



Norwegian University of  
Science and Technology

# Supplier Selection Process for New Norwegian Ventures

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Master of Science in Entrepreneurship

Submission date: March 2017

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# Assignment text

To study the supplier selection process for new ventures within hardware development, by investigating four different Norwegian new ventures that have already been through a supplier selection process.

The following main points will be included: Theory on supplier selection, case study, presentation of findings and analysis of empirical data, discussion of findings with the use of the theoretical framework, implications and conclusion.



# Preface

This master thesis was written during the spring of 2017, as a part of the master's program at the School of Entrepreneurship at the Norwegian University of Science and Technology (NTNU). The thesis is an in-depth study as part of the course TIØ4945 "Innovasjon og entreprenørskap". The aim of this master thesis is to investigate the different elements, phases and criteria that takes part in a supplier selection process in new ventures, and more specifically (1) how the risk and uncertainty related to new ventures affect the process of initiating buyer-supplier relationships; (2) what the most important factors for new ventures are in the supplier selection process; and (3) how the supplier selection process is conducted in new ventures. We have prepared for this thesis through their courses TIØ4530 and TIØ4535 during the fall of 2016. The work has been both challenging and interesting, and provided us with the opportunity to gain deeper understanding of subjects studied in earlier courses of the master's program, as well as the supplier selection process for their own new venture.

We wish to especially thank our academic supervisor Øyvind Bjørgum for his perseverance, insight and great support throughout the autumn of 2016 and spring of 2017. He has spent many early mornings and late nights providing us with valuable feedback, which has been crucial for the progress and direction of the work. We also wish to express gratitude towards the case study companies for taking the time to participate in our study and for providing us with valuable empiric information.

Trondheim, Mars 31st 2017



# Abstract

The purpose of this master thesis is to explore how new Norwegian ventures, within consumer hardware, undertake the process of supplier selection. The number of new ventures within hardware development in Norway has increased drastically the last 10 years due to a decrease in the cost of of-shelf components, the growing attention to 3D-printing and crowdfunding sites such as Indiegogo and Kickstarter. These sites help early phase hardware products see the light of day. All of the above factors has resulted in an increased number of hardware ventures succeeding in the development phase and thus, they are reaching the stages where they need to find a production partner. As part of the increase in ventures there is, naturally, also an increasing number of failed attempts. The result being cautious suppliers whom are wary in regards to collaborating with new ventures. Thus the question is what the supplier selection process looks like for new ventures.

A literature review is conducted to gain insight on the existing writings on the topic of supplier selection. However, due to the limited amount of existing research regarding *new* ventures we will, firstly, try to highlight the differences between new ventures and more established firms. Thereafter we will use our findings to explain the, assumed, effect being a young firm could have on the supplier selection process. Lastly, a framework for supplier selection process, for new ventures, is developed. The framework will be challenged by four different cases of empirical data collection, through interviewing four new ventures about the supplier selection process they had been through. The information extracted from these case companies combined with the literature review, create the basis for a thorough understanding of the process.

The findings establish that the supplier selection for new ventures is a very iterative and non chronological process. The ventures move back and forth in the different phases of awareness, relationship initiation and exploration. Even though the different cases have similarities and included the same phases, none of the four venture's processes were similar. The different backgrounds of the new ventures before initiating the supplier selection process, and the impact they have on the process is therefore revealed. This being the incentive behind starting the process of looking for suppliers, the level of innovation in the product and the lack of prior knowledge about the process. These different backgrounds are antecedents that affect the supplier selection process. They increase the uniqueness and

“personality” of each case, which are forcing the supplier selection away from the traditional quantitative models for supplier selection and moves it towards more qualitative means of evaluation.





# Sammendrag

Denne masteroppgaven utforsker hvilken prosess norske oppstartsselskaper, innenfor konsumer hardware, går gjennom for å finne produksjonspartner. Antall oppstartsselskaper innenfor hardware utvikling har i Norge vokst sterkt de siste 10 årene grunnet reduksjon i pris på hylleware komponenter, økende interesse rundt 3D-printing og crowdfunding sider, slik som Indiegogo og Kickstarter. Siden slike sider har hjulpet tidlig fase hardware produkter å nå ut i markedet har det resultert i en økende mengde hardware oppstarter som lykkes i utviklingen, når stadiet for produksjon og dermed behovet for å finne en passende produksjonspartner. Det betyr også at det er flere oppstartsbedrifter som feiler, noe som medfører mye risiko for produksjonspartnerne. Dette gir utspring til noen interessante spørsmål i henhold til hvordan prosessen som går på valg av produksjonspartner faktisk ser ut for oppstartsselskaper.

Det har blitt gjennomført et litteraturstudie for å få bedre innsikt i hvordan eksisterende litteratur omtaler tema som angår valg av produksjonspartner. I henhold til at det er manglende litteratur på dette området for oppstartsselskaper har det her blitt lagt vekt på forskjellene mellom oppstartsselskaper og mer etablerte selskaper. Deretter forsøkes det å utvikle et rammeverk for valg av produksjonspartner for nye oppstartsselskaper basert på disse forskjellene og dets antatte effekt på valgprosessen. Dette rammeverket er utfordret i løpet av studiet av de fire forskjellige oppstartsselskapene bak dette studiets empiriske data, hvor alle er intervjuet grundig om deres eget valg av produksjonspartner. Informasjonen fra disse case bedriftene ble satt opp mot litteraturstudiet for å få en grundig forståelse av prosessen.

Funnene uttrykker at prosessen oppstartsselskaper går gjennom for å velge produksjonspartner er iterativ og ikke-kronologisk. Bedriftene beveger seg frem og tilbake mellom de forskjellige fasene “awareness”, “relationship initiation” og “exploration”. Selv om de forskjellige casene har likheter og inkluderer de samme fasene, har ingen av prosessene vært identiske. De har alle hatt forskjellig utgangspunkt før prosessen ble påbegynt, og det gjør at betydningen av disse forskjellene i prosessen ble fremhevet. Disse forløperne til valg av produksjonspartner er; insentivet bak det at de startet å se etter produksjonspartner, nivå av innovasjon i produktet og mangel på forhåndskunnskap om prosessen. Disse forskjellige utgangspunktene øker unikheten og “personligheten” til hvert

case. Dette trekker prosessen vekk fra tradisjonelle kvantitative metoder for valg av produksjonspartner over på mer kvalitative metoder for evaluering.



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# Glossary

*MOQ*: The Minimum Order Quantity specifies the lowest quantity of a certain product that a supplier is willing to sell

*BOM*: The Bill Of Materials is a list of the quantities of each raw material and component needed to manufacture an end product.

*Alibaba*: Alibaba Group Holding Limited is a Chinese e-commerce company that provides consumer-to-consumer, business-to-consumer and business-to-business sales services via web portals.

*Crowdfunding*: is the practice of funding a project or venture by raising monetary contributions from a large number of people. Crowdfunding is a form of crowdsourcing and of alternative finance where *Kickstarter* and *Indiegogo* is two of the most used ones.

*Protolab*: Company specializing in product development and industrialization doing consultancy, design, manufacturing, prototyping and 3D scanning.

*Inventas*: Company specializing in product development and industrialization doing consultancy, design, manufacturing, prototyping and 3D scanning.

*Quote*: Supplier quotation is a formal statement of promise given by a potential supplier to supply good or services to a buyer at specified prices.

# 1.0 Introduction

The aim of this master thesis is to explore how new Norwegian ventures, within consumer hardware, undertake the process of supplier selection. This introductory chapter presents the importance of the supplier selection process. It also explains how the process is different for new ventures in comparison to established companies. Lastly, it will present the research questions, contributions and structure of this study.

## 1.1 Why the supplier selection process?

Thanks to the application of new technologies and financing options like crowdfunding, the hardware startup market is growing (Fritz 2014). Scaling a hardware product has historically been both difficult and expensive due to manufacturing (Gregory et al. 2009). However, several combined trends over the past few years has created an environment which has mitigated these challenges and resulted in the growth of a hardware ecosystem for new ventures (DiResta et al. 2015). Prototyping new physical products is easier, cheaper and faster than ever before (Altman 2015). 3D printers have suddenly become public domain. Cheap off-shelf components can be sourced directly from countries like China at a low cost, and small-batch manufacturing has become increasingly feasible, following the drop of machine costs. To be able to secure a contract with a manufacturer the minimum purchase of units used to be in the tens of thousands. Today, however, an increasing amount of manufacturers are willing to do small-batch runs, sometimes in the hundreds of units (DiResta et al. 2015). This means new ventures are able to avoid the risk included in ordering large quantum. Crowdfunding options like Kickstarter and Indiegogo has made it possible for new companies to test their product market fit as well as to get added capital before going into production. The rise of electronic retail has, in addition, made new ventures less dependent on large retailers or distributors to reach the market (Barros 2013). All of these trends combined has, over the last 10 years, resulted in a 90% decrease in the capital required to reach the first sale (Einstein 2016).

Manufacturing and scaling is still the hardware startup's Achilles heel. However, with little experience with supplier selection, new ventures are facing potential pitfalls, which could cost a lot of time and money. In order to establish an effective supply chain management, one must choose and develop a type of relationship appropriate to the product and market conditions one are facing (Bensaou 1999). DiResta et al. (2015) also emphasize this as being

a continual progress throughout the working relationship as adaptations, changes and overall communication will be of the essence as for having a satisfying result. Establishing a relationship where you are able to communicate clearly with your contract manufacturer is essential in avoiding additional costs related to changes in function, design or work schedule (DiResta et al. 2015). As most new ventures are finding manufacturers in other locations than their main business, it is important to find an effective way of managing the supply chain (Srivastav 2016).

Supply chain management is an important area for ventures to focus on, but the challenges involved in a manufacturing process for new ventures starts already in the selection of the supplier. Having limited funding means that it is crucial for new ventures to choose the right production partner the first time around (Srivastav 2016). With a globalized market like today this is both difficult and time consuming for new ventures (Chan et al. 2008).

## **1.2 Challenges for new ventures in a supplier selection process**

The literature presents different characteristics for companies to consider when selecting a supplier (Dickson 1996), these selection criteria for ventures is listed in Table 1. However, the literature on supplier selection criteria spans no longer than within operation management for corporations. New ventures don't necessarily hold the benefit of choosing their supplier based on a set of selection criteria in the same way as larger corporations (Stinchcombe 1965). This due to their lack of history, proven performance record, resources, legitimacy, and status (Peña 2002; Stinchcombe 1965; Zhang and Li 2010). Because of this lack of resources in new ventures, many seeks recommendations based on the experience from the available network to understand the supplier selection process (Feld 2012; Hormiga et al. 2011). The nature of the new venture, and that it is in fact new, might limit the opportunities for relationship initiation at least face some considerable difficulties (Zhang and Li, 2010).

When a new relationship is developed it is combined by three dimensions; status, converter and inhibitor (Edvarsson, Holmlund and Strandvik 2008). While an inhibitor is a hinder of a business settlement, the converter provides energy and direction toward the same process. Converters are factors like trust and time which is usually missing in new ventures because of limited resources. Inhibitors like image, risk and bonds is therefore often more prominent (Edvarsson, Holmlund and Strandvik 2008). These levels of uncertainty and risk that is in

new ventures nature forces the selection process towards other variables, which still remains unknown and an important gap to research further.

### 1.3 Purpose of the study

*The purpose of this thesis is to explore how new ventures within consumer hardware pursue the process of supplier selection.*

With an increased number of new ventures operating within consumer hardware, the process of supplier selection is continuously growing more important. The literature regarding the topic mostly concern larger corporations, while there is reason to believe that the process is vastly different for new ventures. This master thesis therefore explore the different elements, phases and criteria that takes part in a supplier selection process in new ventures. This study have implemented the two first phases of Dwyer et al. (1987) which is awareness and exploration in order to understand how relationships with suppliers are initiated. We have chosen to divide the awareness phase into two sub phases where they first analyze how the ventures become aware of the suppliers (awareness phase) thereafter analyzing how the ventures reach out to the supplier's (relationship initiation phase). The motivation being the lack of research investigating the buyer-supplier relationship in a new venture context.

### 1.4 Research questions

This study seeks to understand if there exists a certain process for selecting suppliers for new ventures that differs from larger corporations. To understand how the selection process is conducted in new ventures, it is necessary to understand how it is conducted in larger corporations as the existing literature on new ventures is limited. Thereafter understand how differences between new ventures and more established corporations can affect both supplier selection and the actual initiation of a buyer-supplier relationship (Shrader and Simon 1997). To be able to understand and reach the purpose that has been outlined, the following research questions (RQ) are chosen:

RQ 1: How does the risk and uncertainty related to new ventures affect the process of initiating buyer-supplier relationships?

RQ 2: What factors impact the supplier selection process for new ventures and how?

RQ 3: How is the supplier selection process conducted in new ventures?

## 1.5 The contribution

With the data collected the goal is to get a greater understanding of the supplier selection process for new ventures. It will be clear what types of internal and external factors affect the supplier selection process and the initiation of the buyer-supplier relationship. By gaining knowledge about how new ventures are selecting their suppliers we can help entrepreneurs in other new ventures define what they need to emphasize in their process of selecting a supplier.

## 1.6 Structure of master thesis

During this introductory chapter we present how new ventures lack resources like time and trust in the relationship initiation process (Edvarsson, Holmlund and Strandvik 2008). In chapter 2 the theory regarding supplier selection criteria and buyer supplier relationship is presented. This, combined with theory about what separates new ventures from larger corporations, give us the basis to examine the supplier selection process in new ventures. Chapter 3 describes the chosen research methods in order to investigate our research questions. The research design is a qualitative approach using four case studies. Chapter 4 contains case studies of the interviewed organizations, followed by our analysis and findings in chapter 5, and, lastly, a discussion about the results in chapter 6. The contribution of the key findings to existing literature, implications and recommended further research are covered in chapter 7. Lastly, the conclusion is presented in chapter 8. The interview guide that has been used is included in appendix 1.

## 2.0 Theory

### 2.1 The supplier selection process

The supplier selection process have received a great research focus since Dickson (1966) identified important selection criterion in his research (e.g Bensaou 1999; Ghodsypour et al. 1998; Chin-Chun 2006). However, the supplier selection in new ventures have not been mentioned in literature until early 2000 with authors such as DiResta et al. (2015), Srivastav (2007), Park and Krishnan (2011), Swift et al. (2013) and Zaremba et al. (2016). These articles discuss challenges of supply chain management in the context of new ventures, however the supplier selection process is not covered. While a strongly competitive environment forces the manufacturing organizations to establish more long-term, as well as effective, collaborations with suppliers, the market is globalized and the search for global partners or suppliers involves new complexities and challenges (Chan et al. 2008). To obtain an effective supplier selection process is important in today's highly competitive environment according to Sevkli et al. (2007). A successful supply chain is also closely linked to the process of finding the appropriate suppliers (Zhang et al. 2009).

The trend of “just-in-time” manufacturing has also changed the supplier selection process through the reduced supply base (Pearson and Ellram 1995). One of the classic research areas concerning the supplier selection process is the evaluation criteria and according to Kar and Pani (2014) there can be found a large variety of supplier evaluation criteria as a result of the diversity of the purchasing context. Ho et al. (2010) and Dickson (1996) has highlighted a wide range of selection criteria like “quality”, “delivery schedule”, “warranties”, “price”, “production capability”, “technical capability”, “management capability”, “vendor reputation”, “financial position”, “labor relations”, “post sale services” as well as other more relationship specific attributes like “past business records” and “reciprocal arrangements”. With over 60 supplier evaluation criteria used across literature it is important to try to estimate the relative importance of these criteria across procurement contexts and industries. Dickson (1966) alongside of other academicians have still identified 23 of the most important selection criteria and ranked them in order of importance. Even though Dicksons (1966) research were conducted many years ago the order of the criterion have not changed remarkably (Weber et al. 1991). Following is table 4 showing the ranking order.

Rank	Factor
<b>Evaluation:</b>	<b>Extreme importance</b>
1	Quality
2	Delivery
3	Performance history
<b>Evaluation:</b>	<b>Considerable importance</b>
4	Warranties and claim policies
5	Production facilities and capacity
6	Price
7	Technical capability
8	Financial position
9	Procedural compliance
10	Communication system
11	Reputation and position in industry
12	Desire for business
13	Management and organization
14	Operating controls
<b>Evaluation:</b>	<b>Average importance</b>
15	Repair service
16	Attitude
17	Impression
18	Packaging ability
19	Labor relations record
20	Geographical location
21	Amount of past business
22	Training aids
<b>Evaluation:</b>	<b>Slight importance</b>
23	Reciprocal arrangements

*Table 1: Dicksons supplier selection criterion (Dickson 1966)*

Even though a company would not use all the criteria, the supplier selection is difficult due to the fact that multiple criteria must be considered (Ghodsypour et al. 1998) and it is therefore common to have a quantitative approach or model included in the supplier selection. There



exists numerous quantitative models and approaches to supplier selection, however they can be sorted out in three more generalized categories (Weber et al. 1991) consisting of:

1. Linear weighting models
2. Mathematical programming models
3. Statistical/probabilistic approaches

Out of the three, the linear weighting models are the far most utilized (Weber et al. 1991) where a weight is placed on each criterion, which is usually subjectively determined. By multiplying the performance and weighting of each criterion and summarizing at the end, the buyers get a total score for each of the suppliers. The goal is to identify the supplier that will perform consistently best and within a satisfying cost, however it is common to have to make trade offs between both tangible and intangible factors in order to make a choice (Ghodsypour et al. 1998). The Analytical Hierarchy Process (AHP) which was employed by Narasimhan (1983) is also a structured technique to make it possible to organize and analyze complex decisions that is commonly used in the supplier selection context. This method use pairwise comparison in order to analyze the different options (Weber 1991). Summarized, these models make it possible for buyers to, in a systematic way, explore the tradeoffs that has to be done between the different criteria in the supplier selection process.

Early supplier selections consisted mostly of scanning a series of price lists. In comparison, today these choices involve qualitative as well as quantitative factors. Modern research has highlighted how the selection process also includes evaluation of qualitative criteria such as “culture”, “communication barriers”, “relationship”, “geographical location”, and “environmental factors” (Kar and Pani 2014). The contemporary supply management is more focused upon establishing long term relationships with a small number of trustworthy suppliers (Ho et.al 2010). Especially for new ventures there is a greater need for interaction between the buyer and the supplier. Due to limited competence on manufacturing processes in the new venture, which often results in the need of multiple iterations (Park and Krishnan 2001), the degree of involvement of the supplier is in many cases very important for new ventures because the supplier can contribute with competence during the development of the product, which will make it ready for manufacturing (Song and Di Benedetto 2008).

It is hard to obtain information about the value of the offer in a supplier selection process, since much of the decision is based on human factors such as the perceived level of trustworthiness (Bunduchi 2013; Valtakoski 2015). Edvarsson et al. (2008) also argues that, to obtain a successful relationship between the two, converters like time and trust need to be present, but with high levels of uncertainty and risk in new ventures this is usually an important inhibitor for the relationship development. According to Håkansson (1995) components of a company's capability consists of productivity, innovativeness and competence on which business relationships have an important effect. Managers, as well as researchers, believe that the relationships between buyers and suppliers stand for one of the most important resources in order to develop sustainable competitive advantage (Janda et al. 2002).

## 2.2 Initiation of buyer-supplier relationship

Dwyer et al. (1987) present four relationship phases between buyer and supplier, which is explaining the relationship processes, behaviors and orientations. The four interrelated phases: awareness, exploration, expansion and commitment is what constitutes their framework of relationship development. The first, (1) awareness, concerns the phase where the buyer seeks information about suppliers, but no purchases have taken place yet. (2) Exploration, is when supplier and manufacturer negotiate the terms of supply, samples etc. and the first purchases start to take place. Roles is being established, as well as expectations, and the objective is to determine if there is reason to continue developing the relationship. When the (3) expansion starts the buyer has purchased products several times or has negotiated long term contracts. Trust from both parts start to take place. Lastly, the (4) commitment phase concerns the point in time when the supplier and buyer share values, rules and procedures to support the relationship and there is a high level of mutual trust (Dwyer et al. 1987).

Looking at the supplier *selection* process, and therefore the buyer-supplier relationship initiation, the first two phases of awareness and exploration is relevant for this study. This is also argued to be crucial for the development of a long-term relationship (Valtakoski 2015). Johanson and Mattson (1987) emphasize how long term buyer and supplier relationship is hard work evolved over time, however, if accomplished, the benefits go beyond the obvious transactions. When a relationship is established one will share risks, bridges to other firms,

access to complementary skills and new technology or markets. This, as well as joint research and production (Chan et al. 2008).

The early interaction that occurs in the initiation phase between a buyer and a supplier, contributes in the evaluation of the possible relationship, based on the potential benefits, costs and obligations (Valtakoski 2015). Relation specific investments shall preferably occur early on in a buyer-supplier relationship leading to competitive advantage and productivity gains (Claycomb and Franckwick 2010). Mortensen (2012) presents the term “attraction” as an important antecedent for relationship initiation between supplier and buyer. Dwyer et al. (1987) was the first to mention attractiveness in business relationships as part of the different phases. It was described as an explanatory element in both the initiation and development of the successful business relationships. In the awareness phase there is some form of attraction even before there is any interaction between the parties (Dwyer et al. 1987; Mortensen 2012). The attractiveness is what makes the parties aware of each other and the parties may strive to make themselves attractive to motivate the other party (Ibid). The attraction also initiates the next phase of the relationship, which is the exploration (Ibid). Harris et al. (2003) argues that the past, current, and future economic, resource-based, and social rewards is part of the attraction and also represents important elements in the developing relationships. These being antecedents to commitment and trust, as well as cooperation and relationship development between the parties as the listed elements must be perceived attractive and professionally appealing (Harris et al. 2003). However, trust, commitment, and satisfaction have also emerged through empirical investigation as the most important indicator for the creation of such buyer-supplier relationship (Chen et al. 2011; Dwyer et al. 1987).

### 2.2.1 What are the pitfalls of buyer-supplier relationship initiation

In a buyer-supplier relationship asymmetric information at the beginning is common and, according to principal-agent theory it might lead to opportunistic behaviour (Williamson 1979). This could result in a different behaviour than expected after the contract is signed (Steinle et al. 2014). Power imbalance could further have a negative impact on different goals and criterias and also serve as an antecedent for opportunism Bastl et al. (2013). More recent research from Habib et al. (2015) confirms this as a risk, as both their individual and joint motivations could move the collaboration in the wrong direction. These differences in power between new ventures and established firms do not necessarily have to be just difficulties, as

it might also provide an effective coordination (Habib et al. 2015). The principal agent theory concerns problem solving in relationships where the parties have different goals or unaligned tolerance for risk (Williamson 1979). “Buyer–supplier relationships can be interpreted as principal-agent situations and the application of agency theory could therefore improve the supplier selection” (Steinle et al. 2014).

To initiate a strong relationship with a supplier, the buyer must go beyond the operational selection criteria like price and delivery performance and rather consider the supplier's commitment to meeting shared goals (Vijay and Keah 2006). A recent study by Roloff et al. (2015) found that a major peril in relationship initiation are buyers that focuses too much on cutting cost. Although a high focus on cost reductions are a central task for all managers, it is at the same time important to maintain quality. In partnerships where the focus is too one-dimensional towards cutting costs and enforcing tight control mechanisms, instead of maintaining other elements of the partnership, the whole buyer-supplier relationship initiation tends to fail (Puma 2012).

According to Lassar and Kerr (1996) the buyer-supplier relationship is strongly characterized by the risk which arises because the buyer can not control the behaviour of the supplier. The basis source of risk in the procurement process is this lack of control (Zsidisin and Ellram 2003). In addition there is also a danger of discouraging innovation through a too controlling approach from the buyer towards the supplier (Roloff et al. 2015). The research from Roloff et al. (2015) highlights this as one out of three major perils when trying to create a partnership between buyer and supplier. The result could be failing to see or encourage innovative suggestions, and one are therefore missing out on opportunities of mutual learning and resulting innovation (Roloff et al. (2015). They further argue that recommended practice is to allow the suppliers to come up with own solutions on how to achieve standards (Ibid).

Corsten and Felde (2004) highlight how the benefit to a buyer having close relationships with key suppliers comes in form of improved product quality, delivering service and reduced cost. On the other hand, when looking to find a supplier who is interested in establishing a mutual beneficial relationship one should find a supplier which shows high responsiveness to changing buyer needs (Chin-Chun 2006). Vickery et al. (1999) emphasize service as particularly important when there is a high degree of time-based competition in the marked.

If managed properly a buyer supplier relationship can provide a strategic course of efficiency, as well as ensuring better product quality and foster mutual support (Wagner 2006).

To summarize, there are major benefits by initiating a buyer-supplier relationship, such as added value compared to a simple purchasing interaction (Roloff et al. 2015). The suppliers can on the other side benefit by having long-term contracts, which then facilitates their own strategic planning (Ibid). This is a security that only large corporations with sufficient funds can provide, making the supplier selection process for new ventures with limited resources and security a challenge. There are proven differences between entrepreneurial and established firms when it comes to strategic alliances, because of the differences in the level of bargaining power, learning ability and organizational compatibility (Das and He 2006).

## 2.3 How new ventures are different from established firms

There is many distinctions between larger firms and new ventures that are relevant when it comes to the supplier selection process (Zaremba et al. 2016). The most prominent ones are summarized in table 2. Because of the small size of new ventures they are depending in a much larger degree on external resources and supplier selection is therefore a vital task (Ellegaard 2006). Song et al. (2011) confirm this by pointing at the supplier-buyer relationship of new ventures as one of the most important success factor for new ventures.

A number of researchers have examined the differences between new ventures and established corporations (Burgelman and Sayles 1986; Caves and Porter 1977; Das and He 2006; Fast 1981; Ellegaard 2005; Griener 1972; Hines 1957; MacMillan et al. 1986; Shrader and Simon 1997; Song et al. 2011; Sykes 1986; Weiss 1981; Zaramba et al. 2016). In table 2 are some relevant differences for supplier selection listed from a various of different research. This table of differences is also compared with what is important for the supplier in a buyer-supplier relationship, as well as with Das and He's (2006) intrinsic factors.

Das and He (2006) identified 15 different factors on differences between established firms and new ventures. These are based on the two ways of comparison, looking at each firm type individually as single organizations (Intrinsic factors) or looking at the firms when engaged in a strategic alliance (Interfirm alliances) (Das and He 2006). Intrinsic factors include; resources, status in competition, history/track record, organizational characteristics, business

focus, and planning horizon (See table 2). New ventures would as a weaker part of the relationship need to be aware of to initiate and obtain a good relationship with the established supplier (Das and He 2006). Factors that are important for the supplier is identified by Weber et al. (1991) and shown in table 2.

<b>Intrinsic factors</b>	<b>Established firms</b>	<b>Independent new ventures</b>	<b>What is important for the supplier?</b>
Resources (Financial)	Obtain outside capital more easily (Song et al. 2011)	General lack of tangible resources (Zhao and Aram 1995).	Economic security, ensuring stable liquidity over time.
Organizational characteristics	More communication levels makes it slower, infrequent and open to distortion (Das and He 2006).	Short chain of command, informal communication (Cooper 1981), Allowing quick action (Griener 1972).	Reliable production, no unrealistic deadlines
Status in competition	Defenders, vulnerable to competition (Das and He 2006)	Challengers in competition (Das and He 2006).	Value proposition strong enough to withstand competition in order to hold market position and continue production.
Planning horizon	Loss due to the development and production of one product can be covered with income from existing business (Banks 2004). Not in a hurry (Das and He 2006).	Must make success of venture, because they do not have the luxury to stay in business with high and continued losses (Weiss 1981). Speedy development (Das and He 2006)	Perceived responsibility in case of failure
History/Track record	Able to gain from parents' brand reputation or trademarks (Caves and Porter 1977; Hines 1957). May also have access to effective distribution systems and dealers at a low cost (Burgelman and Sayles 1986; Caves and Porter 1977).	No previous history of success (or failures) (Caves and Porter 1977; Hines 1957). Lack of legitimacy (Zimmerman and Zeitz 2002). Liability of newness (Stinchcombe 1965),	Legitimacy and risk

*Table 2: Comparison of new ventures and established firms*

New ventures are associated with many characteristics that are different and somewhat limiting compared to the characteristics of established firms. Limiting in the way that doing business with new ventures might be risky due to a lack of legitimacy, limited internal resources and external relations (Das and He 2006). The role of an entrepreneur is according to classical theories of entrepreneurship to gather necessary resources to start the venture and then activate it efficiently. The acquisition of both intangible and tangible resources has been identified as key to the performance (Roure and Maidique 1986; Stuart and Abetti 1987; Sykes 1986).

Shrader and Simon (1997) have examined the differences between independent ventures and corporate ventures, based on resources, strategies and performance. They found that even though corporate ventures have access to superior resources through their parents, it did not translate into higher performance. Shrader and Simon (1997) suggests that if managed more like the independent ventures the resources could be better utilized. However, even though independent ventures have more autonomy this has not resulted in higher performance in Shrader and Simon's (1997) study, this due to constraints by limited resources. They therefore recommend independent ventures to investigate ways to access more resources, such as through social networks (Shrader and Simon 1997). Company owners of new ventures rely in a much larger extent on their personal network during the supplier selection process (Ellegaard 2005).

### 2.3.1 Network theory and recommendations

The entrepreneurs' network is found important in opportunity recognition (Hills et al. 1997). When an entrepreneur gathers information through their informal network this saves both time and money, which there are usually a lack of in new ventures (Ellegaard 2005). The social relationships of the entrepreneur is not only helpful for accessing knowledge, but also to gain access to and initiate business relationships, in this case suppliers. An entrepreneurs network includes different levels of relationships. It is the inner circle, which consists of long-term and stable relationships, but that are not part of the venture. The next layer consists of what Ardichvili et al. (2003) describes as "action set", which is people recruited to contribute with the necessary resources for the opportunity, as well as partnerships and the new venture's team members. Lastly it is the network of weak ties (Ardichvili et al. 2003). This can also be seen in relation to Granovetter's (1973) classic article on the strength of

weak ties, where it is argued that weak ties that also includes casual acquaintances compared to close friends, are more likely to provide unique information (Granovetter 1973). Mostly, however, based on quantity, since one would have more casual acquaintances than close friends (Ardichvili et al. 2003). Not surprisingly, the size of the network was also found to have a direct impact on the identification of opportunities (Hills et al. 1997).

The network of weak ties or strong could preferably also consist of other entrepreneurs, as many entrepreneurs have the willingness to help other fellow entrepreneurs (Feld 2012). In addition, this shared knowledge could be very beneficial as they have gained important insight along the way that can be applied to entrepreneurial activities, thereby improving entrepreneurial judgement (Corbett 2005; McGrath and MacMillan 2000; Parker 2006; Shane 2000; Wiklund and Shepherd 2003). Through his study of 2304 entrepreneurs who have started a new business, Cassar (2014) found that the likelihood of being unpleasantly surprised decreased if the entrepreneur had industry experience. Also attempting to get insight by getting practical experience from working with other industry players or entrepreneurs in the same field was recommended (Cassar 2014). Like Feld (2012) points out entrepreneurs are in most cases willing to help other entrepreneurs, they want to give back. McFadyen and Cannella (2004) argues that a good way to gain knowledge is through the experiences of others. Give before you get has become an important mentality amongst entrepreneurs (Feld 2012), this is the way new ventures are driven forward. New ventures helping each other out and leaning on the recommendations of others are therefore a common phenomenon (Feld 2012).

Recommendations and Word-of-mouth (WOM) referrals are widely investigated in the context of consumer behaviour (Brown and Reingen 1987), however research relying on WOM referrals and recommendations in business situations is limited. Doing business based on recommendations is something that could be identified in many SMEs and early stage ventures as they are relying on the experience of others. WOM can easily be explained as a way of sharing information in smaller groups (Steffes and Burgee 2009). Already in 1995 Katz and Lazarsfeld (1995) found that WOM was the most important source of influence in the purchase of household goods and food products, being seven times as effective as personal selling. The importance of interpersonal influence was demonstrated by many different studies during the 1960s and 70s (Brown and Reingen 1987). Steffes and Burgee (2009) tries to separate WOM from customer behaviour and explains that regardless of the



form, the focus lies on that the communication is the sharing of information regarding individuals' experiences with various products and services (Steffes and Burgee 2009). How one manager experienced the product and service from one supplier can be highly relevant if shared with a new venture considering to use the same supplier. It is seen as especially influential in the service arena and thus applicable in a supplier selection process for entrepreneurs.

Entrepreneurial ecosystems are practical examples of how the community affiliation entrepreneurs feel connected (Roundy 2016). Hormiga et al., (2011) also emphasizes the importance of the personal network of the entrepreneur and describes it as a fundamental resource. Furthermore, he argues of another important aspect concerning the network, the new firm's *connectivity*. Collaboration across businesses can provide information, knowledge and complementary resources that will support the development of the firm (Hormiga et al. 2011).

### 2.3.2 Uncertainty and risk related to new ventures

The importance of external ties with established firms, universities, and research institutes has received great attention also in the context of new ventures (Baum et al. 2000), but when trying to develop these ties the new ventures may face considerable difficulties (Zhang and Li 2010). The whole concept of new ventures characteristically suffer from being exactly that, new (Stinchcombe 1965). Because of the lack of history, proven performance record, resources, legitimacy, and status it can be really difficult to access interfirm networks (Stinchcombe 1965).

There is a general agreement concerning the importance of new ventures to the economic growth, however collaborating with new ventures is seen risky and therefore makes it difficult for new ventures to actually grow (Hormiga et al. 2011). Major pitfalls such as the lack of business experience, strong industry competition, and small firm fragility encounter some serious difficulties to survive in the initial years of operations (Peña 2002). This affects the trustworthiness of the business just by its nature. Uncertainty in a decision environment context is referred to as when managers are not able to define the applicable decision contingencies before making a decision (Heide and Rodney 1995). According to McLoughlin

and Horan (2002) buyers and suppliers forecast probable results of future exchanges by considering what has happened in the past. New ventures commonly do not have any previous experience with suppliers and thus recommendation from their network is a common method to reduce uncertainty.

## 2.4 Theoretical Framework

The literature shows that the supplier selection process has received a great deal of attention, already since Dickson (1966) identified important selection criteria in his research. The great attention towards this topic might have to do with the complexity of the process (e.g. Bensaou 1999; Ghodsypour et al. 1998; Chin-Chun 2006), as the identification of good suppliers is hard both for established firms and new ventures (Chan et al. 2008). It requires a time consuming selection process which for established firms is quantitative models to balance the list of criteria the supplier need to fulfil. It is safe to say that there is a power imbalance weighing the established firm and buyer on a stronger end than the supplier, which is pushing them on price and quality (Bastl et al. 2013; Roloff et al. 2015). Quality being the most important criterion, according to Weber et al. (1991).

Figure 1 illustrates the perceived supplier selection process for established firms after the conducted literature review, with reference to Dwyer et al. (1987)'s four relationship phases and existing literature on supplier selection. Looking at the supplier selection process and thereby also the buyer-supplier relationship initiation, only the first two phases; awareness and exploration, is relevant. This is also argued to be crucial for the development of a long-term relationship (Valtakoski 2015). In the middle of the awareness phase and after the established firm has conducted their quantitative methods based on the supplier selection criteria, is when the buyer-supplier relationship initiation starts. The relationship initiation happens between the firm and a selection of suppliers with the correct and relevant criteria.

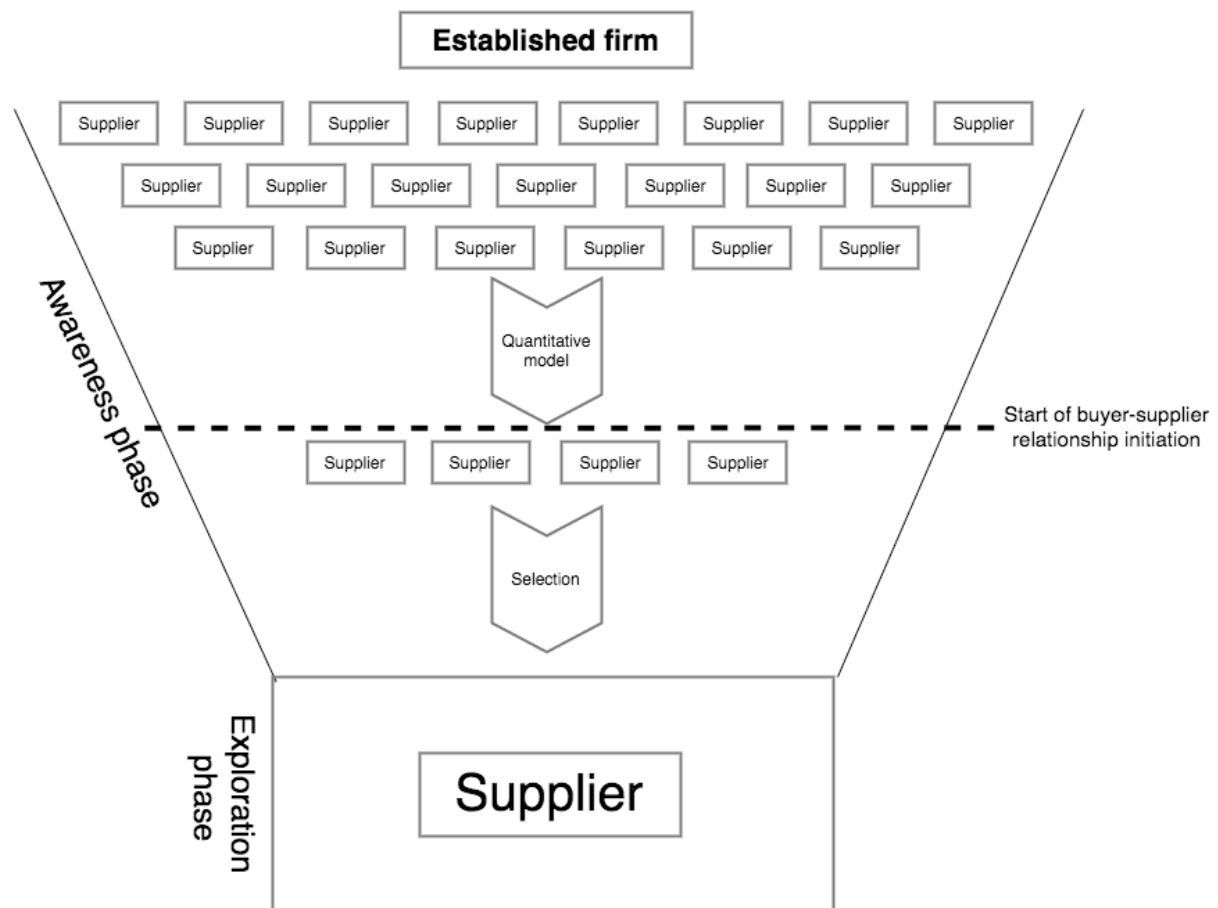


Figure 1: Supplier selection process for established ventures

When looking at new ventures it is an impression that the power imbalance has shifted and the established supplier holds much greater control over the process. There is in fact proven differences between entrepreneurial and established firms when it comes to strategic alliances, because of the differences in the level of bargaining power, learning ability and organizational compatibility (Das and He 2006). One could argue that it is no longer a supplier selection process for new ventures, but a process where the supplier selects based on their premises. However, the actual initiation is through the new venture as they are the first to identify the need. In what Dwyer et al. (1987) considered as the awareness phase it would therefore be important for new ventures to become attractive enough for the suppliers for them to be aware of the new ventures (Mortensen 2012). Being attractive is according to Mortensen (2012) an important antecedent to initiate such relationship, by continuing into the next phase of exploration. The question is how a new venture can become attractive enough to suppliers, when there is a large risk involved for the supplier concerning lack of history or track record and economic security in the new venture (Das and He 2006).

During the literature review a number of important supplier selection criteria emerged, however the lack of literature on supplier selection in new ventures also limits the findings on how the supplier selection process is different for them. The analysis of the differences between established firms and new ventures revealed some major differences and in the following these will be discussed in relation to the impact they might have on the supplier selection process.

There are however identified major differences between new ventures and established firms, that could impact the supplier selection process. According to Edvarsson et al. (2008)'s three dimensions to a relationship development (status, converter and inhibitor), the converters such as "trust" and "time" that are supposed to be the energy that drives the business relationship forward, will work against the new ventures, meaning that the inhibitors, such as risks become more prominent (Edvarsson et al. 2008). Respectively this also applies for the differences between established firms and new ventures that impacts the supplier selection process in a negative way. Which makes the list of available suppliers smaller and more difficult for the new venture to find a suitable partner. Since 9 out of 10 new ventures fail, entering a long term relationship with a new venture is a high risk move for a supplier.

Because of the small size of new ventures they are depending in a much larger degree on external resources and competence and supplier selection is therefore a vital task (Ellegaard 2006). Shrader and Simon (1997) therefore recommend independent ventures to investigate ways to access more resources, such as through social networks. Company owners of new ventures rely in a much larger extent on their personal network during the supplier selection process. (Ellegaard 2005). Meaning that early in the awareness phase the new ventures are depending on its network and recommendations of others. When an entrepreneur gathers information through their informal network this saves both time and money which there is usually a lack of in new ventures (Ellengaard 2005). This suggests a different start to the awareness phase for new ventures selection process, where they base the initial selection of suppliers from recommendations from the network (See Model 2).

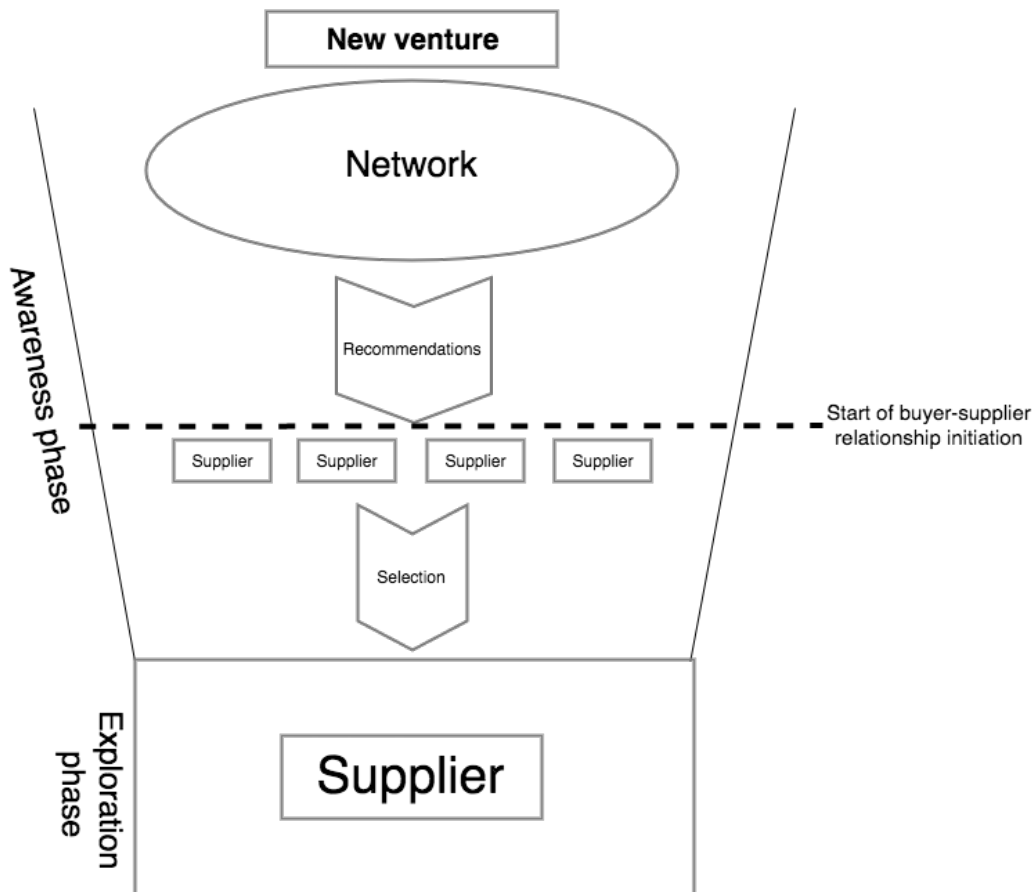


Figure 2: Supplier selection process for new ventures

To summarize the difficulties for new ventures in selecting a supplier: Most of the decision power lies at the supplier. Thus, important challenges are; (1) *how to become attractive enough to them*. More surprisingly, the largest difficulty seems to be identified even earlier in Dwyer et al. (1987) awareness phase. When the selection process starts, (2) *the available suppliers for new ventures might be limited*. The new ventures often never get a chance to show its attractiveness, because there exist a prejudice against new ventures from the supplier side. The newly increased focus on innovation and its importance for economic growth (Song and De Benedetto 2008) might impact this situation over time, but the situation now is rather complex and the new ventures are depending on other means. One key success factor for new ventures is their network and the recommendations they could give both to find suppliers, but also for the suppliers.

## 3.0 Methodology

To answer the research questions in this study, a qualitative research and case study has been conducted. This method helps reveal what is unique for new ventures in a supplier selection process, but also go in depth by obtaining a large amount of details from a few actors (Dalland, 2007). This because it is easier to capture the individual's own subjective experiences and interpretations through a qualitative study where they can express themselves through own words (Graebner, Martin and Roundy 2012). Yin (2014) describes this kind of research as an iterative process divided into different steps. Step one was to plan the research and the case study design was created. How the study will be organized is usually revealed in the design and works as the overarching plan on how to solve the research questions (Thagaard, 2013). After setting the guideline for the interviews the data were collected through interviewing four new ventures based on a set of predefined criteria. The next step in the process was to analyze the data through case analysis and cross-case analysis. The last part of the study has been to discuss the findings of the analysis in order to answer the purpose of the study. During the research process we have reflected around methodological choices in order to maintain trustworthiness. The method chapter is ended with a reflection of the method and challenges and limitation related to the method.

### 3.1 Research design

Bryman (2008) describes the research design as the core framework to collect data. This chapter describes the research design which involves a qualitative approach and the case study design.

#### 3.1.1 Qualitative research

The purpose of the thesis is to explore the supplier selection process in new ventures within consumer hardware. Four new ventures within this space has therefore been investigated and compared. Since underlying reasons behind a conducted selection process is investigated through the study of others, a qualitative approach was the most suitable (Yin 2014).

#### 3.1.2 Epistemology, ontology and methodology

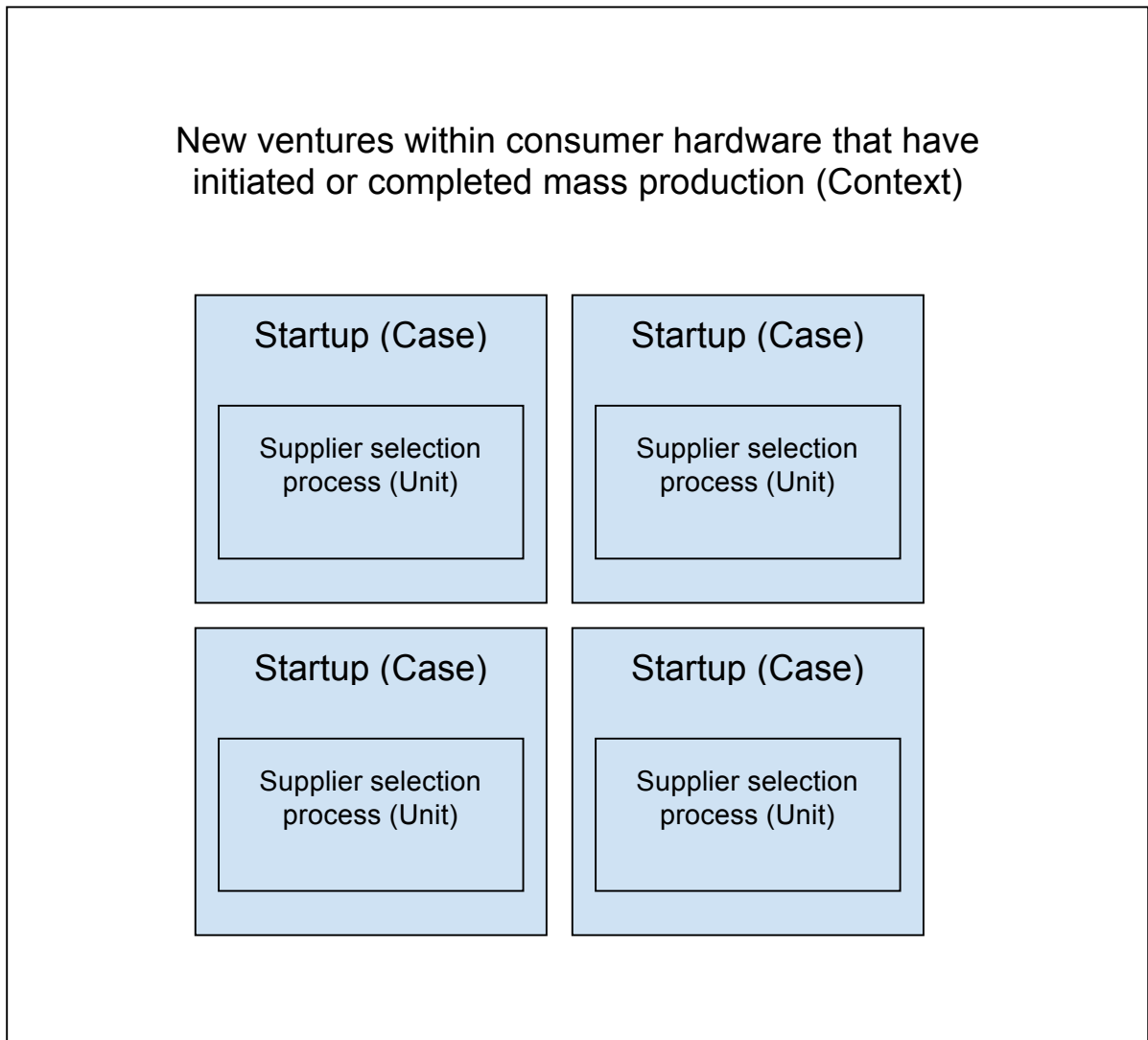
The view of the researcher was important, to be able to understand what was discovered through the research (Sekaran and Bougie 2013). Because of the human actors involved in the supplier selection the subjectivism was chosen for this research as it dedicates more

options to the participants/actors. This approach sees the social phenomena as a continual process of which in social interaction is in a constant state of revision (Saunders et al., 2009). In this view, culture is seen as a constructive and reconstructive continuous state of emergent reality (Bryman and Bell 2011). The details of the situation becomes important to understand the reality (Remenyi et al., 1998), which made it a reasonable view for this research considering the objectives of determining future actions based on new venture's previous experiences when selecting suppliers. Since this research was based on interviews, the valid knowledge or epistemology in this research was based on the grounds of the interpretivist approach. This is because this perspective relies on the result from interactions with others and is qualitative in nature (Sekeran and Bougie 2013). In addition the knowledge was considered relative to time, context and culture instead of being completely permanent. Axiology considers the role of personal values and ethics in the research situation of which could be influenced by such judgments and therefore affect the credibility of the research. This is important to be aware of, as these values are affecting every stage of the research process from the choice of topic to analysing the data (Saunders et al., 2009).

### 3.1.3 Selection of cases

Four different cases have been chosen in this master thesis. According to Eisenhardt (1989) there are no ideal number of cases, but recommend a range between 4 and 10 in a multiple case-study. Multiple cases allows replication which could help in finding relationships and similarities between the cases, and thereby allowing for more generalized findings (Eisenhardt 1989). The case studies was expected to result in different dimensions by investigating in-depth interviews of multiple cases and narrow the information down.

The design of the case study can be categorized as a multiple-case study with embedded single units of analysis, selected among Yin's (2014) basic types of design (Figure 3), which in this case would be the supplier selection process. This is because each of the four new ventures was studied within the larger context of consumer hardware that has initiated or completed mass production, but with the focus of how they selected their supplier.



*Figure 3: The Case Study Design*

The single units represent the supplier selection process from the awareness of a possible supplier to the exploration phase of the chosen one according to Dwyer et al. (1987)'s four relationship phases. This was covered by interviewing the subjects in the selected cases that were deeply involved in the selection process. The case-studies chosen were first time entrepreneurs developing a new product, who had initiated or completed a production process of not just standardized components. This was done to investigate the process of obtaining knowledge and experience throughout the supplier selection process. Consumer hardware is an interesting topic as a result of Kickstarter and 3D printing making it “easier” to succeed in the consumer hardware space. Making consumer hardware of thousands of units is quite different from making a smaller number of specialized product. It was a desire, but not a requirement that the new venture had direct contact with the production partner and not just



using middlemen. The cases chosen were all Norwegian new ventures with suppliers both locally and abroad.

It was crucial to investigate new ventures as they may differ from larger and more established firms when it comes to supplier selection. Another important factor was that the new venture had already gone through a supplier selection process to enable the experience based knowledge. Since this could result in some of the new ventures to have come further and therefore not being new anymore, the cases was chosen based on the business stage they were in at the supplier selection process. Personal network and headhunting of well known new ventures was used to identify ventures that was suitable for further research. Initially nine ventures were seen as potential ventures to interview whereas six of these were contacted. The four selected cases were the most suitable for further studies.

### 3.2 Data acquisition

After receiving approval from the four new ventures, the data acquisition was the next step. All of the cases were conducted consecutively within a short time frame of one month. The concrete methods was to interview the person in closest relationship with the supplier and most involved in the supplier selection process, this vary from the CEO to the CTO. How the interviews was conducted is elaborated in paragraph 3.2.2. A collection protocol that would help prepare for the data acquisition was created (Yin, 2014), this included having sufficient resources available (like speech recorder, pen and paper), making a schedule of the data acquisition activities and preparing for unanticipated events. Since it was conducted by two people, flexibility was important. Both authors was present at all interviews. The participants were informed about the purpose of the interview and assured that the data were treated confidentially. The organizations were interviewed quite closely, so the timing of visiting them should not have affected the findings. None of the organizations had any extraordinary activities at the time that could have affected the findings as well. The “chain of evidence” has been maintained by keeping and organizing all the collected data, from the case study questions till the finished master thesis (Yin, 1998).

### 3.2.1 Literature acquisition

The literature addressing supplier selection processes from the perspective of a new venture was limited. We knew we would need to research supplier selection and new ventures, however through some quick searches and literature suggestion from their supervisor we soon discovered that research regarding supplier selection would be closely linked to the buyer-supplier relationship initiation. The purpose of this literature acquisition therefore became to gather research which focused on two different, but closely related themes; Supplier selection processes, and buyer supplier relationship initiation, both in the context of new ventures. Relevant keywords such as “new venture”, “supplier selection” and “buyer supplier relationship” was chosen, however during the literature review naturally more specific keywords emerged and thereby added to the structural searches. Our study also obtained applicable literature by checking the reference list of the articles they read and identifying relevant titles to explore further.

Dalland (2007) recommends to get a supervisor to provide tips for relevant literature, which we have been given during the semester. In addition, we have interviewed people who are familiar with the research area to gain insight about what the literature review should be focused on. This did not only provide them with areas to study, but also journals and articles that could contain relevant information about supplier selection in new ventures.

### 3.2.2 Interviews

One hour in-depth interviews with four different cases was conducted to achieve greater and deeper understanding of formal knowledge in addition to what Dalland's (2012) describe as tacit knowledge, which in this research is experiences from the selected new ventures about the supplier selection process. Mullen et al. (2009) characterize interviews as the most important source for qualitative studies, and is described as a great tool to obtain case study evidence (Yin 2014). Because the new ventures were located at different places in Norway two of the interviews were on skype call and two were face to face.

The interviews with the selected new ventures were semi-structured. This allowed the interviewees to pursue topics of particular interest (Bryman 2008). To ensure that the important topics for the research questions also are addressed, the interview guide consisted of both open ended and more focused question (Flick 2015), such as how often they met with

suppliers, if they had any conflicts and how they solved them. The main focus was on questions related to how they got aware of, or introduced to, potential suppliers, what criteria ended up being the basis for their selection of supplier and how this process took place.

Below is a table presenting the case companies characteristics.

<b>Case companies</b>	<b>Main product parts</b>	<b>Country of manufacturing</b>	<b>Length of supplier selection process</b>
Heat Experience	Textiles and batteries	China	1 year 2 months
Moviemask	Plastic lenses, injection molded plastic, fabric	China	9 months
Magination	Magnets, injection molded plastic	China and Norway	1 year 7 months
Mickey	Electronics, wireless controller with bidirectional communication, injection molded plastic.	Norway	2 years 8 months

*Table 3: Case company characteristics*

A recorder was used to be able to concentrate on conducting the interview without focusing on taking notes, thereafter the interviews were transcribed from these records. This also enabled the observation of other non-vocal impressions, such as the environment and other impressions such as attitude, enthusiasm and other field observations, which are all valuable data to analyze and strengthens the research (Eisenhardt 1989).

There were always two people conducting the interview to prevent important information to be overlooked. However, only one were conducting the interviews and it was the same person on all interviews to keep it as similar as possible. The informants were only interviewed once, but in some cases there was need for some follow-up questions to clarify potential misunderstandings. After each interview two summaries were written, one by each of the interviewers to validate what was considered the most important data. These summaries were then compiled and cross-checked with the transcription. The summaries were then sent back to the informants for approval to rule out potential errors and misinterpretations.

### 3.2.3 Secondary data

Secondary data is an effective way of gathering information about a narrow subject and are usually recognized as data collected for other separated purposes (Gripsrud, Olsson and Silkoset 2011). Secondary data was used to determine the consistency of a finding through triangulation, which means the convergence of data collected from different sources (Yin 2014). This development of convergent evidence helped strengthen the construct validity of the case study (Yin 2014). The secondary data was gathered from the four cases kickstarter campaigns, own webpages and blogs. These multiple sources of evidence could then give multiple measures of the same phenomenon that was being researched (Yin 2014). This type of converging evidence was mostly used to prepare for interviews, as well as comparing the case study result, verify the timeline and thereby the different phases of the supplier selection process (Yin 2014).

## 3.3 Analysis of data

Our study obtained an inductive approach to the research by being concerned with the emergence of new theory from the data collected. Suggestions found in the literature review will be compared to the findings from analyzing and interpreting the different case studies. Eisenhardt (1989) present that by looking at nascent theory from the author's research in comparison to already existing literature will deepen the validity. Responses from the interview was transcribed consecutively. A structured process was then necessary to analyze data of this size. Analytic procedures to reduce biased interpretation was used. We saw the interviews as a mission to find facts rather than generating potential hypothesis too early (Pike et al. 2013). When potential hypotheses was formed we actively sought contradictory information instead of seeking confirming evidence (Pike et al. 2013).

The number of cases compared were low, thus Yin (1981) argues that a method consisting of case-comparison is preferred. First, each case was analyzed and a timeline was constructed in order to get an overview of the supplier selection process over time. Secondly the timeline as well as the case studies were compared. We emphasized analyzing the differences, similarities as well as patterns across the four case companies.

### 3.4 Reflection and limitations

Limiting our search to new ventures within consumer hardware has its benefits making the cases more easily comparable. Nonetheless limiting the research to these companies only, may have reduced the generalizability of the results and made the findings less applicable to companies of other categories. The size and experience for the chosen new ventures also had to be taken into considerations since this has most likely affected the answers. Eisenhardt (1989) argues that when using a qualitative research method this might result in difficulties evaluating what are the most important findings and which are relevant only to that specific case. Even so the method in question have advantages such as empirically valid results, the probability of the theory being original, and the chance of the findings being testable.

Dalland (2012) emphasizes not to underestimate the potential effect of the interviewees agenda. While interested in being perceived in a certain way the objects might be untruthful in their answers. Naturally, they wanted to present themselves in a better light by not admitting wrongdoings. The subjects answer will almost certainly be biased and affected by their subjective interpretation of the given situation. We used neutral probes to not lead the participant to make comments that are socially acceptable (Pike et al. 2013)

The framework presented by Shenton (2004) was also used in order to enhance the trustworthiness of the research and reduce bias for the interviewees side. This by designing the interview questions and analysis with Lincoln and Guba (1985) four criteria for trustworthiness in mind.

*Trustworthiness includes establishing:*

*“ Credibility - confidence in the 'truth' of the findings*

*Transferability - showing that the findings have applicability in other contexts*

*Dependability - showing that the findings are consistent and could be repeated*

*Confirmability - a degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest“*

(Lincoln and Guba 1985).

Our study has ensured *Credibility* by sending summaries of the case studies back to the interviewees to be sure that the interview has been interpreted correctly and no important aspects have been left out. To gain a deeper understanding of the new ventures, they were researched before the interviews through web pages and published articles. We have analyzed

the details of the supplier selection process for these new ventures to the extent that the conclusions drawn are *transferable* to new ventures with similar characteristics. By identifying findings that match across the case studies the *dependability* of the study has been strengthened. In addition secondary sources like the companies blogs, websites and Kickstarter campaigns have been used as triangulation to check out the consistencies of findings to ensure the *confirmability* of the study.

## 4.0 Case studies

The four different new ventures that has been investigated is presented in this chapter. The case studies are easily comparable by being categorized by the same topics. The cases are presented in the same order as the interviews were conducted.

The studies have implemented the two first phases of Dwyer et al. (1987); awareness and exploration in order to understand how relationship with suppliers come about. The most interesting elements in this research is firstly becoming aware of potential suppliers, and secondly the relationship initiation when the new venture seeks information on suppliers. Since these are both within Dwyer et al. (1987) first awareness phase, the activities are separated into two different phases, where the relationship initiation is a separate phase.

### 4.1 Case 1: Heat Experience

The interviewee was Rasmus Fannemel from Heat Experience. He holds the position as Product Designer and is responsible for the communication between Heat Experience and their production partners in China.

#### 4.1.1 Case specific information

Heat Experience (HE) makes heated clothing where carbon fiber is sown into the clothes that warms up from an external power supply. Currently three products are being produced. A heated west for men, one for women, and heated shorts. In November the company completed a Kickstarter campaign where customers pre ordered products which will be delivered in August 2017. The production will be started in March/April and HE is planning to go to China to oversee the production and see the latest prototype. The concept and design of the clothes is made by HE while the battery, power supply and carbon fibers are off-shelf components. HE was founded in 2015 by CEO Emil Asbjørnslett and CMO Fredrik Pedersen. Fannemel joined the team in May 2016. Before Fannemel became a part of the company Asbjørnslett was responsible for the communication with production partners. Today, Fannemel makes decisions regarding suppliers, though Asbjørnslett is still involved in the most important decisions. The process of selecting a supplier was started in March 2016 by Asbjørnslett, however Fannemel took over the responsibility when he joined. The chosen supplier is of medium size and has a MOQ of 500 per design.

“Because it is chinese manufacturers were talking much larger volumes. The MOQ is high compared to Europe. Chinese production is made to scale, for them to make us 5000 vests would not be a problem”. Rasmus Fannemel // Product Designer in Heat Experience.

It consists of three factories combined, one making batteries, one for heating elements and one fabric factory. However, they collaborate so HE has one contact person who represents the three factories as a whole. The supplier has multiple international customers and around 3-4 american brands.

The timeline below present the most important events during the supplier selection process as well as the length of the different phases.

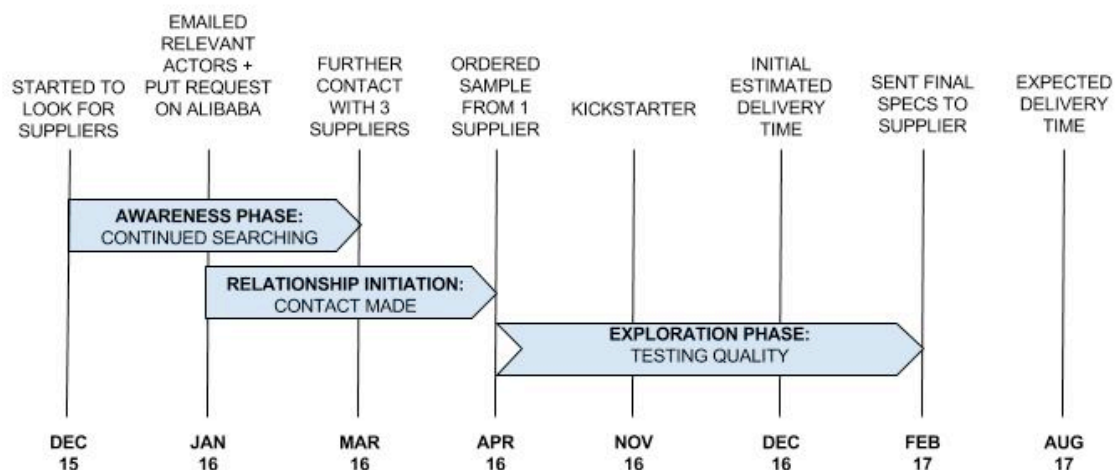


Figure 4: Timeline Heat Experience

#### 4.1.2 Awareness phase

The process of identifying potential suppliers started in December 2015. HE had, at that time, a quite detailed idea of what the final product would look like and had made a product specification with the most important features. In addition, they had conducted extensive research regarding what type of material they should choose and why, to be more prepared



when communicating with potential suppliers. HE started searching for textile suppliers on Alibaba and found approximately 100 potential suppliers.

*“We chose to limit our search to China because we realised that most manufacturers with experience within making heated apparel was located there, as well as some of the best battery suppliers”. Rasmus Fannemel // Product Designer at Heat Experience.*

At this point HE was interested in learning more about the whole process of producing textiles. Most of the textile suppliers he found with his initial search did not have any experience in making heated apparel. Realising he would then have to identify battery and heated element suppliers individually, he chose to narrow it down to the suppliers with this experience. He also excluded any supplier that had been present at Alibaba for less than 3 years, had bad rating, seemed unprofessional or wrote poor english when describing the company. Several suppliers were also dropped due to a high MOQ. HE were not able to order 3000 or even 1000 products at that time.

Initially it was difficult to distinguish the suppliers from each other and they conducted quite a lot of research at this point to see what the different suppliers could provide. HE had previous experience from production after producing skateboards through a factory in Canada. HE would have preferred to have production located closer to Norway because they knew there would be multiple iterations, however, they were interested in reducing the cost of the production by doing it in China. HE did research on the different factories looking at their MOQ. HE also tried to identify any of the brands they worked with in order to say something upfront about the quality of their work.

#### 4.1.3 Relationship initiation

Approximately 10 of the suppliers they had identified were relevant and received an email. It was an initial email including a product specification asking if they would be able to produce the product. It included the order quantity they thought would be relevant. They also put a request up on Alibaba stating what they were looking for, which resulted in suppliers reaching out to them. Some of the suppliers spent months before they answered the email and some did not answer at all. Other suppliers were excluded because they were too expensive or they required a higher MOQ than HE were capable of ordering.

*“We chose to continue contact with the suppliers who replied to the email right away, or*

*within a reasonable amount of time, usually a week”. Rasmus Fannemel // Product Designer at Heat Experience.*

During this period HE asked people in their network for best practice when going into production regarding what to expect and what the possibilities regarding bargaining MOQ with production partners.

They continued to ask the suppliers questions to monitor how they responded.

*“I wanted to check if they asked follow up questions about what I meant with the specifications and see if they responded satisfactory on follow up questions I had”.*

*Rasmus Fannemel // Product Designer at Heat Experience.*

After approximately one month they chose to continue contact with the three suppliers they had the best dialog with. However, right from the start there was one of the suppliers who stood out in a positive way. Not only did they reply right away, but most importantly they asked critical questions about the specification HE had made. HE had knowingly sent an incomplete product specification with lacking information about sizes to ensure that the suppliers paid attention to this and asked critical questions. This supplier asked a lot of great questions to identify HE’s wants and needs and clarified what additional information they would need to be able to complete the order. The most important supplier criteria for HE in this identification phase was price, MOQ and reliable communication. Fannemel explains that the this process of communicating back and forth with the potential suppliers to quality check them went over a period of approximately one and a half month, before it was time to decide and felt confident enough that it would work out with the one they chose.

*“At the time we felt quite comfortable about our choice and believed this would be our manufacturer, however, if the prototype they sent had been of bad quality we would have needed to reconsider”. Rasmus Fannemel // Product Designer at Heat Experience.*

#### 4.1.4 Exploration phase

In April 2016 Hong Yang confirmed that they would be able to manufacture the vest at an acceptable price for HE and with a MOQ of 500. The communication escalated after this point and HE communicated only with Hong Yang. For approximately six weeks HE were in dialog with only Hong Yang who replied instantly whenever they had a question. They

quickly got their own contact person which spoke english fluently. They received his telephone number, skype, email, making it as easy as possible for them to reach him any time of the day. They soon realised that email was the best way to communicate because it made it easy to track the communication as well as keeping track of the attachments.

Hong Yang received the first complete product specification in June 2016 to make the first prototype. It took averagely one month from the factory got the final design drawing until HE received a finished prototype. The most important criteria for HE is the quality of the product so even if they seemed to be delivering well on all the other factors this was still an element of uncertainty. From the time HE sent the product specification it took approximately one month before they had the prototype. They were immediately satisfied with the quality of the vest, but decided to hand in the prototype to professional sowers from their network in Norway because they wanted a second opinion as they did not feel confident enough to evaluate this on their own.

However, even though the initial prototype was of great quality there was still corrections needed to be done. They ended up receiving three more prototypes, something HE believes is normal for a product like theirs. In the beginning of 2017 HE received the fourth version of the prototype. From this only small corrections was needed so in February HE sent in the specifications for the final product which will be delivered to Kickstarter backers in August 2017.

Throughout the exploration phase HE explains that they have been negotiation consequently about price and MOQ and has got this down from 500 to 300. The negotiation is a continuous process. This was something they got recommended to do from someone in their network whom had been through the same process.

#### 4.1.5 Overall opinion of the supplier selection process

The first thing HE highlights is how difficult it is to go ahead with a decision regarding suppliers. For a new venture this is quite possibly an all or nothing decision and you can not afford to choose the wrong supplier because this is usually very costly. *“you have little experience with decisions like this which makes you question yourself and the choices you*

*make because you have few things to base your decisions on". Rasmus Fannemel // Product Designer at Heat Experience.*

HE has also been very positively surprised regarding how helpful their supplier has been throughout the whole process. HE does not believe they are used to working with new ventures and products specs which are not made according to regular standards. Not only did they ask a number of great questions along the way, they were in general very helpful during the whole development and prototyping phase. They proposed suggestions and clearly stated what deliverables they needed from HE and at what time.

Even though HE was pleased with the communication they had with their supplier this was also one of the challenges. As a new venture with no experience they did not properly speak "the language" so HE believes this will be easier for the next versions of the product now that they have more experience. Due to their financial position in this phase HE could not afford to send anyone over to China. They believe this would have drastically shortened down the time it took to correct errors and communicate changes to be made to prototypes.

## 4.2 Case 2: Moviemask

The interviewees were Harald Manheim (CTO & Co-founder) and Eirik Wahlstrøm (CEO & Co-founder). They worked close in the supplier selection process and the production itself and decisions have been made between them. Manheim was however responsible for the production and have been a couple more times to China than Wahlstrøm, and was in general more actively involved in the supplier selection.

### 4.2.1 Case specific information

Moviemask produce a cover which turns your smartphone into a cinematic experience. The possibility to watch 2D content is what distinguishes it from VR and makes it available to the masses. They have so far had a successful Kickstarter campaign and the first round of products hit the market in December and are now being sold in Norway. They have now produced 4000 masks and are in process of producing 1000 more pieces, as well as developing a second version with changes based on the feedback from customers, which will make it even better and more widely available. The goal is now to start selling

internationally.

The Moviemask consists of mainly three different parts; the casing, the padding for the face or mask and the lenses. They are now using one producer that also assembles everything in China, except for the lenses. The lenses are now being produced in India. Since this is their secret recipe and IP to the product it was important to separate it from the rest of the product to protect it.

The timeline below present the most important events during the supplier selection process as well as the length of the different phases.

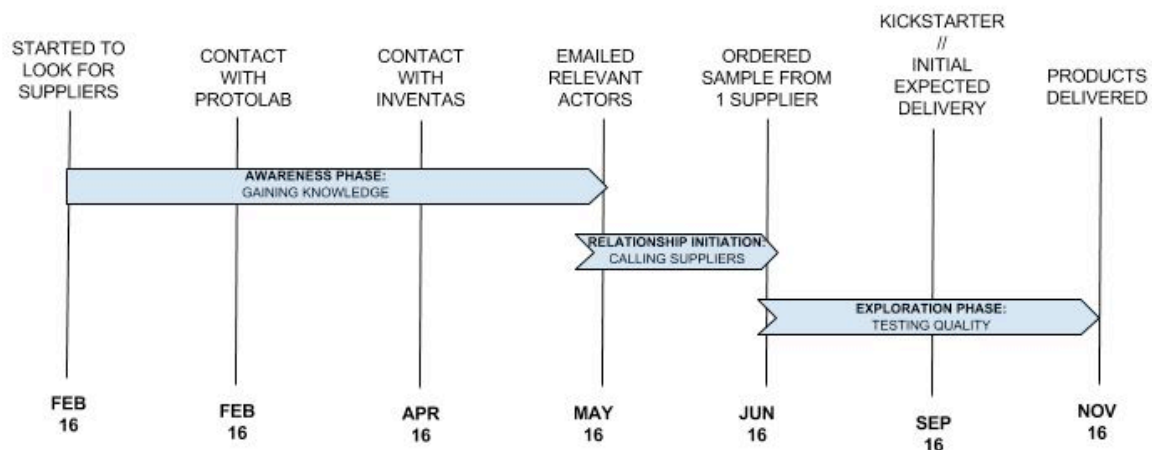


Figure 5: Timeline Moviemask

#### 4.2.2 Awareness phase

The supplier selection process for Moviemask started in February 2016 with only a rough prototype. The time spent in the beginning of this process was used within their network

sparring with other new ventures, industry experts and consultancy firms to figure out whether or not it was possible to actually make what they had conceptualized.

*“Since the lenses of the Moviemask was the “technology” in the Moviemask this was a natural place to start, everything else could be 3D-printed”- (Manheim, Moviemask 2017).*

Manheim explains how the first step was to verify whether or not the types of lenses that they had planned to make for the Moviemask could actually be produced. Through their network and with help from opticians in Norway they got in contact with a French optician. This supplier sent them prototypes and samples. However, they realised in March/April that making the lenses in glass would be too costly and decided to make them in plastic instead. They identified five companies in the world through advanced searches on Google.

Parallel to the search for suppliers of the lenses, they also briefly started to scout for suppliers of the casing and contacted Protolab in February. They brought an easy BOM of the components and planned design with the desire of getting some numbers to confirm that this could actually be produced. These prices became important when speaking with investors, Innovation Norway and potential customers. Manheim explains how they in these meetings with protolab realised that they were not as far in the development as they thought they were, and when looking for a serious business agreement this could not be done at this stage. However, the contact was initiated and they made them aware of all the factors they needed to consider and recommended them to start working on the design for manufacturing. The collaboration ended and the initiation of a relationship with Inventas started. They would help them develop the design for manufacturing. Together with Inventas they learned how they could make this product ready for manufacturing and what they needed to look for in a supplier. They iterated their way through different prototypes at this stage to decide on the product design and up until May this was the focus over finding a supplier, since they needed to know more about the components of the product.

After they had decided on the design of the product, they were again ready to look into suppliers. The process of finding a supplier started with third parties such as Innovation Norway, Connect, as well as other people and new ventures in their network. With these recommendations from others Moviemask started investigating the possibility of using a local Norwegian supplier, as it was supposed to be safer and more timesaving to keep them closer

to their own headquarters. Plasto, a large plastic manufacturer in Norway first said no to their request but after considerable persuasion they agreed to take a look at the case. However, they expressed their concerns for the production of the lenses and gave them a very high price and too long time frame, which were forcing Moviemask to say reject Plasto.

After the defeat from the norwegian plastic manufacturer they again searched their network for tips and leads, when they after speaking to a fellow classmate from their university, originally from China, found that he had a father working with a factory that were producing exactly what they needed. A contact was initiated and for a long time it looked like this was going to be their supplier. Two other norwegian new ventures; Staaker and Remarkable were contacted as they both had producers of IVE cases for their own product, these suppliers were contacted as well without any luck, however both Staaker and Remarkable were still valuable contacts as they helped preparing them for this process and guiding them in asking the right questions to the suppliers.

Parallel to this search through the network they scanned Alibaba for suppliers of products, parts and equipments that was similar to theirs or had similar elements such as ski goggles because of their somewhat similarity in design. The only limitation they set in the search was that it could not be suppliers of VR glasses, as this product was too similar and could increase the risk of being copied. This search resulted in hundred possible suppliers that had some kind of common element that Moviemask saw the potential in. Since no one were making what Moviemask had the concept for, they needed to see the potential in existing products and how the elements could be used in a new way.

To summarize the awareness phase started out with searching through the network and actively using middle-men to learn more about their own product in a production context and the possibilities and challenges ahead. However, none of these lead them to the supplier they ended up with even though they were in touch with multiple candidates.

#### 4.2.3 Relationship initiation

The hundred different suppliers found from Alibaba were reduced to about 50 serious suppliers who all received an email saying something such as, “We love your product, could you make a completely different one with these and these elements”. They also included simple specifications of the product and what they wanted the supplier to do. In this phase of

“Relationship initiation” Moviemask communicated a much higher OQ than they were planning to order to attract suppliers, as they had trouble getting the manufacturers to respond to their requests. Over half of the suppliers did not answer, or had a pre-generated answer that did not really answer their question. This narrowed the pool down to about 10-20 suppliers that they communicated with more thoroughly. They found 10 to be possible manufacturers but soon narrowed it down to five after a more technical approach was taken. This selection was based mainly on communicational aspects such as who answered rapidly, if they wrote good english and seemed to understand the questions that Moviemask asked. The language barriers were many when speaking to Chinese suppliers and the ones that actually payed attention to them and tried to make themselves understood would easily stand out. The suppliers who answered quickly gave a professional impression as well as indicating that they would be capable of delivering the product fast. Getting this type of respect was described as important for Moviemask, as this meant that, even though they were a new venture, they were considered valuable to the supplier.

Apart from experiencing rejection by not receiving answers from some of the suppliers they approached, they also met other challenges they argued to be a result of being small. The best example would be their packaging supplier who cancelled their order five days before delivery, because they got a larger and more profitable order from a different buyer.

#### 4.2.4 Exploration phase

Only one of the five suppliers got to the stage of sending samples of the product back to Moviemask. This was also eventually the supplier that they chose and are using today. Visually inspecting the prototypes was the best way to ensure quality, as the only way to do it before was through the suppliers website where they had listed previous deliverables they had made and pictures of them. It was after the delivery of Danny’s satisfying prototype that they chose him as their supplier, this was mainly with the purpose of becoming the supplier of the casing for the Moviemask. All of the 13 different parts needed to be individually sourced through different manufacturers, however, after continuous communication with Danny, they decided that they would try to have him source and assemble the whole product, with the exception of the lenses. They have now had a lot of iterations back and forth, as well as visiting China six times. They have now been working together for a year and Moviemask is very satisfied with the collaboration. Both sides agree that some of the production now needs to take place elsewhere to maximize the potential of all parties and this will be the next step.



For the lenses they decided on a supplier in India who could make exactly what they wanted. They are very satisfied with this supplier and will keep working with them as well. They also acquired Berkeley Sourcing group as quality controller who quality checked the products before shipping.

#### 4.2.5 Overall opinion of the supplier selection process

Moviemask's total experience of the process was that it was time consuming and challenging, with a lot of unexpected turns and difficulties that they never predicted. Doing it again, they would not have changed anything as it was what lead them to the knowledge they have today, which means a lot more freedom to choose e.g price over availability.

Moviemask was a bit confused of whether or not their journey could be defined as a process. The supplier selection process was not entirely in their control, sometimes it could be just coincidences and luck that affected the outcome. However, they said that speaking with a lot of people and using their network increased the possibility of "luck".

Moviemask describes the process as consisting of two different funnels that one would need to move through on their way towards production; the R&D funnel and the production funnel. They stated the importance of these two overlapping at some point, but emphasized that this should not be too early. They illustrated their thoughts with a drawing of the perfect starting point (*figure 6*).

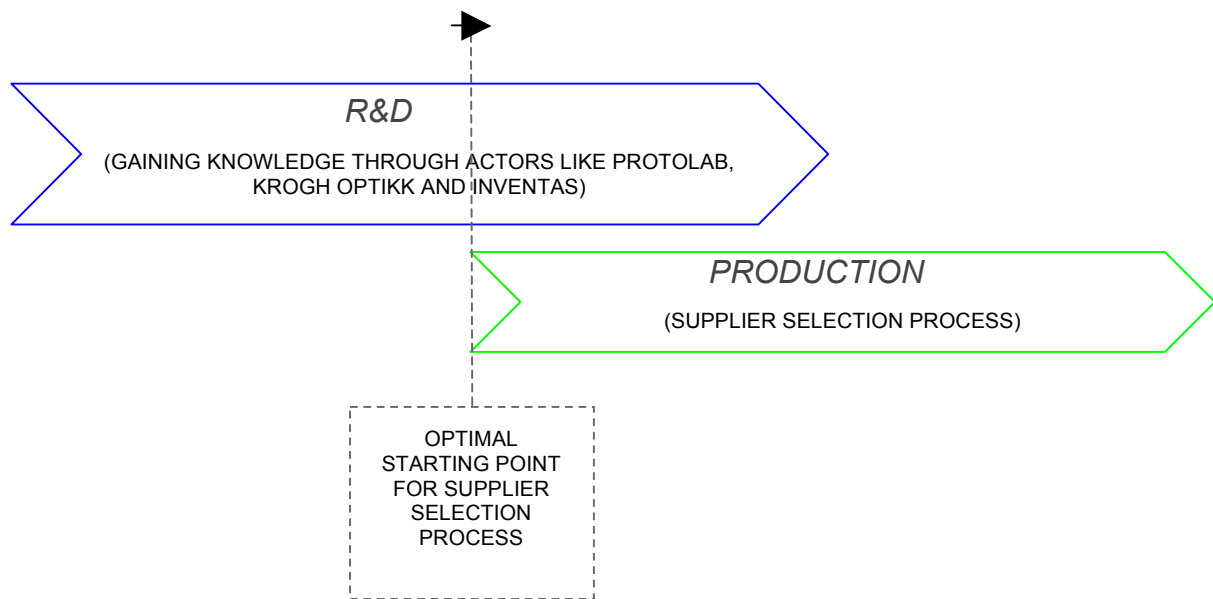


Figure 6: Optimal starting point for the supplier selection process

### 4.3 Case 3: Magination

The interviewee were Tobias Linkjendal who holds a position as CEO. He is the one responsible for everything from product development and foreseeing all the communication with the production partners.

#### 4.1.1 Case specific information

Magination is a new venture selling sets of magnets in different sizes in. It can best be described as a deck of cards consisting of magnets of three sizes. The players can use the magnets to play multiple games and even make their own. A completely shelf ready Magination set consists of six different parts being the magnets, the plastic casing for the magnets, and the bag they come in. In addition the magnets comes in a box including two types of blister packs to keep the magnets in place. The assembly of the pieces is done by the plastic manufacturer, while the remaining assembly is taken care of by the magnet supplier.

Magination was first conceptualized in 2013, however, the process of commercialisation and development where running at a slow pace until january 2015 when Linkjendal recruited someone to take care of the business development part of the project. The company now has 2 employees, Linkjendal, who is in charge of everything concerning product development and Hanna Aanjesen who is head of Marketing and Sales. The communication has gone

through Linkjendal however both have attended physical meetings with production partners to keep Aanjesen updated on production status.

In november 2015 Magination had a successful kickstarter campaign and produced 1500 units in Norway. They decided to change production partner already during this campaign and in March 2016 they made a deal with a chinese production partner to make the next batch of 5000 units which will be in stores by March 2017.

The timeline below present the most important events during the supplier selection process as well as the length of the different phases.

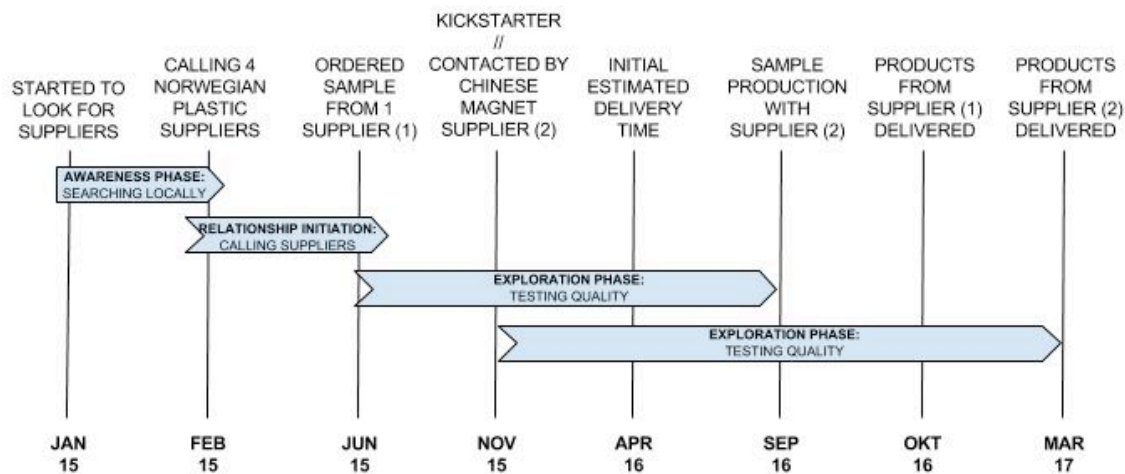


Figure 7: Timeline Magination

#### 4.2.2 Awareness phase

The supplier selection process started already in February 2014, however by Magination it is argued that the actual start was a year later. Initially, Magination searched Alibaba for manufacturers who could produce their plastic parts just to get an idea of the production cost early on. At this stage Magination had 3D models which they sent to one supplier and got a sample in return. He got quite disappointed when these were not satisfactory and broke apart

easily. The manufacturer did exactly what they were told instead of suggesting any improvements. They quickly drew the conclusion that doing the production in China would be too risky considering quality. At this point Magination believed this sample confirmed their prejudice about the lack of quality on goods produced in China, which was a common belief.

Parallel to this Magination identified a magnet manufacturer on Alibaba. To be able to make prototypes they were dependent on magnets. The magnets they received had a 10% size deviation from what they ordered. This is a small error, but could make the parts wear faster. Even though they was not perfectly happy with the magnets, Magination believed the supplier who said there would be improvements on the next batch.

Having a magnet supplier ment that Magination knew ballpark the cost of the magnets, but still did not have a clue what the production price of the plastic components would be. January 2015 is the time Magination defines as the start of their supplier selection process. This was a phase when Magination went from being a hobby project to focusing on commercialization and they went from focusing solely on product development to focusing also on the development of the business. After the unsuccessful attempt at finding a plastic production partner in China Magination decided to search for production partners who were geographically close.

They searched the web for anyone doing plastic production in Norway and identified the four manufacturers whom from description seemed to be able to produce the parts they needed. In addition the suppliers were close to Trondheim, where Magination was based. At the same time another option was considered for production. Through his network he got introduced to a norwegian guy. This person was very familiar with several production partners in China and had great connections there. Magination considered using this guy as a middleman for production in China.

#### 4.2.3 Relationship initiation

Magination began initiating relationships with the four norwegian manufacturers by calling them all, explaining what he wanted them to produce and asking if they were able to and at what cost. He was pretty surprised when only one out of the four were actually interested in producing the parts for Magination. He believes this was a combination of the low order

quantity and the fact that they had no merits to show to expect winning some new venture competitions.

The one company that were interested in producing for them was on the other hand very eager to produce the parts even though they usually manufactured larger plastic parts. The manufacturer had a variety of suggestions for improvements regarding production and even suggested to combine the parts with a new method without glue which Magination thought sounded interesting. After the initial call, an email were sent to describe the product and let them know their thoughts on production processes. During this period Magination asked several people involved in new ventures who had been through the same process for advice to learn more and be prepared for the process. Magination then had two introductory meetings with the manufacturer where they argued that the production would be done more rapidly and to a competitive price considering producing in China.

*“They suggested how we could do things affordable in Norway, simply how doing production in Norway could compete with China.” Tobias Linkjendal //CEO of Magination*

The production partner gave Magination an overall impression that producing the plastic parts would be possible from their end. However, it did not seem like they were used to collaborate with new ventures. The manufacturer seemed like they were used to get fully detailed specifications and that this affected the communication which resulted in a lot of back and forth. At this point Magination also used their network to get advice regarding production. Among others he asked for help from the product developer at Assistep, a new venture making stair solutions for physically impaired. He showed his scepticism for the glueless assembly method that Maginations manufacturer were suggesting.

Magination was during this period still in contact with the potential middleman with contacts in China. He was also suggesting enhancements to the production and proposed a new method for production and assembly with ultrasound. However, Magination valued proximity higher at this time and therefore chose Norway. Not only because of the possibility of overlooking the production from a quality point of view, but also because they were afraid of someone copying the Magination concept if they produced in China. Based on these factors as well as gut feeling Magination decided not to follow this production path any further.

After around 4-5 months of emailing back and forth they decided to go for the norwegian production partner and they started to make injection mold samples. During this whole period of time they were quite certain they would end up with this choice and did not have any second thoughts. Magination then signed one contract for the injection molds stating what they were going to produce, to what price and that the manufacturer had the rights to produce these parts for the next 5 years. Magination tried to include some other criteria to the contract without any luck. They did not feel they were taken seriously by the manufacturer in this negotiation process, because they did not have enough bargaining power due to low volumes.

The plastic manufacturer were not able to do the assembly so Magination needed an assembly partner as well. To have control over this process Magination chose proximity and searched the web for an assembly partner in Norway who could put together the plastic parts from Norway with the magnets from China. Believing then that the assembly would be done by connecting the parts together without glue, this was a fairly easy task. Magination identified Topro in Gjøvik as a potential assembly partner and called them. They quickly confirmed that they would be up for the task. Magination was satisfied with the price which was the most important after proximity and therefore chose Topro as partner.

#### 4.2.4 Exploration phase

When Magination received the first sample from the plastic manufacturer they instantly became worried. The plastic was durable, but it was not possible to assemble it by clicking it together like the manufacturer had proposed. It was also produced in a plastic which is not suitable to be glued together so glue would not be a possible plan B with this version. The manufacturer assured Magination that this was an early sample and many improvements would be done to the injection molds during the development process. However, after receiving the third version of the sample he realised they would not be able to deliver what was promised. They did not really have a choice of whether to stick with this partner or not, because they were strained by the contract and did not have the economy nor the time to file a complain even though they did have a strong case of written confirmations.

Magination realised they would have to find a plan B for the assembly method and contacted Topro who started to locate a supplier of glue. The production was suddenly both more time consuming and expensive than expected. Magination had already started taking orders,

luckily they had large enough margins on the orders to be able to cover the extra costs. They were stuck with this production partner for the kickstarter orders, but realised they would need to change manufacturing partners. In January 2016 the plastic production partner even tried to make Magination pay an extra 400-500% for the parts because the injection molds became more expensive than first assumed. They drove right over to their factory and told the supplier that it was not acceptable, a term the supplier complied.

During the Kickstarter period a second magnet supplier approached them and told Magination he would be able to provide them with cheaper magnets. Since Magination at that point was not 100% satisfied with the magnets from their original supplier they decided to agree on receiving some samples. The new manufacturer made 50, close to perfect, samples which made the decision to change suppliers fairly easy. He supplied the magnets for the Kickstarter order successfully and suggested that they should collaborate more closely about the whole production process. Magination, being in an unsatisfactory partnership with the Norwegian manufacturer was quick to give this option a chance. The magnet manufacturer identified 2 blister pack suppliers, a box supplier and a plastic manufacturer in China. The assembly of the pieces was done by the plastic manufacturer, while the remaining assembly is taken care of by the magnet supplier. They protect their IP by withholding information about the product to the suppliers.

*“To protect our IP we keep information from the suppliers, the plastic manufacturer are not aware of what product he is assembling nor what the product is called.”*

*Tobias Linkjendal //CEO of Magination*

From contacts within his network Magination got the advice to go to China to oversee the production. Magination was told that issues that takes one week to fix if you are at the factory will easily take two months to take care of via email. In September 2016 Linkjendal and his partner went over to China for a week to ensure the quality of the of the production parts were satisfactory, which they were.

#### 4.2.5 Overall opinion of the supplier selection process

Magination wished they had more knowledge when going into production and the lack of this has made an impact on the process in both time and money spent. He believes Chinese manufacturing has an undeservedly poor reputation when it comes to quality. He experienced

the quite opposite where the chinese manufacturer delivered a better quality product for a fraction of the cost. After signing the deal with the norwegian manufacturer he felt stuck in an expensive and slow production process which drained motivation as well as company money.

*“We expected a smart solution which were supposed to be economically justifiable in Norway, instead we ended up with a slow and more expensive production”.*

In addition they felt exploited and cheated by the norwegian manufacturer who did not deliver what they promised. Magination believes norwegians probably have a romanticized belief of how well production in Norway is. In retrospect he admits there were signs he should have detected during the initiation process. When the 3D models were sent back and forth Magination often had to pinpoint small errors the manufacturer made. Maginations most important criteria in the beginning was security against being copied as well as quality over price. He believed both the quality and security were covered if they chose production in Norway so when their proposal was competitive from a cost perspective as well, he believed it was an easy choice.

Magination believes the fact that they were a new venture might have triggered something at this manufacturer and it seemed like they thought it would be a good add on to their reputation and portfolio. In retrospect they were probably not ready to embrace the task. Unfortunately, when inexperienced, a lot of the decisions made is based on gut feeling which is not always rooted in reality.

## 4.4 Case 4: Mickey

The interviewee, wanting the intervju to be anonymous will from now on be referred to as Smith and the companies alias will be Mickey. Smith was the CEO of the company and had been with them since the start. He had a considerable large role in the process of finding a supplier, but his colleague was responsible for it. Smith pulled out of the process when the relationship was initiated, he then rather focused on sales and marketing.

### 4.4.1 Case specific information

The product Mickey were going to produce consists of electronics in two different components that was controlled via wireless and had a bidirectional communications, as well



as the casing of both parts. It was the first time this type of product was produced and it had a high level of innovation. The company was successful for a couple of years and had six employees. They recently had to cut down to two as they did not get large enough sales volumes. The company already expanded to different countries, such as the US and Germany. They have done the whole process of production, selling and now running the company. They tried selling internationally but the demand was limited and they are currently back to two employees. Smith is no longer working there.

Mickey tried setting up a production line in Norway to ensure quality of the products. Mickey is one of two cases from Norway that has done production of electrical parts. This, together with the fact that the electronics needed many more iterations required shipment back and forth between them and the production partner, was also a good reason for wanting to keep the production close. The largest batch of products they produced was 500 units. Since 2010 there had been some functional prototypes, but none with any focus on design. In 2012 they contacted a design company (Alias: Orange) to make sure they had a production ready design. They then used a lot of resources to get a good looking prototype, however clueless towards the effect production methods could have on the design, when changing the number of units from 1 to 1000. When they had the design figured out they contacted different suppliers. According to Smith this is probably something they should have started to do sooner as they then needed to redo the whole prototype due to the lack of design for manufacturing. From this point it was another year of product development before they had a product ready for mass production. Smith said that if he were to do it again, the collaboration with a design- and production partner should happen parallel, so that for every iteration in design, they would also be made a production prototype.

The collaboration with the first production partner was not fulfilling and they decided to change supplier before production, meaning that they were going through two different supplier selection processes. However, both suppliers nr 1 and nr 2 were part of the tour they had around Norway to find suppliers. The supplier selection process was therefore the same, and the first initiation is the focus in this thesis.

The timeline below presents the most important events during the supplier selection process as well as the length of the different phases.

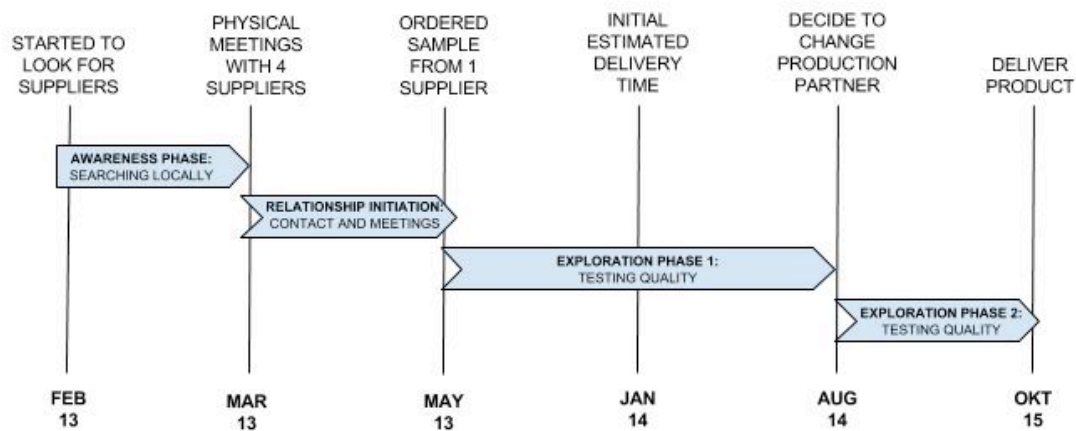


Figure 8: Timeline Mickey

#### 4.4.2 Awareness phase

Since the electronics was the most difficult and crucial part of the product, this is what they started to search for production partners for. They saw too great of a risk in producing in China in terms of quality and since they experienced many iterations already with the product they feared the cost of shipping products between China and Norway would be too high. This was something they would consider doing in version two, when they had more quantum and demand.

*“I’m not saying this is the right thing to do or even if it was the right thing for us to do, but that is the choice we made” - Smith//CEO in Mickey*

Since proximity was important the process started with a search through the internet and asking people in their network. This work started in February 2013 and resulted in finding the largest possible suppliers in the region who met their requirements. They identified four

different electronic production partners in their area and started with setting up longer meetings (sometimes a whole day) with all of them, where they got introduced to the factory and the team behind.

#### 4.4.3 Relationship initiation

They were planning a top-down approach in their search for supplier, where they visited all of the potential suppliers, receiving price estimates from them, and then choosing thereafter. The price was the most important factor in this process together with the chemistry and communication. Mickey soon realized that getting a price at this early stage could be difficult, since they had not made a sufficient BOM and the suppliers were afraid of promising too much.

*“Getting a price estimate was very hard, which meant that choosing the right supplier became a leap of faith” - Smith// CEO of Mickey*

This process of visiting every possible supplier in the region went over a range of three months where they ended up with the closest production partner, mostly because of proximity, but also due to network since they knew the production manager.

#### 4.4.4 Exploration phase

Quickly after initiating a relationship with the production partner Hint in May 2013 for the electronics they soon learned that the design of the product was not ready for production. Smith also realized they could not provide the casing for them. Through Hint they however got introduced to another partner who could produce the casing.

In August 2014, with over a year of receiving prototypes produced by Hint they were not pleased with the result, there were a lot of wrongdoings and they believed the development could be done better elsewhere. In addition the production became too expensive for Mickey. After a year they therefore decided to switch to Klipp (Alias). They were very eager to collaborate with them and had been in contact since they visited them the year before when trying to choose a supplier. This was a hard choice and there were some hard feelings from Hint's side because they had spent so much time working with Mickey.

The case production partner collaboration did not work out either: It was too expensive and Smith felt like they tried to make a custom made solution which locked Mickey to the producer making it harder to change production partners at a later stage. Changing suppliers at this stage resulted in a lot of extra work and the product was not launched on the market until October 2015, over one and a half year after the first expected delivery date.

#### 4.4.5 Overall opinion of the supplier selection process

Mickey believed they should have started much earlier to make a design ready for mass production. This competence would be nice to have had in-house. This also goes for the BOM which the employees at Mickey were not competent enough to make.

Overall Smith felt well treated by the production partners and they were all eager to produce their products. The most challenging and motivational bummer was the design for manufacturing issues which they encountered and this is something Smith strongly feels could have been avoided.

They were surprised about how well they were treated even though they were a new venture. The impression was that it would be harder for a new venture as they would be a much smaller customer and therefore expecting lack of priority from the supplier. Especially since the startup culture in Norway has been little affected by hardware, Smith expected them to be a lot more sceptic than they were when Mickey approached them. He assumed it had to do with the suppliers not having too much experience working with new ventures back in 2013 and therefore less aware of the risk. Now, that more new ventures have failed, he expects them to be more selective.

They spent much time preparing for the meetings as they found it important to be selling the project to the supplier, to seem like an attractive customer, Smith felt confident that they did. They knew they had competition as well as demand in the market, and focused on the newness in the product. This was crucial according to Mickey and resulted in all of the suppliers they met wanting to collaborate with them. Mickey argues that the suppliers saw them as an investment. If they did well, they would require more orders and a long relationship. Collaborating with a new venture at an early stage often leads to lower profit. This is also important for the new venture, since the profit is lower in early stages before the volume is large enough.

## 5.0 Findings and Analysis

This chapter will include the findings in the acquired data from the four different case-studies. The findings are across cases and also analysed in the light of the theoretical framework presented in chapter three. The findings are presented chronologically beginning with the antecedents for the selection process and then categorized in the same phases as the case studies; awareness, relationship initiation and exploration. At the beginning of each phase a table with an overview of the findings from each case is presented. The timeline presented below show the length of each phase

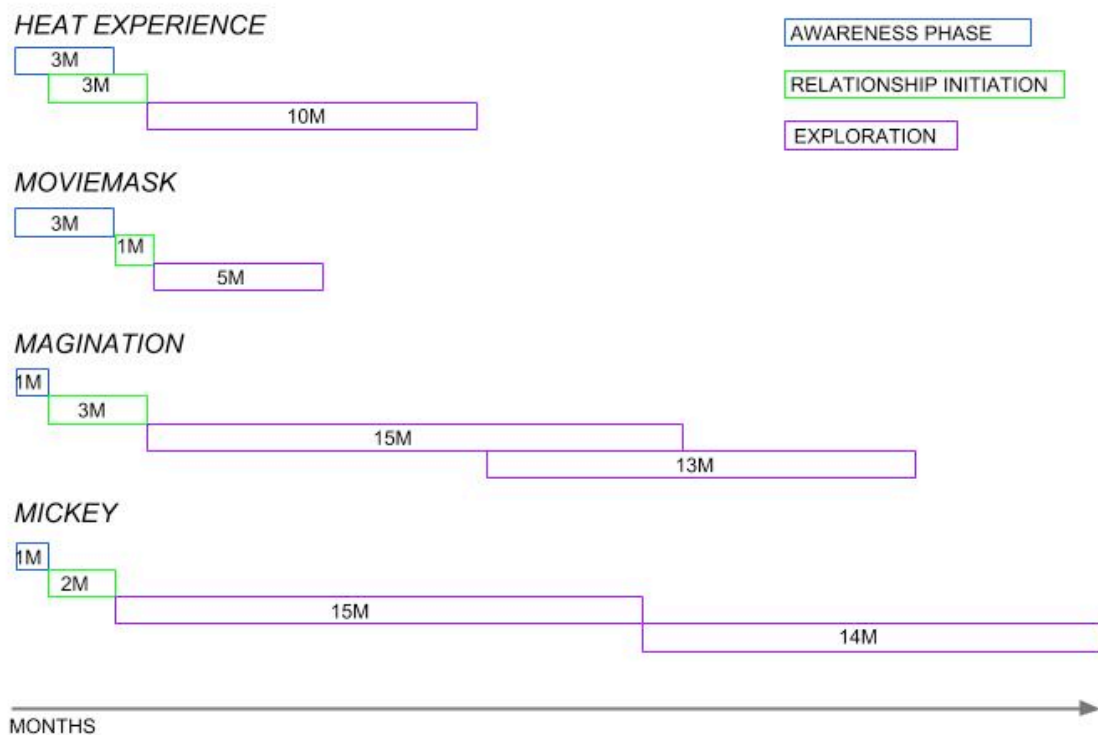


Figure 9: The length of the phases within the four supplier selection processes.

## 5.1 Antecedents to the supplier selection process

During the research of the four different new ventures in this case-study, there has been identified three antecedents that could impact the supplier selection process in both length and complexity in every phase of the process.

- The incentive behind initiating the process of looking for suppliers: What made them start the supplier selection process in the first place?
- Level of innovation in the product: Does anyone produce a similar type of product or do you need to develop it together with the manufacturer?
- Lack of knowledge about the process: Due to being first time entrepreneurs.

### 5.1.1 The incentive behind starting the supplier selection process

The incentive a new venture has to start the process of finding suppliers seems to be incentivised by different means in each of the case company and thereby an individual case by case decision, not something to generalize. The supplier selection process and awareness phase of Moviemask started in February 2016 and the production started in October 2016, only nine months after. They started because they needed to know whether or not it was possible to make the lenses they had conceptualized. In addition, it was important for them to get a price estimate, to see if it could be a profitable business and to attract investors. This could be crucial for the business and thereby something that could end the whole process at the time. When this process started, their internal goal was to deliver the product to the customers in september 2017, but realised in April, still in the awareness phase, that they were running behind. They lacked the understanding of what bringing a product to the market involved.

Heat Experience started production in February 2017, one year and two months after the awareness phase was initiated. At that time they had a good sense of what the product would look like, and it seemed as the right time to initiate contact since it was getting close to production. This also concerned Mickey who initiated the awareness phase two years and eight months before starting production. They believed their product was ready for manufacturing, however, learned quickly that they were far from having a production ready design. However, mainly driven by the desire to get a quote on production cost. Magination started the awareness process in January 2015, which was one year and nine months before they could deliver the product. They were initially driven by external means as they were

being challenged on retail price and getting the product out in the market. Their motivation was keeping the cost down and fast tracking their production.

The incentive to start looking for suitable suppliers might influence what type of knowledge to search for. Moviemask searched to find insight on the plastic suppliers capabilities to produce the lenses that they wanted. This shifted the focus away from the casing which was where they experienced delay in the end. Since the technology was in the lenses, this became their main focus. Accordingly, Mickey did the same with the electronics. They were aware that the electronics would be the more difficult part to produce, and was in the end delayed several years due to lack of design for manufacturing of the casing.

### 5.1.2 Level of innovation

The complexity of the product and level of innovation seems to have a direct effect on the awareness phase and also the whole supplier selection process, in terms of the number of people and companies involved, communication back and forth and the intensity of the process. It is, however, interesting to see how Moviemask still had the least time consuming supplier selection process. Even though they had a complex product consisting of several parts, they still had a less time consuming process than cases with less complexity.

There are, however, counterarguments to this if we compare it with Mickey, who might have had an even more complex product, including electronic components and circuit boards in two different parts that needed a two-way communication. In addition, it is important to note that this is several years before Moviemask, meaning the hardware scene in Norway where not as developed as it is today. It was argued that this could impact both positively and negatively on the supplier selection process, as it back then was still rather uncommon to collaborate with new ventures and the large manufacturers did not know how to handle the collaboration. Today, however, one have seen several hardware startups fail. People increasingly realize the risks and may be a bit more reserved when it comes to working with new ventures.

Heat experience are developing a product with low level of innovation and is more a design case with a goal of becoming the preferred supplier of heated apparel. The product is built up by mainly off-the-shelf components and since a significant part of the product is textile, it is easily prototyped and iterated. This is thus not a very complex product, which should impact

the supplier selection process in a positive way. It is, however, argued that their low OQ and merits complicated the process, which will be discussed later.

Magination was intrigued by the manufacturer's idea of streamlining the production process, which would eliminate the need for adhesive bonding of the casing covering the magnets. A rather simple product without much product development was therefore driven by the ability to make a lean production process.

### 5.1.3 Lack of knowledge

*“If I were to do it again, I would use half the time and resources” - Manheim// CTO  
Moviemask*

The level of knowledge one has about the supplier selection impacts the process. Limited competence on manufacturing processes in the new ventures resulted in multiple iterations. The first thing all the cases focused on was therefore to learn more about what they would need from the suppliers and where to get it. All of the case-studies had a different impression of what it meant to design a product for manufacturing and how to produce it. Those with little or no knowledge about this had a considerable longer process than the others. Moviemask realized in april 2016 that they were running behind schedule of delivering in September 2016. This was due to the initial prototype not being ready for manufacturing. The Moviemask team lacked the experience of what it meant to bring a product through production. At this point they terminated the collaboration with Protolab who were currently preparing them for manufacturing, but initiated a relationship with Inventas instead who were asked to make a manufacturable design.

Accordingly, all cases believed they were closer in time to production than they were. This could be resulting from lack of experience regarding production. In all cases it has been clear that they gained knowledge about the production process during the supplier selection process, and for some it came earlier than others. Mickey learned during the exploration phase with Hint. However, Heat Experiences already had some competence within designing for manufacturing, which resulted in a greater understanding of the product status and approached manufacturers at the “right time”. The lack of experience were more visible at a later stage when trying to communicate what they wanted to potential suppliers.



## 5.2 Findings regarding the awareness phase

The length of this phase varies between the four case-studies, but are never longer than three months. Defining how the awareness phase looks like for new venture is hard, as it involves many case-specific elements such as the level of knowledge about the supplier selection process could impact the length and what type of third party to contact. According to Dwyer et al. (1987) the awareness phase concerns the phase where the buyer seeks information on the suppliers, but no purchase have yet taken place.

The following table presents an overview of the role different factors had across cases during the awareness phase.

	<b>Proximity</b>	<b>Network</b>	<b>Incentive to start the search</b>	<b>Criteria prior to initiation</b>	<b>Timing</b>
<b>Heat Experience</b>	Looked briefly at local options, but valued price highly and there were few local options with the experience needed.	Did not use network actively	Learn more about textile production. Believed they had a production ready design.	Good rating on Alibaba, good english and more than three years experience	Production ready product, but incomplete product specifications
<b>Moviemask</b>	Approached a local supplier to save time on iterations and it felt safer. Got an offer, but the timeframe was too long and the price too high.	Used network to large extent to gain information about best practices from other entrepreneurs	Get price quote for investors and distributors, see if the business could be profitable. Investigate if the lenses was possible to manufacture.	Price and timeframe for production	Believed Moviemask was ready for production, realised that the product was not designed for manufacturing
<b>Magination</b>	Wanted local suppliers due to prejudice about chinese production quality being poor.	Used network to some extent to get an idea of where to start and what to ask	Get price quote to evaluate business profitability. Get product to market quickly	Quality, price, proximity	Product ready for manufacturing
<b>Mickey</b>	Wanted a local supplier due to quality and because of many expected iteration. Afraid of the time and cost of shipping versions back and forth.	Used network to some extent to get an idea of where to start and what to ask.	Believed they had a production ready design. Wanted to investigate if the electronics were manufacturable	Quality, price, proximity	Believed the product was ready for production, realised that it was not designed for manufacturing

*Table 4: Overview of the most important factors affecting the awareness phase*

The impression of the awareness phase in a supplier selection process for new ventures was that it was used to get an overview of the suppliers, what they could produce and getting help in finding them. However, another very important aspect in this phase became clear; knowledge building. In all cases there were first time entrepreneurs who had not yet been through the process of selecting a supplier, meaning that learning how to select, what language to use, what to communicate and what not to talk about were important.

The awareness phase and initiating period of finding suppliers and building the know-how, affects the whole supplier selection process. What happens in this phase is crucial for the rest of the supplier selection and the final buyer-supplier relationship. Limited amount of options in this phase seems to result in a poor process and also in two of the cases a poor supply chain.

### 5.2.1 Knowledge building through network

Knowledge building was a crucial part of all cases awareness phase, and as identified the level of knowledge you have from before, impacts the supplier selection process. Since all cases represent first time entrepreneurs, building this knowledge was crucial in the early stages of the supplier selection process. To do so, all cases were using their network to gather information.

*“In the beginning, it was important to just learn the game. This was solely done through third parties” - CEO in Moviemask*

The entrepreneurs network was found important in opportunity recognition. Because of the small size of the new venture they are depending in a much larger degree on external resources. Asking people in the network and other new ventures that has gone through the same process reduces the chance of going in the same pitfalls as other entrepreneurs have done before. The relationships of the entrepreneur is not only argued to be helpful in accessing knowledge, but also to get introduced to potential suppliers.

Some of the knowledge needed, can only come through the conversations with the suppliers. For some new ventures the degree of involvement from the supplier is very important, as this could contribute with competence during the development of the product and make it ready

for manufacturing. This knowledge arises during this awareness phase from different sources; network, conversations with suppliers. A lot of different contact points are initiated and that is what makes this phase hard to distinguish from the relationship initiation. For many new ventures this process would mean going back and forth between the two phases until they found a selection of suppliers that were interested in producing the product, as well as being an interesting partner for the new venture. This sometimes result in the phases becoming more overlapping (this is illustrated in figure 9 above).

### 5.2.2 The importance of proximity

All of the four new ventures started to search for local options first. The perceived level of uncertainty in a supplier selection process is high and collaborating with a foreign manufacturer is associated with a higher level of uncertainty. Moviemask who saw their asset and IP to be in the lenses in the product wanted to keep this local in order to prevent the risk of being copied, as well as keeping the factory close to enable easier communication. There was prejudice among the cases that communication with chinese suppliers is difficult and going for a Norwegian, or even European option seems safer in the beginning. Moviemask however could not find a suitable local partner, which forced them to look at other options abroad. The search for global partners or suppliers involves new complexities and challenges. When it comes to local partners the ventures were able to call or meet with the suppliers in person which felt safer and seems like a easier way and more personal way of communicating, than trying to get an idea of a supplier through emails with poor english. Heat Experience considered producing locally, but due to a niche product they did not have many local options as most of the manufacturers making heated apparel are located in China.

There is generally more scepticism among the new ventures regarding going into collaborations abroad. The level of uncertainty and lack of knowledge seems to have impacted the process, as the cases that were producing in China used three months and the cases that produced in Norway used only one month. These cases also had a similarity of complexity that forced them to look for producers in China, but both looked into producing locally first. However, none of them found suitable options. The most experienced manufacturers within heated apparel was in China, this together with a lower price made it an easy choice for Heat Experience. Moviemask investigated the local options, but did not get any satisfying offers from the suppliers. They were either too expensive or too slow, or both.

Moviemask were reluctant towards contacting manufacturers of VR-glasses due to the risk of being copied. Therefore they searched for products with similar features as Moviemask. This included skiing goggles as it had somewhat the same shape as well as an adjustable strap. Still they had to approach a manufacturer and ask them to make a product unlike anything they were already making, which proposed a challenge.

### 5.3 Findings regarding the relationship initiation

The relationship initiation phase takes place when the new ventures first make the effort to reach out to potential suppliers, either this is through email like Moviemask and Heat Experience or by calling like Mickey and Magination. For all cases this phase lasted one month except for Heat Experience where it lasted three months. However, it is important to notice that this is not necessarily a continuous process, they might be going in and out of the relationship initiation, back to the awareness phase and in again (this is illustrated in figure 9). When the new venture continues the communication with only one supplier they move into the exploration phase.

The following table presents an overview of the role different factors had across cases during the relationship initiation.

	No. of initiated contacts	Continued contact	Initiating contact	Network	Criteria	Biggest challenge
<b>Heat Experience</b>	10	3	E-mail	Limited use of network	Low MOQ, good english, professional attitude, quick reply, asked follow up questions	Knowing what to base their decision on, being confident with their choice
<b>Moviemask</b>	50	5	Norway: Phone, Face-to-face China: E-mail	Use of network to get inputs on how to decide on partner and how to communicate	Good english, professional attitude, quick reply, asked follow up questions and understood Moviemasks questions	The product design was not ready for manufacturing
<b>Magination</b>	4	1	Norway: Phone, Face-to-face China: E-mail	Used network to be more prepared during the process of communicating with the suppliers	Communication, price, degree of involvement	Only one interested supplier making it difficult to evaluate when only having one option.
<b>Mickey</b>	5	5	Phone, face-to-face	Limited use of network	Price, communication, chemistry with supplier, proximity	The product design was not ready for manufacturing

*Table 5: Overview of the most important factors affecting the relationship initiation*

### 5.3.1 Lack of interest

Heat Experience searched Alibaba to acquire information about the material and criteria from the supplier. During this process many suppliers were dismissed because they required a too high MOQ. Later on Heat Experience learned from their network that the supplier requirements are usually up for negotiation. This knowledge led them to negotiate MOQ later in the exploration phase with the supplier they chose. Moviemask on the other hand had another approach where the order quantity they initially requested were higher than they were planning to order because they were certain they would be able to negotiate these terms later on. However, both cases admit they experienced disappointment as a result of the response they got from the suppliers. Most of the supplier they approached were not interested in investing time in the new ventures. The lack of interest were evident when the suppliers spent weeks or months replying if they replied at all. This reduced the amount of suppliers the new ventures were able to choose from. For Heat Experience this came as quite a surprise. Fannemel having previously worked in a larger firm the difference in how the suppliers

treated new ventures as opposed to a larger corporation were obvious. The suppliers commit to a certain amount of time, money and human resources to be able to set up manufacturing of a new product. A low order quantity therefore proposes a risk for them. The real profit only comes if the business of the new ventures scale and they continue to use them as supplier with a higher order quantity in the future.

Magination also experienced the lack of interest. Among the five norwegian suppliers they approached only one were interested in the production of their plastic parts. On the other hand the one they chose seemed very engaged. Magination got the impression that the supplier were excited about the idea of taking part of something entrepreneurial and contribute to innovation which can be a motivation in itself. The only one who did not experience the challenge with absence of interest was Mickey. All the four suppliers they called agreed to a meeting instantly and were all interested in manufacturing their product. The situation might have been different for Mickey because this was two years prior to any of the other cases. Mickey highlights that the entrepreneurial boom in Norway had not yet happened and the suppliers were not too familiar with new ventures and did not seem to consider the possibilities and risks associated to failure.

### 5.3.2 Important criteria for new ventures when selecting a supplier

The majority of the supplier evaluation happened during the relationship initiation phase because contact is established between supplier and the new venture. While the literature review suggests that larger companies usually based supplier selection primarily on quantifiable criteria using mathematical models to evaluate, the process for new ventures is more qualitative.

#### Response time

Magination, Moviemask and Heat Experience were, during this phase, concerned with the amount of time that passed from the venture initiated contact until the supplier replied, as well as the quality and professionalism of the response. Time is of the essence for the new ventures and entering the market as early as possible can be crucial at this stage. The response time after the first initiation and also the time of response to follow up questions was an important criteria because it reflected the interest in which the suppliers had of the contract, as well as how fast they were working.

## Communication skills

For Heat Experience and Moviemask whom contacted chinese manufacturers it was relevant that the quality of the language was satisfactory, meaning their english was good and that the response did not seem automatically generated. To gain trust from the new ventures it was essential that the supplier had a great understanding of the product, asked questions about product specifications and proposed suggestions for improvements. With a lack of experience in making product specifications and taking a product from design to manufacturing the new ventures were dependent on having a supplier who were involved in developing the product for manufacturing. A supplier who would help them with challenges regarding this was highly valued, since a large number of iterations is usually needed due to the limited competence on manufacturing processes in new ventures.

## Supplier flexibility

Few suppliers are very general in what they are producing. Finding the right production partner for your product might therefore be difficult. New ventures simply often does not know what kind of supplier they need to be looking for and in products with high level of innovation the complexity of the product might require conversations with suppliers to understand how it can be produced. Willingness to be a sparring partner more than a pure contractor was one of the most important criteria in this phase. The new ventures were interested in involvement from the suppliers side in order to optimize the production. This is a risky situation to be in because the new ventures might not have the knowledge to evaluate the supplier's suggestions. Magination experienced this with their initial supplier. Their supplier proposing suggestions and improvements for the production gave them confidence about the supplier and increased the sense of trustworthiness at the time. When they later on in the exploration phase discovered that the supplier could not deliver what they promised a significant amount of time and money had already been invested.

Mickey on the other hand strongly believes that including the suppliers in the process of design for manufacturing, especially if the venture lack the experience themselves, could be both time- and capital saving if included from the very beginning. However, this also introduce a paradox because suppliers don't usually want to initiate any relationship before something the ventures have their product specifications ready.

## Price

Price was an important factor for the new ventures, however the price criteria also introduces a paradox. Both Moviemask and Mickey were dependent of a price estimate to be able to make further business decisions. The new ventures are dependent on knowing the production cost for a number of reasons. The production cost is inevitable important information when meeting with investors, distributors and other partners. Production cost also proposes the crucial question of whether it is possible to make a profitable business out of the product. Larger companies usually has specialists who are able to calculate the cost quite accurately before going into production. The longer this knowledge stays unknown to the new venture, the more work can be put down in a product with no potential for commercialization. However, the new ventures often introduce concepts and specifications to suppliers that are not accurate enough for the supplier to be able to provide a price estimate. For Moviemask and Mickey this was the issue. The suppliers are not interested in providing a quote when there exist such a high level of uncertainty while the new ventures are not able to collaborate with a supplier before knowing the price.

## How to make a decision?

In this relationship initiation phase the decision of who to further collaborate with have to be is highly affected of uncertainty and personal interference. With a lack of experience in evaluating suppliers this can be a challenging phase because the new venture has little to base their decision on. Part of this decision is therefore based on the new ventures gut feeling. Moviemask, Magination and Mickey used their network in this phase as an attempt to understand the best practice for supplier selection. However, while their network guide them in the right direction, every supplier selection process looks different meaning that no advice applied perfectly to every situation.

## 5.4 Findings regarding the exploration phase

The exploration phase is defined as to when supplier and manufacturer negotiate the terms of supply, samples etc. and the first purchases start to take place Dwyer et al. (1987). Initially defined as ‘from the time the new ventures begin to communicate with one sole supplier until they decide to go into collaboration with that supplier’. The goal of this phase is to get more familiar with the manufacturer, go further into the specifications of the product and develop



samples. Moviemask and Heat Experience used one to three months before approving the quality and continuing exploring with that chosen supplier, while for Mickey it took one year and four months and with a different supplier than the one they started with. However, defining the length of this phase was more complex than first assumed. From the ventures had started to collaborate with the suppliers who made the prototypes it took Magination and HE around ten months before the production of the first batch began. During this period one can argue that they were still in an exploration phase where terms were being negotiated and they were purchasing prototypes. However, the further they went into this exploration phase the more time and money the new ventures invested in collaborating with the suppliers and the threshold to change got higher.

The following table presents an overview of the role different factors had across cases during the relationship initiation.

	<b>Network</b>	<b>Supplier satisfactory</b>	<b>Criteria important in this phase</b>	<b>Exploration partners</b>	<b>Length of phase</b>	<b>Biggest challenge</b>
<b>Heat Experience</b>	Use of network to check the quality of samples.	Large degree of supplier involvement through recommendations and clear demands for deliverables	Quality, time	1	10 months	Lack of experience in making product specifications and with manufacturing terminology making the communication difficult
<b>Moviemask</b>	Used network continuously whenever a new challenge appeared.	High satisfaction, the supplier was continuously trying to improve the relationship	Quality, time	1	5 Months	Lack of experience in making product specifications and with manufacturing making the communication difficult.
<b>Magination</b>	Used network for advice and best practice on collaboration with suppliers	Great chemistry and large sense of trust at first, but the deliverable was not satisfactory.	Quality, time	1	15+13 Months	Hard to dismiss the supplier who performed unsatisfactory due to time and money already invested in the relationship
<b>Mickey</b>	Got introduced to Hint through network who worked there, making it even more difficult to dismiss them	Supplier was very eager to work with Mickey and they had a good chemistry at first, but did not deliver prototypes at their expectations	Time, price	2	15+14 Months	Hard to dismiss the supplier who performed unsatisfactory due to time and money already invested in the relationship

*Table 6: Overview of the most important factors affecting the exploration phase*

### 5.4.1 Quality difficult to evaluate prior to the exploration phase

In all of the cases, except Mickey, the new venture went into production with the supplier they went into the exploration phase with. While quality has been identified as one of the most important criteria for large companies also the new ventures highlighted this through the case-studies. While larger companies might have other sources of revenue to fall back on, new ventures might only have one shot at success and can not afford to bring a product without satisfactory quality to the market. However, there are limited ways of evaluating this factor in the earlier phases of the supplier selection process. After initiating a relationship with a smaller group of suppliers the common next step in larger organisations is to request samples from multiple suppliers in order to compare the quality and performance.

Magination, Heat Experience and Moviemask would all have preferred to receive samples from multiple suppliers prior to deciding, however, because of limited funding none of the new ventures had this opportunity. Not being able to evaluate the product quality they were therefore forced to make a decision to which supplier to continue to collaborate with based on other criteria like communication, perceived trust and price. All the cases explain that from the point they had ordered the first prototype they experienced a sense of commitment to that supplier because they had invested a certain amount of time and money. Over time this made it gradually harder to dismiss this supplier. They all had in mind that dismissing the supplier at a later stage would result in an economic loss as well as set them back in time. From the first prototype was received until the first batch of product was ordered there exists a phase where the supplier and the new venture get gradually more involved and the closer you get to production the greater the reason for changing supplier needs to be.

A common way of operating with Chinese production is to have a middleman who takes care of sourcing different parts as well as the assembly. Even though none of the cases actively searched for a middleman, both Magination and Moviemask ended up with one of their suppliers as their middleman. For both of them this was a process happening over time. Magination started with a magnet supplier and Moviemask with a supplier for the casing. Over a timespan of some months the suppliers got increasingly involved by sourcing other parts for the products and also take care of the assembly. The supplier could then be categorized as being within the entrepreneurs network. Relationships like these can be helpful to gain access to other business relationships. In both of the cases this process turned out well, however, it would have been increasingly difficult to dismiss the initial supplier after

they entered into a role as a middleman resulting in a lock in effect. After the third prototype iteration and six months Magination realised that they had chosen a supplier who could not provide the product they wanted, however they had signed a contract with the supplier which would make it too costly to replace the supplier at this stage. Due to this they chose to use the original supplier for the first batch. Mickey on the other hand, did multiple iterations on the prototype with Hint over a period of 15 months before the results were so unsatisfactory that they chose to let another production partner be in charge of the production.

Naturally, the first prototypes a supplier provides will not be perfect making it is easy for a supplier to assure the new ventures that these will be improved during the next iterations. With lack of experience evaluating suppliers the new ventures often do not have a choice, but to trust that the supplier will deliver what they promise. Magination experienced this and were skeptical about the first injection mold sample, but when assured that this would not be a problem they had little reason to believe otherwise. When their magnet supplier later on delivered magnets of the wrong size they had learned from their mistakes. Even though he promised to correct the error, Magination chose to receive samples from another supplier who then delivered perfectly on the first try.

#### 5.4.2 Poor communication increase the length of the exploration phase

After the new ventures started to communicate with one sole supplier there were respectively one to three months of communicating back and forth with the supplier in question regarding product specifications. All the cases admit that the lack of experience regarding production terminology and in making product specifications contributed to challenges with communication between the two parts. The difficulties with communication most likely made this process longer than necessary. Both Magination and Heat Experience needed more than three iterations before their product was ready for manufacturing. They both experienced difficulties in communicating how they wanted to proceed with iterations on the prototypes. Since this was the case both for Heat Experience, who were producing in China, and Magination, who had a Norwegian supplier, there is reason to believe the terminology and lack of experience proposed the issue, not actual language barriers. Larger companies usually have employees dedicated to, and experienced within, communication with suppliers and often they either have their own factory or a representative at the factory they produce at. Magination and Moviemask travelled to China to overlook the production and realised to

which extent this could minimize misunderstandings during the iteration process. Moviemask came to the conclusion that what they could accomplish during one week with the supplier would have taken more than a month if done via email. Heat Experience were of the same opinion which is why they traveled down during the production of their first batch. This is, in addition, something the three of them got recommended to do via their network. However, with limited funding this is something new ventures most likely are not able to afford, at least not to the extent they would wish.

## 6.0 Discussion

This chapter discusses the process the case companies have gone through while selecting their suppliers. In accordance with the research questions, it discusses (RQ:1) how the risks and uncertainty related to collaborating with new ventures affect the process of initiating a buyer-supplier relationship, (RQ:2) what the most important factors for new ventures in the supplier selection process is and how they impact the process, and lastly trying to understand (RQ:3) how the supplier selection process is conducted in new ventures. A systematic analysis is conducted by studying the supplier selection process of four Norwegian new ventures and further compare these findings with relevant literature. A new model of supplier selection process for new ventures is thereafter presented last in this chapter, based on the findings of this research (figure 10).

### 6.1 Answers to research questions

In the following sub chapters, the three RQs are answered based on the initial findings previously presented.

#### 6.1.1 How does the risk and uncertainty of new ventures affect the process of initiating buyer-supplier relationships?

The existing literature suggested that even before the supplier selection process has started, new ventures might have a disadvantage in becoming attractive enough to be prioritized by the supplier (Mortensen 2012). The attractiveness of the company has been argued to be important in all of the phases of the supplier selection process, but there is some form of attraction even before there is any form of interaction. New ventures have some basic elements that represents the foundation of the venture and thereby its attractiveness (Dwyer et al. 1987; Mortensen 2012). In the four cases, there are several prejudices of “new venture characteristics” that would be seen as less attractive for a supplier in a supplier selection process. Collaborating with new ventures is considered risky, making it comprehensible that suppliers are reluctant to expose themselves for this uncertainty (Hormiga et al. 2011). New ventures might be more risky due to lack of legitimacy, limited internal resources and external relations (Das and He 2006). This phenomenon is most visible in the initiation of the relationship phase of the supplier selection process, where contact with the identified potential suppliers is made. Using Moviemask’s case they went from 50 potential suppliers to

three in only two weeks. This was mainly due to the fact that only 25 actually answered and 15 of those were automated emails not answering their questions or showing interest in the company nor product. The hypothesis is that this is the earliest type of rejection from the supplier. According to Håkansson (1995) high levels of uncertainty and risk during the initiation of relationships is known as an important inhibitor for the development of a healthy buyer-supplier relationship. The possible relationship has then been considered based on potential benefits, costs and obligations just during this initiation phase. This is based on early interaction between the buyer and supplier, which again argues the importance of being attractive enough for suppliers even before any interaction is made (Dwyer et al. 1987; Mortensen et al. 2003). This attractiveness is what makes the parties aware of each other (Dwyer et al. 1987; Mortensen et al. 2003).

Using the Moviemask case further to illustrate the above, they also exaggerated on their OQ to seem more attractive to suppliers. This did not cause problems and was successfully negotiated at a later stage in the process. Heat experience with a very low OQ of 500 units were experiencing difficulties in finding someone who wanted to produce such low quantity. They still successfully reduced them down to 300 in the actual production, meaning that in order to become attractive to the suppliers it seems smart to request a higher OQ to initially gain interest. Many suppliers find it less interesting to collaborate with new ventures mainly based on the fact that they are not attractive enough regarding profit. This argues that the reasons suppliers won't collaborate with new ventures is because the order is small, and not based on the perceived risk involved in collaborating with new ventures as first assumed. The question is if these are unanimous. The fact that suppliers are focused on profit imposes a risk for the new venture, such as when Moviemasks supplier suddenly discarded their deal two days prior to delivery because a larger order came through. This power imbalance is discussed in the literature and argued by Bastl et al. (2013) to be one of the reasons suppliers behave opportunistic. Even though these events are separated from the actual supplier selection process, these are important to understand the foundation new ventures have in negotiating with suppliers. The existing literature on buyer-supplier relationships mainly focus on the impact of a power imbalance where the buyer is the large and powerful part and how this could impact the level of innovation and potential opportunities (Roloff et al. 2015). However, with new ventures they are usually the part with the least power.

### Antecedents that impacts the process

Based on the case study this thesis has examined, the findings may indicate that the antecedents to a supplier selection impacts the supplier selection process itself. Thus more than just “being new” as Zhang and Li (2010) says, or being a smaller and offering a less lucrative deal. According to Das and He (2006) there are proven differences in the level of bargaining power, learning ability and organizational compatibility for a new venture, compared to more established firms.

The lack of history and being new, was identified in the literature as a potential challenge for new ventures in a supplier selection process (Das and He 2006; Stinchcombe 1965). However, a larger issue for new ventures in the awareness phase would be identified at a much earlier stage. The fact that these are new inventions could influence the number of supplier available for the new ventures to choose from, as there are not many suppliers having the necessary equipment or stock available to produce any type of product. This results in an even smaller pool of suppliers before the relationship initiation have even started. Thereafter comes the MOQ, the security and the lack of resources reducing the selection again, as mentioned in the section above. This is however a hypothesis on the outcome, as the most normal result after an attempt to start a relationship initiation with the supplier, is lack of interest. This limits the selection available to new ventures even before the exploration phase, where they can start testing quality. This, together with lack of resources results in the new venture usually only testing the product with one potential supplier. This accounts for all of the cases in this case study. Two of them however, needed to change supplier at a later stage in the process, because they were not satisfied.

### Limited funding reduces the pool of suppliers

It is hard for new ventures to obtain outside capital, which means that they at the early stages usually have limited funding (Fast 1981; Song et al. 2011), and a general lack of tangible resources (Zhao and Aram 1995). Having limited funding means that it is crucial for new ventures to choose the right production partner the first time (Srivastav 2016). Song et al. (2011) confirms that buyer-supplier relationship is the most important success factor for new ventures. The two cases Magination and Mickey are both examples of this, who after a long exploration phase realized that the supplier they were working with were not serving them in the best way possible. Relevant to this study is also how this is the two cases who wanted to

produce locally to minimize the risk of delays, bad communication and the expected poor quality they associated with Chinese production partners. Because these initiated relationships failed, they spent much longer time to get to market, which could be very damaging to the product and brand as well as a capital drainage. This is because one of the new venture's preferred characteristics is the short chain of command and great deal of autonomy, which enables them to move fast (Cooper 1981; Zaramba et al. 2016). This is what can make them challengers in competition with those larger established firms (Das and He 2006). In comparison to larger companies who have the opportunity to bring several potential suppliers into exploration phase due to frequent access to more capital (Song et al. 2011), none of the cases brought more than one to iterate back and forth with different prototypes. Heat experience expressed that if they had the resources they would want to test the quality with more than one supplier.

### 6.1.2 What are the most important factors for new ventures in the supplier selection process?

The literature presents several quantitative methods for companies searching for new suppliers (Weber et al. 1991). These are tools for companies to use to obtain a supplier with the best possible price for their expected quality, within a timeline they prefer, in addition to several other criteria (Ghodsypour et al. 1998). These quantitative methods are used to balance the multiple criteria an established firm has to its supplier (Ibid). In the modern research however, qualitative methods are also included (Kar and Pani 2014). This study suggests that the supplier selection process is much more qualitative and dynamic for new ventures. Because of the high level of uncertainty, the supplier selection process is different than what it is in larger companies where they have a list of criteria to strategically measure. For a new venture, hygiene factors, such as communication, proximity and even gut feeling plays an important role. The different phases of the process contain different criteria. There is a greater need for interaction between the parties when a new venture is involved, due to the lack of competence about the manufacturing process (Park and Krishnan 2001).

Within the literature on supplier selection processes for established firms, a classic research area is the evaluation criteria of which there can be found a large variety (Kar and Pani 2014). The criterion discussed in the different cases as important, are usually quality, price, communication skills and timing. These criteria are similar to the ones in the established



firms list (Ho et al. 2010), however the list goes on and Dickson (1996) identified 23 of the most important ones shown in table 1. These include criteria such as warranties, repair service and procedural compliance. None of these were even mentioned in the interviews of the different cases in this research. Quality is identified as one of the most important criteria in a new venture's supplier selection process, in relation to the perceived "one opportunity in the market"-mentality that many new ventures face. They have only one shot to prove themselves, and this is taken seriously by the new venture. However, even though quality seems to be the most important criteria, it can not be measured before the exploration phase. This imposes great risk to the process, as identified above, a great deal of capital is necessary to bring more than one supplier into the exploration phase and iterate back and forth with prototypes. It is however common to have asymmetric information in the beginning, which according to Williamson (1979) can lead to opportunistic behaviour much like what happened with Magination. One could say that their first supplier exploited the situation by promising deliverables they could not comply and Magination believing the results would improve due to lack of experience.

There are different criteria in the different phases of the supplier selection process and before focusing on quality there are other means of evaluation. The different criteria used by new ventures become most visible in the relationship phase when the contact is initiated. At this stage, the new ventures are measuring the suppliers based on their ability to communicate and if they seem to understand what they are requesting. This, in addition to important measurements such as response time, is an indication on how dedicated they could be to the project, but also how fast they would be working. This intangibility of the supplier selection process complicates the decision making process, as the evaluation criteria that the decision is based on is qualitative. This makes it hard for new ventures to obtain information about and evaluate the value of the offer from the suppliers (Valtakoski 2015). Changing the supplier in the exploration phase would be very damaging considering capital and time for the new venture. Mickey is a good example of this as their case took a couple of years longer, because they dedicated a year to the wrong production partner. These are areas where the new ventures feel insecure and use their network for guidance, as much of the decision is based on human factors such as perceived level of trustworthiness (Bunduchi 2013; Valtakoski 2015).

### 6.1.3 How are the supplier selection process conducted in new ventures?

To obtain an effective supplier selection process is important in today's highly competitive environment (Sevcli et al. 2007). During the literature review, the lack of research on supplier selection processes for new ventures was identified, even though the topic "supplier selection process" has been discussed (Dickson 1996). It has been established that there are major differences between a supplier selection for large firms and new ventures (Zaremba et al. 2016), but how the actual supplier selection process looked like for new ventures was until now not very broadly discussed. According to the existing literature, the supplier selection process was a linear one through different phases (Dwyer et al. 1987). This framework was used in this study for the further investigation, but in this study another phase was added inside the awareness phase with the goal of highlighting when the actual relationship initiation started. The supplier selection processes that was investigated through the four cases behind this study, were all very different in length. The process, however still holds commonalities especially when looking at every phase separately.

The awareness phase were in all cases between one to three months. The two cases Magination and Mickey, who used one month, found their production partner locally unlike Heat Experience and Moviemask who chose Chinese suppliers. That the length of the phases differ therefore seems reasonable as the pool of suppliers in China are a great deal larger than in Norway and the elimination process would naturally be longer. It is also harder to orient in a country that is not your own (Chan et al. 2008). In the exploration phase the major differences between each case is the most visible, as this phase is impacted by the uniqueness of the different cases and their processes. This suggests that finding an unanimous supplier selection process for new ventures might be difficult, as the cases involves a great deal of personality, suitability, different product innovations and thereby differences. A supplier collaborating with a new venture would therefore probably never know what to expect, this supplier perspective however lacks research but could be interesting topic to investigate further.

### 6.1 4 Not a linear supplier selection process

Based on findings from the case-study there has evolved another impression of the supplier selection process for new ventures than what was first assumed through the theoretical

framework behind this research. Other influencing factors such as the background of the new ventures has been seen to impact the supplier selection for new ventures and it is not as straightforward as first assumed.

All of the four cases behind this research implies that the process is more iterative, as they are moving back and forth through the different phases. Moviemask for instance started in the awareness phase when looking for a supplier in Norway, contact with different suppliers were initiated and they had moved through relationship initiation towards exploration with one supplier called Plasto, before they got an offer that they thought were too expensive and time consuming. Then the awareness phase was initiated for the second time when they started searching for production partners in China.

Even though the new ventures move up and down through the different phases of the supplier selection and every case seems different, the different phases stays the same. The length of the phases is often dependent on the level of knowledge the new venture had prior to the process. Lack of knowledge could lead to a longer process in e.g. designing a product for manufacturing or resulting in more time spent on multiple iterations.

### The network's role in the process

The network's role in the supplier selection process was more limited than originally expected. The literature review behind this master thesis suggested that new ventures became aware of and introduced to the potential suppliers by their network. However, based on the findings from the four different case-studies, the network seems as more of a tool and contributor to knowledge about the process, than being the one who introduces the venture to different suppliers. The network influence the process more than having a direct impact on it. It seems important to reach out to the network and other third parties to obtain the necessary knowledge to bring the product further.

The chronologic model suggested in the theoretical framework of this research should therefore be replaced with a more iterative model that allows for the new venture to move up and down through phases. This is different than what the literature suggest that the supplier selection looks like for larger firms, as that process is more straight forward from A to B, with the help of quantitative methods for selection. The supplier selection for new ventures

are a bit more chaotic and is often a qualitative process with many possible turns and differences in length, complexity and people involved. The network is also more involved throughout the process instead of only in the beginning as first assumed.

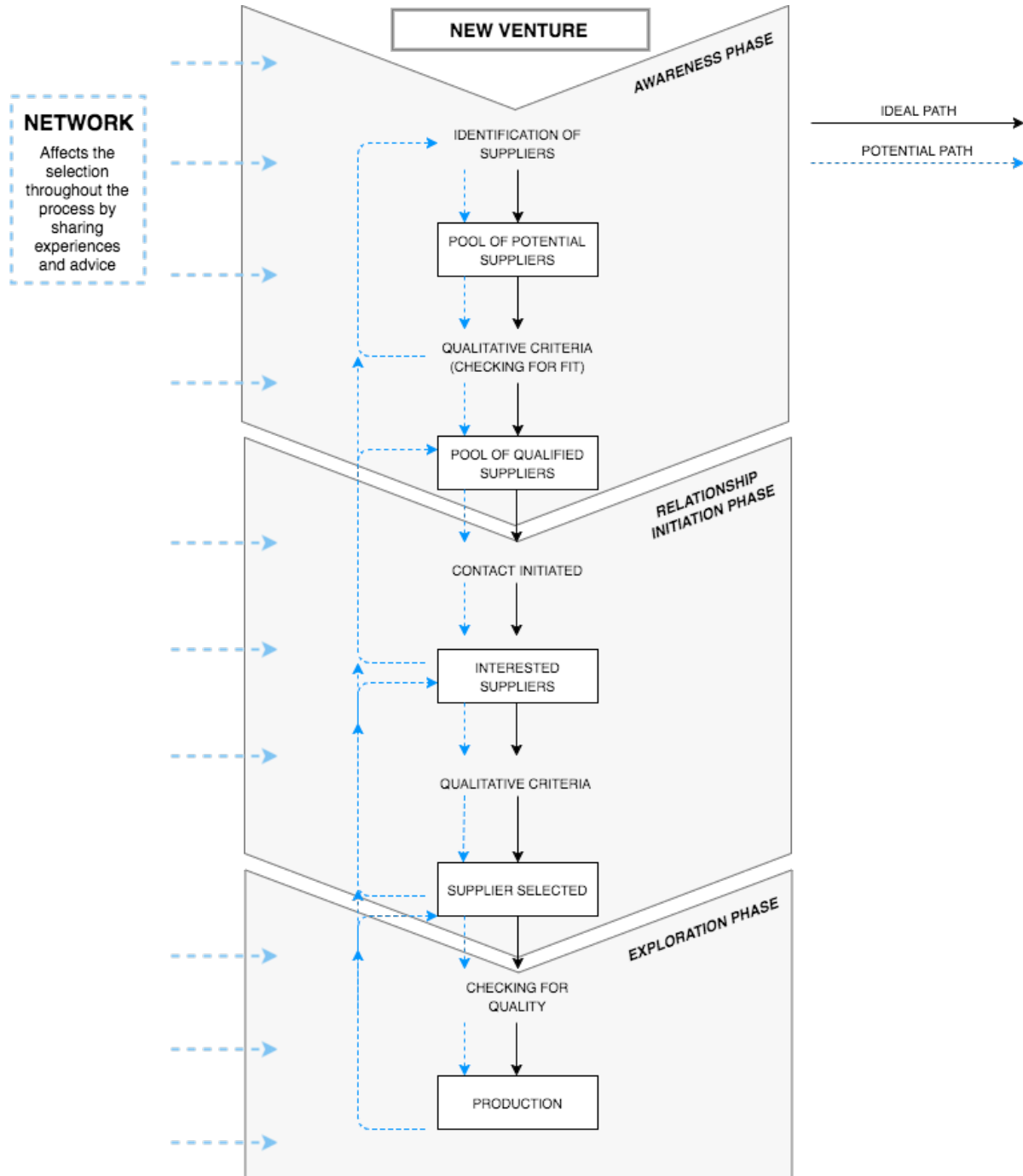


Figure 10: Supplier selection process for new ventures

## 7.0 Implications and further research

This thesis provides practical and strategic implications for new ventures. They will get a greater overview of how a selection process can look for new ventures and what factors play a role in this process and in what way. This might help new ventures when choosing what to emphasize during their own selection process.

Regarding the theoretical implications the literature review provided us with a greater insight to the supplier selection in new ventures. The literature presented also provide a framework for further analytical and empirical research on how new ventures differ from larger corporations in a supplier selection context. The literature review identified the lack of literature regarding which factors are most important for new ventures when selecting a supplier, as the existing models for supplier selection is too quantitative and complicated to be applicable for new ventures. This may also imply that the processes describing the initiation of buyer-supplier relationship for larger corporations does not comply with the processes including new ventures.

For further studies regarding the supplier selection process it should be conducted a more extensive quantitative research which would result in generalizable findings. One would then be able to investigate if there are any correlations between these findings and the findings revealed through this master thesis. Furthermore, there should be conducted a second qualitative study involving more new ventures with other characteristics and from other industries than we limited it to in this thesis. The ventures chosen was all within consumer hardware and located in urban areas. A second qualitative study will make it possible to investigate if the findings is applicable also to ventures with other characteristics or if they differentiate in any way.

The scope of this thesis does not include any viewpoints from the suppliers. However if this were to be included in a future research it could be highly valuable for new ventures to understand the mind of the suppliers and how it differs from their own. The thesis was also limited to the process of initiating a relationship and going into production. However, it would be interesting to investigate the development of the relationship between the new venture and the supplier to see how this evolves over time. Since the selection of cases are only from Norway, this might impact the result and should therefore be challenged. In order

to get even more objective result, it is also recommended following cases going through this selection process in real time. Such a longitudinal method might reveal underlying factors that each of the parties are not aware of.

## 8.0 Conclusion

In this thesis, the supplier selection process of new ventures has been explored. The literature review provided a greater insight to the supplier selection in new ventures, and many of these theories are found to be aligned with findings in this study. The literature presented also provides a framework for further analytical and empirical research on how new ventures differ from larger corporations in a supplier selection context.

The existing literature suggested that even before the supplier selection process has started, new ventures might have difficulties becoming attractive enough to even being noticed by the supplier (Mortensen 2012). The attractiveness of the company has been argued to be important in all of the phases of the supplier selection process, but there is some form of attraction even before there is any form of interaction. New ventures have some basic elements that represents the foundation of the venture and thereby its attractiveness (Dwyer et al. 1987; Mortensen 2012).

During the research of the four different new ventures in this case-study, there has been identified three antecedents that could impact the supplier selection process in both length and complexity in every phase of the process.

- The incentive behind starting the process of looking for suppliers: What made them initiate the supplier selection process in the first place?
- Level of innovation in the product: Does anyone produce a similar type of product or do you need to develop it together with the manufacturer?
- Lack of knowledge about the process: Due to being first time entrepreneurs.

The literature review also identified the lack of literature covering which factors are most important for new ventures when selecting supplier. The existing models for supplier selection is too quantitative and complicated to be applicable for new ventures. Based on the existing literature on supplier selection in combination with the literature regarding the differences between large corporations and new ventures, a suggested model was constructed. However, through the empirical test of this model done through the four case-studies in this research some changes were made as it was discovered to be less chronologically and more iterative through the different phases. The impact of the network was also different than first expected. The network contribute into the different phases of the supplier selection process

with knowledge and own experience, rather than recommending them to different suppliers. Further research of the subject is recommended to come to the depths of this process and uncover other aspects of it.



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# Appendix

## Interview guide

- This interview is for a master thesis investigating supplier selection process. And you have been chosen based on the following criterias:
  - New ventures that:
    - Completed a production process of not standardized components
    - Completed mass production in order to target consumer markets
    - Consumer hardware
    - No use of middlemen - only direct contact with production partners.
- It will take about an hour
- Do we have permission to include your name and company's name in the master thesis or does it need to be anonymous.
- The authors will record everything in order to further transcribe it.

### **Quality check and icebreaker:**

- Could you give a brief description of what you are doing? What you are making and your role in the process?
- What stage is the company at now?
- What stage was the company in at the supplier selection process initiated?

### **Case specific information**

- Could you tell us about the product that you have recently had through production?
  - Technical specifications - what was being produced and was it all in one place?
- What factory/supplier did you use? Consider all of them
  - What type - how would you describe them?



- Large/Small, geographic, characteristics - do they usually work with startups?
- Did this affect their choice?
- How long have you worked with them?
- When did you start? Why did you start at this time?
  - What stage was the product?
- Did you find the right one the first time or have you changed the supplier?

### **The company's situation at the start of the initiation process**

- IF NOT ANSWERED EARLIER: What stage was the supplier selection process initiated?
  - Did you have any funding? From who?
  - Did they have any other partners - what type of legitimacy did you have?
  - Was the product ready?
    - What was still missing?
    - Proof of concept - pilot etc.
  - Was this a good time? Or was it too early or too late?
    - Elaborate on why

### **Supplier identification** (How did they get a set of suppliers one could choose from?)

- How did you start the process of finding a supplier?
  - How long was this process?
  - Did you identify many potential suppliers?
- How did you get aware of, or introduced to, potential suppliers,
  - How did you contact them?

### **Supplier initiation** (How did they get from the set of suppliers to actually contact someone?)

- How did you choose supplier?
  - What criterias ended up being the basis for their selection of supplier and how this process took place.
  - How long was this process?

- How did you experience this process?
- How did you ensure the quality of the process up front?

### **Starting the relationship with the supplier**

- What happened after you had chosen a supplier?
  - Did you at any point get rejected?
  - Did you visit?
  - Etc.

### **How was the relationship?**

- How often did they meet/talk with the supplier?
- Did you have many iterations after sending the concept to the supplier.
- Did they have any conflicts during the selection process?
  - If yes, how did they solve them?
- How was the communication? Who was your contact with - did you often fly to China?
- Did you change supplier?
  - Why?
  - Scaling?
  - Bad relationship?
- Did you have any other barriers and challenges ?