level of result if people are not deeply into what they do.”

Measuring impacts

As a mobility service for consumers, Whim has received a lot of design awards. While receiving these awards might be somewhat subjective, for most people they still indicate a concrete level of design achievement.

“One easy way to measure the impact was that, most people here are happy with the fact that we get some awards. It can be a very superficial way of measuring impact, but it goes with the general understanding of what design is to most people. So, if you get a Red Dot Award, suddenly people will think, yes, it must be good design.”

At the product level, the team applied different metrics to measure design impacts on user experiences: tracking user behaviors, using analytics, keeping track of customer care channel, listening to user feedbacks, and so forth. The user engagement level with the service is considered as a good indicator of their impact on the customer satisfaction. Direct customer feedbacks are taken as indicators that design is doing its job.

“A very very high level, having some people written to us or they come here and say: “I'm selling my car because Whim has made my life so much easier”, for me that is the biggest thing. That is the biggest award, because that's the mission we are after. If we are able to achieve that mission, with the help of design, that's good.”

For internal feedbacks, the team considers the fact that the design team is now being involved in product development discussions at much earlier phase of the process to be an indicator that design is making an impact. People's confidence in using design tools is also a great indicator that their effort in promoting the role of design had proven effective.

“If I can show to others that this is how you run a customer journey mapping workshop, or this is how you want to do a service blue printing, so they gain more confidence doing it and we can make it as part of our normal day to day process, we can ensure there is an impact because you also educating the internal team.”

Challenges

The first challenge is about changing people's mindset on the role of design, which is often perceived only at the UI level. As a consequence, design is thought to be not needed in an early stage and is only involved at the end of the process when all product

requirements have been made.

“It depends a lot on the understanding within a company about the significance of design. So many decisions are made purely on business needs or technical capabilities. For us to come into the process, it often happens too late. It also has to do with the fact that the understanding of design is thought to be not so early staged thing.”

Second, startups often have to cope with a limited budget to use for design, which certainly limits their capabilities and they need to justify their design investment.

“It’s the challenge when do you have enough money to actually have designers at work.”

Third, the design impact is hard to measure overnight. In the product development process, design plays only a part in a complex process where multiple expertises and functions are involved. It is almost impossible to pinpoint a single aspect of the product where design is the sole driver.

“From my perspective, impact needs to come from solving the actual problem, and that’s the hard part. Firstly, it’s hard to measure overnight. Even if you have made that impact in some ways, how do you see or how do you tell that it’s because of design? It’s always a team effort. Nowadays, all service are very complex in that sense. There’s a lot of technology, lots of business and data needed, so there’s a lot happening beyond design which leads to success.”

Last, hiring a good designer is considered a challenge. Startups are perceived as offering less benefits compared to bigger companies. While startups may give people more freedom and authority, they often lack the stability and the credibility. It is important for startups to know their strengths and attract the right talents.

“They (job seekers) can be a bit reluctant because many people are looking for stable jobs and that’s understandable. But then people are also looking for challenges. They look for good team to work with, security, big projects. Many designers are hard to shift them to doing something completely new. It totally depends on the person attitude.”

Conclusion

In the discussion, the importance of having a design presence in-house was strongly emphasized. Their presence is not only a sign for investors and stakeholders to see that the company understand the values of design, but it also helps people inside the company to have a better understanding about the roles design can have, increases the productivity and efficiency of product development process, and strengthens the company’s image as user-focused and consumer-led.

4.5 Case Nosto - an e-commerce service

Nosto Solutions Oy develops e-commerce personalization solutions for online retailers across the globe. It enables online retailers ranging from small business owners to global retail brands to recommend relevant products to their customers in real-time across their shopping journey. The company offers Facebook and Instagram ads, onsite product recommendations, onsite pop-ups, and personalized emails. The company was founded in 2011 and is based in Helsinki, Finland.

The roles and value of design

At Nosto, design has five key roles: ensure products' ease of use, communicate product values, gain market and user understanding, shape the brand image, and enable design culture.

First, design was used to ensure products' ease of use. Especially in the beginning, it was critical that their products need to be easy to access and simple to understand.

“I think the design and ease of use as empowering our customers to succeed. They are in the company vision and company values. So in a way it is embedded to the DNA of the company.”

The second role of design at Nosto is to help communicate the product values effectively to customers. As their products are complex by nature, it requires significant effort to show the impact that their solution can offer. Design was used to take these values, based on data analytics and customer insights, onto the surface level.

“We are trying to show how big of an impact this product can have on your sales and how many customers you have been able to serve better, how many people have clicked on this recommendation and went on to buy the product.”

Third, design is used as a tool to help the company learn new market characteristics and user behaviors when switching customer segment. As the clients are now bigger companies, the level of complexity and the number of stakeholders involved also increase. Thus, using design helps the team to collect different user personas and ensure that their solution support all these different user cases.

“In the new positioning client companies are bigger, they also have more stakeholders involved. Compared to our previous positioning it's not just one person using the product, it's usually multiple people who have different roles in the organisation. If you understand these different stakeholders and their persona, it's much easier for you to cater for all these different use cases.”

Forth, the role of design is presented in shaping the company branding and marketing, which help them to gain significant competitiveness.

“In the early days, design can make you look bigger than you are. You can look much more mature, more polished than you really are, which can be a great way of acquiring customers and investors and hiring.”

Last, having a design culture enabled early allows every member of the team to get familiar with user-centered design methods.

“I think it’s crucial for our strategy that we had certain design efforts from the beginning. Because of that foundation, we have adopted into our DNA a user friendly, easy to use, simple but powerful type of vision of the product, which is something that still drives the way we are doing things.”

Applying design in practice

Use of design resources

In the beginning, there was only one designer taking care of both product and marketing tasks. He first worked with the team as a freelancer and later joined as an UX designer. At the time of interview, Nosto has a team of two full time designers and two full time front end developers and one person as the Head of UX team. The team are quite versatile with everyone possesses a wide range of skills and a few years of experience.

“We are able to serve quite a big team with just a few designer and this is mainly down to streamlined processes and quite experienced and multi-talented designers. Our designers are able to do front end code, our front end designers or developers are quite good when it comes to visual stuff but they can also handle backend stuff, very close to full-stack. I also have a history of both web design and development, interaction design which is a pretty broad expertise so I think it was quite a benefit in the beginning.”

They also have a marketing team with three designers in the house, who are responsible for various marketing aspects, for example: marketing automation newsletters, print materials, event booths and so on. There is a clear distinction between marketing and product UX team even though they work along and try to align with each other. Depending on the resources available, the team may collaborate with freelancers or consultants to help sharing their workload, which applies to both marketing and UX team.

“In the very beginning when the core team was very small, we used a lot of freelancer help. We always had certain freelancers who we were familiar with and kind of trust. So whenever there was a need, you could call them up. But most of them I would say it was more of a resource thing rather than expertise. We had so much stuff on our plate and we just needed to get something done.”

The team applies a cross functional model where a team has its product manager, team lead or Scrum master, and designers allocated. Designers are responsible for the design work within their product team. This model makes the teams more self-sufficient, more independent, and quicker to move things forward.

“We are cross-functional. The UX team is embedded within the product team. We don’t really have a centralized team that I would manage and oversee. What they do depends on where the projects are in the product team. In cross-functional model, teams have their product manager and team lead, and designers are allocated in the team and responsible for the design work. The teams are more self-sufficient, able to move quicker without many dependencies.”

Measuring impacts

In the beginning, the team implements different metrics to track user behaviours when working on the small and medium retail sector. These metrics are strongly related to the produce performance while also work as the drivers for design work.

“In the beginning when we were working with the long tails we were setting up quite a lot of tracking funnels, tracking different kinds of onboarding funnel, completion rates, etc. We were following adoption: how many people land in the product, what sections of the product they view, how many monthly active users do we have, but nothing very sophisticated because we haven’t really figured out what are the things that actually drive the UX work.”

At a higher level, the team utilises different frameworks to ensure that their goals are aligned with the high level business goals. Based on these frameworks, the team identifies signals and indicators at a more practical level that can guide their goals. The whole process requires significant investment in terms of time and effort to ensure that everyone is aligned and the goals are well understood.

“While it is very easy to track everything, it is very to get distracted as well. What we are working on right now is defining real goals first. We used a framework called Goal Signal Metrics, which means that before you can have metrics you need to figure out the goals you’re aiming to achieve. And when you know those, you need to figure out what signals are relevant for that goal. After you have those figured out, you can define your metrics.”

At a very general level, design impact is perceived from the general feedbacks that the team received, which could be quite pragmatic.

“I think in general about design, if it works great, no problem, then you are probably doing a good job and there won't be much feedback. But if there's negative feedback then something is wrong.”

Challenges

The first challenge comes from the downsides of cross-functional model: siloing of information and lack of peer connection between designers. As the teams are moving quickly forward, they also start to get fragmented. It is the role of the design leader to support the team alignment and collaboration, and ensure that everyone is following the same direction.

“From a design perspective, when you are sitting in a team full of engineers and business people who appreciate what you do but don't really understand it, it may turn into a lack of connection or a lack of feedback around their expertise. So it's important to have a peer to peer connection or mentoring relationship going on.”

The second challenge comes from the risk of using external resources. If design is considered as a core part where the majority of value comes from, then outsourcing design would be a risk. It is suggested that in-house resources should be used where possible, as the team can gain experience and the products can be constantly iterated.

“Outsourcing can be a great way to get an experienced team quickly working on the product. At the same time when the contract ends there goes the experience.”

“If you can do it in-house, it's probably a good idea to do it in-house. That way you own it. Your team gains experience. Your team gains ownership and is proud of the work. If you outsource everything, the outcome can look quite good, but then it's not really your own thing. If you have a team working on it, your team can learn and leverage the experience to the maximum.”

The third challenge is about evaluating the investment on a design system. While it is a great tool to enforce alignment across the organisation, for a small team building a design system may be unnecessary. In order for a design system to work efficiently, a lot of resources have to be spent on maintenance and development. Otherwise, there is a risk that components get outdated, developers will stop using them, and the system would be fragmented. From his experience, it is only at a certain scale that having design system can actually makes a difference in the organisation.

“From my experience it is a great tool but mainly a tool for a bit of a bigger organisation with a lot

of people working on the same thing. If you are a very small team it can be just a waste of time. You are not at a scale where it really makes a difference. You are actually just slowing down.”

The forth challenge is about finding the right metrics. In B2B, there are many different stakeholders and decision makers involved at different stage of the customer journey, which make it hard to visualise and keep track of user behaviors. On another hand, while it is easy to get a large amount of data, it is easy for companies to get distracted by numbers. Companies might missed to ask the right question and applied metrics that would not drive effort into the right direction.

“As we are in B2B, when the client organization has for example five different stakeholders using the product and we have our internal stakeholders like customer success managers or partners working on that account, the customer journey might be that: some person starts onboarding when they sign up, pass it to the developer who does the initial integration, then reach out to customer success manager who does something for them, then go back to e-commerce manager. So in the end, who does what? It is very unclear and the customer journey can be varied.”

“If you have a metric that doesn’t change the way you work or the way you do things it’s not really a good metric. Metric has to be something that actually drives you in the right direction.”

Last but not least, if the company is still in an early stage, spending too much money on branding could be a risk. While branding definitely has an important role in the growth of the business, focusing on branding when there has not been a product – market fit can cost a significant amount of resources. As the company grows, their business model may change and the market can also be different. Startups, especially those who work in B2B, need to be cautious when deciding how much they want to invest on branding in the early days.

“In the early days if you haven’t found your product market fit, you haven’t found your positioning yet, you don’t want to over invest your money and resources on branding. You might need to throw it away soon anyway because your company has changed, the business changed, the market changed, and you need to differentiate from that business.”

Conclusion

For a B2B company, to be design-driven can be an option, not a requirement. The core factor to be considered is what the company want to achieve. In his opinions, it is more crucial for a B2B company to focus on design as it can have a great impact on how their products interact with customers and decide their success. However, in B2B, it may not be necessary to be user friendly and design driven if the company’s strategy does not

essentially focus on consumers.

“In order for a B2B company to be very design driven early on I would say that the business has to be very design oriented or critical about those issues. Design is just another tool in the toolbox and definitely you need a certain level of design to make it usable in general. But you need to consider if that investment is the most valuable one or if there’s some other places where that investment would yield better results for the business. There are very ugly products out there that are very valuable for the customers, thanks to focusing the resources on creating value rather than optimizing the user experience. And there are also pretty products out there that look awesome in designer portfolios or on Dribbble, but fail to provide real value for the customers.”

On another hand, as looking customer’s growing expectation with digital products and services, he also pointed out that good user experience will soon become the norm, and putting effort on design will always be a good investment to guarantee that companies are not lagged behind.

“I think over time B2B companies that invest zero in design are probably going to get hurt. Like I said, user experience might not yet be the critical thing that will make all the difference, but it’s getting there. When that paradigm shifts, the decision makers who make decisions on investing on a product or putting money on something, if it doesn’t look good they’re not going to be convinced.”

4.6 Case Wolt - a food delivery service

Wolt Enterprises Oy develops a mobile application for ordering food from cafes and restaurants. The company is known for their Apple-awarded application. Users can discover and get great food for takeaway, home delivery, or eat in. At the time of the interview, the company had more than 1.5 million registered users and operated in more than 15 countries around Europe. The company was founded in 2014 and is based in Helsinki, Finland.

The roles and values of design

At Wolt, design's roles focus on two main areas: attract customers and users with a focus on user experience, and build up the company culture.

First of all, design was essential for attracting customers and users by creating a high-quality user interface and paying attention to details. The visual quality of the app and its seamless user experience create a competitive advantage for them in the market.

“We have some competition here in Finland and, on a high level, our competitors are doing the same job, delivering restaurant food to home. But why people often choose Wolt instead of them, hopefully it's because they are happy with the ease of use of our application and the service in general. We care about details so that the experience for the customer would be as nice as possible.”

Second, design helps the company to build up their culture. Having a design element involved from the start of the business has ensured that everyone in the team naturally has the tendency to pay attention to details when working with products. As this culture has been growing organically, there is no official design principles or a defined strategy, but rather a shared understanding between team members.

“We don't have an official design strategy or written down design principles. I think it's more about paying attention to design since we've had design represented since the beginning on a co-founder level and it might have resulted in caring about design a bit more than usually in startups.”

Applying design in practice

Use of design resources

In 2014, when the company was founded, there was only one designer, drawing the first version of Wolt user interface for iOS, Android, and web. Four years later, they currently

have a team of six designers in-house, dynamically divided into two sides: Product and Operations and the role of a “design janitor” moving between two sides and align the team with the company’s business strategy.

When there is a need to do a large marketing campaign, the company works quite often by using in-house resources, but sometimes also with external agencies. These agencies will help building the concept, execute visuals, and manage Wolt social media accounts during the campaign. Since the service are operating in different cities in Europe, for each city there is a local marketing manager working with a local team. So for these local offices, when there are needs to create marketing assets freelancers are called in every now and then.

When hiring designers, the head of design at Wolt prefers to look for people who are experienced: dynamic problem solving skills, capabilities to adapt in different organisation setting and personalities, high sense of responsibilities and prioritisation.

“Hiring full time entry level designers wouldn’t be preferred because we expect people to be professional when they join the company and be able to deliver world-class work right away when they start.”

“They know how to cope with different kinds of teams in terms of different personalities, and they know how to approach problems from different angles, how to solve them, and how to choose the most important battles.”

On the product side, there are different project teams working on e.g. web, mobile, and marketplace. On the operation side, the team focuses on developing the company’s new administration tools and support local marketing teams if needed.

“The operational tools are vital for managing the restaurants and orders throughout the process. They also provide customer support for both the consumers and business tiers.”

Measuring impacts

For testing and validating ideas, the team do quick user testing mostly with internal users at the company. For validating user journey, they try different approaches on the app and then track how users interact with the elements. Design elements are adjusted according to the feedbacks received from tracking user behavior. There is no specific tool for measuring how design has affected a certain aspect as feedbacks are often direct and easy to acknowledge.

Besides, Wolt has also received a number of design awards for the user experience and

the product design. The company is known as one of the most design-oriented startups in Finland. These awards are one way for the team to validate their design effort to the company.

“We are the only one who has Editors’ Choice recognition by Apple on the App Store. And then we have won several design and execution awards. Also, our rating on the App Store is quite high, about 4.8. I think that’s a sign that people respect our design choices.”

Challenges

The first challenge is how to reach consensus in a team and how to have everyone agree on the same direction without shutting off any idea abruptly. As simple as it seems, finding the common term to move forward could be quite challenging in a team of creatives.

“People here have a lot of ideas. Some are good, some are bad, which is natural. Some of the ideas are heard many times over the years, so it’s important to listen to them again carefully because it’s possible to find surprising details or different perspectives in them. One of the positive challenges is to prioritise the items on the roadmap and when it’s time for execution, how to make sure to ship world-class work. Quite often these things can be solved by communicating about them openly and in collaboration with closest colleagues.”

The second challenge comes from the downsides of using freelancers as they operate on a different term compared to in-house designers. While using external consultants can provide excellent outcomes within timeframe, they are not enticed to challenge the initial problem and can less focus to answer the core questions.

“Conceptually, freelancers are selling their time and of course they are willing to spend as much time as needed, but usually they are asked to solve a specific challenge so they might miss some of the crucial, additional information that our employees have. That might lead to coming up with solid suggestions but the outcome might be too narrow if observed from a more holistic point of view.”

Third, as the company is expanding quickly and the design for scale has become the priority, the team faces the challenge of how to qualify their design decision. There are a lot of elements they need to take into account in order to evaluate the impact that a design change may have at a wider scale. This challenge requires the team to adopt a new way of working, in which they have to balance the resources putting on fine tuning elements with the need to create a foundation that can be quickly adapted to new markets, regions or countries.

“We are opening a lot of new cities and countries in Europe. It was good to focus on details at the

beginning, but currently, we need to think about the Wolt-wide impact as well. For example, if we modify one core thing, does it affect all of our markets? Are we doing it just because it's cool but doesn't have any bigger impact, is it reasonable to put so much effort and time into it?"

Last, startups often make the mistake of investing on visual identity too early. The term "too early" is defined as when the company does not have a clear business plan or a functioning MVP. It is believed that having a well-functioning demo should be the starting point for any startup and visual identity should come afterwards.

"Of course it's possible to have a cool identity presentation, nice logo and visual guidelines but that is not what is needed at the beginning. At first, you need to build a lovable product that works and receives some kind of traction in the market. Then, it might be not reasonable to use pre-defined brand colors or fonts because they do not fit anymore. I would say it's more important at first to have a well-functioning demo, get some traction, and then it's possible to build a proper visual identity after that."

Conclusion

In the essence of the interview, it was clear that having designer involved early in the beginning of the business, either by having one in the founding team or hiring an in-house designer early on, will have a major impact not only on the product side but also the image of the company. Design helps to refine many of the most crucial touch points with customers and end-users, and can build up a good reputation for the company to outsiders. On the inside, once design is involved in the organisation early on, the practice and design way of thinking grows in the company organically, without the need to have a written philosophy or design guidelines.

4.7 Cross-case analysis

4.7.1 The roles and values of design

The analysis identified five global themes, which are the main aspects where design was used to support startups organisation: product development, business strategy, branding, culture, and operation (Appendix C). According to this analysis, design plays an important role in different stages of product development, ensuring that the process is user-centered and design solution efficiently covers user needs. Design expertise is involved in different activities of business strategy development to support the founding and management team clarity the core questions. Design has also proven to be the key element in shaping brand image. For some companies, having design expertise in the company has a strong impact on their company culture and can greatly affect the operational productivity.

Integrating user-centered design approach in product development

In all cases, design appears to be an essential part in the development process. It was acknowledged that all case companies, regardless of their active customer segment at the time, have established a strong focus on the end-user interaction and want to position themselves as consumer-led companies. This is the key point that leads to their heavy emphasis of using design methodologies in development. Design has a key role in both defining the functionality and enhancing appearance, whether the products are physical or digital.

Depending on the case and their business context, the focus of design in product teams can be slightly different, which illustrates the dynamic and varied impact design can create.

Design was used to validate products usability, improve product accessibility, increase an ease of use, and validate results with customers. Design was also used as a tool to help product managers examine and validate their product offering to improve efficiency.

Designers participate in different stages of the product development to ensure that the products generate meaningful values for customers. The presence of designers in the development process ensures that the core functions will be developed according to the initial requirements, reducing the risk of a false implementation.

Rethinking the core questions and building a customer-focused strategy

Four out of six case companies indicated the active participation of design at a strategic level. From the management perspective, design was essentially used to help clarify the core questions that can lead the company into the right direction. Design helps to provide a concrete visualisation of the company mission and vision so that everyone can comprehend and follow them. In the case of complex business concepts, design becomes the key tool to connect different elements together and ensure that they work seamlessly.

From the strategy perspective, design was identified as the key element to boost the business competitiveness in the market. Companies use design to ensure that their business is customer-focused and the products achieve the top quality level. Startups believe that good user experience can generate added values on the top of the functionalities and usability of the products, which could differentiate their products from competitors and convince customers to buy or come back to use their service.

Leveraging brand image

During the interviews, design was understood as playing a part in the formation of all company's image. In the early stage, using design to create a professional brand identity helps startups to project a higher level of business maturity, leverage their position in the market, increase credibility, attract customers, and gain trust from investors. At a later stage, when the business has grown and scaled up considerably, design expertise is used to ensure the brand consistency.

How much companies invest resources on branding varies on a case-by-case basis: some companies work with external agencies to have their brand identity designed, others may rely on their internal marketing and branding team. However, they all acknowledged the benefits of having a refined brand in getting funding, attracting customers, and leveraging their position in the market.

It was noticed that while having a polished brand clearly gives startups considerable advantages, it does not always come on the top of their priority list due to restrictions in the budget and resources. In fact, two interviewees had advised startups not to focus on branding in the beginning if they have not developed a functioning MVP and has a clear business strategy.

Enabling design culture

Three out of six case studies mentioned the benefits of having a design culture rooted

inside the organisation. According to these findings, having a design presence early in the company has a critical impact in people's understanding about the roles of design. Once design is understood as a part of the development process, it is easier for designers to get involved at an early stage and take part in decision making.

On the other hand, the early and constant presence of design inside the house can encourage other members of the team to get familiar with design thinking and methodologies, and motivate them to apply the tools into other functions of the business. Having a built-in design culture is also a great way for companies to strengthen their image as a customer-focused company.

The presence of designers in the founding team appeared to strongly affect the culture of the company. For companies that do not have designer at the management level, it would be beneficial if the founding team showed interest or had experience working in consumer-focused industries previously.

Increasing operational productivity

Three out of six companies pointed out the advantages of using design in supporting collaboration between team members or between different functions of the company. In these cases, the role of designers does not limit within their specialisation. Instead, designers also play the role of a facilitator in business or development discussions. The roles of a facilitator includes: visualising ideas, applying different design methods and frameworks in framing the discussion so that more team member can contribute their ideas, decision making can happen faster, and the core issues are resolved by the end of the meeting.

Having designers in-house reinforces the collaboration between design and development team. Products would be constantly iterated and developed according to user needs. Since the feedbacks loop happens faster and more often, the team's productivity increases. As a result, the company can significantly shorten product time-to-market.

This study identified five main aspects in startups where design has a clear impact. Some of the aspects mentioned can be overlapping, for example: improving user experience can result in increasing the business's competitive advantage, or having a strong user-centric culture can also leverage the company's brand image. As the roles of design are dynamic and can be used for multiple purposes within an organisation, the roles and expertises of designers in startups are understood to be versatile, which requires them to possess a multidisciplinary approach.

4.7.2 Use of design resources

Studying the use of design resources in six case companies has resulted in four key findings (Appendix D). First, for startups, it would be more favourable to have at least one experienced designer in the team. Second, in the beginning, it is advised that startups should hire designers with more a generalist approach, a person having diverse skills and especially a multidisciplinary mindset to be able to handle different design tasks. Later, when companies start to scale and have more capitals, having more specialist designers in-house will increase design capabilities and competences. Third, startups often outsource marketing activities to design agency and consultancy, while invest more resources on having a product design team in-house. Forth, a summary of general criteria for hiring designers was collected.

Hire experienced designers

According to the responses, all cases share one similarity: all the companies had hired at least one highly experienced designer for the role of a design leader, e.g., head of design, head of UX, chief design officer, and chief experience officer. Depending on the case company, some of these designers may have more diverse background than others. For example, experiences of working in different business settings, more diverse skill set, and so forth. However, all have also been working for a substantial period in the design industry. In five out of six cases, the design leader had worked in design or advertising agencies, which suggests a close connection between the experience of working in an agency with the diverse skill set and a flexible mentality that would be required to work in startups.

According to Best (2015), working in an agency allows designers to interact with a vast number of clients and projects, which significantly extends their breadth of knowledge. An experienced designer who has been working with different industries or clients could cover the broad range of design aspects needed in startups, understand the priorities, and be able to foresee the long-term need for design. Having this person in the founding team can enforce the role of design in the company and can generate the foundation for design culture to flourish.

Generalists first, specialists later

In all cases, design effort was mainly focused on the product side. Design in marketing is considered to be a separate action, though it is also under the broad umbrella of the company's design function. In three cases, the designer's capabilities are emphasized on

being multifunctional and hands-on so that they can handle a wide range of tasks under limited resources condition. In three other cases, the roles of design team is said to be more divided, designers are hired and work according to their specialisation, e.g., visual designer, UX designer, service designer, etc. However, even in the latter cases, the roles of designers appear to become more diverse only with the growth of the business. Three of interviewees mentioned that in the beginning, the company only had one designer who covered all the design tasks.

The findings here indicate a tendency that was once mentioned in the interviews: in the beginning when resources are still limited, startups tend to hire more generalist designers who are capable to handle a wide range of different tasks. Once the company starts to scale up, the amount of work increases quickly and design needs also become more specified, startups would need to hire more specialist roles.

Outsourced marketing, insourced product development

All startups maintain connection with an external network of freelancers, an advertising agency, and a design consultancy. They mainly use external resources for sharing the workload when there is not resources enough in the team, rather than for strategic purposes. The design agency and consultancy is also more involved in marketing activities to execute a large marketing campaign and designing brand assets than in developing the core products. Even though in some cases, design agency and freelancers were designing the first version of the concept, eventually product work will be handled internally.

As the products are considered where the main business values come from, having the design function embedded internally can ensure that products are constantly iterated and improved, and customer feedbacks can be quickly integrated in the process. It was mentioned that for a company to become customer-led, having an in-house design team is the key factor.

Hiring criteria

A few key criteria for hiring designers that were mentioned are: hands-on and self-initiative attitude, multidisciplinary approach, passion, ability to handle stress and adapt in different team environments.

4.7.3. Measuring impacts

Three main groups of measuring methods were identified (Appendix E). First, design is measured according to product performance; second, design is measured as supporting tools for sales and business; third, design impact on the company in general.

Design as a product development tool

All six companies measured some parts of their design impact on the products by tracking customer interaction, collecting customer feedbacks, and analysing these feedbacks. Product design metrics are strictly related to the customer experience and are similar across industries, which can be: tracking user behaviors when using the products, analysing their patterns, setting up different tracking funnels to collect data, measuring time people spend on using the product or service, tracking their activeness, tracking user responses to different design changes during the user journey, and so forth. Depending on the business goals, design team can decide to focus on some parts more heavily than on others. User feedbacks served as main inputs for the next design iteration and helped the design team to improve their solution to address user need more precisely. In particular, two companies mentioned that they do not have any metric to specifically measure design impacts on the user experience of the product, as there are so many different elements involved in the process.

Design as a helper tool for sales and business

In case of design being used as a tool for sales and business, no standard was identified. When it comes to the impact of design when supporting other business functions such as sales, companies often apply more pragmatic evaluation and no standard metric was identified. Companies look for different signals as indicators: being approached by customers, the number of case closed, and the net promoter score.

Two companies commented on the effect of gaining Design Awards as a validation for design achievements. Design awards were considered an important indicator, as they are perceived as the most transparent evidence of design excellence to non-designers.

Design impact on the company in general

Two companies mentioned looking at internal feedbacks to measure the changes design create: in people's attitude towards design, how active design is in product development discussions, employees' productivity, projects' efficiency, and so forth.

In brief, design can not be measured apart from the whole context of a product or the domain that it is applied to. It can be seen that most case companies are measuring design by using customer related metrics. On the inside, project outcomes and development process metrics are sometimes used as sources for the design validation.

In practice, design is always applied together with other tools which are heavily interrelated. Thus, it is tricky if not impossible to measure the impact strictly from the design perspective, and such measurements might also not be practical to create a relevant evaluation. It is recommended that companies should look at the impacts of design as a whole, in comparison with their business goals, and define metrics that can drive changes.

4.7.4. Challenges

The challenges could be sorted and organised into six main themes: limited resources, lack of design understanding, investment timing, operation issues, finding metrics, and other unique challenges (Appendix F).

The ***lack of time and resources*** is the most common challenge that restricts startups from using design efficiently. It hinders startup founders to spend money on design activities or to hire full-time designers. Alternatively, startups sources to use an external consultancy, which generates the risk of losing the core values of the products. The restricted budget also forces companies to use shortcuts or cut corners, which requires a careful consideration and substantial experiences from the design leader to make the cuts, as these actions may also result in harming the company's core values.

The second critical challenge that startups can have is the ***limited understanding about the role of design***. The case companies confirmed that a general understanding about design is still perceived at the appearance level, whether it is an user interface or a physical package. Designers' role is also perceived as being limited within their core expertise. All these misunderstandings not only limit companies to adopt design methodologies but also hinder designers to utilise their capabilities successfully.

The third challenge is about ***timing when making critical design investment***. According to the interviewees, some major design investment may not generate equivalent values if they are made at the wrong time. The idea of timing here is understood in relation to the company's stage of growth. It was mentioned that, for example, investing on a design system too early may slow down the companies' growth, as they require lots of resources to maintain and develop. Similarly, investing on the

brand identity too early while not having a properly functioning product can pose a huge risk for companies, as they may need to change them later. While these problems would be connected to the lack of resources and budget, their connection to the scale and stage of business make them stand out as a specific group of issues.

Operational challenges are the fourth common one that startups have to cope with. It appears that for design to function effectively, companies need to find an operation model that can support the collaboration between design and development, as well as collaboration within design team. The ultimate goal is to support the discussion and to reach consensus in order to find direction and align design effort accordingly.

Fifth, two companies mentioned the difficulties of **finding the right metrics for design**. As discussed previously, design is integrated as a part of a complex process together with other tools and functions such as technology, business, customer support, and so forth. Thus, it is hard if not impossible to measure design as an independent source of impacts. The data has shown that, in practice, design is often measured indirectly and in relation with the overall business or product outcomes.

Last, depending on the specific business context, designers in startups may have to face **unique challenges**, for example: gaps in knowledge, materials restrictions, concept complexity, and a customer's geographic distance. While these challenges are varied depending on the case, they are perceived as parts of the uncertainties when working in a startup which requires designers to have an open mindset and attitude.

5. Discussion

5.1 Design in startups

5.1.1. Theoretical implications

The topic of using design in startups has received increasing interest from both entrepreneurs and design professionals. The unstable, fluctuated operating context of startups provides numerous opportunities for designers to explore and find new ways to create values. Meanwhile, business founders have started to recognise the power of design in leveraging not only their product and service offering, but also in advancing the organisation towards being more user-focused and customer-led. These indications were discussed frequently in design and business forums but were scarcely mentioned in academic research.

Based on the analysis, all four powers of design were acknowledged (Borja de Mozota, 2006). The role of design as an integrator (Borja de Mozota, 2006), which enhances product development appears to be the prominent driver. On top of that, the use of design in leveraging company brand image was also considered as a strong differentiator to increase competitive advantage and leverage market position (Borja de Mozota, 2006).

From the management perspective, the roles of design in startups are greatly similar to those in large corporations (Sheppard, Sarrazin, Kouyoumjian & Dore, 2018) though the scale of impact might be different. In startups, which have strong support for design from the management level, the role of design is valued comparably with business and technology, and designers can have more influence in the core value creation process. Second, it is acknowledged that having designers integrated with other functions can strengthen the collaboration and increase productivity (Sheppard et al., 2018). Third, it is also beneficial for startups to have a strong design culture embedded (Sheppard, Sarrazin, Kouyoumjian & Dore, 2018). Finally, user experience continues to become the top quality that startups seek to develop in order to leverage their market position (Sheppard, Sarrazin, Kouyoumjian, Dore, 2018).

On the current practices of using design, having in-house designers appeared to be

the primary choice due to its various advantages, such as: closer access to business stakeholders and multidisciplinary teams inside the company, focused experience, ability to influence the company's design culture. This finding fits with the theoretical framework provided by Best (2015) on pros and cons of using design teams. As startups are mostly restricted in terms of budget and resources, designers working in startups were opted to have a diverse set of skills and experience, which is strongly linked to general principles of user-centered design concept (ISO 2010).

At a high level, the study did not identify any standard methods for measuring design impacts in startups. Depending on the case, design team applies a variety of pragmatic measurement methods to analyse how design can affect product performance and customer experience. In general, external measurements such as: keeping track of user behaviors, analysing user data when using the service, have a more active role compared to internal metrics (Björklund, Hannukainen & Manninen, 2018). All case companies presented some methods their own metrics to measure product performance, while only two case companies mentioned that they also measure the impact of design within the company.

The challenges identified from the study include: limited resources, lack of design understanding, investment timing, operation issues, finding metrics, and other unique challenges (Appendix F). Within these groups, the lack of resources, operation issues, and difficulties of finding suitable metrics, share similarities with the challenges discovered before by Carlgren, Elmquist & Rauth (2016): misfit with existing processes and structures, difficulties of finding resources, and lack of competence. However, the challenge of making investment decisions appears to be more critical in startups, as they have to cope with more restricted budget in the early stage, especially if they are still in the "Build" phase where the business model has not been validated (Blank 2015, Ries 2011).

5.1.2 Managerial implications

The study proposes a number of key actions for startups to successfully apply design in their organisation:

- Prepare a budget for design and for hiring full-time designers.
- Have designers involved the earlier, the better.
- In the beginning, hire designers with more generalist approach. Hire more specialised designers when the team starts to scale.

- Have at least one senior or mid-senior designer who has diverse experience and substantial time of practice.
- Build an in-house design function to focus on the core products if the business goal is to be consumer-led.
- Have designers integrated with other functions.
- Educate people on design thinking and the use of different design methodologies.

For designers and other design professionals, startups can provide great opportunities to work with a variety of problems and utilise their creative problem-solving skills. While it can be challenging, designers working in startups appear to gain a greater sense of authority and proudness over their work, have more direct impact to decision making process, and enjoy more space and freedom to pursuit creative opportunities. Based on the analysis and suggestions from interviewees, this study also proposes a few practices for designers who want to work in startups to be efficient and productive:

- Collect a wide breadth of experience, possibly by working with different types of clients and projects.
- Have a hands-on attitude and proactive mentality.
- Develop knowledge on other fields beyond the core design discipline. Knowledge on technology and entrepreneurship can be added to the advantages.
- Be prepared to cope with uncertainty

Another important issue that the study managed to address, was the need to support the understanding of design for non-design professionals. Designers in startups often need to take the active role in explaining and promoting the values of design to others in the company. While this problem can be significantly enhanced by the support from management team, the findings suggest that it can also be approached from the education perspective. There is a strong need for educating the roles of design to people who do not have a design background, for example, engineers and entrepreneurs, so that design understanding can be widely adopted into business.

5.2 Evaluations of the study

The study is subjected to certain limitations during the case selection process, as not all case companies were in their early stage of development. The goal of this research was to study the use of design in highly design-driven startups. However, this goal shows restriction in terms of data sources. Pilot research on startups which were still in their early stage showed limited evidence on the use and impact of design, as impact may take a long period of time to see and be evaluated. Thus, not all the companies selected in this study are early-stage startups (e.g. case Holvi, case Wolt). At the moment of the study, some of these case companies had reached the point of becoming a growth company with stable profit. In order to achieve the goal of this research, interview questions were focusing on their early use of design, and how design has affected their business from a retrospective viewpoint.

In terms of data collection method, except for one company, in the rest of the cases companies there was only one person, either from design or business side, participated in the interviews. Considering the scope of this research, it would have been more beneficial if data was collected from both business and design side of the company. During the analysis, it was noticed that when asking about the values of design at a strategic level, which could be more detached from design function itself, companies' CEOs often offer a broader overview on the impact of design across different aspects of the business. Design's values are perceived and described from the management and financial perspective. Meanwhile, design leaders are able to provide a more in-depth, concrete insights on the application of design, the methodologies that was being applied, common challenges, while contributing their own views about the roles of design. Thus, if the research was to be developed further, a second interview with the other stakeholder of design in startups could greatly elaborate the research findings.

The use of semi-structured interview methods also presented minor limitation. Since the subject was largely exploratory, the researcher did not follow the same question order during each interview. As the discussion develops, interview responses elaborated and became quite fragmented, which required the researcher to invest more time in the analysis phase to identify the key information.

The study was carried out in a period of roughly 8 months, which exceeded the intended schedule of a 6 months period. This was due to the gap during the summer holiday, where most companies in Finland enter the summer holiday and it was difficult to contact and arrange meetings with interviewees.

5.3 Suggestion for future research

During the process of identifying new knowledge on the topic, the researcher has uncovered different aspects related to the use of design which have not been studied earlier. As the topic of using design in startups is relatively young and poses great potentials for years to come, continuing research from these perspectives would complement the findings of this study and promise valuable knowledge not only for startup founders but for anyone who is interested in the field of design and entrepreneurship. Some of the approaches that could be further studied are presented below.

First, it would be interesting to see the development of design function inside startups in relation to the development of business. It was seen from the interview results that the role of design inside an organisation evolves over time together with the growing needs and changing focus of business strategy. Thus, to map out how this process develops and identify if there are certain development phases that the role of design will go through could provide valuable insights for designers or startup teams to build up a roadmap of using design right from the beginning.

Second, as can be seen from the findings, the topic of how to measure design impacts gains great interest from design team and business founders since there is still no standard for design evaluation. At the same time, being able to show the impact of design could be significantly beneficial for designers, in order to increase the understanding about design and improve the influence of design inside the organisation. Having meaningful design metrics can encourage business founders to invest and integrate design into their business.

As the topic continues to unfold, it is believed that there are still many aspects of design in startups environment that were not thoroughly addressed. This study hopes to shed light in the discussion of how design can and should be used to support startup business development. Hopefully in the near future, design will be recognised as one of the standard tools for entrepreneurs to tackle business challenges.

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Appendices

Appendix A: List of interviewees

Case Funzi

Miemo Penttinen, Chief Experience Officer

Case Holvi

Jyrki Vanamo, Head of Design

Case Varjo

Urho Konttori, CEO, Founder

Case MaaSGlobal

Apaar Tuli, Head of Design

Sampo Hietanen, CEO, Founder

Case Nosto

Tuukka Häkkinen, Head of User Experience

Case Wolt

Mika Matikainen, Head of Design, Co-founder

Appendix B: Interview skeleton

Background

Can you describe your main responsibilities at the company?

What was your motivation to take this position?

How does your previous experience with design support you in this role?

About design roles in the company

What are the roles of design at your company?

What are the reasons for having a design function at your company?

Which areas do you think design is making an impact?

In general, how do you think about the role of design in supporting the company vision and mission?

About design practices

Can you explain a bit about the structure of the design team, how many designers do you have in-house?

How do designers collaborate with development team and other functions?

Do you use external resources? For what purposes?

How do you evaluate the success of design effort?

How do you measure their impact, what metrics do you use?

What are the main challenges of using design, how did you solve them?

Final question

If you can give 3 advice for startups who want to use design in their business, what would you recommend them?

Appendix C: Roles and values of design

Codes: roles and values

Issues discussed: roles, responsibilities, benefits, advantages, application, goals

COMPANY	BASIC THEME	ORGANISING THEME	GLOBAL THEME
Case 1 Funzi	"I think design helps in the beginning to make sure we had those strategic levels focused and choice of what are we aiming at."	Help to define business strategy	Business strategy
	"We have very little completely unique technology in our product so that's not our leverage in the market. So it needs something else to become better. For us it's really the understanding of this special market."	Leverage product value proposition	Business strategy
	"Basically we have used design in all the main levels. Visually, we have a product that hopefully looks nice. We spent a lot of time to make sure that it makes sense for users, so they understand how it is supposed to work. For that we need to do research as well. We use design to focus on the product itself because it's the core of the business."	Developing products functionality and visibility	Product development
	"Just having design discipline helps to frame the discussion so that we are able to end up on the conclusion faster than what would have been otherwise."	Facilitate discussion to increase productivity	Operation
Case 2 Holvi	"His (Miko, co-founder) vision from the start was always want us to be very strongly design-focused. He has been all the time emphasised the importance of UX, not just beautiful aesthetics but also the usability and utility of everything that we do, that we need to provide world-class service via UX."	Ensure world-class service quality	Business strategy
	"Design is considered as a real tool that can change the numbers, even though it's not directly tangible."		
	"Now we are doing quite big overhaul. We keep the functionality, but try to make the look and feel as consistent as possible in different platforms. We spend a lot of time and effort on this and also streamline the function, make it easy for users to understand the benefits they can have."	Streamline product features and increase consistency across platform	Product development
	"I only need to ensure that the thing is developed the way that we agreed. Developers can get the big picture before we go to pixel-perfect. Mainly it's about discussing and facilitating. The way I see it, it's somehow digging ideas and information from people."	Facilitate discussion to support brainstorming and efficiency	Operation
	"You give the impression of much more established and much more mature product instead of a new service from the scratch. It gives credibility that it can stick around for a longer time. Your audience can see that it's more well made. You can look much more credible with great design."	Strengthen brand image	Branding

Case 3 Varjo	"But we had a vision that where we want to be is eventually a consumer product, even though we started from the high-end. Technology always trickles down, and unless you keep in mind the consumer from the early on, you end up being stuck in the professional segment. That's why we wanted that all of our design needs to be appealing to consumers from day one."	To be customer-led business	Business strategy
	"By having a strong design team, you start to the right direction in the beginning. It is a really good and strong thing to have a concrete vision in the beginning. It helps all the rest of the organisation to be having a North Star and grow towards that one."	Crystallise company mission and vision	Business strategy
	"Often time, engineers are tempted to cut corners. It's the responsibility of the design to make sure that doesn't happen at the wrong places. You can cut corners when it comes to non-visible things and so forth, but not when it impacts the user experience, or visual quality."	Avoid cutting the wrong corners	Product development
	"We decided in the beginning that we like to act like a big company. And big companies always make sure that they have professionals handling their products. We thought about that: product must be great, also marketing must be on the same level as if we are actually on the same level with Nokia or Microsoft."	Strengthen company image	Branding
Case 4 Maas Global	"Transportation sector is so much focused on the machines, these things that move, whereas user-centered design comes from a different angle where we are looking at broad actual user needs like: what is my need today, what is my need in the evening, what is my need tomorrow, and how do I fulfill those needs. And that's the idea of service like Whim. So we are trying to understand user needs and make it more user-centered mobility solution."	Understand user needs	Product development
	"The advantage is that we are not playing in the field of differentiating on functions and features. Anybody could do a transport app, have the same API and stick together. But design is about adding the layer of customer experience which is what customers are willing to pay for."	Leverage product value proposition	Business strategy
	"If you have an external agency who is not embedded with your team and doesn't come here and work with you all the time, that will always lead to some gaps in the knowledge flow. Then if developers are implementing something and they don't know how to do it, they need to get that feedback from the designer and they want to have somebody who is here, working full-time with the team."	Improve the knowledge flow and support collaboration	Operation
	"If you are a startup, you should involve designers early on, so it goes to the company culture. As startups grow into bigger organisation, they lose that company culture elements, or it's stuck with whatever in the starting seeds. So it's good to have design in the mix of those starting seeds, so it grows into the company and then everybody are then consumer led."	Enable design culture	Culture
	"Another role I'm playing as a designer is also evangelising, talking about what we are doing in the company to outside. That is important when you are a startup because you want your startup to be shown in a larger picture as a company which understands the users, which focuses on user needs, which understand design."	Strengthen company image	Branding

Case 5 Nosto	<i>"I think the design and ease of use as empowering our customers to succeed. They are in the company vision and company values. So in a way it is embedded to the DNA of the company."</i>	Ensure ease of use	Product development
	<i>"We are trying to show how big of an impact this product can have on your sales and how many customers you have been able to serve better, how many people have clicked on this recommendation and went on to buy the product."</i>	Increase usability	Product development
	<i>"In the new positioning client companies are bigger, they also have more stakeholders involved. Compared to our previous positioning it's not just one person using the product, it's usually multiple people who have different roles in the organisation. If you understand these different stakeholders and their persona, it's much easier for you to cater for all these different use cases."</i>	Understand different stakeholders	Product development
	<i>"In the early days, design can make you look bigger than you are. You can look much more mature, more polished than you really are, which can be a great way of acquiring customers and investors and hiring."</i>	Strengthen brand image	Branding
	<i>"I think it's crucial for our strategy that we had certain design efforts from the beginning. Because of that foundation, we have adopted into our DNA a user friendly, easy to use, simple but powerful type of vision of the product, which is something that still drives the way we are doing things."</i>	Enable design culture	Culture
Case 5 Wolt	<i>"We have some competition here in Finland and, on a high level, our competitors are doing the same job, delivering restaurant food to home. But why people often choose Wolt instead of them, hopefully it's because they are happy with the ease of use of our application and the service in general. We care about details so that the experience for the customer would be as nice as possible."</i>	Ensure product ease of use	Product development
	<i>"We don't have an official design strategy or written down design principles. I think it's more about paying attention to design since we've had design represented since the beginning on a co-founder level and it might have resulted in caring about design a bit more than usually in startups."</i>	Enable design culture	Culture

Appendix D: Use of design resources

Code: design resources

Issues discussed: in-house, freelancers, consultancy, agency, full-time, part-time, hiring

	Case 1 Funzi	Case 2 Holvi	Case 3 Varjo	Case 4 Maas	Case 5 Nosto	Case 6 Wolt
In-house resources	1 designer Cover a broad range of functions Strong sense of flexibility Be hands-on Easy access to knowledge Better understanding of the company business Facilitate collaboration with freelancers for better productivity	Team of 4 designers Specialised roles Focus on products Embedded with other functions	Team of 5 designers Diverse and specialised roles Most focus on products One person on other design needs	Team of 2 designers (one senior and one junior) Focus on products Handle various tasks Be hands-on Flexibility to switch between tasks	Team of 5 designers and front end developers Focus on products Has another team for marketing Seniors, have a broad range of skills Able to handle various tasks Cross-functional model	Team of 5 designers Divided in Product and Operation side Mostly seniors, one junior
Design leader	Background in agency	Background in research, agency, and entrepreneurship	Background in corporations	Background in corporations and agency	Background in agency and freelancing	Background in agency
External resources	Executing concept Not involve in strategic planning	Help to share the workload Help on products and marketing if needed	Use big design studios Execute marketing campaigns	Share the workload Regular connection Provide fresh insights Designed the first concept	Designed the first concept To share the workload More frequent in the beginning Handle marketing initiatives	Execute marketing campaigns Provide marketing assets
Hiring	Generalists in the beginning More specialists later	Generalists T-shaped people Multidisciplinary approach	Senior 5 years of experience High-quality delivery	Passionate with the solution T-shaped people Be self-initiative Able to handle stress	Seniors preferred Junior later	Mid-senior Good problem solving skills Easily adapt to different settings High sense of responsibilities

Appendix E: Measuring design impacts

Code: measurement

Issues discussed: metrics, KPIs, evaluation, impacts

	Case 1 Funzi	Case 2 Holvi	Case 3 Varjo	Case 4 MaaSGlobal	Case 5 Nosto	Case 6 Wolt
External metrics	<p>Keeping track of user behaviors: time spent on courses, rate of completion, data analytics.</p> <p>Sending out customer surveys</p> <p>Conducting customer interviews, and testing sessions with focus groups</p>	<p>Collecting customer feedbacks</p> <p>Keeping track of user engagement</p> <p>Applying net promoter score to measure how well the products are doing against competitors</p>	<p>Evaluating ergonomics on user trials, collect feedbacks, set up a beta program to actively seek customer feedbacks</p> <p>Being approached by customers and partners</p>	<p>Tracking user behaviors, following user analytics, following customer care channel, collecting user feedbacks (direct and indirect)</p> <p>Receiving design awards</p>	<p>Tracking user behaviors, set up different tracking funnels</p> <p>No metrics for UX</p> <p>Applying Google HEART framework (happiness adoption retention)</p>	<p>Tracking user behaviors, analyse patterns</p> <p>Receiving design awards</p>
Internal metrics				<p>Project outcomes: shorten time to market</p> <p>Level of confidence in using design.</p> <p>Design is invited to the discussion much earlier.</p>	<p>Development process: Goal Signal Metric framework, OKR</p>	<p>Level of customer centricity from employees</p>

Appendix F: Challenges of using design

Code: challenges

Issues discussed: challenge, difficulty, constraints, limitations

Case 1 Funzi	Case 2 Holvi	Case 3 Varjo	Case 4 MaaSGlobal	Case 5 Nosto	Case 6 Wolt
<ul style="list-style-type: none"> • Lack of time and resources • Risk of cutting corners • Customer's geographic distance 	<ul style="list-style-type: none"> • The role of design is mystified • Designers' single mindset • How to align design direction with customer expectation 	<ul style="list-style-type: none"> • How to justify design investment on limited design 	<ul style="list-style-type: none"> • How to change people's mindset on the role of design • How to cope with limited budget • Design impact is hard to measure • Difficulty in hiring committed talents 	<ul style="list-style-type: none"> • Downsides of cross-functional model: siloing of information and peer connections • Risk of using external resources • Downsides of having a design system • Design impact is hard to measure when too many stakeholders are involved • Overinvest on branding too early 	<ul style="list-style-type: none"> • How to reach consensus in the team • Risk of using freelancers to build the core concept • How to qualify design decision when companies want to design for scale • Invest on branding too early