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Evaluation of ingredient brands with network effects

Towards an Analytical Framework

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Utvärdering av ingrediensvarumärken med nätverkseffekter – Mot ett analytiskt ramverk

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Sammanfattning

Under de senaste åren har företag i allt högre grad byggt sina företag kring nätverkseffekter. Dessutom har ingrediensvarumärken blivit en vanlig förekomst där företag bygger sin affärsmodell på att integrera sin produkt i andra företags produkter. Under kontakten med det svenska företaget Twiceme Technology och efter att ha undersökt dessa fenomen, påvisades det vara unikt att både vara ett ingrediensvarumärke och ha nätverkseffekter i företagets erbjudande.

Där upptäcktes ett gap i den befintliga litteraturen och beslutet att lära sig mer om hur de kan relateras till varandra genom att empiriskt studera företag som använder nätverkseffekter eller ingrediensvarumärkning i sina affärsmodeller. Studiens övergripande mål var att titta på egenskaper hos de bägge och analysera hur nätverkseffekter påverkar ingrediensvarumärken samt hur de kan sammankopplas.

Det fanns flera faser i den empiriska analysmetoden. En fallgrupp med fyra företag analyserades för att få en bättre förståelse för ämnet i praktiken. Efter det, baserat på de tidigare resultaten, utvärderades företaget Twiceme som ett ingrediensvarumärke med nätverkseffekter. För att besvara forskningsfrågorna, analyserades data från fallprovgruppen och Twiceme och jämfördes med teorin.

Från studien kan det konstateras att uppnå en stark marknadsposition för nätverkseffekt företag är mycket beroende av att uppnå en viss nätverkstorlek där företagets värdeerbjudande börjar öka exponentiellt. För att uppnå en stark marknadsposition som accelereras av nätverkseffekter behövs högt varumärkesmedvetenhet och anseende. Ingrediensvarumärken med nätverkseffekter kan generera synergieffekter, vilket gör att värdeerbjudandet potentiellt kan växa ännu snabbare till följd av det ökade varumärkeskapitalet från ingrediensvarumärken.

Baserat på slutsatserna från studien och det föreslagna ramverket, syftar denna uppsats till att vara användbar för ledningsbeslut och förståelsen för nätverkseffekter och ingrediensvarumärkning, samt när de bör utforska nya marknadsmöjligheter. Det ämnar också till att bidra

till akademien genom att presentera ett nytt forskningsperspektiv inom detta område och ge material för framtida forskning att fortsätta att undersöka detta ämne vidare.

Nyckelord: Ingrediensvarumärke, nätverkseffekter, marknadsposition, marknadskarakteristik, de facto standard, dominerande design, varumärkeskapital, varumärkesmedvetenhet, extra tjänster, kritisk massa



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Abstract

In recent years, companies have increasingly built their businesses around network effects. Furthermore, ingredient branding has become a frequent occurrence in which companies develop their business model by incorporating their product into other products. During contact with the Swedish company Twiceme Technology and after investigating these phenomenon deeper, it appeared to be unique to have both network effects and ingredient branding in the company's offering.

That's where it was discovered a gap in the existing literature and the decision to learn more about how they're related by empirically studying companies that use network effects or ingredient branding in their business models. The overarching aim of the study is to look at characteristics among these phenomenon and analyze how network effects affect ingredient brands, and how they can be connected together.

There were several phases in the empirical analysis method. A case sample group of four companies was analyzed in order to obtain a better understanding of the topic in practice. Following that, based on the previous results, the company Twiceme was evaluated as an ingredient brand with network effects. In order to address the research questions, the data extracted from the case sample group and Twiceme were analyzed and compared to theory.

From the study, it was found that achieving a strong market position for network effect companies is highly dependent on reaching the certain network size where the value of the network starts having an exponential increase. High brand equity in terms of brand awareness and reputation is needed to achieve a strong market position accelerated by network effects. Ingredient brands with network effects can generate synergy effects, allowing the network value to potentially grow even faster as a result of the increased brand equity from ingredient branding.

Based on the conclusions of the study and the proposed evaluation framework, this thesis aims to be useful for managerial decision-making and understanding of network effects and ingredient

branding, and when they should explore new market opportunities. It also contributes to academia by presenting a novel research perspective in this field and provides material for future research to continue to investigate this subject.

Keywords: Ingredient branding, network effects, market position, market characteristics, de facto standard, dominant design, brand equity, brand awareness, added services, critical mass

FOREWORD

This thesis is not only a result of our own effort and time, it involves great knowledge and guidance from others. We would like to express our gratefulness to our supervisor *Jack Svensson* and as well as *Christian Connolly* at Twiceme Technology for their invaluable advice and encouragement during this thesis project. Being trusted with a thesis of this magnitude and scope was a rewarding experience and we've gained knowledge about not only our research topic but great lifelong experiences of how it is working in a startup. Specially *Jack's* sense of direction and guidance were critical in the completion of this thesis. Furthermore, we would like to thank our supervisor at KTH, *Rafael Laurenti*, for giving us feedback and guidance along the way.

Filip Mälberg and Daniel Hallin

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NOMENCLATURE

B2B	Business to Business
B2C	Business to Consumers
B2B2C	Business to Business to Consumers
CSG	Case Sample Group
IPR	Intellectual Property Rights
MAPC	Monthly Active Platform Users
NFC	Near Field Communication
OEM	Original Equipment Manufacturer
PPE	Personal Protective Equipment
R&D	Research and Development

TABLE OF CONTENTS

1 INTRODUCTION	1
1.1 BACKGROUND	1
1.2 TWICEME TECHNOLOGY	1
1.3 PURPOSE AND AIM	2
1.4 RESEARCH QUESTIONS	2
1.5 DELIMITATIONS	2
2 FRAME OF REFERENCE	5
2.1 INGREDIENT BRANDING	5
2.1.1 <i>Push and Pull-principle</i>	6
2.1.2 <i>Brand equity</i>	7
2.1.3 <i>Stages of development</i>	8
2.1.4 <i>The effects of ingredient branding</i>	9
2.2 NETWORK EFFECTS	10
2.2.1 <i>Critical mass</i>	11
2.2.2 <i>Competition in networks effects markets</i>	13
2.2.3 <i>The chicken and egg dilemma</i>	13
2.2.4 <i>Bandwagon network effect</i>	14
2.3 DIFFERENT STANDARDS' IMPACT ON MARKET POSITION	16
2.3.1 <i>Dominant Design</i>	16
2.3.2 <i>De Facto standard</i>	17
2.3.3 <i>IPR</i>	19
3 METHOD	21
3.1 RESEARCH APPROACH	21
3.2 RESEARCH PROCESS	23
3.2.1 <i>Problem formulation</i>	23
3.2.2 <i>Literature review</i>	23
3.2.3 <i>Creating a Case sample group</i>	24
3.2.4 <i>Case sample group review</i>	24
3.2.5 <i>Twiceme review</i>	25
3.2.6 <i>Case Sample Group and Twiceme analysis</i>	26
3.2.7 <i>Evaluating ingredient brands with network effects</i>	26
3.3 RELIABILITY AND VALIDITY	27
4 RESULTS	29
4.1 CASE SAMPLE GROUP REVIEW	29
4.1.1 <i>Mips</i>	29
4.1.2 <i>Intel</i>	31
4.1.3 <i>Uber</i>	34
4.1.4 <i>Airbnb</i>	38
4.2 TWICEME REVIEW	41
5 ANALYSIS	45

5.1 TWICEME AND CASE SAMPLE GROUP ANALYSIS	45
5.1.1 <i>Market position</i>	45
5.1.2 <i>Competition</i>	46
5.1.3 <i>Network effects</i>	47
5.1.4 <i>Added services</i>	48
5.1.5 <i>Brand equity</i>	49
5.1.6 <i>Push and pull principle</i>	50
5.1.7 <i>IPR</i>	51
5.2 EVALUATING INGREDIENT BRANDS WITH NETWORK EFFECTS.....	52
6 CONCLUSION.....	55
6.1 CONCLUDING THE RESEARCH QUESTIONS	55
6.2 FUTURE RESEARCH	58
6.3 REFLECTIONS ON THE PERFORMED STUDY	59
REFERENCES	61
APPENDIX	65
APPENDIX A - TWICEME EVALUATION INTERVIEW GUIDE.....	65
APPENDIX B - 1ST SELECTION CASE SAMPLE GROUP	67

1 INTRODUCTION

Chapter one describes the background, the company Twiceme Technology, purpose and aim as well as the delimitations of this master thesis.

1.1 Background

In recent years, it has been more and more common for companies to build their business offering around network effects. Since 1994, network effects have been responsible for 70 percent of all the value generated in technology (Currier, 2021). Founders who have a thorough understanding of how they operate would be in a stronger position to create market defining businesses. The ability to find and leverage potential market opportunities is critical to a company's long-term survival. A number of external factors contribute to the increased demand and load on businesses to continue to innovate. Long-term value development is closely connected to a company's willingness to extend its offering to strongly position themselves on the market.

Furthermore, there is a common phenomenon to find companies who build their business model by integrating their product into other products. This phenomenon is called ingredient branding. Component suppliers are now discovering this type of strategy and in different sectors they are rushing to meet the minds of the end consumer on a global scale. Companies including Intel Corporation, GoreTex, The NutraSweet Company and Mips AB have demonstrated the possible benefits of Ingredient Branding and shown many component manufacturers that new marketing tactics will help them achieve a greater return on investment (Kotler and Pfoertch, 2010).

There exist extensive amounts of research within these two topics separately, however there is limited research to be found on how network effects and ingredient branding would affect each other and how the market characteristics and potential would look like for this in combination. That's where a gap in the research was founded and wanted to explore more on how they could be interlinked by empirically researching companies with network effects or ingredient branding incorporated into their business models. It appears to be unique to have both network effects and ingredient branding in the company's offering.

1.2 Twiceme Technology

The thesis performs part of the empirical research on and for Twiceme Technology, a Swedish company founded in 2016. Twiceme offers a product on the market which gives the end-customer the possibility to share their vital information in emergencies when they can't speak for themselves. Vital information could be defined as essential and/or necessary personal information that could create value for the injured person in case of an emergency.

Twiceme sells its technology to manufacturers of personal protective equipment (PPE), who incorporate it into e.g. helmets or fall protection harnesses that are then sold to end users. Twiceme collaborates with a number of suppliers in the sport and in the construction segments around the world. The product could be described as a concept which includes a hardware to

integrate into equipment, a mobile software based on NFC (Near Field Communication) technology that makes it possible for smartphones to connect with the hardware both using an app or not using an app, the worldwide trademarked brand placed on top of the integrated hardware, and the service of informing rescue professionals worldwide about Twiceme so that they are able to use it in their daily operations. By integrating their concept to PPE worldwide, their ultimate vision is to create safer adventures and workplaces for people.

Today, Twiceme Technology operates with the ingredient branding model. They've realized this type of company strategy is very strong and effective and therefore developed their business strategy according to it. Moreover, Twiceme has also realized that their product offerings will be strongly affected by network effects in which they want to develop in their business. Twiceme therefore want to understand what advantage they will gain of being an ingredient brand with network effects. That is the background reason why the major research in the thesis is invested in Twiceme.

1.3 Purpose and aim

The purpose of this thesis is to investigate and analyze how network effects influence ingredient brands and how they can be interlinked. By performing extensive literature research combined with reviewing active companies, an attempt to describe the market characteristics for ingredient brands with network effects is made to better understand their market position potential. The combination of theoretical and empirical research within this topic might be applicable and valuable for companies gaining benefits from these phenomena. Furthermore, the thesis is intended to have great benefit for managerial decision making and understanding when companies should exploit new business possibilities. The aim is also to contribute to academia with a novel research angle in this area and leave material for future researchers to continue to study this unexplored topic.

1.4 Research questions

***RQ1:** What are the factors influencing the market characteristics for ingredient brands with network effects?*

***RQ2:** How can the process to achieve strong market position be accelerated by network effects for an ingredient brand?*

***RQ3:** When should an ingredient brand with network effects implement new features to accelerate their growth, dependent on their market position?*

1.5 Delimitations

- The problem formulation was limited to investigate the correlation between ingredient branding, network effects and their market position. This research doesn't investigate any parameters in terms of specific measurements or numbers, it is rather creating an overarching picture of the situation and influencing factors.

- The thesis has not used any measurements rather than soft values to analyze the extent of being a de facto standard or dominant design, the level of brand equity and market position, and the certain size of critical mass.
- The size of the case sample group will be limited due to the amount of time for the project which is 20 weeks. Therefore two ingredient brands and two network effect companies will be evaluated separately. One annual report from each company will be evaluated. The reports are set to be from 2019 except from Airbnb's. Airbnb was recently listed and therefore only published one annual report. Since no ingredient brands with network effects listed on the stock market were found, Twiceme is the only ingredient brand with network effects that is compared with case sample group companies.
- The annual reports consist of limited information and the different companies have different structures in their reports. Therefore, different companies provide different information and all desired topics are not able to be analyzed in each company.

2 FRAME OF REFERENCE

Chapter two presents the theoretical research that is necessary for the thesis. It contains the topics ingredient branding, network effects and different standards' impact on market position.

2.1 Ingredient branding

A classical co-branding strategy refers to a collaboration between two companies that results in a new, unique product, where the connection between the brands and joint marketing from the partner companies lead to positive synergy effects (Edström and Haeger, 2010). An ingredient brand strategy is based on a co-branding strategy, where the major attributes of one brand, ingredient brand, are integrated into another brand, host brand, as an ingredient (Desai and Keller, 2002). The closest customers to ingredient brands are therefore the host brands since they are the one who buys the functions of the ingredient brand. The end-consumers are thereafter paying for the host brand's product. The ingredient brands are getting their revenue through a B2B (Business to Business), but without a B2C (Business to Consumers) stage where the end-customer values the functions of the ingredient brand, it's impossible to become successful. If there isn't any need for the ingredient brand from the end consumer, the host brand won't see any reason to implement it to their product. However, in the B2C stage, the host brand works as the marketers of the ingredient brand where they choose how well they want to market the product. Therefore a successful ingredient brand strategy also needs to use a B2B2C (Business to Business to Consumers), where the ingredient brand reaches out to the customers directly to market their brand. This phenomenon is also called a pull-effect. As a successful ingredient brand it's important to work with all principles of B2B, B2C and B2B2C, where both the end consumer and the host brands are important stakeholders, see Figure 1 (Kotler and Pfoertch, 2010).

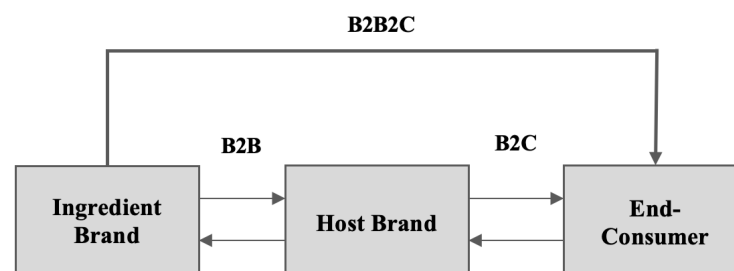


Figure 1. Ingredient branding (Kotler and Pfoertsch, 2010).

Many studies indicate that informed consumers value products with branded ingredients (Desai and Keller, 2002) and are able to pay a premium price for a product that contains branded ingredients (Kotler, 1999). Intel is one of the most famous examples of successful ingredient brands. Their "Intel Inside" campaign, for example, is one of the main pillars for the company's success. The campaign was about reaching the end customer instead of just selling their computer components in a B2B strategy. They successfully reached the end customer by using the host brand as a platform to advertise their brand and made them recognized globally (Intel, 2021). Intel opened up this new type of business strategy and other companies in different industries have successfully adapted it. NutraSweet for instance used this strategy in order to

make sweeteners for brands such as Coca Cola, and Gore-Tex implemented it into the clothing industry where they offer weather-resistant materials to outdoor clothing companies (Kotler and Pfoertsch, 2010).

Ingredient branding can be a very effective business strategy for an organization itself but have many positive impacts on the host brands as well (Panwar and Khan, 2020). For instance, by implementing an ingredient brand into a host brand's product, the ingredient brand will gain positive effects (McCarthy and Norris, 1999). The simple existence of a well-known ingredient brand in the final product establishes a positive association with the host brand, which increases customer perceptions (Levin et al., 1996). This of course works in both ways since an ingredient brand can also gain benefit from the host brand to reach the end consumer and be considered as a trusted brand (Kotler and Pfoertsch, 2010). Kotler and Pfoertsch (2010) mean that ingredient branding, when correctly applied and leveraged, is a win-win approach for both the host brand and the ingredient brand. The approach has been related by some researchers to the need to reduce the costs of product development and marketing (Uggla and Filipsson, 2008) while others see it as a solid strategy for expanding market share in an existing marketing segment (Leuthesser et al., 2003). If a consumer recognizes and understands the function, features, and benefits of an ingredient component, he or she may give greater attention to this offering, which can lead to loyal and successful customer relationships if it provides a unique product offering (Desai and Keller, 2002).

However, the ingredient brand might tend to highlight the presence of it in the final product in a way that none of the host brands can use this function without using the ingredient brand component (Uggla and Filipsson, 2008).

2.1.1 Push and Pull-principle

Ingredient Branding is motivated by the ingredient, or component, forming a partnership with a product manufacturer in order to raise brand awareness for the ingredient brand and produce pull effects with the end-user across the value chain (Pfoertsch and Müller, 2006). Understanding ingredient branding and the reasons behind it requires an understanding of the push and pull concept.

Host brands often implement ingredient brands to become unique against their competitors. The host brands implement these to gain new functions that the customer will pay more for. This is an early stage of implementing ingredient brands when the ingredient brands use their push method to gain customers (Kotler and Pfoertsch, 2010). However, by only relying on one channel, the ingredient branding won't gain its full potential. After a time when the ingredient brand is getting more attention from the end customer and they are building brand recognition, they can preferably add a pull method to their push. The pull method focuses on creating a need from the end customer which forces the host brands to implement the ingredient brand. Coordination is more likely when the pull is supported by push. Synergy is created for the entire marketing mix when push and pull are combined (Pfoertsch and Chen, 2010). This makes the ingredient brand working with B2B2C, B2B and additionally get assistance from the host brands working in B2C. Figure 2 below, explains the whole cycle of this phenomenon.

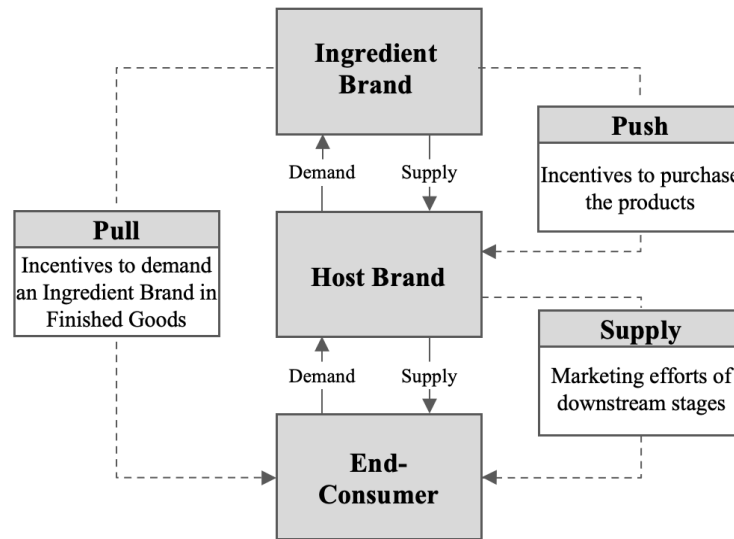


Figure 2. Push and pull principle (Kotler and Pfoertsch, 2010).

The timing of implementing a pull effect is a large dilemma within ingredient branding. The struggle when the ingredient brand has gained enough awareness and recognition on the market is hard to measure. Pfoertsch and Chen (2010) means that brand equity needs to be examined in order to understand how to focus on the push and pull methods.

Liu HW and Huang HC (2015) discusses that depending on the company's positioning strategy of reaching high price strategy or low cost strategy, the push principle and pull principle will be used differently. If the company wants to reach a high price strategy, brand awareness and equity is more important and the distribution of their products should be less intensified. Therefore, the company's push strategy should be aimed towards high-end brands, and the main focus should be on the pull strategy. Using a pull strategy supported by high-end customers, will entail a greater awareness from the end-consumer. This will create a more exclusive brand. If the company on the other hand wants to reach a low cost strategy, Liu and Huang means that the company should focus on a more intensified push strategy where they can reach a larger volume of customers. However, they mean that a pull strategy is still important to create awareness and brand equity through this channel.

2.1.2 Brand equity

Brand equity is the commercial value derived from the consumer's understanding of a product or service's brand name rather than the product or service itself. A way to measure this brand equity is to examine the indicators of trust, awareness, quality, loyalty and association (Aaker, 1991)(Aaker 1992). However, Pfoertsch and Chen (2010) argues that measuring success on all these dimensions can be very difficult. They mean that a strategy to measure this could be if the ingredient brands focus on implementing their brand into premium products from the host brand. If the end consumer will pay extra for the premium product, this could be used as a single indicator that measures the success of the brand equity (Havenstein, 2004). Pfoertsch and Chen (2010) argues that since the end consumer is willing to pay extra for a premium product with the ingredient branding, they are aware of the brand and quality of it. However, this analysis might not be completely true since end consumers often buy premium products just because they "should" be the best, and therefore they might not actually be aware of the ingredient brand

(Scitovszky, 1944). However, even though the consumers are not fully aware of the ingredient brand's functions and quality, it illustrates that the end-user remembers positive associations with the ingredient brand and applies the recall to the overall end product's advantage.

At each stage of B2B, B2C, and B2B2C branding, different approaches to building brand equity are required. B2B is one of the most crucial in an early stage of an ingredient brand since it is here that they gain the most crucial financial value (Pfoertsch and Chen, 2010).

2.1.3 Stages of development

To become an accepted ingredient brand you want to reach brand equity. It's not until you reach this point that you can gain the full potential of both push and pull methods. In order to reach brand equity, there are four stages that need to be passed, see Table 1 (Kotler and Pfoertsch, 2010).

Table 1. Four stages of ingredient branding (Kotler and Pfoertsch, 2010).

	Stages	Description
1.	Building up credit, Exploitation of well-known brands	Unknown ingredient brands profits from piggybacking already established brands
2.	Breakthrough and market proven	Unknown Ingredient brand becomes known or even famous
3.	Payback, Synergy	Known Ingredient brand supports former partners and other users of their brand
4.	Fiasco-Effect	Known Ingredient brand is omnipresent and could not be used as a differentiator and is pushing former supporters into price wars

The first stage is about the ingredient brand to build up some brand credit on the market. Finding well-known host brands and piggybacking their already established products will help to find a share in the market (Kotler and Pfoertsch, 2010). In this stage, having the first-mover advantage is preferable because it not only gives the pioneer companies a head start on the target audience but also prevents rivals from forming partnerships with synergistic partners. (Urban et al, 1985).

The second step is when the ingredient brand gets recognition on the market which helps it to start to implement a pull effect into its branding strategy (Kotler and Pfoertsch, 2010). In this stage, it is important for the brands to focus on brand differentiation based on attributes like brand identity, brand image, and brand promise which can build a solid, favorable, and unique association (Keller, 2001). With strong brand equity in combination with well-known host brands, it will be easier for the ingredient brand to achieve a successful pull effect (Pawnar and Khan, 2020).

The third step is the payback stage where the ingredient brand supports the host brand for helping them into the market. The ingredient brands have in this stage gained a market share that will help their host brands to win even more customers from their competitors that aren't using the ingredient brand. In order to keep the host brands competitive by using their ingredient brand, a strategy is to focus on specific industries. Gore-Tex for instance developed a set of

criteria to limit their partners to certain applications, industries or regions (Kotler and Pfoertsch, 2010).

Furthermore, Kotler and Pfoertsch describe the last step as when the ingredient brand no longer relies on end-product brand recognition and has become a dominant design. As a result of its own brand equity, it might dictate the prices for products in their market.

The key point of this model is that the ingredient brand's image will inevitably outweigh the host brand's, so it must be closely monitored. Kotler and Pfoertsch (2010) mean that to keep an equal and long term partnership will be a challenge and that a backfire of this statement is that some host brands avoid these kinds of partnership in an early state due to the fact that they don't want to be on the eventual losing end.

2.1.4 The effects of ingredient branding

Ingredient branding needs to be used strategically to separate and convey the ingredient's presence and benefit in the host brand. As a result, it should be viewed as a long-term process on a core competency to provide a competitive advantage (Panwar and Khan, 2020).

As mentioned before, an ingredient branding strategy can create a win-win situation for the ingredient brands and host brands (Kotler and Pfoertsch, 2010), but the customer will find an advantage from it as well, which makes it a win-win-win situation (Norris, 1992).

Advantages for ingredient brands:

- Reduced costs from large-volume orders can result in higher profit margins, which is an obvious aim of ingredient branding (Norris, 1992).
- Ingredient brands that achieved brand equity and created a need for them on the market might result in long term supplier-buyer relationships (Norris, 1992).
- Due to an ingredient brand's long term relationship with the host brands, it gets a competitive advantage against potential upcomers (Erevelles et al., 2008) (Norris, 1999). A first-mover advantage is critical to achieving this (Urban et al., 1985).
- Even differentiated and innovative products can be imitated easily, leaving little strategic advantage (Leuthesser et al., 2003). Therefore brand differentiation through ingredient branding such as attributes like brand identity, brand image, and brand promise can create a strong, favourable, and unique association (Keller, 2001).
- In an already existing market segment, ingredient branding helps to achieve greater market penetration (Leuthesser et al., 2003).
- Capitalize on an already existing positive image of the host product in case the host product enjoys a positive perception (Kotler and Pfoertsch, 2010b)
- Ingredient supplier brands should consider creating long-term market loyalty that can be leveraged in the future by expanding their current product portfolio into a similar segment, exploiting the trust already built (Kotler and Pfoertsch, 2010b).
- Due to end consumers' overall brand preference, there is no reliance on any host brand (Panwar and Khan, 2020).
- Rather than a single brand, it offers greater assurance of product quality, which can lead to stronger and more favorable product evaluations (Erdem and Swait, 1998) (Wernerfelt, 1988).

2.2 Network Effects

Products or services that become more valuable as more users use them, gain benefits from network effects (Katz and Shapiro, 1985; Gandal, 2002). Network effects are a key strategic factor in markets where the value of the core product depends heavily on the availability and quality of supplements for end-users. These network effects allow the creation of a technical standard that can lead to good competitive advantage for the producer of the core product (Bonardi and Durand, 2003). There are many different market examples that are defined by network effects; communication devices or services (e.g. telephones and email) and complementary products (e.g. PC and DVD players) (Sun et. al., 2004).

Vinberg and Henrikson mentioned (2017) the example of social networks, such as Facebook, where people enter these networks because they find value in that some of their friends are already on these platforms. The more friends an individual already has on Facebook, the more valuable it becomes for others to join. The importance of his or her friends who are still on Facebook rises as the user joins Facebook since they now have one more friend to interact with on the platform (Vinberg and Henrikson, 2017). This phenomenon with markets where the value of the network becomes more valuable as more people join are what Katz and Shapiro define (1994) as exhibiting “*network effects*” or “*network externalities*”.

When describing networks that gain value as more users join them, it’s often referred to as network effects and network externalities interchangeably. Despite the similar meaning and usage of this expression, there is a small difference. The phrase network externalities means that the network value varies as the number of network members changes (Katz and Shapiro, 1985). On the other hand, network effects refer to the impact that value change brings (Vinberg and Henrikson, 2017). From now on in this thesis, for the purpose of consistency and avoiding misunderstanding, we will refer to this increased network value phenomena solely as network effects.

Networks are described by Currier (2021) as interconnected structures of people or objects. Networks consist of nodes and links at their most basic level. Consumers, computers, clients, buyers, sellers, brokers, and other network members are known as nodes. Within the same network, various types of nodes may play very different roles. From there, the total number of nodes in a network may be used to determine network size. Since the amount of action in a network can vary, the size of a network does not decide its value. In a network, links are the connections between nodes or groups of nodes. The amount of links to nodes determines the density of a network. The network would be denser if the amount is higher. In general, the higher a network's density, the stronger the network effects are (Currier, 2021).

In order to further understand how nodes and links are related to increasing value from network effects, there are a number of laws describing this relation, see Figure 3. Sarnoff’s law points out that the value of the network seems to grow in proportion with its size - proportional to N , in which N represents the number of network users (Currier, 2021). The value from network effects according to Metcalfe’s law, on the other hand, could be described as the value of the network increasing proportionally to the square number of users instead (Den Uijl, 2015). Finally, Reed’s law could be viewed as group-forming networks, which allow the formation of clusters and increase value even faster than other networks because many types of value increase

proportionally to network size and some grow as a proportion to the square of network size (Currier, 2021).

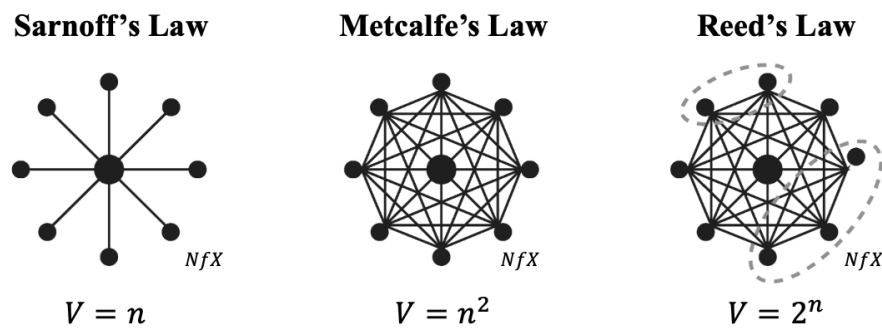


Figure 3. Network laws (Currier, 2021).

2.2.1 Critical mass

To gain benefit from network effects there is an apparent need for users to join the network (Gandal, 2002). In the early phase for a firm in a network effect market, there is a specific network size where the value of the network gets a distinct increase. This point is called the critical mass and is a crucial step to gain network effects (Baraldi, 2012). Rogers (2003) defines the critical mass as “the minimal number of subscribers (adopters) of an interactive innovation for the further rate of adoption to be self-sustaining” (Rogers, 2003). Critical mass ensures that there are enough participants on both sides of the platform, which means that anyone will find it as an interesting market to operate in. Network effects begin to appear once a platform succeeds in reaching critical mass (Vinberg and Henrikson, 2017). González Pillado (2019) defines critical mass as a tipping point or threshold where there is a distinct change in the growth curve and a significant increase in the value of the network (Currier, 2021). This is visualized in Figure 4, below.

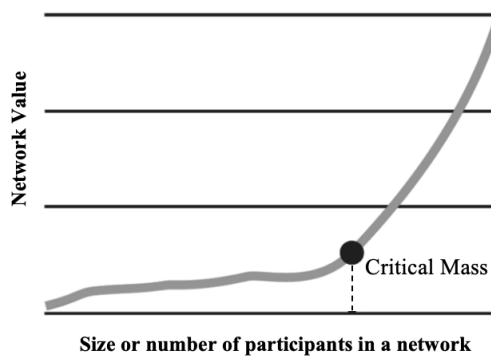


Figure 4. Critical mass (Currier, 2021).

For companies gaining benefits from network effects, reaching critical mass is a crucial step in future growth (Vinberg and Henrikson, 2017). Reaching the critical mass with growth in network size could be done in various ways. Ries (2011) presents a framework on ways to drive user growth towards a critical mass. These are defined as “paid”, “sticky”, and “viral”. The first one, "paid" or as Vinberg and Henrikson (2017) define it “paid growth and user acquisition” corresponds to paying for ads to draw buyers. The second, "sticky", refers to customer retention.

“Viral” corresponds to viral growth in the third way, which involves word-of-mouth and invitation mechanisms (Vinberg and Henrikson, 2017).

To reach the critical mass for a new platform, the diffusion process of the technology is crucial (Wanner et. al., 2019). Rogers (2010) presents a model for the diffusion process where an adoption mass of 10 to 25 percent of all future clients is crucial, according to Rogers. After that, it is nearly impossible to stop the diffusion. There is a spiraling increase from this point on because of network effects. Through new entrants, the attractiveness of the network increases, which in turn leads to more participants and a further increased network value (Rogers, 2010). This could be seen as positive feedback in academia. Simultaneously, due to the increasing impacts of network effects, a shift in this spiral is becoming less and less likely. A “lock-in” effect, where users connect to the network, intensifies if it’s handled correctly (Wanner et. al., 2019).

As shown in Figure 5, Rogers (2010) means that it’s in the transition range between the target groups *early adopter* ($p = 0.135$) and the *early majority* ($p = 0.34$), where critical mass is achieved. Present risks have a smaller effect on early adopters relative to the early majority, considering early adopters have a stronger interest in new products and low-risk aversion. It is important to win the early majority which has a slower diffusion process of new technology and the growth of S-curve starts to decrease (Rogers, 2010).

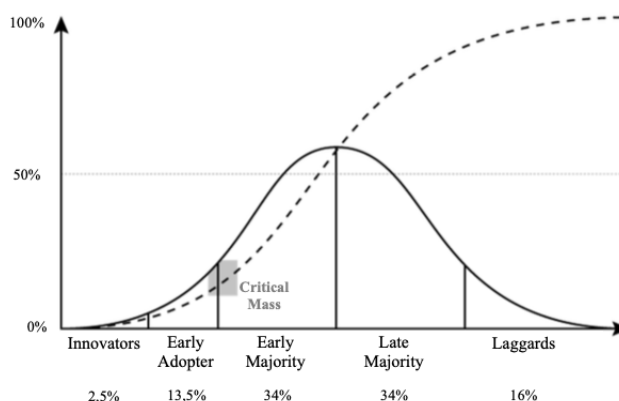


Figure 5. Diffusion of innovation (Rogers, 2010).

In an alternative way to identify the critical mass point, Grajek and Kretschmer (2010) suggest a demand model for a new network that is simple to estimate. They notice that the critical mass is a function of network effects, installed base of subscribers and price (Grajek and Kretschmer, 2010). Baraldi (2012) looks at a case of the installed base of mobile telephone subscribers and determines that the size of the critical mass depends on the intensity of network effects. She visualizes this relation in Figure 6 where the intensity of network effects impacts the concavity of the demand curve in terms of the form of the inverse demand curve.

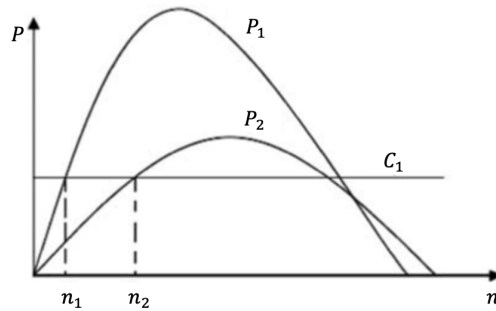


Figure 6. The inverse demand curve as a function of the intensity of network effects (Baraldi, 2012).

The demand curve, P_1 , is considered to be more concave than the demand curve P_2 . Let C_1 be the marginal cost, it means that if the demand curve is P_1 , when the installed base is n_1 , the critical mass is reached, and if the demand curve is P_2 , when the installed base is n_2 , greater than n_1 , the critical mass is reached. Reaching critical mass relies on the degree of network effects. The conclusion from this model is that the more concave the demand curve is, the greater the power of network effects and the faster the critical mass is reached at any price. Moving past the critical mass implies providing a self-sustaining course of diffusion (Baraldi, 2012).

2.2.2 Competition in networks effects markets

The advantage to customers by entering a network with network effects depends heavily on the number of other consumers joining the network (Bonardi and Durand, 2003). Gandal explains (2002) how competition impacts network effects on these markets. In evaluating the acceptance of network goods, customer preferences about the potential scale of a network are important. Thus, customer perceptions that one technology will become a standard will eventually lead to the standard being that technology. Expectations depend in part on the foundation that is mounted. History counts, then (Gandal, 2002).

When competition occurs in network markets, it's likely to result in a single technology being standardized. Hence, the long-term coexistence of competing principles or standards are not likely. This is due to the small initial benefits that will likely affect the customer's opinions regarding choosing the new standard. On the contrary, this would lead to the standard being followed by more users. Driven by the rising number of adopters, the value of the network increases for potential adopters. Consumer perceptions are self-fulfilling and an early lead may be turned into an advantage that is hard to overcome (Gandal, 2002).

2.2.3 The chicken and egg dilemma

One of the greater challenges for network effects companies striving towards reaching a critical mass is the chicken and egg dilemma (Evans and Schmalensee, 2010; Vinberg and Henrikson, 2017) which ends up in many marketplaces (Hagiu and Rothman, 2016). The chicken and egg dilemma refers to the problem of reaching the critical mass to gain a positive feedback loop; To attract a critical mass of buyers, a critical mass of suppliers is needed. On the other hand, to gain suppliers, a lot of buyers are needed (Hagiu and Rothman, 2016). Alternatively, this dilemma could, according to Currier (2021) be described as the phase until the size of the network reaches critical mass, where the platform will self-generate its own growth (Currier, 2021).

Evans points out (2009) that in addition to other usual problems startups with multisided platforms, the chicken and egg dilemma is particularly central and difficult. The startup can deliver value to their network only if and when there are users on the other side of the platform. The firm therefore needs to figure out a way to get users to the platform anyhow, because why would someone want to join the platform when there is no obvious value to it? Sellers are not likely to join a marketplace with no buyers. Simultaneously, buyers are not likely to go to a marketplace with no sellers. This is the outcome of the chicken and egg dilemma and it aims to answer how to attract users before reaching critical mass (Evans, 2009). Gandal mentions (2002) an example where a computer operating system's success relies on the number of software applications that can be used on it. If software companies do not expect consumers to join the network, they will be reluctant to invest the reduced costs required to develop software (Gandal, 2002).

2.2.4 Bandwagon network effect

One powerful network effect that relates to the phenomenon when social pressure to join a network arises, which causes people to think that they don't want to be left out (Schmitt-Beck, 2015). This is called the Bandwagon effect and derives from certain individuals' perceptions of attitudes, values, or actions of anonymous communities of people outside their direct communication domain (Mutz, 1998). Leibenstein (1950) describes it as *"the extent to which the demand for a commodity is increased due to the fact that others are also consuming the same commodity"* (Leibenstein, 1950). Maxwell (2014) means that the bandwagon effect helps to understand why certain patterns exist. The number of people who have bought something may affect the other's decision. Others *"hop on the bandwagon"* as more people come to believe in something, regardless of the facts, see Figure 7. The general rule is that trends and patterns circulate among individuals, resulting in people following it. Individuals may have a desire to obey the behavior or opinions of others because they prefer to adopt or because they gain knowledge from others (Maxwell, 2014).

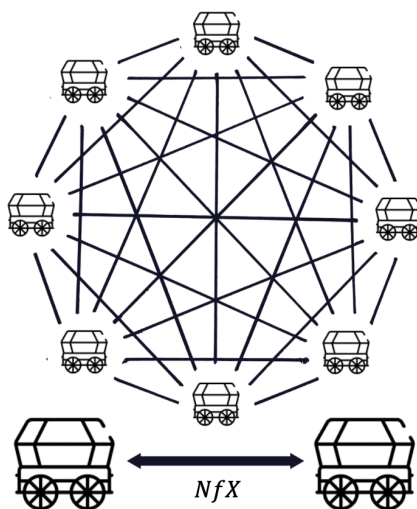


Figure 7. Bandwagon effect (Currier, 2021).

Currier (2020) presents Apple as a great and well-known example of a business that has made bandwagon network effects a key competency. They create hype and fear of missing out with their latest product demonstrations and releases every year, with carefully scripted results. This

has proved to be highly popular. If you don't use a Mac computer or an iPhone you're seen as an outsider. This may be upsetting for rivals who think they have superior products but are unable to defeat Apple due to factors that are unclear to them. Apple's popularity isn't just about branding. It depends on effectively evoking the psychological urge to be a member of the cool crowd, to join their movement (Currier, 2021).

Developing strong bandwagon effects can give a great advantage for a firm relevant to its competitors. Maxwell (2014) presents a number of factors leading to positive bandwagon effects:

- *Trends*
When times change, new ways of doing things emerge, and people's beliefs, habits, and expectations shift as well. As a result, trend setters emerge, and people's behavior is increasingly affected by trend setters. People want to be in style, so they buy, perform and eat in the same way as their peers.
- *Impact from television and media*
One cannot disregard the impact of the media in creating positive public awareness of a product in today's world. Corporates leverage to build up the brand profile, which adds to a favorable bandwagon effect.
- *Awareness and brand consciousness*
A product may be purchased not only for its practical use, but also for reasons such as celebrity endorsement. The aim is to try to respond to the people with whom they desire to be connected, in order to be trendy or glamorous, or to appear to be like them. The bandwagon effect is supported by a higher inherent value of the product.
- *Technological breakthroughs*
The internet, for example, has resulted in a rise in online buying and selling, as well as e-commerce expansion. Buying on the internet is impacted or favorably associated by the amount of comments left, review scores, and likes from other users who have shared their post-purchase experience with the product. As a result of the bandwagon effect, demand for their brands grows (Maxwell, 2014).

2.3 Different standards' impact on market position

For businesses competing in the information and communication technology markets, battles over technology standards are critical to gain a strong position on the market. A company that gains widespread acceptance for its product in a growing market plays a significant role in deciding the industry's de facto standard or dominant design, which increases its chances of survival and future growth (Christensen et al., 1998). There exists a great amount of prior research within this field whereas de facto standard and dominant design are often used interchangeably. Srinivasan (2006), however, drew a certain distinction between the two: The technical requirements for performance, compatibility, adaptability, and accessibility that are needed for products to work properly are referred to as "standards". As a consequence, standards in a product category serve a functional purpose to connect various components in a product, separated from the market acceptance, while market acceptance is, by definition, an essential feature of a dominant design. Two other characteristics of dominant designs set them apart from standards: Firstly, a dominant design is often the outcome of a competition between many designs, in comparison to standards which often emerge after previous competition of dominant design. Second, dominant designs often contain a number of standards. For example, the Philips–Sony design, which is the most dominant in the CD-player category, has over twenty codified standards. In conclusion, there are product categories with dominant designs that are similar to the product category's standard, as well as categories with several standards and no dominant design, and so on (Srinivasan et al., 2006).

2.3.1 Dominant Design

In many product categories, technological advancement leads to the emergence of a single product design that dominates the market (Srinivasan et al., 2006; Christensen et al., 1998). The market recognizes a product's design architecture as defining the requirements for the entire product category and a dominant design appears. The emergence of a dominant design in a product category is a significant event that has a significant impact on the strategies and performance of businesses. However, if the emergence of a dominant design is late, it can slow down market growth because potential customers would then wait for a dominant design to emerge before purchasing the product (Utterback, 1994).

Srinivasan (2006) refers to dominant design as the specification of a single or a complement of design features that defines the product category's architecture. The time between the introduction of the first product in the category and the time an alternative in the category meets the new product category's definition is the time it takes for a dominant design to emerge (Srinivasan et al., 2006). If the market recognizes a product's design as the standard for the entire industry or product category, it is said to have a dominant design (Utterback, 1994).

According to Anderson and Tushman (1990), if a design gains more than 50% market share in a product category and maintains it for four years, it is considered a dominant design. When a product category reaches this state, it is hard to be displaced (Anderson and Tushman, 1990). Suarez (2004), however, means that awareness is needed when considering market share. The issue with current aspects of dominance is that they are mostly oblivious to the competitive dynamics at play in each battle. For example, an early front-runner can gain more than 50

percent market share for a few years, but that does not imply dominance because other rivals may be closing the market share gap with the early leader (Suarez, 2004).

The battle to establish a dominant design depends not only on the standalone value of the technology and the size of the installed base for coalitions of firms engaged in a standard war, but also on the collective efforts of the active individuals of a technological community. Support for standardization can be driven by the community's collective actions and behavior (Soh, 2010). A dominant design does not always mean superior technological performance; it can also be a satisfying design in terms of technical capabilities, driven by the alignment of business interests among suppliers, users, and competitors (Wade, 1995).

Srinivasan (2006) means that dominant designs are more likely to appear early in the process when strong network effects have been indicated. A dominant design in a product category with strong network effects, for example, ensures possible adopters that the dominant design's network will be the biggest, resulting in increased acceptance and, finally, market dominance. In markets with network effects, there is often a “winner takes it all”, allowing a dominant design to capture a significant market share early on. Because of selection pressures to choose a design early, such markets will tilt toward one design and do so quickly.

On the other hand, Srinivasan discusses the “wait and see”-attitude that might appear in markets with strong network effects, which creates an inertia and lower probability that dominant design emerges. If it does anyhow, the emergence of the dominant design will be delayed (Srinivasan et al., 2006). Anderson and Tushman (1990) are adding, saying that the diffusion of a new technology generation is directly related to the emergence of a dominant design. Before buying a new product or service, the majority of potential adopters would wait for an industry standard to emerge. They claim that the emergence of a standard is crucial for widespread adoption. Dominant designs aren't just a direct result of innovation diffusion (Anderson and Tushman, 1990).

The future of companies joining or shaping an industry is strongly affected by the evolution of dominant designs (Utterback, 1994). Brem (2016) discusses that dominant designs don't pop out of nowhere overnight and means that it takes 15–20 years on average for a dominant design to emerge from an invention. Managers should be conscious that dominant designs shift more easily and occur less often than they used to because their length is just a few years on average, sometimes even less than one year. Brem (2016) mentions the electric car industry as an example which has undergone increased dynamism. The lack of a dominant design for charging systems and batteries is a significant barrier to the industry's evolution. If a standard is established that has the potential to become the dominant design, the next technology is already moving towards a new standard. As a result, long periods of dominant design are no longer something to completely rely on (Brem et al., 2016).

2.3.2 De Facto standard

Den Uijl (2015) defines de-facto standard as the agreement of different actors to perform certain main activities in accordance with agreed-upon rules. A de-facto standard arises as a result of a technology competition in which the winner is chosen by the market. Various de-facto standards can be found in everyday technologies, for example Google for web-based search engines, Microsoft Word for word processors and the combustion engine-powered automobile. The

QWERTY keyboard is the most common example of technical route dependence and for over a century, the QWERTY keyboard has remained the de-facto standard (Den Uijl, 2015).

A company that can develop its technology as the de-facto standard can monitor near-monopoly rents and control a product category for many generations. When a company invests in a technology that does not become the de-facto standard, it may be forced to give up the money, learning, and brand equity it has invested in it. Furthermore, it may lose significant market share to a new entrant or even be forced out of the market. This is particularly the case for market leaders. They are often among the first to recognize a radical breakthrough, but they tend to ignore it because it threatens their existing market (Den Uijl, 2015). This is called the "innovator's dilemma" (Christensen, 2013) which makes it easier for newcomers to capture the next wave of market growth, which also results in significant shifts in industry leadership. There are high-stakes games to compete for the de-facto standard, with somewhat different competitive dynamics than markets where multiple players can exist side by side relatively smoothly, since they often have a single tipping point that transfers market adoption to one specific technology (Schilling, 2005).

According to Rochet and Tirole (2003), companies are increasingly competing on platform technologies that connect groups of users in two-sided networks. Since platform technologies are especially sensitive to network effects, it is normal to see one platform emerge as the de-facto standard in these industries. These network effects may trigger a market to favor one technology over another (Den Uijl, 2015).

As a way to understand how de-facto standards can arise, Suarez (2004) visualizes the emergence of a de-facto standard in terms of five milestones, as seen in Figure 8 below. The milestones in the process of technology dominance are:

- T_0 , which represents the start of a technological field with a company pioneering applied R&D;
- T_P , which represents the appearance of the first working prototype;
- T_L , which represents the very first commercial product launch;
- T_F , which represents the appearance of a clear early front-runner;
- T_D , which represents the appearance of one of the alternative designs becoming dominant (Suarez, 2004).

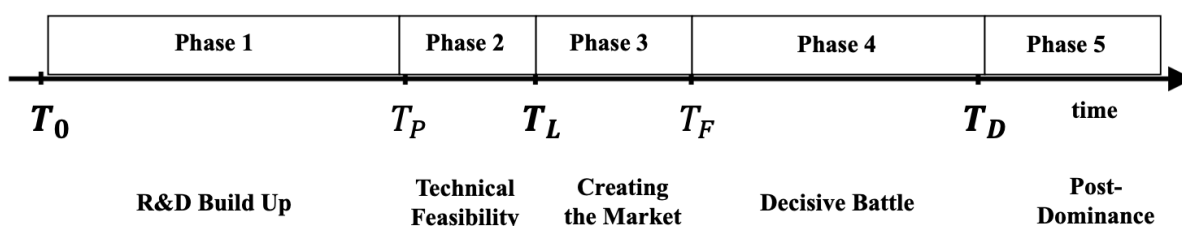


Figure 8. Five milestones in the technical dominance process (Suarez, 2004).

The *first phase* identifies the technical field's main characteristics. The various technological trajectories are being established during this period, so the focus is on technology. During this first phase, attracting key technical talent is critical, as there is still a high technological uncertainty. In the *second phase*, one of the actors demonstrating the prototype creates a powerful collection of new dynamics in the dominance process. It forces both companies to

review their research programs and determine if they are capable of fighting the upcoming battle on their own. In the *third phase*, the release of the first commercial product, signals an irreversible shift in focus from technology to consumer factors, making any technical distinctions between the alternatives less significant as time passes. Furthermore, several competitors begin to acquire a significant installed base of users. In the *fourth phase*, these growing consumer bases begin to have a significant impact on customers' decisions, which is consistent with current research studies indicating that the advantages of a technology can only be seen when a critical mass of users has been reached. In the *fifth phase*, the industry has clearly identified a dominant technology. Its large installed base acts as a powerful barrier to potential challengers, especially in environments with high switching costs and strong network effects (Suarez, 2004).

2.3.3 IPR

The ability of a company to profit from knowledge creation investments is a major concern in innovation and technology strategy. Patenting is one of the most commonly used appropriation strategies for companies among the various alternative approaches (Chirico et al., 2020). Firms can moreover be interested in patenting their intellectual property in order to attract investors, boost their credibility and reputations, and obtain business legitimacy (Cohen et al., 2000). As a result, patent protection can offer a range of advantages, such as isolating mechanisms, quality signals, economies of scope, commercialization, and licensing (Chirico et al., 2020).

Patenting, on the other hand, involves uncertain and major investments, which play an important role in a company's willingness to patent. Patent protection can sometimes be disruptive to a firm's competitive position because it requires exposing the underlying technology, which enhances rivals' knowledge of the firm's R&D efforts (Arundel, 2001). Similarly, Chirico sheds light (2020) on the usefulness of a patent as an IP security tool, pointing towards the difficulty in evaluating a patent's exact value, making it possibly an overvalued commodity, if not a waste of money (Chirico et al., 2020).

Horn and Brem (2013) mention a notable pattern that there is a decline of patenting in a number of sectors. Firms prefer alternative solutions because patents are correlated with high costs and public availability. Trading on virtual markets or using external innovation networks are two examples of solutions that can be used as part of a strategic intellectual property management strategy (Horn and Brem, 2013). Brem (2016) describes that one tactic is to stop demanding any intellectual property rights and instead to be a market leader in terms of technology. The challenge in this situation is to introduce the next generation of technology as soon as possible, as it is difficult to prevent rivals from using the same technology. However, Brem (2016) points out that caution should be maintained when applying their findings to industries with low patenting activity, such as service industries. Nonetheless, it's an interesting research perspective and involves focusing attention on the phenomenon of dominant designs emerging without IP protection (Brem et al., 2016).

Chapter three describes the methodology for the conducted research. In order to create high replicability with similar results, the research process is clearly structured after the major milestones of the thesis. The chapter starts with a description of the research approach where the general objectives and approaches of the thesis. Following, the process for how the research has been conducted, are described in the various steps made. Lastly, the validity and reliability of the chosen research approach and process in the master thesis are discussed.

3.1 Research Approach

The research objective in this master thesis consists of a number of research questions that are aimed to be thoroughly investigated and deeply examined. The aim for the research methodology has been both to find the best suitable way to contribute to academia with novel thoughts and unique research topics, combining the field of ingredient brand, network effects and market position, as well as to review the findings and formulate valuable insights applicable for Twiceme. As a consequence, there has been a great effort to find a balanced choice of research approach between theory and practice to satisfy both aims.

The research approach to answer the research questions has been combining theory with empirical exploration of the topic. By scanning the academic field and building up a comprehensive frame of reference, linked together with an extensive review and analysis of a case sample group (referred as CSG), the research approach is intended to be multilateral and versatile for firm analysis and future research.

Since the objective is to determine how the process to achieve a strong market position for ingredient brands could be accelerated by network effects, it is relevant to focus on companies that could be considered dominant in their domain. Not only is it interesting to understand why they could be seen as the major player, the reasons how they have reached a dominant position and their growth strategies and business approach, is as important. To extract multifaceted data for the analysis, the empirical research aim was also to find and review companies both with and without network effects as well as both ingredient brands and not. The reason behind that choice is that it creates room for discussion and comparison for different cases with various growth strategies and possibilities. Taking the theory into account while creating the CSG thus became essential to connect the frame of reference with real life company examples.

When performing case studies, it is common practice to conduct qualitative methods (Voss, Tsikriktsis and Frohlich, 2002). Furthermore, since the performed CSG analyses were decided to be made on a smaller selection of companies, they were more comprehensive and qualitative in nature (Nicholas, Ledwith and Perks, 2011). The approach was rather to gain in-depth strategy and business approach insight from reviewing annual reports rather than to gain extensive and quantified results from a larger number of companies.

In order to find a great research path, suitable for this master thesis, a glimpse of design thinking has been utilized. Since the literature review and CSG analysis needed to have a great connection and the problem formulation has developed over time, it has been an iterative research process

with movements back and forth as the project has moved forward. Since the degree of uncertainty due to the novelty of the research objective, there has been a certain part of exploration elements in the research approach. Thereby, it has been of great importance to have an iterative approach and explorative mindset to come up with a best suitable process that creates the most value for the research. The research approach has been to be as independent as possible from external parties. That is for instance a reason why the CSG was made in absence of qualitative interviews.

3.2 Research Process

The research process is based on several steps, where the initial phase was to formulate the problem in order to fill out missing literature in academia. A literature study was made regarding the research subject where ingredient branding, network effects and market position were explored. However, in order to gain a deeper understanding of the subject in practice, a CSG of four companies were reviewed. After that, Twiceme as both an ingredient brand with network effects was reviewed based on the previous findings. The data extracted from the CSG and Twiceme were thereafter analyzed and compared with theory in order to answer the research questions.

3.2.1 Problem formulation

The study's initial focus was to determine what constitutes a global standard and how Twiceme could reach it. However, following the completion of the literature review and reviewing firms in practice, the purpose was modified to make the scope more succinct. Instead of creating and defining a new academic expression, the research focused on investigating existing theories, such as ingredient branding, network effects and market characteristics. Investigating how a combination of these topics in a company would affect the company's outcomes and their ability to strategically expand their business on the market. Using a more defined research structure, will give less abstract results to both Twiceme and to academia.

3.2.2 Literature review

In order to build up an understanding of the topic and create a frame of reference, a literature study was conducted. The body of references used was articles found from systematic searches on Google scholar. In occasional exceptions, written articles from web based sources were used when the trustworthiness and reliability of the author was considered to be high. The systematic article search and selection approach was made in various steps. The first step consisted of an educating part where the main goal was to develop deeper understanding within the topic to better understand what keywords to use to find best suitable for the research questions. As mentioned in the research approach, an element of design thinking has been incorporated in the research process to iteratively find the best suitable research objective and process. That element has certainly been influencing the literature review step as the topics have evolved throughout the process.

Secondly, after reviewing the existing research within the area and deepening the topic understanding, more systematic search behavior and article sorting was applied. The three main themes became "network effects", "ingredient brand" and "market characteristics", and were systematically searched together with relevant keywords individually. To effectively evaluate the relevance of the articles and which articles to select and review, the abstract and conclusion were read. Further, articles with larger numbers of citations were considered of higher relevance in this process. To keep track of all articles, a manual mapping system was used where the articles were sorted according to their main theme. Mapping the articles related to its topic led to a better overall perception of the theme and being able to systematically review them according to their content and context.

3.2.3 Creating a Case sample group

The empirical body of research is done by creating and reviewing a CSG of companies, to get an increased understanding from the industry perspective to complement the theoretical understanding of the theory field. The construction of the CSG is done through various steps in order to get a relevant group of companies from which valuable data could be extracted and base the upcoming research analysis. The overarching selection process was divided into a first and second selection.

At the start of the first selection, an initial overarching exploration and investigation of potential companies were made by scanning the internet and informal discussions to get a wide spectrum of inputs. The first criterias for filtering companies was: Ingredient brands, companies with distinct network effects and companies that could be viewed as a standard or dominator in their product or service domain. The requirement to qualify for the first selection in the CSG, was that they should at least meet one of the previously mentioned criterias. The evaluation and selection of companies was intended to be as objective as possible although elements of subjectivity inevitably affect the selection decisions. The goal in the first selection was to cover the three criterias with as wide variety of different companies as possible, in terms of size of the company, maturity of growth and their operating market. The first selection draft of the CSG resulted in a list of 79 companies, see Appendix B.

After creating a first draft of the CSG in the first selection, a couple of more factors were applied and taken into consideration when moving towards the second selection and the final draft of the CSG. As previously mentioned, the amount of companies in the CSG were chosen to be quite small to comply with the qualitative nature of the research approach and more in-depth analysis of each of every company. Due to the choice of research design of the CSG (deeper explained in the next section), one crucial requirement was that the companies needed to be listed on the stock market in order to have access to their annual reports. For example, one great ingredient brand example with network effects, Recco, was accordingly excluded due to the non availability of their annual report. Companies working both as an ingredient brand and with network effects were very rare to be listed on the stock market, therefore half of the sample group was determined to include ingredient brands and the other half with companies that benefit from network effects. The size of the CSG was thereafter set to 4, due to the scope of time limited to 20 weeks, thereby two companies each. Further, one ingredient brand company, Mips, was chosen in accordance with Twiceme, firstly on the basis of their similarity of market domain and secondly for their presence of being a role model company for Twiceme. Lastly, the final three were selected based on their dominant market position combined with being accurate and clear examples of ingredient brand and network effects respectively. Moreover, they are all common as examples and often mentioned in articles describing the phenomenon of ingredient branding and network effects. As a result, the final CSG consists of: Mips, Intel, Uber, Airbnb.

3.2.4 Case sample group review

Once the CSG was settled, the CSG research could be initiated. To get comparable data from the different companies, the method used was to review their annual reports. Further the annual reports were selected to year 2019 in order to omit their impact from Covid-19 since it's not in

the scope of the topic. However Airbnb was listed in 2020 and therefore their annual report from 2020 was selected consequently.

Firstly, to get a better understanding of the CSG companies and their market position and corporate strategies et cetera, the annual reports were read briefly top to bottom. The annual reports are comprehensive in nature and cover lots of material and aspects that are outside the scope for this thesis. Therefore, in order to extract relevant data from the annual reports comparable to the theory, a list of buzzwords was created, see Table 2. They were listed from the frame of reference in the previous section and aim to make the review process more effective and the methodology more replicative if someone wants to copy the process and receive similar results. To easily find the buzzwords in the annual reports, the “CMD+F” search function in the computer was used for each of the different buzzwords. When searching for the buzzwords, they were used with different suffixes in order to ensure that the similar meaning wasn’t missing.

Table 2. Buzzwords - CSG analysis.

IPR	Patent	Dominance	Dominant design	de facto standard	Leadership
Success factors	Installed base	Subscribers	Regulation	Switching costs	Credibility
Costs	Price	Accessibility	Compatibility	R&D	Growth
Ingredient brand	Host brand	End-user	Pull (effect)	Push (effect)	Industry standards
Market share	Indicators	Features	Measure	Market position	Market characteristics
Network effects	Bandwagon	Network intensity	Critical mass	Adoption rate	Technology diffusion
Brand equity	Brand awareness	Brand differentiation	Brand identity	Brand image	Brand reputation
Brand recognition	Rivalry firms	Competition	B2B	B2C	Relationships
Barriers to entry	Newcomer	Entrants	Entry timing	Loyalty	Trust
Quality	Strategies	Customer	Trends	Platform	Partnership

3.2.5 Twiceme review

Twiceme is the only ingredient brand with network effects that is mentioned in this report, and is therefore important to compare with all the other companies from the CSG. The CSG review will have varying results depending on what information the respective company has shared in their annual report. The Twiceme review was conducted through a qualitative interview in order to get

as much information as possible. This comprehensive information could thereafter in the analysis be compared with the less extensive information gathered from each company in the CSG.

As mentioned, the review of Twiceme will be designed by conducting qualitative interviews with the CEO and COO of the company. The outline of the interviews will be to collect all information possible regarding the information gathered from the CSG review. The major outline is to understand Twiceme's market position and growth potential as an ingredient brand using network effects. However, the interview will also tackle topics such as competition, brand awareness, brand reputation, IPR and R&D.

3.2.6 Case Sample Group and Twiceme analysis

The CSG analysis will compile all of the material from the Twiceme review, CSG reviews, the theory from the frame of references, and thereafter compare them, address them, and identify the similarities and differences. The outcomes from the analysis are supposed to give answers to the research questions and give ground to a framework to address a company's market position and growth potentials of being an ingredient brand with network effects.

The findings were organized into different categories based on the information derived from the CSG analysis. Since different companies offered different types of material, it was difficult to organize the results. Furthermore, the categories were created using a frame of references that allowed the extracted data from the various reviews to be conveniently sorted. Furthermore, the study was carried out by comparing the findings of the various reports side by side to see where they overlapped and where they differed. The results were thereafter compared with Twiceme's case as an ingredient brand with network effects. The findings were also explored and evaluated in accordance with the theory from the frame of reference in order to come up with responses to the research questions.

3.2.7 Evaluating ingredient brands with network effects

To understand an organization's market position and how they can benefit from network effects as an ingredient brand, they need to be evaluated. From the findings in the CSG analysis, this chapter will create a framework with significant measurement points. The evaluation framework is based to assess a company's market position and find different development indicators regarding the use of network effects as an ingredient brand. This could be further investigated to identify strengths and weaknesses of the combined effect of ingredient branding and network effects in the organization. The results from the framework should be applicable to any company on how these strategies could strengthen their market position. This is also made for future researchers to apply if they want to repeat the analysis or deepen their knowledge of this research topic.

3.3 Reliability and Validity

Achieving high repeatability in the study is essential for gaining high reliability, and if repeated, the results should be comparable (Collis and Hussey, 2014). As a result, the research approach was to develop a process that could be easily copied.

For re-conducting company reviews and analyses of ingredient brands with network effects, an evaluation framework was created to easily understand and guide what topics to investigate (see heading "*5.2 Evaluating ingredient brands with network effects*"). It is intended to give a great overview when analyzing the situation and potential outcome for ingredient brands with network effects. Furthermore, the interview guide is included in the appendix if there is interest in repeating the research (see Appendix A) and also described in the method as well. The methodology also explains how the case study was carried out and what approaches were used to analyze the findings.

Constructing a framework partly from annual reports limited the study a bit since a lot of knowledge can't be found in annual reports. The initial ambition of the study was to treat the annual reports as data and gain all the insights and valuable knowledge needed for the development of the framework and answering the research questions. However, many details and specific information is hard to get by reviewing annual reports. Performing qualitative interviews with the CSG would increase the material to analyze, due to time limitation no such study was conducted for this thesis.

One annual report from each company was evaluated. The reports were set to be from 2019 except from Airbnb's. Airbnb was recently listed and therefore they only published one annual report before this thesis. This might have effected the results due to that Airbnb have been affected by the Covid pandemic in their chosen annual report, which the other companies haven't been. However, the aim in the thesis has not been to analyze and compare financial results and therefore this manner might not change the result significant.

For validity, the research approach was drawn from literature, although parts of the evaluation framework have been a result of experimentation since the novelty of the research topic. The results and analysis are simple to follow and described step by step in the methodology to establish validity. In addition, all the used research methods have been reviewed and discussed with the thesis supervisors. Using several research approaches, such as combining qualitative interviews with reviewing a case sample group, has the advantage of providing a wider viewpoint and reducing biases (Collis and Hussey, 2014).

4 RESULTS

Chapter four presents the results from the CSG and Twiceme reviews.

4.1 Case sample group review

The CSG review is as mentioned in the method chapter, made from the companies' annual reports respectively and is cited in the reference chapter. In other words, all the data in the following chapter is public available information that could be found in their annual reports.

4.1.1 Mips

Mips currently sells their patented rotational motion protection solutions to world-leading brands through an ingredient brand model. They sold over 14.2 million units in the snow, bike, moto, climbing, safety, and equestrian helmet models through 2019. Based on more than 20 years of research, the company sells their state-of-art helmet safety solutions. Their vision is that their technology will become the expected helmet safety solution, by becoming the obvious safety solution that consumers and industry demand when it comes to increased safety.

Rotational motion in a crash is the outcome of the interplay of rotational forces and rotational energy. The tissue in the brain moves and/or stretches as a result of this rotational motion, increasing the likelihood of brain injury in the event of an impact. The increased understanding of the risk with rotational motion injuries have moved Mips into the center in the helmet industries and due to their patented state-of-the-art solution for rotational motion protection, they have gained a strong market position.

Ingredient branding

Mips works as an ingredient brand and can be implemented in both new and existing helmet models. Host brands in the helmet industry now have the potential to implement protection against rotational motion and will therefore be able to differentiate the brand and generate added value. Mips customers, the host brands, therefore actively market the benefits of Mips as a brand to end users. This puts Mips in a position where they benefit from both push and pull concepts.

Market position

During 2019, the number of employees at Mips has increased from 36 people to a total of 50 people. Their goal is to further strengthen certain aspects of the organization in order to meet the long-term goals. For instance, they have improved the organization's sales and marketing, as well as product development and implementation. However, Mips is based on a model of ingredient branding. The Mips production model is scalable because the company does not carry out production directly but instead hires subcontractors. As a result, Mips can expand significantly without having to significantly expand its organization's size. They mean that they can reach a large number of customers for low cost and gain high exposure to end-users thanks to the ingredient brand's extensive and global marketing resources.

The amount of people using helmets is increasing in society. The share of people using ski helmets in USA have increased every year. In 2007 40 % of the skiers used ski helmets, and in

2019 85% of the skiers used helmets, see Figure 9. Additionally, consumers are becoming more aware of the importance and benefits of including rotational protection in helmets.

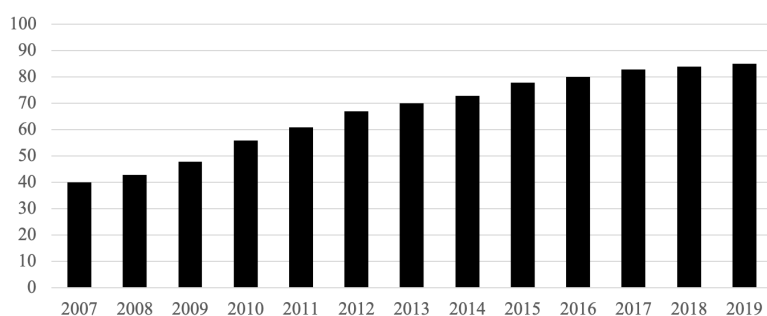


Figure 9. Share of skiers wearing helmets, per season in the USA (Mips, 2019).

Competition

Mips is the market leader in rotational motion protection helmets. There are a few competitors, but they only offer their solutions on a few helmet models and categories. However, as people become more aware of the importance of rotational motion protection, demand for it is likely to rise. A risk of this situation could be the likelihood of more competitors to enter the market.

There are two types of competitors on the market; the host brands who develop their own rotational motion technology into their helmets, and the companies that serve as ingredient brands. Competition from ingredient brands is currently limited and as mentioned their customer base is very small. Competition from the host brands that develop technology in house are also limited since they only use their solution on their own brand. Mips thereafter states that they have a large patent portfolio, which restricts the ability of competing players to launch their own new technologies to some extent.

Mips states several advantages they have against their competitors:

- They have a validated state-of-the-art solution that can be implemented in most different types of helmets at different price points.
- They have a large patent portfolio of 187 granted patents and 125 pending applications which are intended to defend the company's technology.
- The technology has been tested and validated by many independent institutes and Mips stands for more than 27 000 tests internally.
- Mips have already gained a large share of globally leading helmet brands as their customers. They mean that their established platform will ease their possibilities of implementing Mips in more of the customer's helmet models.

Mips is a member of a number of groups dedicated to standardizing and certifying test standards in the helmet industry. The primary justification for membership is to ensure that the appropriate test standards for certification are used. Currently Mips works with the following organizations:

- SIS TK525 - The Swedish Institute for Standardization
- CEN TC158 - European Committee for Standardization
- ASTM International - Subcommittee on headgear and helmets
- ISO – ISO/TC 83/SC 5/WG 3 - Protective equipment for ice hockey

Brand awareness

Since Mips uses an ingredient brand model and sells their products to host brands rather than to end-consumers directly, the company is still dependent on helmet use by the consumers and the overall sales of helmets. Partly to this, there are several trends that could affect Mips. Firstly, as mentioned, the awareness of rotational motion risks and how to prevent it is crucial for Mips. The host brands and end-consumers are both important to create awareness within, since both will push each other to create a larger demand for Mips. However, Mips will also gain benefits to create awareness on a larger scale in the society as well. For instance, a larger awareness of rotational motion risks will create more third-party tests of validating the helmets regarding these issues. If the awareness extends to a social level it might also create regulatories that further will force brands to implement rotational motion technology.

Mips further gain benefits from not only an increased positive perception of their own brand, they can capitalize on their host brands perception. For example, they got into the more established brand POC and their premium helmet, which helped them gain a rush in the market.

Growth

More and more customers are making the strategic decision to equip all of their helmet models with Mips BPS. When the American helmet Specialized announced their plans, they drew a lot of attention from the cycling media. Mips mentions that at the end of the year, additional two more examples of this commitment occurred when the helmet brands Nutcase and Bollé announced that Mips BPS would be implemented in all of their models for both bicycle and snow helmets.

Repeated testing from independent players which have shown superior results, favorable articles in various sports and category-specific media, and an increased number of helmet brands implementing Mips, are all helping to reinforce the Mips brand. As a result, consumer demand for helmets with the yellow Mips logo is increasing. More and more vendors are making the strategic decision to equip all of their helmet models.

During the year, the first safety helmet within the important safety industry category implemented Mips. The market for industrial helmets is large; in total, the market is estimated to be worth over \$300 million per year, with Mips estimating 60 million as directly addressable today. Generally, this achievement reflects the business model's effectiveness and scalability.

In September 2019 Mips unveiled a long-term strategy, which runs through 2025. The plan is to focus on three major categories which includes Sport, Moto and Safety helmets. With the maturity Mips has built up, they feel confident to focus on a broader product offering where the addressable market then grows from 43 million to 130 million helmets. This will provide Mips with a substantially larger market to penetrate. The new strategy aims to reach an increase in net sales from SEK 268 million to SEK 1 billion.

4.1.2 Intel

Since the founding in 1968, Intel's technology has been at the forefront of computing breakthroughs. They are a world leader in the design and manufacture of critical technologies that power the cloud and an emerging smart, connected world more than 50 years later. Intel is

transitioning from a PC-centric to a data-centric business, with workload-optimized solutions to support a diverse range of customers process, transfer, and store ever-increasing quantities of data. Data's rapid growth is reshaping computing and broadening their possibilities.

Intel's goals have never been higher: to develop game-changing technology that improves every people's lives. Intel's culture, in some ways, is more distinguishing than ever, especially the importance they place on engineering, honesty and transparency. But they also recognize that society must continue to change. Every day must be approached with a growth mentality. Intel aspires to be a far bigger part of their customers' success.

Ingredient branding

Intel defines themselves as an “*Integrated device manufacturer*”, which in this thesis has been referred to as an Ingredient brand. Unlike several other semiconductor firms, Intel designs and produces their products mainly in-house, and they consider this to be a significant competitive advantage. Intel is working to enhance their design efficiency by partnering with the wider silicon manufacturing and design ecosystem, including increased strategic use of third-party design IP and foundries for some parts, so they can concentrate on differentiating technology. To enable delivering the best solutions for their customers, Intel is exploring design simplification to accelerate innovation, including a major reduction in design rules for potential process nodes.

Intel depends on many distributors to assist in generating end-customer demand, providing technical support and other value-added services to consumers, filling customer orders, and stocking their goods. Using third parties to distribute their products exposes Intel to a variety of risks, including increased competition and concentration, credit risk, and compliance risk.

Original equipment manufacturers, OEM's, and cloud service providers are the primary buyers of Intel's products. Other producers and service providers, such as automotive and telecom equipment manufacturers and cloud service providers, are also among Intel's clients, who purchase their products through dealer, reseller, distribution, and OEM networks all over the world. Thousands of indirect customers - system builders who buy Intel® processors and other items from their distributors - make up Intel's worldwide reseller distribution channel. Intel has incentive programs in place that encourage distributors to sell microprocessors and other goods to systems integrators in small quantities.

As an ingredient brand, a small number of customers account for a large portion of Intel's sales. Intel's three biggest customers collectively represent nearly 41% of their net revenue in 2019 and 39% of their net revenue in 2018. In the future, Intel expects a limited number of customers to continue to account for the majority portion of sales. Intel points out that they may experience a decline in revenue if one of their main customers stops buying from them, significantly reduces its demand for their products, or delays its orders for their products, which could affect Intel's results of operations and financial situation.

Market position

When you are the strong leader in any field - as Intel has been in semiconductors for PCs and servers - they mean that you run the risk of losing your ability to listen and your interest in the environment. When you actively reposition your business to meet a big new market opportunity, as Intel is today, this comes into focus. Intel has a 25% market share in a market estimated to be

worth \$300 billion. Process and packaging, architectures, memory, interconnects, security technologies, and software are all areas where Intel is investing and innovating to maintain its product leadership.

Intel's industry is highly competitive, with frequent product introductions and enhancements, as well as rapid technical and market advances, shifts in industry requirements, changes in customer and end-user demands, expectations, and preferences. Intel means that their competitive position may decline if they do not foresee and adapt to these changes, and their products or technologies may become uncompetitive or outdated. The competitive climate has become more intense, and Intel expects it to continue to do so.

Brand reputation

Damage to Intel's reputation can have a negative impact on the company. In customer relationships, their reputation is said to be extremely important. How Intel handles business crises has an effect on Intel's image as well. Corporate crises may occur as a result of catastrophic events as well as incidents involving unethical behavior or incompetence; product quality, protection, or safety issues; or employee misconduct.

Via Intel's own direct marketing and co-marketing services, they raise brand awareness and preference, as well as create demand. Advertising on digital and social media, as well as on television, as well as consumer and trade events, industry and consumer communications, and press relations, are also part of Intel's direct marketing strategy. Intel markets to both customer and business markets, with the goal of increasing product recognition and demand.

Growth

Intel stated that they were on track for another good year in 2020 after a strong year in 2019. In Intel's strategic pursuit of producing the world's best semiconductors and realizing data-centric opportunities, they invest heavily in R&D and IP in order to include an unrivaled portfolio of leadership goods and expand their ability for their customers. They build intellectual property for their platforms to allow next-generation products, create synergies across their companies, and provide a higher return as they enter new markets and establish and support their brands. Intel aspires to be at the forefront of the industry's relentless technological change.

IPR

Intel owns and develops substantial intellectual property and associated IP rights related to their products, facilities, R&D, and other activities and properties all over the world. Patents, copyrights, trade secrets, trademarks, and mask work rights are all part of Intel's IP portfolio. Intel takes great care to protect its inventions and has a long history of vigorously defending its IPR against violations. However, Intel can't always enforce or defend its IPR. Patents, copyrights, confidential information, and other IPR are critical to Intel's success. To secure the IP rights, Intel depends on IP law, as well as confidentiality and licensing agreements with their clients, employees, technology development partners, and others.

R&D

According to Intel, R&D is vital to achieving their strategic goals of producing the best semiconductors in the world, leading technological inflections, and providing leading end-to-end platform solutions. Successful R&D will result in new products and innovations, as well as enhancements to existing ones, which they seek to protect through their intellectual property rights. Intel supplements their R&D efforts by buying or investing in businesses, entering into R&D agreements, or directly purchasing or licensing technology. When assessing the effectiveness of their capital deployment in generating value, Intel looks at R&D investments as a factor. In 2019, Intel made \$13B in R&D investment.

As an ingredient brand, Intel spends more money on R&D than many of its rivals. They also face new sources of competition as a result of shifts in market players, such as acquisitions or business partnerships, as well as new entrants, such as in China, which could significantly weaken Intel's competitive position.

Added services

In order to compete effectively, Intel must sustain a successful R&D effort, create new products and production processes, and strengthen existing products and processes to stay ahead of competition. Process technology, architecture, memory, interconnect, security, and software are the six engineering elements on which Intel is concentrating its R&D efforts. Intel states that they must develop new industry partnerships with consumers and partners in order to be competitive. In addition, Intel must constantly enhance their products' cost, performance, integration, time-to-market, and energy efficiency, as well as extend their software capabilities to provide customers with comprehensive computing solutions. Market dynamics are proving to be difficult for some of these emerging companies.

4.1.3 Uber

Uber is a technology platform that powers movement from point A to point B by leveraging a large network, dominant technology, operational excellence, and technical expertise. Uber creates and maintains proprietary technology applications that support a wide range of services on their platform. Uber connects consumers, known as "*Riders*", with ride service providers, known as "*Drivers*", as well as restaurants and food delivery systems, public transportation networks, e-bikes, e-scooters, and other personal mobility options. In the freight market, Uber uses the same network, technology, operational excellence, and product experience to link shippers with carriers. Uber is also working on technology that will provide customers with autonomous vehicles solutions, as well as networks of vertical take-off and landing vehicles and new ways to solve everyday problems.

Uber and its subsidiaries had approximately 26,900 employees as of December 31, 2019. Ubercab, Inc., a Delaware company, was created in 2009 and incorporated in July 2010. Uber changed its name to Uber Technologies, Inc. in February 2011. Tens of millions of drivers, riders, restaurants, shippers, carriers, and dockless e-bikes and e-scooters, as well as underlying data, technology, and shared infrastructure, make up Uber's smart, powerful and efficient network. With each trip, their network gets stronger.

Network effects

The value of Uber's network increases as the size of their network expands, as a result of network effects. Uber's offering would become less attractive to platform users if it is unable to attract or retain a critical mass of Drivers, Riders, restaurants, shippers, and carriers, whether as a result of competition or other factors. As a result, Uber's ability to sustain or increase their network size and liquidity in a given geographic market by attracting drivers, customers, restaurants, shippers, and carriers to Uber's platform is critical to their success. Uber may not be able to attract customers and restaurants to their platform if Drivers choose not to offer their services through Uber's platform or choose to offer them through a competitor's platform. In most of the geographic markets where Uber works, they have encountered and plan to continue to encounter Driver supply constraints.

If Uber experiences Driver supply issues in a market, they may have to increase or may not be able to reduce the Driver incentives they provide without negatively impacting the liquidity network effect Uber sees in that market. A lack of platform users will reduce Uber's network liquidity and have a negative impact on their revenue and financial performance. While having a greater network size and liquidity than other competitors may be beneficial for Uber, those network effects may not provide competitive advantages or be overcome by smaller players. Keeping a balance between supply and demand for rides in any given region at any given time, as well as Uber's operational capacity, may be more important to service quality than the network's overall size. If their service quality gets worse or Uber competitors' products gain wider market adoption, the competitors can expand faster than Uber does, reducing their network effect.

Market position

Uber competes in highly fragmented markets all over the world. They face substantial competition from current, well-established, and low-cost alternatives in each of the ridesharing, meal delivery, and freight industries globally, and Uber expects to face competition from new market entrants in the future, considering the low barriers to entry and low switching costs which define these markets.

Uber's ridesharing category position, they claim, is an important indicator of their progress toward their huge market opportunity. Internal source data such as historical travel, bookings and fare information, as well as external source data provided by publicly accessible information and marketing analytics firms, are used to estimate Uber's total ridesharing Gross Bookings in a given area. Uber assumes they have a leading ridesharing category spot in every major part of the world where they operate, based on these estimates.

Brand reputation

Maintaining and improving Uber's brand awareness and reputation is important for its business prospects as well as attracting new employees and platform users. Uber has previously received considerable media attention and negative publicity about their brand and reputation, and Uber will suffer if they do not recover their brand and reputation. In January 2017 for example, a backlash against Uber prompted #DeleteUber, a social media movement encouraging platform users to delete the app and stop using Uber's platform in response to claims that they were profiting from a protest against an executive order preventing certain refugees and immigrants from entering the United States.

Growth

Uber tracks a variety of operational metrics, including MAPCs, see Figure 10, and Gross Bookings, see Figure 11. MAPC, Monthly Active Platform Consumers, is the average of the number of specific consumers who completed a ride or received an Eats meal on Uber’s platform at least once in a given month. Although a single customer can use multiple product offerings on Uber’s platform in a single month, that customer is only counted as one MAPC. Uber uses MAPCs to evaluate platform adoption and transaction frequency, both of which are important factors in their penetration of the operating markets.

Uber passed the 100 million MAPC mark in 2019, finishing the year with 111 million MAPCs, a 22% growth over 2018, and a 68 percent rise in the amount of users using both Rides and Eats. On a constant currency basis, gross bookings increased by over \$15 billion for the third year in a row, to \$65.0 billion, or 35 percent. Due to the global expansion of Uber Eats, larger market adoption of Uber Rides, and overall growth in Uber’s other offerings, the overall rise in Gross Bookings was led by a 22 percent increase in MAPCs.

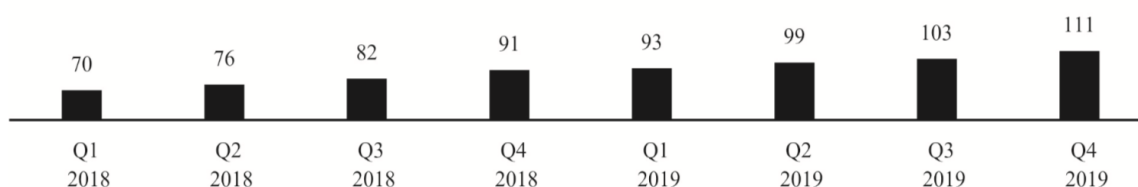


Figure 10. Monthly Active Platform Consumers - MAPC (in millions) (Uber, 2019).

Uber's gross bookings and growth rates for their Ridesharing products have recently been on a decrease and they expect it to slow further in the future. Uber mentions a variety of factors from which they believe their success and future growth is depending on, their ability to:

- Expand their platform's supply and demand;
- Increase the number of people who use their platform;
- Continue to expand their platform's reach into new markets;
- Grow their company and gain market share and category leadership;
- Create innovative products, services, and technologies;
- Boost Uber’s positive brand perception

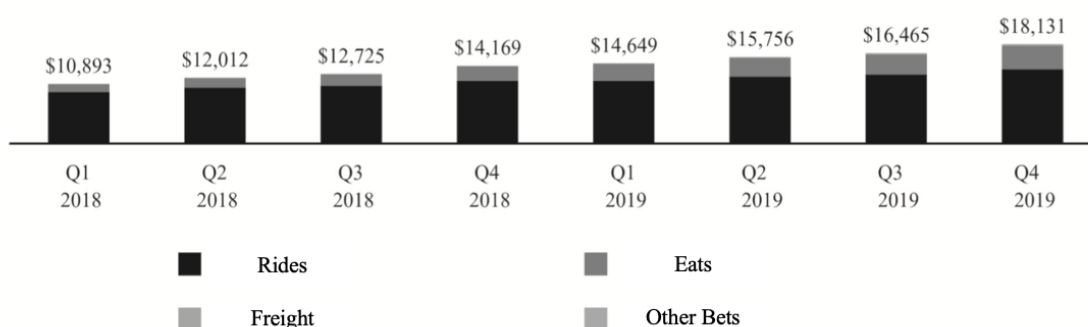


Figure 11. Gross Bookings (in millions) (Uber, 2019).

IPR

Uber claims that their intellectual property is critical to their success and provides them with a strategic advantage in the markets they serve. The content of the website, mobile apps, registered domain names, software code, firmware, hardware and hardware designs, registered and unregistered trademarks, trademark applications, copyrights, trade secrets, innovations (whether patentable or not), patents, and patent applications are all examples of Uber's IP. Uber's brand and reputation may be damaged if they don't properly protect its IP.

Uber uses a variety of copyright, trademark, patent, and trade secret regulations, as well as contractual clauses, end-user policies, and disclosure restrictions, to protect their IPR. Moreover, they may launch or acquire new products from time to time, including in areas where they have not previously worked, potentially increasing their exposure to patent and other IP claims.

R&D

Since the industries in which Uber operates are characterized by rapid technological advancements, their ability to compete effectively is highly reliant on their ability to ensure a constant and timely supply of competitive new offerings and technologies, such as autonomous vehicle technologies, dockless e-bikes and e-scooters, and certain offerings and technologies related to Freight and Uber Elevate. Via R&D and acquisitions of third-party companies and technology, Uber continues to develop new technologies to improve existing offerings and services and to extend the range of their offerings. Uber has entered into, and expects to continue to enter into, arrangements to acquire businesses, develop joint ventures, and acquire complementary companies or technologies as part of their business strategy. Acquisitions of companies, innovations, and assets are fiercely competitive in their industry.

Added services

Uber plans to keep investing in new platform offerings that they hope will boost their platform and current services. All of these synergies, Uber believes, will improve the customer experience, helping them to both attract new platform users and strengthen connection with current platform users, while also distinguishing themselves from their rivals. These aspects increase the size and liquidity of their network, increasing the platform's value to platform users. For example, UberEats introduced new customers and over 45 percent of first-time Eats customers were new to their platform in the three months ending December 31, 2019. Furthermore, consumers who were using both Rides and Eats had 15.9 Trips per month on average for the three months ended December 31, 2019, compared to 5.7 Trips per month on average for consumers who used a single offering in areas where both Rides and Eats were available. Another example was when Uber updated their Driver app in 2018 to include features that better predict Driver needs, such as enhanced real-time communication and notifications on the availability of riders and consumers, as well as fares and delivery pricing.

The cost of developing and implementing these new or updated products and features is high, and the success of such new products and features is dependent on a number of factors, including their timely completion, release, and market acceptance. If Uber is unable to continue to create new or updated products, services, and features, or if platform users may not see value in such

new or upgraded products, offerings, and features, platform users may decide not to use Uber's platform, negatively impacting the company's operating results. Furthermore, Uber sometimes launches new services, such as UberPOOL, that they believe will add value to their overall platform and network but will result in lower Gross Bookings per Trip or a lower take-rate.

4.1.4 Airbnb

Airbnb is a network built on connection and belonging, which began in 2007 when two San Francisco hosts invited three guests into their house, and has since expanded to 4 million hosts who have welcomed over 800 million guests to over 100,000 cities in almost every country and area in the world. Airbnb hosts are regular people who share their lives with travelers to give them a sense of belonging and attachment. Airbnb has five stakeholders, and together with all of them in mind, Airbnb was created to be the organization they are today. They represent hosts, guests, and the cultures in which they reside, as well as their employees and shareholders. They plan to make long-term decisions that take into account all of their partners because the future of their organization relies on everyone's success.

Market position

Airbnb explains that their core strengths are in their host community and guest community. They mean that their brand and their platform of connecting these people are their strongest pillars. Using their strong brand and their global network have helped them to thrive on the market. However, to reach a long-term strategy, they must continue to invest in their key strengths to achieve a stronger brand and become even better in what they are good at.

Airbnb mentioned reinvesting in increasing the scale and content of their host groups so that guests booking on their platform have a sufficient selection. They plan to extend new use cases, such as long-term stays, by attracting more hosts internationally. Airbnb encourages new ways to host, such as local travel and remote working. Finally, Airbnb will continue to provide their hosts with more resources in order to provide high-quality stays and experiences for their guests. Airbnb wants to develop new technologies and programs, as well as provide intensive host education by collaborating with hosts to teach the art and science of great hosting. Airbnb assumes they have just started to scratch the surface of the possibilities that hosting will offer.

They expect to bring more money into the brand in order to inform potential hosts and visitors about the benefits of Airbnb and the uniqueness of their service. They also plan to build on the brand by implementing a coherent and cohesive marketing approach that involves product releases that introduce new features to their audience as well as future hosts and visitors.

They plan to extend their global network in areas where they already have a large presence, as well as in regions where they have a smaller presence, such as India, China, Latin America, Southeast Asia, and tens of thousands of other smaller markets and remote locations around the world. They will continue to localize Airbnb to make it more available in more countries, and they work with cities to change short-term rental laws and legislation to enable more hosts to join. As more hosts join the platform, more guests are likely to use Airbnb, which thereafter will attract even more hosts.

Hosts have a wide range of requirements, and Airbnb works hard to design technologies that fulfill those needs. They developed their platform to help new hosts get up and running quickly, particularly those who had never considered hosting before. They work with hosts in the process of creating their listing and provide them with a comprehensive range of tools to help them do it effectively. The architecture of a mechanism that encourages millions of strangers to trust one another and get a feeling of safety, is one of their key innovations.

Competition

Airbnb means that their work environment is highly competitive. They face competition in recruiting hosts and visitors as they aim to grow their community worldwide. The competitors are for instance online travel agencies (such as Booking Holdings), listing and meta search websites (such as TripAdvisor) and hotel chains.

Parts of Airbnb's business model are slowly being adopted by competitors, potentially reducing their ability to differentiate themselves and their products. Increased competition might reduce demand for their platform among hosts and visitors, delay their development, and have a materially negative impact on the market, results of operations, and financial condition. Due to the maturity of some of Airbnb's competitors such as greater name and brand recognition, longer operating histories, larger marketing budgets, larger inventory of accommodations etc., these competitors might be able to provide the consumers with a more complete product experience. For example, some competitors or future competitors are designing "super-apps" that allow users to access a range of online services without leaving this app. Due to this intense environment, they mean that they have to work focused in order to stay competitive on the market.

Brand awareness

Home sharing is one of the major concepts of Airbnb and there is a strong need for them that this gains global acceptance. The popularity of home sharing has through time grown in popularity, however, there are particular regions that cultural considerations might be a barrier for it. The uncertainty of reaching this global acceptance is worsened by the laws and regulations in different regions which, for the most part, ignore the online home sharing business model.

Airbnb's reputation and brand are two of their most valuable properties. The ability to attract hosts, guests, and employees relies on the ability to sustain and improve their brand and reputation. It also lets them thrive successfully by maintaining and deepening their current hosts, visitors, and employees' engagement. The impression of the platform from hosts and guests is crucial for Airbnb. The power of word-of-mouth from the community will have a large contribution to Airbnb's future growth. Therefore, the organizational priorities will be reorganized in order to put a greater emphasis on individual hosts and brand marketing and reduce the performance marketing.

Growth

Airbnb's sales growth has stalled and will likely continue to do so in the future. They have seen strong sales increases in the past; however, recent growth rates have declined, and there is no promise that historic growth rates will return. Airbnb's sales growth rate fell year over year in 2019 relative to 2018 and even in 2018 compared to 2017, see Figure 12.

	Year Ended December 31,				
	2016	2017	2018	2019	2020
	(in millions)				
Nights and Experiences Booked	125.7	185.8	250.3	326.9	193.2
Gross Booking Value	\$ 13,924.8	\$ 20,975.3	\$ 29,440.7	\$ 37,962.6	\$ 23,896.9

Figure 12. Gross Booking Value (Airbnb, 2020).

The sales fell dramatically for the end of 2020 as a result of the Covid-19 pandemic. Airbnb's future sales growth is determined by the supply and demand for listings on their platform, and the business is influenced by global economic and industry factors as well as developments in the travel industry.

Additionally Airbnb states a number of factors that will affect their growth;

- The level of consumer awareness and brand recognition
- The ability to build and strengthen safety and trust on the platform
- How well the platform will be marketed to hosts and guests
- How well they can develop new offerings to their customers
- The timing and effectiveness of their expansion

IPR

Airbnb means that intellectual property is an important part of their company. Patents, trademarks, copyrights, domain names, social media accounts, know-how, licensing arrangements, confidentiality protocols, non-disclosure agreements with third parties, employee disclosure and invention assignment agreements, and other IP and contractual privileges are used to define and secure their exclusive rights. Today they have 120 patents issued and 139 pending applications.

4.2 Twiceme review

In May 2021, Twiceme has been on the market for two years and has grown very fast in the last quarters. They began 2020 by having one customer and in May 2021 they have grown that number to 11 customers. Every customer they have, has integrated them into 1-8 number of products. POC for instance, that are their pilot customers and work in the sport segment, have integrated them into several different products, but the average number is to implement Twiceme into two products at the moment with future expansion. The sport segment is more likely to implement them into more products since they have a larger product portfolio. The construction segment has less products in their portfolio, but therefore they can implement Twiceme into a larger share of their products.

The reputation of these brands depends on the market as well. There are not as many players in construction as there are in sports and therefore the construction brands are in general larger suppliers. For the moment Studson are their biggest player in this segment, but there are still larger players to gain as customers. In the sport segment they also have big players, however, these brands don't demand the same unit volumes.

Today Twiceme has now sold approximately [REDACTED]¹ units and this year they estimated to sell [REDACTED]² units each quarter, thus, this number is most likely to be exceeded. Their number of active users are very hard to estimate since the purpose is not to use their platform on an everyday basis. Due to Twiceme's company strategy (where they don't want to access the customer behavior to build trust between the brand and the end-consumer) they are not able to see statistics of how people are using their app. However, if the number of active users is related to the number of downloads of the app, it can be estimated to [REDACTED]³.

Twiceme further means that it is important to not compare the number of units sold with the number of active users. When they first sign a contract with a customer, it takes 6-24 months before the products get out on the market. When Twiceme later on sends the demanded number of units, these don't reach the market until 3-9 months later. Therefore their app downloads might seem very small compared to their units sold, when the actual number of units out on the market is not that large. Today, only a few of the upcoming products have been launched on the market as of the long lead times.

Network effects

Network effects for Twiceme means that their whole concept and functionality becomes better the bigger the network size gets. As Twiceme gets integrated into more equipment and more end-customers become a part of their platform, the higher the value of the concept becomes. The higher the value for end-customers, the higher the incentives get for host brands to partner up with Twiceme and integrate it into their equipment. Since Twiceme is still at an earlier stage of their development, they mean that attracting customers has been their biggest obstacle previously and it still is today. Some companies wait until Twiceme becomes bigger and their value higher. However, Twiceme means that everything is relative and they already find it starting to get easier to attract customers. Compared to one year before, they find it much easier to attract

^{1,2,3} Confidential numbers

customers today. Furthermore, Twiceme also finds that many companies are watching what its competitors are doing and follow.

Ingredient branding

Twiceme is today working mostly by communicating their brand to the host brands. Their focus has been to mainly use a push strategy to build up a large customer base fast. They have been selling a vision of what it will become and inviting brands to join their journey building safer adventures and workplaces for people together, due to the fact that their product had not yet reached its fullest potential initially. They had a functioning product, however some functions have been improved lately, for example their app was needed to scan previously but is not required anymore. They believed that using a push strategy would be enough, since they believed that their host brands would communicate them enough towards the end-consumer. Now when they have a functional product they're able to shift their focus. They feel that they have reached the end-consumer in a slow pace and will now try to put more resources on communicating their brand towards the end-consumer directly. In other words they will try to add a pull method.

Twiceme still believes that their push method has given them good results, since they experience it to be easier to find customers today than it was a year ago. They mention that now approximately half of their customers have initiated the contact in order to create a partnership. They mean that this must be a proof that they gained a larger brand awareness amongst host brands.

Market position

Twiceme operates in a couple of different market segments, it is the sport segment which includes road bikes, mountain bikes and ski helmets. Then there is the construction segment which is professional safety equipment. Twiceme sees and investigates many potential segments as well, backpacks and fall harnesses for example. Right now Twiceme's market size is calculated to approximately 150 million units per year, which earlier indicated, is a market which could potentially increase. Today there is no standard or clear market leader in this field, which is an opportunity Twiceme wants to take. They believe the timing is just right, being a digital ingredient brand and Twiceme thinks that they can ride the wave of ingredient branding in helmets that Mips somehow have created for them.

Twiceme's market is characterized by high barriers to entry. Working B2B takes time to build relations and there are long lead times in their industry. The combination makes companies have to create relations as well as economical conditions to be able to survive for a longer period of time. Lastly, a company once mentioned that the market often endures an ingredient brand for 3 years to see if it survives and if it does, it is there to stay. Furthermore, the market is characterized by high switching costs since you have to change the whole integration process which is costly and takes time. Also there is also a high expense for host brands in terms of marketing to switch. It costs a lot to communicate Twiceme to their customers and switching to a competing solution afterwards would therefore be costly.

Twiceme right now has a market share of approximately 0,1 % based on their current calculated yearly market capacity of units. Since the company is in this early stage, the focus on market

share is not their main priority. At this point, Twiceme is focusing on signing more brands and gaining further spread. By this they are opening up as many distribution channels as possible with great innovative brands.

Competition

Competition is not considered as one of Twiceme's main challenges since they have a unique offering. However there are some different kinds of competitors, both direct and indirect competitors. Mips, among other ingredient brands, could be considered as an indirect competitor to Twiceme. Having ingredient brands in your products is costly, which makes all other ingredient brands in PPE an indirect competitor for Twiceme. Host brands might end up in the position of choosing between multiple ingredient brands for financial reasons, resulting in a competition of becoming involved in the host brands budget. In other words, more integrated brands in the end product will result in a more expensive product for the end-consumer. Although they all have the same vision of making safer adventures and workplaces for people, whereas they could be seen as partners as well. A direct competitor to Twiceme is Apple's medical ID, however its function is quite different to Twiceme's concept.

Brand awareness

The awareness of Twiceme today among end-customers is quite low. Twiceme doesn't have a bigger understanding of their end-consumers' awareness of Twiceme's brand or products due to limited research about it. Twiceme is a startup with a yet limited economy and they have therefore put their core focus on their host brands. The awareness among host brands on the contrary, is high. Twiceme states that they have spoken to most of the brands within their industry, although many brands wait until Twiceme grows larger and can offer a more mature product. Twiceme points out that their platform is still under development, which leads to some new thinking brands wanting to build this technology with them and some brands that rather want to take a part of it when it reaches its higher potential.

Ski-patrols around the world have a pretty high awareness according to Twiceme. Larger organizations around the world are informed about them. However, Twiceme has not reached out to all of the local ski patrols. Furthermore, the awareness of the health-care personnel and ambulance drivers are different depending on the region. In Stockholm all ambulance drivers are educated with the Twiceme concept. As a startup, Twiceme points out that it's important to allocate their resources. Therefore they have put a lot of effort into informing regions where their major host brands are available. This has resulted in the Swedish market getting a lot of attention.

Brand reputation

Since Twiceme's product is not sold on the market to a larger scale yet, they don't think too many know about them yet. There are the early adopters and pioneers, but Twiceme are not aware of how they perceive their brand. Today Twiceme's product is far away from its full potential, however some brands want to build a global standard together with Twiceme because they see their technology to be very exciting with high potential. Other brands want everything to work perfectly from the beginning and therefore are not interested in implementing Twiceme yet. The struggle is to get everyone to completely understand the concept in order to increase the

brand's reputation. However, there exists evidence that confirms Twiceme's reputation as an ingredient brand and that customers are ready to pay extra for their technology. For example, POC released two models of the same helmet, one with Twiceme and one without. The helmet model with Twiceme integrated, was more expensive and sold more copies than the other one without.

Growth

From 2019 to 2020 Twiceme had a revenue increase of 170% (which however was with small numbers). Twiceme believes that they will have a similar size of increase this year and their intention is to have a steady growth every year.

The timing of riding on trends is everything for Twiceme to continue their growth. Twiceme thinks that they are riding on several trends right now. Firstly, Twiceme has found that people are more conscious about safety today in general. Further, the usage of ski helmets have been on a constant increase for a long time now, which statistics prove. Other safety products as well, such back protection. Twiceme is growing with help from the ingredient brand trend in helmets and the overall increase of helmet usage. Another trend is the NFC technology which Twiceme means is more and more common in society and they believe this will only continue to increase. Twiceme wants to be the world leader in development of smart technical PPE which they believe will be the future in the PPE industry.

The first brand that partnered up with Twiceme was POC in 2018 and their first product with Twiceme integrated came at the end of 2019. Later, Guardio was number two and partnered up in March 2020 and came to market in May 2020. Today 11 brands have partnered up with Twiceme and yet only a few of them have launched the joint products on the market. They are expected to be available mainly in 2022. The goal for 2021 is to have 14 brands partnered up with Twiceme, which they believe will be greatly exceeded.

IPR

The function symbol is what Twiceme has trademarked and what they build their concept around. It's not just the design, it is a correlation with the function as well. The symbol is trademarked in the context of vital information within PPE. Twiceme compares it to Fairtrade, where they aim to not just protect a product, rather a bigger concept that is hard for competitors to imitate. Twiceme has trademarked the symbol in all markets where they aim to participate in. Each market needs a specific trademark.

R&D

Twiceme thinks R&D will be essential and their aim is to never stop innovating. Twiceme believes that they have to innovate over time if they want to be able to fulfill their future goals. Twiceme believes that the difference if they will be able to survive in 10 years is how well they succeed in innovating. Based on what stage Twiceme has been, they have chosen to just have a proof of concept. The goal has been to sell a function rather than a product. Thereby, the focus has been more on sales than product development. Twiceme aims to build automatic marketing and investments in R&D that constantly develop Twiceme to become better and better. Twiceme believes it will gain effect in 2022.

5 ANALYSIS

Chapter five presents the analysis from the research. Additionally the framework for evaluating ingredient brands with network effects is defined.

5.1 Twiceme and Case sample group analysis

The CSG analysis will compile all of the material from the Twiceme review, CSG reviews, the theory from the frame of references, and thereafter compare them, address them, and identify the similarities and differences. The outcomes from the analysis are supposed to give answers to the research questions and give ground to a framework to address a company's market position and growth potentials of being an ingredient brand with network effects.

5.1.1 Market position

The market position of the four companies in the CSG differ from each other in different ways. Mips for instance mean that they have a strong market position and gained maturity the last couple of years. They mean that they have grown to a position where they don't rely on any host brand's recognition and their solutions have become a dominant design (Kotler and Pfoertsch, 2010). However, Anderson and Tushman (1990) argue that a dominant design needs to dominate at least 50% of the market. The helmet industry does for sure not use rotational motion protection in 50% of the helmets produced. Mips are on the other hand reaching a dominant position of offering rotational motion protection. Reaching a dominant design might therefore have different meanings depending on what market scale that is taken into consideration.

Twiceme as an ingredient brand, is way behind of gaining the brand recognition that Mips have, but since there aren't any critical competitors on the market, Twiceme and their products stand as the market leaders. However, to dominate a very small market and become a de facto standard on a more mature market are way different. Twiceme are on the other hand way younger than Mips, and in just a few years, Twiceme is already getting a share in the market. The reason for this could be many. Firstly, the trend of using safety gear has increased considerably in the last few years, which is a very good timing for Twiceme. The attitude from host brands to implement ingredient brands into their host products, might also have been increased. Since Mips are a few steps ahead of Twiceme, they might have shown the host brands, within the helmet industry, the value to implement additional safety features into their products. Lastly, compared to Mips, Twiceme also has network effects in their business model. However, the brand awareness is very low in Twiceme's case, where they still have a very small number of users compared to the actual number of sold products.

Suarez (2004) means that companies that gain market dominance in a short amount of time might be vulnerable. Airbnb for instance, gained a market dominant position of renting out private homes on their platform. Even if they have built a strong brand throughout a decade, they still fear that even larger players might take over their market shares. However, Srinivasan (2009) argues that dominant designs are more likely to occur early in the process. In these positions, network effects are very favorable since they ensure potential adopters that their design will gain the largest network, resulting in greater acceptance and, eventually, market

dominance, which have been identified in Uber and Airbnb. According to Rochet and Tirole (2003), two-sided networks and those platforms that connect two groups of users, are an increasingly competitive market. Since these platforms are sensitive to network effects, single platforms such as Airbnb and Uber are normal to emerge as the de-facto standard in their respective industry. However, to become the de-facto standard and to stay as a standard, are two different scenarios. As described by Den Uijl, (2005) he means that market leaders tend to ignore new market breakthroughs and therefore they risk to lose their leading position. Christensen (2013) describes this phenomenon as the “innovator's dilemma”. Airbnb and Uber are very clear about this risk and means that they have to continue to innovate in order to stay competitive. Uber for instance means that their platform wouldn't stay as strong if they didn't expand their platform with Uber eats.

Mips on the other hand, which does not include any network effects in their business model, have built their market position in a long time. However, due to their strong position as an ingredient brand and their good relations to existing customers (Erevelles et al., 2008) combined with a strong IPR position with a state-of-the-art product (Chirico et al., 2020; Cohen et al., 2000), Mips have a large chance to stay as market leaders for a long time. Due to these factors, Mips market tends to be way more difficult to penetrate as a newcomer. Only if taking the ingredient branding position into consideration, it's unlikely for a newcomer to be able to take over Mips' already loyal customers. Compared to Uber and Airbnb, which uses a platform that connects end-users, these two companies need to work harder to always stay ahead in order to not lose any users. As fast as they start to lose users, the platform will lose value exponentially working as network effects but backwards. The strong position for Twiceme as an ingredient brand with network effects is that they will firstly benefit from using a two-sided platform that can achieve fast growth to reach a de-facto standard. Secondly, due to their ingredient branding position, they will create strong relations to their host brands, which will complicate the newcomers to enter the market.

5.1.2 Competition

On an overall level, the competition climate seems to be more fierce and intense for Uber and Airbnb than Mips and Intel. When competition occurs in network markets, a single technology is more likely to be standardized. On the other hand, more people will comply with the standard as a result of this and the value of the network increases for future adopters as the amount of adopters grows (Gandal, 2002). Both Airbnb and Uber mention that their markets are defined by low barriers to entry and low switching costs which could explain why the great competition has emerged and how their competitors have been able to adapt to their business models. However there is a considerable difference between Uber and Airbnb's competitive situation. Airbnb mentions that they face great competition from larger platforms with a broader offering, which could maintain customers to stay on their platform for a variety of different services. Uber on the other hand, has strategically focused to widen its platform by introducing Uber Eats and Freights for example, for the exact same reasons as Airbnb's competitors. Although Uber's approach obviously leads to great competition within each business area from actors that solely focus on that industry.

However Intel mentioned an increased level of competition in their industry as a result of technological advancements and shifts in industry requirements. To remain ahead of the market

competition, Intel states that they need to maintain a successful R&D initiative, develop new products and improve current products and processes. Mips explains the competitive climate for ingredient brands where they face both competition from other ingredient brands as well as host brands developing their own solution. Anyhow, in Mips' case, competition from both other ingredient brands and host brands are limited due to a smaller customer base and lower awareness. Also, Mips' technology has been tested and validated to a larger extent. The competitive landscape for Twiceme is low because of their new and unique market offering. However, as an ingredient brand you're not only competing against direct competitors with the same offering, you could compete against other ingredient brands with a very different offering acting in the same industry. Twiceme mentions Mips as an indirect competitor as they are both aiming to add value to the same product. If a helmet producer for example chooses between certain value adding features (such as Mips and Twiceme) and can't choose both because of price related reasons, those features will then compete against each other to get implemented in that specific helmet model.

5.1.3 Network effects

Uber, Airbnb and Twiceme are all platform based companies whereas their offering value increases as their respective networks grow, which is the fundamental meaning of network effects (Katz and Shapiro, 1985; Gandal, 2002). To exemplify, Airbnb states that as more hosts join the platform, the more guests are likely to use Airbnb which in turn leads to more hosts and so on. These network effects enable the creation of a standard that can provide a significant competitive advantage (Bonardi and Durand, 2003). Mips and Intel on the other hand, their business models are both scalable and have potential to continue its growth, although the value of the product doesn't rise as it further penetrates the market.

Critical mass is defined as when there are enough participants on both sides of the platform (Vinberg and Henriksson, 2017) and the point where network effects start to create an exponential growth to network value. It is safe to say that both Uber and Airbnb have passed this point where network effects start to provide self-sustaining expansion due to their widespread adoption, although it's hard to measure a certain time or network size when they crossed that line. However, Baraldi (2012) states that critical mass is reached faster or earlier the greater the impact from network effects. Uber and Airbnb's fast paced journey towards being a dominant player in their industry could accordingly be explained by their strong impact from network effects. Consequently it is reasonable to believe that the growth of ingredient brand's like Mips and Intel could have been faster if their offering had been influenced by network effects. Twiceme, as both an ingredient brand with network effects, hasn't reached the critical mass of customers yet for exponential network value growth. However, according to Baraldi (2012) and their impact from future growing network effects, Twiceme has thus the potential to have a greater customer growth in comparison with for example Mips at similar stages, given that they are henceforth operating in a similar market size.

Network effects are not only something to reach for, it is also critical to retain its strength. Uber highlighted the importance of maintaining a crucial amount of participants on both sides of the platform, in terms of drivers, riders, restaurants and shippers in their case. They mean that their platform becomes more attractive if there is a satisfying balance between supply and demand for rides at any time in any region. The strive for exploiting the positive impact from network effects

could overcome the aim for perfect quality and service from the offering. Uber and Airbnb commonly put their endeavor for strong network value as a high strategic priority.

Common to both Mips and Intel as ingredient brands is that they have both benefited from bandwagon effects to gain a strong market position, whereas more people come to believe in something when more people buy a certain product, which will impact others' decisions and "*hop on the bandwagon*" (Maxwell, 2014). As mentioned earlier, the value of the product doesn't increase as the company expands like with direct network effects, although the demand from the host brands seems to rise. Mips is expanding and more and more brands are implementing it. For the host brands it will become a must to have in order to have a "*safe*" helmet, which in turn will create a bandwagon effect where the host brands follow each other and fear of missing out. In the case of Intel, as soon as they became the world leader in microprocessors, it set the direction for microprocessors resulting in more people adopting it. More people want it because the trend of everyone else does.

Bandwagon effects could accordingly explain how Intel and Mips can act as standards for their respective product domain. Twiceme, which is in far earlier growth phases than both Mips and Intel, mentioned that they experience the bandwagon effect today whereas they are starting to attract host brands more easily than before as the host brands follow each other's decisions. Twiceme have previously struggled with the Chicken and egg dilemma (Evans and Schmalensee, 2010; Vinberg and Henrikson, 2017) where it's harder to attract customers to the platform until it reaches its higher potential from network effects. A "wait and see"-attitude is likely to appear for network effects companies initially (Srinivasan et al., 2006) and Anderson and Tushman (1990) mentioned that the majority of adopters might wait until a dominant design or standard emerges. Twiceme is dependent on the size of the platform and the amount of end-users, although as an ingredient brand, their direct customers are not actually the end-user, it's rather the host brands. It is thus possible that Twiceme could overcome the chicken and egg dilemma more easily than other network effect companies as a result of being an ingredient brand and gaining benefits from host brands' automatic marketing. To summarize Twiceme's network effect position, they have reached the point where their growth can be boosted by bandwagon effect among host brands, however they are still far from moving past critical mass of end-users and gain extensive platform value growth from network effects.

5.1.4 Added services

To stay competitive on the market, all CSG companies mentioned their ability to provide the market with timely supply and new offerings and developed technologies. To be able to continuously bring added services, significant R&D investments are crucial. Uber states that new products and innovation, as well as improvements to existing ones, would result from effective R&D. Network companies' growth seems to be dependent on numerous similar factors. Both Uber and Airbnb state that platform growth is dependent on the timing and how well they develop added services. This will increase their network value, which consequently will affect how well they could attract customers to their platform. This is so critical that Uber for example, sometimes adds new services that will result in lower profitability but they believe will increase value to their overall platform and network. Twiceme's belief on their side is that added services are needed for them to survive in the long run and the requirement to fulfil their future goals.

However, they have yet no own evidence or previous examples of added services within Twiceme to prove their assumptions.

Growth tends to fall after the time for network brands as they reach the end of the network value S-curve. This is strengthened by the decrease of growth Airbnb has experienced recently. Uber, however, has managed to keep the growth at a higher rate. Uber has previously successfully extended their original ridesharing platform offering to new ones, Uber Eats and Freights for example. Looking at the MAPC as their metric for platform activity, ridesharing growth has decreased, however the overall platform continues to grow steadily. This confirms the need for extensive R&D investments for network brands to continuously add new services or developed offerings to secure future growth.

Uber intends to continue investing in new platform offerings in order to enhance their platform and existing services, autonomous vehicle technologies, dockless e-bikes and e-scooters for example. Uber believes this will improve the customer experience, helping them to both attract new platform users and strengthen connection with current platform users. Airbnb, on the other hand, wants to implement new technology and programs and provide host education. Airbnb believes they've just scratched the surface of the opportunities that hosting has to bring.

As mentioned earlier, R&D is a great part of Intel's business strategy to stay ahead of competition and further states that they invest more money on R&D than many of its competitors. This will result in new inventions, as well as improvements to current products, by which they will aim to protect through intellectual property rights. Mips on their side, assume that they can grow dramatically without having to grow the company significantly. They mean that, thanks to the ingredient brand's comprehensive and global marketing resources, they can meet a large number of consumers at a low cost and achieve high visibility to end-users.

5.1.5 Brand equity

Building a strong brand and well-known products is mentioned as an important target image and strategic objective among all CSG companies. It is described as brand equity and means to explain the commercial value from the consumer's understanding of the brand name of a product or service rather than the product or service itself (Aaker, 1991). Airbnb's strongest assets are their brand and their platform for linking these users. Their ability to compete on the market has been supported by their solid reputation and global network. Similar to Uber and Airbnb they point out that the ability to attract hosts, guests, riders, drivers and employees is dependent on the company's ability to maintain and strengthen its brand and reputation. It also allows them to succeed by sustaining and deepening the interaction of their current hosts, guests, riders, drivers and employees. They conclude that building and retaining strong brand equity become critical for their network growth and consequently the ability to exploit network effects. Corresponding factors also apply to Twiceme, who mention however that the awareness among end-customers is still quite low. Building high brand equity will consequently be a key factor for Twiceme succeeding to build a large global platform with strong network effects.

Mips offering on the other hand, doesn't capitalize from network effects directly, although they however benefit from creating a larger brand awareness in the society as well, but in different ways. They mention that a larger brand awareness creates a higher demand for rotational motion protection at social level and increased request from Mips products. Higher awareness at social

level could also lead to regulations that further pushes the adoption for rotational motion technology to be implemented in helmets. Commonly with Uber and Airbnb, the overall growth will be advantaged from positive brand equity.

As well as building a strong brand equity is critical to a company's growth, the CSG companies commonly point out the importance of being able to maintain it even when it gets seriously damaged. Intel's reputation is said to be crucially important in customer relationships. Intel's reputation is shaped by how the organization manages business crises. Catastrophic accidents, as well as cases involving unethical activity or misconduct, can cause corporate crises. Uber, exemplified how a crisis could arise affect the reputation by explaining the #DeleteUber campaign that took place in 2017 and seriously damaged Uber's brand equity. In summary, brand equity is not only how to build strong brand awareness and product understanding, it could also be about how to retain a good reputation and learning how to respond when it gets damaged. As a young company, Twiceme hasn't experienced any reputational setback events where their brand reputation has been harmed yet, however, as the platform expands, they will be increasingly exposed to those kinds of risks. They need to providently be aware of and work against those risks to secure high brand equity and resulting growth.

As ingredient brands exist in the final product of the host brand, their brand equity and customer perception of the brand can be strengthened by a positive association with the host brand (Levin et al., 1996). Both Twiceme and Mips mentioned how their brand equity gained a significant increase when they were being implemented in a premium POC helmet and could capitalize on their strong brand awareness and reputation. As Mips and Twiceme's brand equity increases, host brands could the other way around, capitalize on their positive perception and brand awareness. Kotler and Pfoertsch (2010) call this a win-win relation in ingredient branding and could explain Mips and Intel's strong position in the market today and Twiceme's potential to achieve it in the future.

Ingredient brands could evidently reach strong brand equity in a variety of ways. Either the ingredient brand makes a product with a reputation that the end consumer values very high, such as Intel and their well-known microprocessors. The ingredient brand could also have a patented superior solution that the host brands need to implement to stay competitive on the market, such as Mips and their patented rotational motion protection solutions. Consumers may come to consider ingredient brands as industry standards and will refuse to purchase a product that does not contain the ingredient (Norris, 1992).

5.1.6 Push and pull principle

Twiceme is today working mostly with a push strategy. They believe that they firstly need to penetrate the market through the customers and build a starting platform of customers. Since their economy has been limited, they believed that they had to choose one direction before they started to expand. Starting to sell their products to the customers first, also helps them create a better economy once the customer base is established. Thus, they mean they can now focus on implementing a pull strategy supported by their host brands which is one benefit of ingredient branding according to Kotler and Pfoertsch (2010). Whether this strategy is the most efficient or not is not completely sure. According to Liu and Huang (2015), they believe that by only focussing on the push strategy, they will achieve a high market share, but the customer

awareness will be lacking and they won't develop any brand equity. Therefore they mean that either way they need to focus on a pull strategy. Since Twiceme wants to become the de-facto standard, the market share is crucial and as mentioned they also get direct revenue the more customers they get. However, even if they sell great volumes of their products short-term, with an inadequate brand awareness towards end-consumers they won't gain any actual users. The result will be end-consumers not knowing how to use the ingredient product. The awareness of the users will therefore be crucial to get people to understand and use the product. It is a precondition to reach a critical mass where Twiceme can benefit from the potential network effects they hold.

5.1.7 IPR

A commonality for Twiceme and all companies in the CSG is the importance of their IPR. They all mean that it serves a competitive advantage and is critical to their success. Although there is a difference between how the companies can defend their offering value and to what extent. Mips, which serves the market with a specific technical solution, claims that their large patent portfolio limits competitors' ability to introduce new technologies. That puts Mips in a defensive position where they possess a great competitive advantage. Airbnb and Uber for example, both make great investments to strategically protect their IP. Although, since the value of their offering constitutes their great network value to a large extent, and you can't patent what causes network effects, it makes it harder to defend its competitive advantage. Network effects are a factor of increased adoption and size of the network, which is something you can't defend with patents. However, one strategy according to Brem (2016), is to avoid claiming IPR and instead become a technology industry leader. This tactic is in line with Twiceme's patenting strategy. Rather than protecting a certain service or product feature, what Twiceme wants to protect is their concept as a whole. They aim to become a global standard within their market and protect their offering by being a technology leader which will make it difficult for competitors to imitate. In this case, the challenge is to launch the next generation of technology as soon as possible, as it is impossible to keep competitors from doing so (Brem, 2016).

5.2 Evaluating ingredient brands with network effects

To investigate the network effects in a company, firstly, their business strategy and characteristics are essential to understand. It is essential to understand what the company is offering in terms of number of products or services, what industry they are working in, who their customers are, and so on. When an understanding of the company's value chain is developed, existing network effects should be manageable to detect, indicating that deep knowledge about different network effects is possessed. Containing this knowledge, the network, its effects and its potentials will be able to further analyze using the following parts of this framework.

Brand equity

When a brief understanding of the company and what network effects it contains, it is essential to gain a deeper understanding of the brand equity of the company. A young company that hasn't reached a critical mass yet, doesn't benefit from the network effects that it has a potential to do. Therefore it is important to investigate whether the company reached this critical mass or not, to understand the impact of their network effects.

Maturity

Since ingredient brands are investigated, both customers and end-consumers are important to examine. Indicators that can describe the maturity are the number of host brands partnered up with, number of products the company is integrated into, the size of these host brands and number of products sold to end-consumers are. Also, the maturity of being an ingredient brand can be examined by to what extent the company works with push and pull strategy. How do they actually approach their customers and how do they approach their end-consumers.

Awareness

Another important aspect for building a strong brand is awareness, how well people know about the brand and what they are offering. To figure it out, the awareness should be investigated among both end-customers and host brands, as well as among other stakeholders relevant to the company. Further, the awareness among non-customers or potential customers is an aspect to look into for understanding how the brand awareness could potentially grow.

Brand reputation

Another important aspect for evaluating the brand equity is the company's brand reputation. Here the perception of the brand should be investigated, where both end-customers and host brands should be looked into to find out how they perceive the brand.

Market position

To understand the company's market position and how it can gain or retain leadership, it's important to understand the market characteristics. Firstly, the size of the market and the company's market segments should be reviewed. Further, it is important to investigate how well the market is familiar with the technology, service or product that either the company or its competitor is offering. By that means, if the company is serving the market with something new, otherwise examine the level of maturity within the company's segments.

Competition

To understand the competitive climate is evidently crucial to explain their market position and therefore needs to be investigated. It is useful to recognize the company's own view upon their competition, whether the company considers themselves battling in a fiercely competitive industry or not. Further, both who and how many competitors there are should be found out. Moreover it's interesting to understand how the company finds itself differ from its competitors to understand the premises on which they work. Additionally, whether the company's industry is characterized by low or high barriers to entry as well as low or high switching costs will affect their competition situation and should accordingly be examined for a greater overall picture.

Standards

When evaluating the company's current and future market position, it should be investigated if the company could be considered having a dominant design or a de-facto standard in its offering category. If the company doesn't have it, it should be examined whether a competitor has it instead. This will have a great impact on the possibility to utilize network effects.

Market share

To understand the company's position, the company's market share should be examined. Additionally, if the company sees any difference in the potential market in the future, it should be evaluated as well.

Growth

To evaluate the company's growth potential, trends during recent years should be looked upon. It's apparently interesting to examine how the company's financial situation looks like and how it has evolved in the past. Further, for ingredient brands, it's interesting to look at how the number of host brands and the amount of customers have grown in recent years.

IPR

To better understand the company's competitive climate and whether they can secure their products or services from being imitated by competitors, the way the company works with patents to protect their offering value should be investigated. Further it is important to understand what the company protects with its patents. Patent is a matter of strategic managerial decision making and an important aspect to review when explaining its potential to dominate the market and gain network effects. Additionally, to dig deeper into the company's patenting situation, both the number of patents and what kinds of patents they have should be explained.

R&D

R&D is found to be an essential part for businesses that aim to be in the forefront of fast changing markets, which network effects appear to be. The R&D investments lay the possibility for innovative capabilities and the probability for successfully adding new services to its current offering. With added products or services, the platform could be expanded and thereby increasing the network effects. How the company focuses its resources on R&D investments should therefore be investigated. It is suitable here to take both their size and their company's industry into consideration. Thus, examine whether the company sees R&D as an important part of their strategy and how they spend their money compared to its rivals.

6 CONCLUSION

Chapter six presents the conclusions from the study, as well as what's left for future research. Lastly, the reflections on the study are discussed.

6.1 Concluding the research questions

***RQ1:** What are the factors influencing the market characteristics for ingredient brands with network effects?*

The value of network effects are hard to protect with patents, which cause network effect companies to experience fierce competition. The competition situation for network effect companies could be explained by low barriers to entry such markets with followers trying to imitate. It could further be defined with low switching costs making it harder to retain customers to stay on their own platform. However, reaching a dominant position in the market or becoming a certain technology industry standard could serve as protection from competition. Network effects have the potential to create an early dominant design which could lead to a de-facto standard emerging. However, this exposes the standard company for competition and followers, and an increased need for innovation and expanding its businesses.

What is important to distinguish when aiming for market dominance and its characteristics is that becoming dominant design and dominant position are two very different targets. Having a dominant design doesn't necessarily imply that you have a dominant position on the market, and vice versa. However, one company can gain dominant design as a consequence of dominant position. They are both nonetheless functioning as dominance strategies for network effect companies to gain a strong position on the market and secure exponential growth from network effects.

Ingredient brands, on the other hand, are exposed to competition from both host brands developing their own solutions, and other ingredient brands from either direct or indirect competition. Direct competition in terms of brands serving the market with a similar offering, and indirect in terms of different offerings but competing for integration in the same product segment. A significant advantage for ingredient brands is the high switching costs since they're integrated in the product and therefore less likely to be exchanged.

To summarize, the competitive situation for ingredient brands with network effects is compiled by the respective market characteristics in combination. In the preferable scenario, the ingredient brand can advantageously gain a defendable and strong industry standard position as a result of network effects, and retain its position from high switching costs as an effect from being integrated in host brands product lines.

***RQ2:** How can the process to achieve strong market position be accelerated by network effects for an ingredient brand?*

Achieving a strong market position for network effect companies is highly dependent on reaching the network size, critical mass, where the value of the network starts having an exponential increase. As stated in theory, the certain point where critical mass is achieved is hard to measure. However, it is reached earlier the stronger the impact from network effects there is and the network effect company's overall growth is consequently expected to grow at a higher pace.

One of the main issues with having a network effect-offering that is depending on the size of its platform, is the chicken and egg dilemma where it's initially harder to attract customers because of an unrealized network value potential. However, including ingredient branding to its value offering act as a solution to overcome this dilemma by gaining automatic marketing and bandwagon effect from its host brands. Thanks to this, ingredient brands with network effects have the potential to reach critical mass earlier due to the reduced impact from low initial network value, which in turn lead to an accelerated growth towards a strong market position. In other words, network effects companies gain benefit from ingredient branding before critical mass and vice versa after critical mass, where ingredient brands gain benefits from network effects causing an exponential growth of their value offering.

During the later stage of the S-curve, where the growth of the network value starts to decrease, network effect companies gain benefits from ingredient branding because of switching costs and customer lock-ins. Ingredient brands, integrated into the end product experience lower probability to be switched for a competitor's solution which makes it easier for the network effect companies to retain its customer to their own platform and secure future growth.

To be able to gain a strong market position, accelerated from network effects, high brand equity in terms of brand awareness and reputation, is needed. Ingredient brands on the other hand, could benefit from not only achieving their own level of brand equity, their growth could also be assisted by high awareness and reputation among their host brands. Consequently, ingredient brands with network effects could lead to synergy effects where the network value could be strengthened at an even higher pace thanks to the increased brand equity from ingredient branding.

To summarize Twiceme's network effect position, they have reached the point where their growth can be boosted by bandwagon effect among host brands, however they are still far from moving past critical mass of end-users and gain extensive platform value growth from network effects. Fast pace growth at Twiceme might be due to trends and ingredient branding strategy, but future growth will potentially become way faster due to network effects.

***RQ3:** When should an ingredient brand with network effects implement new features to accelerate their growth, dependent on their market position?*

Since ingredient brands with network effects have the potential to reach a critical mass faster than companies with network effects, they of course have the opportunity to implement new features to their platform in an earlier stage. However, to spend resources on new innovation even before their main product gained a critical mass makes no sense. New companies that haven't gained any market shares yet, often struggle with a tight budget. If they therefore fully focus on investing their resources on the main product, they could reach a strong market position faster, which would potentially generate value in the company faster. The value could thereafter be reinvested into new innovation, which puts the company in a less risky situation. Once a company with network effects reaches a critical mass, it is not a big difference of being an ingredient brand or not. Therefore, an ingredient brand with network effects could potentially use the same strategy regarding when to implement new features, as a company with solely network effects.

However, once a company with network effects reaches a critical mass and later on also reaches a strong market position, it's not completely sure that these companies stay in this position. As mentioned in the theory section, this is one reason why network companies should focus on implementing new features into their products. They have to stay ahead of the market since these markets often become very competitive. Ingredient brands with network effects don't have the same problem due to switching costs. This means that ingredient brands with network effects don't have to implement new features into their platform at the same speed as companies in more competitive markets. This does not mean that ingredient brands with network effects don't have to focus on developing new innovation, since new features and offerings have the potential to expand the network and create more value to the company. However, if the ingredient brands with network effects struggle with a limited economy, they could initially focus on their core products until they start to generate value. Thereafter they could focus on developing new innovation at the same as they generate value from their now existing product.

Afterall, all companies want to grow fast and if the ingredient brands with network effects have good economies and are able to put resources on both R&D in new innovation and R&D in their core product they totally should. Twiceme states that they have come in contact with several host brands that are ready to innovate the market in a partnership with them, even though they haven't reached any critical mass nor gained any awareness from the end-consumers. This result indicates that the company would be ready to innovate their product if, and only if they would have the resources to innovate at the same time as they focus on their pull-strategy. Their pull strategy should be the main focus in order to create the end-consumer awareness to thereafter be able to reach a critical mass.

6.2 Future research

For future research, it would be appropriate to conduct qualitative interviews with companies that are not only listed as well. Except the review on Twiceme, all the company reviews were made on publicly available information from annual reports. In order to get more concise information and deeper understanding, performing further in-depth interviews would create more accurate and specific analyses.

The analysis was made on 5 different companies including the in-depth review on Twiceme. To get even more nuanced analysis with a wider collection of company perspective, a larger number of companies should be reviewed and analyzed.

It was found to be hard to measure some of the crucial factors explaining the market position, for example the certain time or network size when companies pass critical mass, companies being a de facto standard or dominant design, and the level of brand equity et cetera. Future research will have to conduct more quantitative research on larger amounts of companies and analyze more data. Analyzing an extensive amount of available company data could lead to more quantifiable results and more easily finding general trends.

Twiceme is still a very young company and the analysis in this paper mostly focuses on their potential rather than their success. Therefore future research should also investigate more mature ingredient brands with network effects to get a better understanding of how the actual effects could look like. The analysis of Twiceme is mostly focused on their potential and missing actual outcomes from ingredient brands with network effects. However, Twiceme could be a highly interesting case to keep investigating future research on when they have grown a stronger position on the market.

For deeper insights from the companies in the empirical part of the research, further research should review each company in more than just one year's annual report. Evaluating the company throughout several different years enables analysis about company trends and more in-depth analysis about their history.

6.3 Reflections on the performed study

For a variety of factors, completing this master's thesis has been difficult. As a result, many delimitations have been stated in the work, and the research outline could be greatly improved in order to provide more detailed and comprehensive results. However, this analysis has uncovered a plethora of new research topics on which much further research can be conducted in the future.

First of all, the companies reviewed in this thesis have been very different in everything from the industry they operate in, to which state of development they are in. The differences between different stages of their companies development could be a positive point of view, since the study gains a wider spectra of how ingredient brands contra network effect brands work according to this. However, due to the large differences between the companies, it has been difficult to conduct similar data points where comparison analyses could have been performed.

The purpose of the thesis is to investigate how ingredient brands with network effects can accelerate their growth and therefore the study has spent a large focus on evaluating Twiceme. However, Twiceme is still a very young company and the analysis mostly focuses on their future potentials rather than their actual success. As a result, the thesis might have contributed with limited answers to the research questions since no real data actually proves the theory.

The limitation of only using annual reports has been very time consuming, since these reports exist of very much irrelevant data. Using qualitative interviews would have given us more specific outcomes and results which would have saved plenty of time. However, setting up meetings with different companies would have caused uncertainties which could have caused delays in the time schedule. The research approach has therefore focused to be as independent as possible from external parties, which is a reason why the CSG was made in absence of qualitative interviews.

Actual measurements have also been a big struggle throughout the thesis. Since several topics in the thesis are very extensive, it has been difficult to measure these. For instance it has been hard to measure a certain time, market position or network size when a company for instance passes a critical mass or being a de facto standard. Since the thesis were limited to reviewing one annual report from each company, these extensive areas have been hard to measure in a certain and persistent way. However, using a broad approach which this thesis has, might have created ambiguous findings. When many subjects are considered, it's difficult to fully investigate all of them. Therefore future research should focus on narrowing down the scope which will ease the work to provide more tangible results.

The research process has been very open to changes in directions. The use of design thinking has supported the thesis to explore a successful research path. The problem formulation evolved over time, as the literature review and CSG interpretation required a strong interaction. An iterative learning process of back and forth motions evolved as the project progressed. Due to the degree of uncertainty and novelty of the research objective, the iterative approach and explorative mindset were crucial to develop the best results for this thesis.

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Appendix A - Twiceme evaluation interview guide

Platform

- How many units have you sold?
- How many active users do you have?
- How many host brands have you partnered up with?
- How many of their products are you integrated in? Number and percentage.
- What is the size and reputation of these brands?

Brand equity

Awareness

- How large is the awareness among your end-customers?
- How large is the awareness among your host brands?
- How large is the awareness in health-care personnel, ski-patrols etc.?
- How large is the awareness among non-customers/potential customers?
- How does the awareness differ in different regions?

Brand reputation

- How do end-customers perceive the brand?
- How do host brands perceive the brand?
- What do they think of when they hear Twiceme? (good? bad? Safety? Trust? NFC? etc.)
- Are the customers paying extra to get specifically Twiceme's product?

Push & pull principle

- How do you approach your customers?
- How do you approach your end-consumers?
- Has it changed over time as the company has grown? If so, how?

Market position

Market characteristics

- Which are your market segments?
- How big is the market?
- How well is the market familiar with the technology/service/product that you are offering? (Either yours or your competitor's offering)
- Has the market reached a maturity within your segment?
- Are there any standard solutions in your industry?
- Is your industry characterized by low/high barriers to entry? Why?

- Is your industry characterized by low/high switching costs? Why?

Competition

- Do you consider yourself battling in an intense competitive industry?
- Who are your competitors?
- How many are your competitors?
- How are you different from your competitors?

Market share

- How big is your market share?
- What is your future potential market share?

Growth

- What does your company's financial growth look like in recent years? Trends?
- Is your growth depending on any trends?
- What does your company's number of host brands/end-customer growth look like in recent years? Trends?

Network effects

- How do you believe that an increased knowledge about Twiceme will increase the value of your product?
- Have you faced a time or are you currently facing a struggle where customers wait until the size of the network gets bigger and consequently the network value gets higher? How?
- Have you reached a point (critical mass) where growth starts being self generated? Or if it's easier the more customers you get?

IPR/patents

- How do you work with patents to protect your offering value?
- What in your company are you protecting with patents?
- How many patents do you have?

R&D

- How much focus do you have on R&D? Percentage of resources or specific amount
- Is R&D a big strategic priority for Twiceme? Why?

Appendix B - 1st selection Case Sample Group

Name	Market dominance	Network effects	Ingredient brand
Fairtrade	x		x
Airbnb	x	x	
Booking.com	x	x	
Spotify	x	x	
Trip advisor	x	x	
Google	x	x	
KRAV	x	x	
Mips	x		x
VOI	x	x	
Uber	x	x	
E-bay	x	x	
USB	x		
Tesla	x		
Lego	x		
Microsoft office	x		x
Adobe	x		x
CocaCola	x		
Nespresso	x		
Polaroid	x		
Klarna	x		
Netflix	x		
Recco	x	x	x
SJ	x		
Steam	x	x	
GoreTex	x		x
Tinder	x	x	
Bobcat	x		
Bigbag	x		
Weber	x		
Dropbox	x	x	
LinkedIn	x	x	

YouTube	x	x	
Tetra pak	x		x
IKEA	x		
Reddit	x	x	
Visa/mastercard	x		x
Twitch	x	x	
Vimeo		x	
WhatsApp	x	x	
Karma		x	
GitHub	x	x	
SoundCloud		x	
Shazam	x		
GoPro	x		
Nescafé	x		
IZettle	x		
Skyscanner	x		
Waze	x		
Kellogs	x		
BankID	x		
Swish	x	x	
Google maps	x	x	
IMDb	x	x	
Wettex	x		
Microban			x
Intel	x		x
Dolby Digital	x		x
Weight watchers	x	x	
Teflon	x		x
Shimano	x		x
NutraSweet	x		x
Dupont	x		x
Boa fit		x	x
Wifi	x		x

TRITA-ITM-EX 2021:253