



## **MASTER THESIS**

To attain the academic degree of  
Master of Arts in Business, MA  
from the Degree Programmes  
International Marketing & Sales Management  
of CAMPUS 02 University of Applied Sciences

### **Repositioning of a B2B high-tech brand in the smart mobility industry: the case of MIFARE by NXP**

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Graz, June 26, 2020

## **Declaration of authenticity**

I hereby certify that I have written the present thesis independently and without help from any third parties. I have not used any sources other than those which are clearly indicated and have duly provided details of the sources of both direct and indirect quotations.

The present piece of work and parts thereof have to date not been presented to this or any other examination board in the same or similar form, nor have they been published. The present version is the same as the electronic version submitted.

Graz, June 26, 2020

Johannes-Martijn Schröder

## **Principle of equality**

For readability purposes, gender-specific formulations have not been used in the present piece of work. It is, however, hereby expressly stated that when the masculine form is used to denote people, all sexes are being referred to.

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## Executive Summary

NXP is a globally operating semiconductor company. MIFARE is NXP's leading brand for contactless solutions, augmented by a service offering with MIFARE 2GO, and AppXplorer. In the transit sector, MIFARE is used in over 750 cities worldwide, serving the majority of the market. The market for fare ticketing sees disruptions and changes in customer behavior. While NXP has acted on these trends by bringing MIFARE 2GO, it has not (re)positioned its brand accordingly yet – at least, not purposefully. This thesis develops a variety of positioning concepts for MIFARE and presents one that will allow MIFARE to remain the leading brand for fare ticketing solutions.

The first part of the master thesis focusses on the theory of international B2B marketing in high-tech markets, and that of brand repositioning and communication (of brand repositioning) in international B2B markets. In these chapters, the first followed definitions are provided, followed by the imperatives, aims, models, and strategies. The findings of this theoretical section provide the basis for the empirical implications.

The secondary and primary market research follows. An in-depth market analysis is conducted and sixteen, of which eight internally at NXP, one-hour interviews are conducted and analyzed. Based on the findings from the literature in combination with the market analysis and expert interviews, five repositioning alternatives are developed, of which, via a scoring model, one is selected. The recommended repositioning alternative and concept is that of leading the market with the complete portfolio.

The implementation of this repositioning alternative is done via integrated marketing communication. In the last part of this work, all the considerations, challenges, and other factors required for success – including an in-depth analysis of the communication tools – are provided. The entire communication plan is supported by event-specific activities, a proposed budget, and control measures.

The entire work is further summarized in a 'one-pager' displaying the repositioning concept in a visually appealing way. Lastly, some further conclusions and recommendations are provided based on the completion of this work.

## Executive Summary

NXP ist ein internationales Unternehmen in der Halbleiter-Branche. MIFARE ist die führende Marke des Unternehmens für kontaktlose Lösungen, die durch ein Serviceangebot mit MIFARE 2GO und AppXplorer ergänzt wird. In den letzten Jahren kam es auf dem Markt für Fahrkartenverkauf zu Veränderungen im Kundenverhalten. NXP hat zwar mit der Markteinführung von MIFARE 2GO auf diese Trends reagiert, eine zielgerichtete (Neu-)positionierung der Marke wurde jedoch noch nicht durchgeführt. In dieser Arbeit werden verschiedene Positionierungskonzepte für MIFARE entwickelt und schlussendlich ein empfohlenes Konzept zur Neupositionierung vorgestellt.

Der erste Teil der Masterarbeit beschäftigt sich mit der Theorie des internationalen B2B-Marketings in High-Tech-Märkten, der Neupositionierung von Marken und der Kommunikation dieser Neupositionierung in einem internationalen B2B-Markt. In diesen Kapiteln werden notwendige Definitionen erarbeitet, gefolgt von den Zielen, Modellen und Strategien. Die Ergebnisse dieses theoretischen Abschnitts bilden die Grundlage für die empirische Ausarbeitung.

Im zweiten Schritt der vorliegenden Arbeit folgt eine sowohl sekundäre als auch primäre Marktforschung. Im Zuge dessen, wurden 16 qualitative Interviews durchgeführt und analysiert. Basierend auf den Erkenntnissen der Literaturrecherche, der Marktanalyse und den Experteninterviews werden fünf Alternativen zur Neupositionierung entwickelt. Mittels Scoring-Modell wird die erfolgversprechendste Alternative ermittelt. Als Neupositionierungskonzept wird empfohlen, den Markt mit dem gesamten Portfolio zu bearbeiten.

Die Umsetzung dieser Neupositionierung erfolgt über eine integrierte Marketingkommunikation. Im letzten Teil dieser Arbeit werden alle für den Erfolg erforderlichen Erwägungen, Herausforderungen und sonstigen Faktoren, einschließlich einer eingehenden Analyse der Kommunikationsinstrumente, dargelegt. Der gesamte Kommunikationsplan wird durch veranstaltungsspezifische Aktivitäten, ein vorgeschlagenes Budget und Kontrollmaßnahmen unterstützt.

Die gesamte Arbeit wird weiter in einem "One-Pager" zusammengefasst, auf dem das Konzept der Neupositionierung visuell ansprechend dargestellt wird. Abschließend werden einige weitere Schlussfolgerungen und Empfehlungen auf der Grundlage des Abschlusses dieser Arbeit gegeben.

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## List of abbreviations

The list of abbreviations is as short as possible. Most of the abbreviations which are listed here will also quickly be described in their context. Abbreviations considered non-regular are entirely written out the first time they are used in the text.

AFC	Automated Fare Collection
AI	Artificial Intelligence
AMA	American Marketing Association
B2B	Business to Business
B2C	Business to Customer
BD/BDs	Business Developers
IC	Integrated Circuit
ICT	Internet Communication Technology
IMC	Integrated Marketing Communications
IoT	Internet of Things
ISO	International Organization for Standardization
IT	Information Technology
N.V.	<i>(naamloze vennootschap)</i> : Joint-Stock Company
NFC	Near Field Communication
NXP	Brand name, but originates from 'Next EXperience'
POP	Point of Purchase
PR	Public Relations
QR	Quick Response code, but better known as simply 'QR'
RFID	Radio Frequency Identification
US/USA	United States
USP	Unique Selling Proposition
PTA/PTO	Public Transport Authority.

*Considered the same: Public Transit Authority, Public Transport Agency, Public Transit Agency, Public Transport Operator, Public Transit Operator.*

# 1 Introduction

“A positioning strategy can become inappropriate because it becomes obsolete over time, the target market ages, or the association becomes less appealing (or even a source of ridicule).” (Aaker, 1991, pp. 214, 215.).

Repositioning is about changing the customer's understanding and perspective of what the product or brand is. Repositioning a brand focuses on current clients' needs as well as on future clients. Current clients might change their behavior, which means that every company must adapt to modern and upcoming solutions (cf. Nutt, 2017). For example, a brand that has been selling cars for many years might have to rethink its business model and start offering the 'solution of transportation'. Or a business selling professional drilling equipment should consider positioning itself as 'the brand for drilling holes' when customers move away from preferring ownership.

Within this paper, the repositioning for NXP to position MIFARE will be described, perhaps they should no longer be seen as a brand that is 'the chip manufacturer' but instead focus on providing the 'fare ticketing solution' (of which physical chips can be a part).

## 1.1 NXP Semiconductors

NXP Semiconductors N.V. is a Dutch global semiconductor manufacturer with a presence in approximately 35 countries worldwide. NXP ranks as the fifth-largest semiconductor supplier in the world, excluding memory suppliers. Competitors offering similar products are Infineon, STMicroelectronics, AMS, Qualcomm, Texas Instruments, and MACOM. (cf. NXP Semiconductors, 2020)

This master thesis is being executed for NXP Semiconductors N.V. with a focus on the brand MIFARE. NXP stands for 'Next eXPerience'. In this master thesis, the company can be referred to as both NXP Semiconductors and as simply 'NXP.' The 'N.V.' at the end of the name stands for 'naamloze vennootschap', which is Dutch for joint-stock company. NXP lists on the Nasdaq stock exchange with a market cap of €31 Billion (\$35B) (market cap source: Yahoo Finance, 2020).



Figure 1: Logo NXP Semiconductors N.V.

Originally NXP started as a part of Philips and was known as Philips Semiconductors. After being sold to a consortium of private equity investors, the name was changed to simply NXP and was, although stating it would run with the tagline “Founded by Philips”, no longer part of Philips as of 2006 (cf. Yoshida, 2006).

NXP is seen as an enabler. NXP enables via four listed enabling technologies: Processing (including AI/ML), Connectivity, Safety & Security, and Sensing. These technologies enable NXP’s target markets: Industrial & IoT, Automotive industry, Mobile, and Communication Infrastructure (cf. NXP Semiconductors N.V., 2019). A graph, designed by NXP, with the markets and technologies, is shown in figure 2.

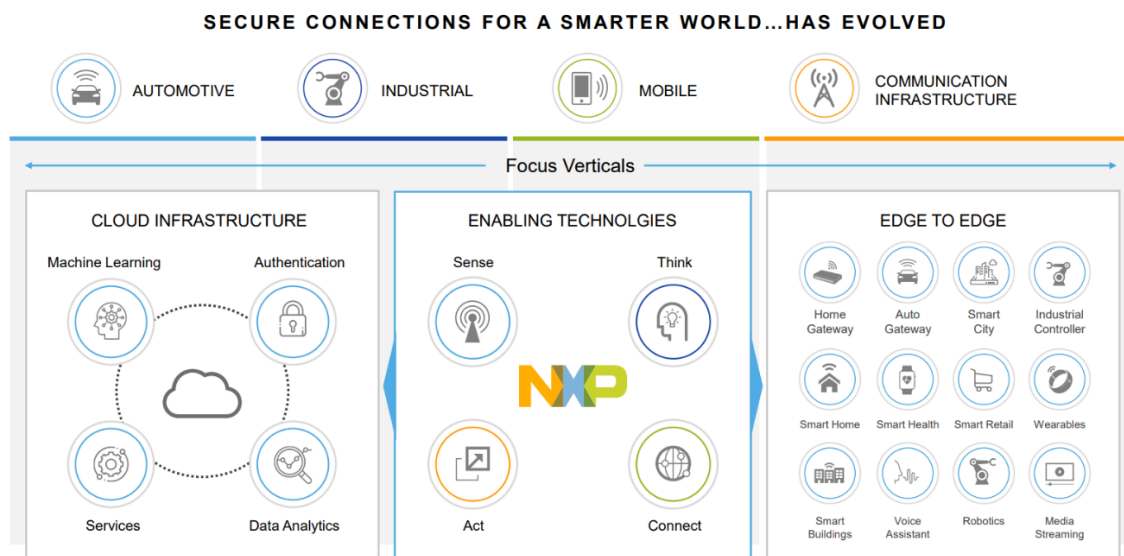


Figure 2: NXP provides enabling technologies. (NXP Semiconductors N.V., 2019)

This thesis will present a repositioning concept for MIFARE. MIFARE is NXP’s leading brand for contactless solutions, augmented by a service offering with MIFARE 2GO, and AppXplorer, which allows users to save traditional transit passes on NFC-enabled devices. MIFARE 2GO, introduced in 2018, is NXP’s cloud service enabling a transfer of the known MIFARE functionalities onto smart devices, mainly smartphones. MIFARE 2GO offers, among other features, mobile transit ticketing.

NXP is working closely with partners such as Google in order to get MIFARE 2GO on as many devices as possible. MIFARE 2GO for transit ticketing has already been introduced in Las Vegas and Melbourne and will be, as will be described in this thesis, rolling out globally. MIFARE 2GO is described as an end-to-end cloud solution, compatible with other MIFARE solutions and as enabling users to bring their own device. (cf. NXP Semiconductors N.V., 2019)

## 1.2 Current Situation

Smartcards are being used for all sorts of purposes. The most popular uses are banking (debit and credit cards), automated fare collection, loyalty cards, hotel key cards, and uses like smart advertising and interactive exhibits. While smartcards rapidly replace traditional systems in these markets, the markets themselves are also experiencing strong growth. The automated fare collection market is currently valued at €7.4 billion, and the expectation is that the automated fare collection market continues to increase at a compound yearly growth rate of 13.6% from 2020 to 2025 (cf. Grand View Research, 2019, p. 2.). The global smartcard market accounted for approximately €12B in 2017 and is expecting to nearly triple and reach €30 billion by 2026 (cf. Statistics, 2018, p. 3.1.). NXP's MIFARE brand is a player in this smartcard IC market.

Around 2007, smartphones were released at a price point affordable to many consumers across the world. In the years following, abounding predictions were made on what place the smartphones would take in the lives of many, ranging from minor adoption to an all-out companion for nearly every daily task imaginable (cf. Charlesworth, 2009). In 2019 the number of smartphone users was expected to surpass 3.2 billion (cf. Newzoo, 2019) and have shown to become indispensable. A similar growth to the growth of smartphones can be found with other smart devices such as smartwatches, which are seeing a growth of 25 percent from 2018 to 2019, shipping well over 20 million units (cf. Consumer Technology Association, 2019). Although still far from the billions of smartphone sales, it could someday get there. Many of these smart devices have functionality in them that enables them to be used for practices such as payment and ticketing services, including the ability to use the features enabled in the smart devices to replace, or use side-by-side with smartcards, often on the existing installations.

The ways in which people use products and services continuously change. More products and services can be incorporated into mobile devices. Regarding the payment industry, researchers have estimated that contactless smartphone payments will replace both cash and credit cards as the preferred payment method as soon as by 2020 (cf. Smith, Anderson & Rainie, 2012). The same trend can be observed for other applications transferable to smartphones and other smart devices. At the same time, there is the mentioned growing adoption of smartcards

around the world. This, combined with the increased popularity of e-commerce, will offer significant opportunities for smartcard manufacturers.

Using your smartphone for ticketing and paying in stores was not generally accepted. Consumers did not have sufficient trust, and solutions were not widely accepted and integrated. A variety of (smartphone) apps was available, and each app would only be accepted at a small assortment of stores. Introduction of services such as Apple Pay has changed this: many people, according to internal interviews at NXP, do not bring their debit/credit card anymore with the smartphone having replaced them.

There is an increasing demand for more flexible solutions. Users want to be able to use the functionality on a broad range of devices, both wearable and mobile, provided and selected by users themselves. The market for smartcard access is experiencing both strong growth and changing customer demands. While the market continues to grow, smart card manufacturers such as NXP should consider the need and trend of a form-factor independent solution.

### **1.3 Problem Definition**

With the brand MIFARE, NXP is currently leading the market for smartcards in the smart mobility industry with a market share of 77 percent in 2019. On the one hand, the present situation of a growing market and changing customer demands offers the opportunity for NXP to generate higher revenue, but on the other hand, it also bears the risk of current or new competitors gaining market share in the smart device enabled markets. MIFARE wants to be perceived as the brand offering contactless solutions; however, currently, they are likely too often merely seen as a producer of (physical) smartcards. The transition of the MIFARE brand's image from that of a smartcard producer to that of a provider of also contactless (cloud) solutions is needed. Therefore, a repositioning of the brand is required, which is expected, by NXP, to bring new opportunities for both horizontal and vertical growth.

## 1.4 Objectives

For this thesis, the company objective and two sub-goals are defined. These goals are provided by NXP. The master thesis objective fulfills the company targets.

### 1.4.1 *Company Objective*

The company objective is split up into one main goal and two sub-goals. All these three goals are supported by the master thesis objective. The main goal is also called the main objective.

#### **Main Goal**

The primary aim of NXP Semiconductors is to maintain the leading position of MIFARE in the contactless smartcards business in the smart mobility industry with a market share of 77 percent during the transformation from physical cards to on-device between 2020 and 2025.

#### **Sub Goals**

The first sub-goal is to bring MIFARE 2GO to a minimum of a hundred cities before 2025, where it is currently rolled-out in 3 cities (2019) out of 750 potential by NXP defined cities.

The second sub-goal is to change the image from being perceived as a hardware brand to be instead also perceived as an end-to-end cloud solution provider.

### 1.4.2 *Master Thesis Objective*

The objective of the master thesis is a repositioning concept for the brand MIFARE with a focus on communication in order to fulfill the company targets.

### 1.5 Reference Framework

Figure 3 shows the ‘frame of reference’; the frame of reference shows the process and build-up of this thesis, similar to the table of contents.

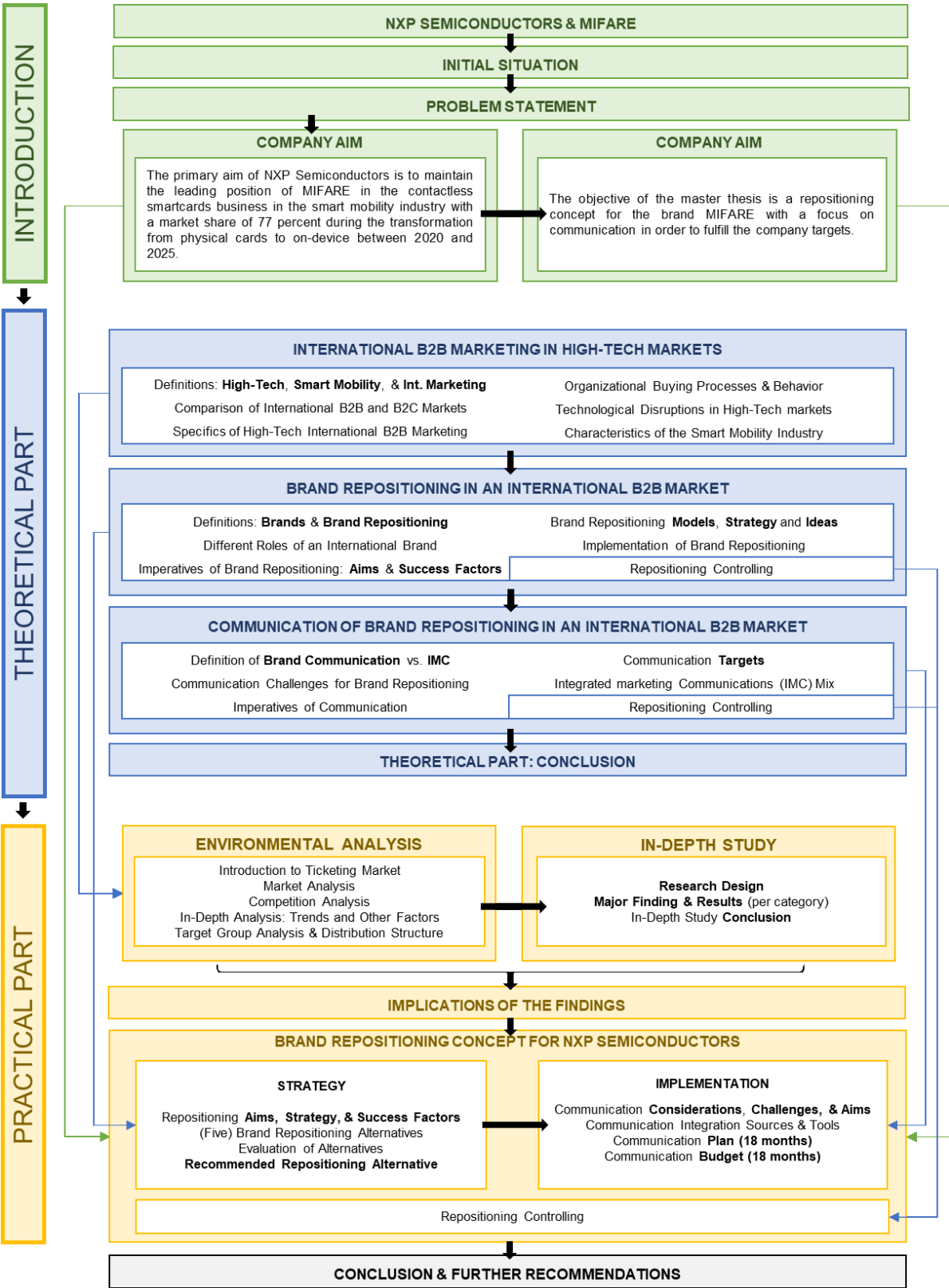


Figure 3: Frame of Reference

## 2 International B2B Marketing in High-Tech Markets

Chapter two will provide definitions and examples of the most important terms for this industry. The terms high-tech, smart mobility, and international marketing will also be put into context.

### 2.1 Definitions and Objectives

#### 2.1.1 *High-Tech Defined*

High-tech is defined as “technology that is at the cutting edge: the most advanced technology available. Technological devices, techniques, or achievements that employ the most current and high-level IT developments” (Jeyasekar Jesubright & Saravanan, 2019, p. 17.). High-tech is the shortened form of high-technology meaning using, requiring, or involving high technology. Technology itself is a broad concept relating to how people use tools and knowledge in order to create solutions. When referring to high-technology, these solutions are more advanced, meaning the definition is shifting over time (cf. Mohr, Sengupta & Slater, 2013, p. 9.).

Something considered high-tech in 1980 can be considered the opposite of high-tech by today’s standards. Originally the term high-tech referred to industries, products, and services with a high association with technology. Nowadays high-tech has a much broader meaning: it is a reference to everything that looks or sounds new, metallic, or contemporary and expands across industries: used for marketing and branding in the fashion, design, art, and more industries. (cf. Kalb, 1997, p. 15.)

High-tech will be used in this thesis to describe the market in which NXP and the MIFARE brand operate. High-tech will also be used to describe the product offering of IC manufacturers. All recent technology associated with automated fare collection is considered high-tech.

#### 2.1.2 *Smart Mobility Defined*

The literature on the definition of Smart Mobility lacks a clear definition. Mirri et al. consider “adequately orchestrating services devoted to improving urban mobility” fundamental to smart mobility (Mirri et al., 2016, p. 1.), while another journal describes smart mobility as “a concept of comprehensive and smarter future traffic service in combination with smart technology” (Garau, Masala & Pinna, 2016, p. 35.), the second more comprehensive definition is followed.

The difference between intelligent transport systems and the mobility aspects of smart cities is that smart mobility differentiates in the role of ICT: intelligent transport systems are not focused on embedded intelligence or enabling two-way communication. Secondly, smart mobility is focused on efficiency with services such as shared mobility or electric fleet integration. Smart mobility aims at increasing the quality of life for citizens. Intelligent transport systems are an infallible part of smart mobility (cf. Semanjski, Mandzuka & Gautama, 2018, p. 63.).

Smart Mobility is considered as one of the eight key aspects that define a Smart City, together with smart governance, smart energy, smart building, smart infrastructure, smart technology, smart healthcare, and smart citizen – terms not further used in this thesis. Smart cities are estimated to be a global multi-trillion-dollar opportunity for businesses (cf. Singh, 2014).

### 2.1.3 *International Marketing Defined*

International marketing is defined as “the process of planning and conducting transactions across national borders to create exchanges that satisfy the objectives of individuals and organizations.” (Czinkota, 2012, p. 4.). Some studies differentiate between *global* marketing and *international* marketing, describing *international* as between nation (since *inter* means *between*). This thesis does not since there is no need for: *international*, *global*, and the third variant of ‘*world*’ marketing all fall under the same definition (cf. Onkvisit & Shaw, 2004, p. 5.).

Domestic marketing differentiates: It concerns any marketing practices within an organizations’ home country. From the perspective of domestic marketing, all of the methods used outside the organizations’ home country are considered foreign marketing (cf. Onkvisit & Shaw, 2004, p. 5.).

## **2.2 International B2B and B2C Markets Compared**

This chapter describes the differences between B2B and B2C markets. The wishes and demands of the end-customer become increasingly important within the smart mobility market. The underlying reason for this importance is that NXP, with MIFARE 2GO, could become increasingly visible to the end-customer while continuing to operate in a B2B market. These differences of structure, size, complexity, and differentiation, should be considered throughout this thesis and when designing the repositioning concepts and communication guidelines.

### 2.2.1 *B2B Market Structure and Size in Comparison to B2C*

A B2B market differs from a B2C market in several aspects; the most significant difference lies in the market structure. In any B2C market, millions or billions of potential customers can be found worldwide. Where many customers are available in all B2C markets, the same does not apply to B2B markets. B2B markets, especially high-tech B2B markets, are segmented markets with fewer potential customers (cf. Godefroid & Pförtsch, 2013, p. 23.). A B2B market can be more limited on both sides. Companies operating in B2B markets have fewer potential customers than B2C and, at the same time, fewer suppliers to choose from (cf. Godefroid & Pförtsch, 2013, p. 24.).

The B2B market differs from B2C markets in both the volume of transactions and the transaction size: The volume of transactions is higher in the B2C market, but the B2B market value is much higher. For example, the 2019 B2B eCommerce market is over six times that of the same B2C market. (cf. Mehta & Hamke, 2019, p. 8.)

### 2.2.2 *B2B Compared to B2C with Regards to the Complexity of Offerings*

B2B offerings are more complex than B2C offerings and have a higher number of people involved in the buying process (cf. McWilliams, 1992, pp. 43-49.). B2C product attributes are generally well-defined, and the market is more standardized, while B2B markets are more diversified than B2C. Business customers have specific needs, different requirements, and require a calculated and agreed-upon performance. (cf. Lilien, 2011, pp. 196-210.)

Additional complexity comes from the additional offerings in B2B markets. In B2C markets, the relationship can end at the point of sale while in B2B markets, there is a much longer and more needed relationship with the seller. Sellers need long-term assistance and sign contracts to receive these services. More complexity occurs when offerings get incorporated in the processes of the buyer, for example, in a production process. The contact and relationship between buyer and seller can originate long before and remains long after the actual sale of a product (cf. Johnston & Mora Cortez, 2017, pp. 3, 4.).

### 2.2.3 *International Operations: Competing and Differentiating.*

The previous paragraph describes the difference in choice between B2B and B2C. Because B2B markets have both fewer suppliers to choose from and fewer

customers to deliver to, an important aspect to consider is internationalization: Organizations expand globally to reach more customers and gain access to more suppliers. New technologies such as the internet, and innovative services or products made specifically for international expansion make it easier to operate globally. It is common for a high-tech B2B organization to operate internationally.

B2B products differ from B2C products when looked at similarity across markets. B2B products do not require nearly as many adjustments as B2C products when taken internationally. Consumer and non-durable products require adaption due to a high degree of cultural grounding. Industrial and technology-intensive products have a lesser degree of cultural grounding and thus a lower need for adaption. Adaptions in B2C markets can be based not only on cultural differences but also on, for example, economic conditions in different markets: countries with lower wages could see producers simplifying their products. (cf. Czinkota, 2012, pp. 238, 239.)

In the B2B market, this need for personalization is lesser due to a sharper focus on specifications. Trading and marketing within B2B markets are significantly more accessible thanks to industry and product-specific international standards. B2B will have to compete on price, performance, and additional offered product support where B2C can focus more on things such as localized promotions. (cf. Anderson, 2009, p. 213.)

#### 2.2.4 *International Operations: "Differentiating or Die"*

Trout and Rivkin have titled their book on the topic of differentiating "Differentiate or Die", pointing towards the need for differentiating. According to the Hellenic Institute of Marketing in Greece, "The idea of marketing a standardized product with a uniform message around the world remains purely theoretical." (Trout & Rivkin, 2008, p. 200.). Achieving a differentiated market approach is fundamental for many strategies to work. (cf. Feddersen, 2010, p. 62.)

Organizations, specifically industrial companies, are urged to seek differentiation (cf. Leonidou & Hultman, 2018, p. 2.). Differentiation is needed to maintain market share: "Competitive brands need to differentiate as any innovation with developmental power tends to be quickly copied." (K. Sen, 2014, p. 96.).

## 2.3 Specifics of High-Tech International B2B Marketing

### 2.3.1 *International Marketing Objectives*

The objective of a marketing strategy is getting a competitive advantage and using this advantage to stimulate sales growth, increase market share, and to grow the profit or better its margin – or a mix of those results. Within high-tech firms, it is essential to have competencies considered valuable, durable, and difficult for other players in the market to copy or imitate. An effective marketing strategy in high-tech markets builds on these attributes (cf. Mohr, Sengupta & Slater, 2013, p. 48.).

International marketing campaigns have separate objectives divided into overall global, regional, and local objectives. These objectives may again be product- or service-related (cf. Czinkota, 2005, p. 579.). Corporate objectives relate to financials (return on investment) and marketing-related (maintaining or increasing market share) (cf. Czinkota, 2005, p. 555.). The most crucial factor with any objective is that it is measurable for control purposes (cf. Czinkota, 2005, p. 579.). Together, the four essential marketing objectives form the international marketing targets and are shown in figure 5.

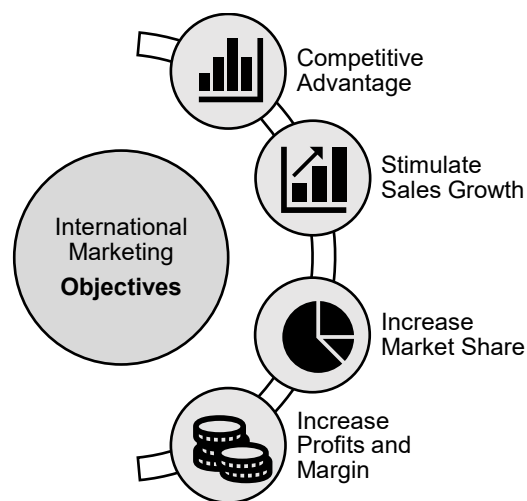


Figure 4: International Marketing Objectives are a mix of the following (figure by author)

### 2.3.2 *International Marketing Risks and Opportunities*

Risks surrounding international marketing historically came from cultural aspects. Tse et al. wrote in 1988: “The persistence and dynamism in cultural values suggest the need to trace, monitor, and understand cultural factors in international marketing plans.” while noting “In a marketing world characterized by intensive communications, standardization, and the employment of similar decision

technologies, cultural differences tend to diminish.” (Tse et al., 1988, pp. 91, 92.). Modern literature writes extensively on the risks of international marketing but also highlights many of the benefits. A benefit for the employees and undoubtedly helpful for the acquiring of new talents is that companies active in international marketing generally pay higher wages, for example, in the United States as much as 16 percent more (World Trade Organization, 2019). These companies marketing internationally also have a lower risk of insolvency (cf. Lewis & Richardson, 2001) and provide a greater variety of products, improving lifestyles and comfort all around the world. (cf. Czinkota, 2005)

Organizations in international markets have many tools available used to achieve marketing targets. The tools available to a marketer are the promotional mix. The promotional mix consists of advertising, personal selling, publicity, sales promotion, and sponsorship. The use of these tools can form international marketing risks originating from improper integration: These tools should not be used isolated with no regard to each other but instead be coordinated according to market needs, size, and more factors. Organizations realize that this promotional mix should be used together, and a trend is visible toward integrated marketing communication (IMC) (cf. Czinkota, 2012, p. 394.), a term expanded upon in chapter 4 of this thesis.

### 2.3.3 *Differences in Marketing Between Regular and High-Tech Offerings*

The marketing of high-tech products and services is different from that of marketing a regular non-technical product. High-tech is differentiated by the amount of technical content, the duration of its (usually short) lifecycle, and the more innovative aspects. Regardless of these differences, it is, most importantly, still a product that can solve a problem or satisfy other needs. Marketing managers responsible for high-tech offerings state in studies that their objectives are the same as those of colleagues offering non-technical solutions. The difference in marketing between high-tech and non-technical lies in the customer perception of the product with regards to being intimidated by the task of learning how to deal with a high-tech solution and the fear of products becoming obsolete much faster than non-technical solutions. The differences appear in the operational management of marketing and risk evaluation because of this different customer perception. (cf. Viardot, 2004, p. 23.)

The role of marketing when it comes to high-tech products is to consider four characteristics of high-tech products: the tendency to worry customers, the need for

efficient time management, cooperation with R&D of the client, and the ever-changing market conditions. (cf. Viardot, 2004, p. 27.)

#### 2.3.4 *Supplier and Buyer Relationships*

In marketing, the interaction and relationship between supplier and seller are essential. The significance of the relationship is a crucial fundamental characteristic of business marketing. Within B2C marketing, it is considered difficult and too costly to establish and maintain strong relationships because of the attributes of fast-moving consumer goods. Consumer-goods marketing shows a sharp contrast to B2B marketing in this aspect. In B2B, the development and maintenance of these relationships are not only more critical – businesses cannot succeed without them. Both suppliers and buyers have an interest and are involved in maintaining relationships. (cf. Fill & Fill, 2005, pp. 8, 9.)

B2B brands utilize the strengths of their brands for positioning their company positively and reputationally. The goodwill that comes from these positive positioning contributes to better goodwill and more profitable supplier-buyer relationships (cf. Mark S. & Arch G., 2009, p. 12.).

#### 2.3.5 *PESTEL Framework for Environmental Analysis*

Conducting an environmental analysis is described as “Looking at the world outside and try to get a picture of what the organization can expect of this world today and in the future.” (Mackowski, 2019, p. 3.). The PESTEL framework deals with the political, economic, socio-cultural, technological, environmental, and legal factors. (cf. Mackowski, 2019, p. 5.). “The PESTEL framework analyzes the external business environment to understand the ‘big picture’ in which the organization operates thus enabling them to take advantage of the opportunities and minimize the threats faced by the organization’s business activities” (Issa, Chang & Issa, 2010, p. 75.). It can be used to both understand the big picture within the smart mobility industry while finding the advantages and opportunities while minimizing the potential threats.

Necessary for the PESTEL framework is to apply factors selectively and those which are considered essential both currently or could be valuable in the next few years. (cf. Mackowski, 2019, p. 6.). This chapter can serve as an indication of which factors are essential and should be selected for this industry.

## 2.4 Organizational Buying Processes & Behavior

As discussed in chapter 2.2, B2B companies usually have fewer customers than B2C companies. B2B companies have a customer distribution where a minimal number of customers are providing most of the turnover and sales volume. Due to the complexity of the purchase, organizations usually involve inputs from many different departments. People from different disciplines at different levels contribute with their expertise to achieve the best solution. (cf. Kotler, Pfoertsch & Michi, 2006, p. 24.) This chapter will look at the comparison between buying characteristics and expand on the buying situations and processes.

### 2.4.1 Comparison of Buying Characteristics Between B2B and B2C

When marketing to organizational buyers, a set of characteristics will have to be considered. It is essential to put the focus on the areas of overlap and similarity as opposed to purely differentiating the two. The main characteristics and the comparison between the two are shown in the following table (cf. Fill & Fill, 2005, p. 113.):

Table 1: Comparison between main characteristics of B2B and B2C based on (Fill & Fill, 2005, p. 114.)

	<b>Consumer Buying Characteristics</b>	<b>Organizational buying characteristics</b>
<b>Number of buyers</b>	Many	Few
<b>Purchase initiation</b>	Self	Others
<b>Evaluative criteria</b>	Social, ego, level of utility	Price, value, level of utility
<b>Information search period</b>	Short	Long
<b>Range of suppliers</b>	Small number considered	Can be extensive
<b>Importance of supplier choice</b>	Limited	Can be critical
<b>Size of order</b>	Small	Large
<b>Frequency of orders</b>	High	Low
<b>Value of orders placed</b>	Low	High
<b>Complexity of decision making</b>	Low to medium	Medium
<b>Range of information input</b>	Limited	Moderate to extensive

There are remarkable similarities to point out: some consumer purchases are more complex, meaning that buyers adopt a more rational and fact-based approach when making a purchase, for example, when considering financial services. According to

literature, organization culture, processes, and bureaucratic procedures tighten the gap between consumer and organizational buying. (cf. Fill & Fill, 2005, p. 115.)

#### 2.4.2 *Types of Buying Situations*

The analysis of the importance of different buyers' center members is complex. It finds its complexity in different buying situations. The influence depends on the type of buying situation, the phase of the buying situation, the buyers' center members, and the type of situation in which the transaction takes place. (cf. Kotler, Pfoertsch & Michi, 2006, p. 26.)

The **straight re-buy** is by far the most common and lowest-risk buying situation. With a straight re-buy, there is no change in the need, and it is more a question of renewing supplies. Since the organization knows the evaluation criteria, the buyer generally contacts his usual supplier(s), and a buying decision is made, usually based on trust and experience with the supplier. To keep the position, a supplier can take steps such as offering automatic renewal of the order. By taking such steps, the suppliers make it more difficult for other suppliers to enter. With a straight re-buy, the supplier brand influence is not as strong as with other buying situations; it is, however, perceived to be stronger on the buyer than with the modified re-buy and new task. (cf. Malaval, 2004, p. 29.)

With a **modified re-buy**, a company aims to satisfy an existing need in a modified way. Organizations can have different reasons to find alternatives or for the re-evaluation of an existing re-buy. Examples can be by merely needing to cut costs or to improve the performance. External factors such as politics and environment also play a role – new regulations can force organizations to re-evaluate and turn to a modified re-buy (cf. Kotler, Pfoertsch & Michi, 2006, p. 25.). The supplier brand influence on buyers' center members is more substantial than for the straight re-buy. In this situation, the brand plays a significant role in the production, marketing, quality control, R&D, and general management. (cf. Malaval, 2004, p. 28.)

A **new task** purchase situation is when an organization is confronted with entirely new requirements for either a product or service. When an organization must buy something for the first time, then there is an increased level of uncertainty and risk involved. The higher the cost and risk, the more people are generally involved, and the longer it will take for a decision to be made. The supplier brand influence on the buyers' center members is at its strongest in a new task purchase situation. The

suppliers' brand influence is perceived as significant, and the brand has an essential influence on R&D managers, general management, and quality control managers. In this situation, the maintenance executives and users are considered to have a lesser impact. (cf. Malaval, 2004, p. 27.)

The level of importance of supplier brand influence as a function of the different members of a buyers' center is shown in the table below. The functions are shown on the left with the correlating rank of influence importance for each of the situations displayed on the right. The higher the perceived risk, the more buyers' center members perceive the influence of the brand to be necessary. The more familiar (moving from new task to straight re-buy), the stronger the influence of the brand on the buyer gets. Brand influence varies depending on the type of buying situation. (cf. Malaval, 2004, pp. 29, 30.)

Table 2: Comparison of the level of importance of supplier brand influence as a function of the different members of the buyers' center: straight re-buy vs. modified re-buy vs. new task purchase decisions. based on (Malaval, 2004, pp. 27-29.)

	<b>Straight re-buy</b>	<b>Modified re-buy</b>	<b>New task</b>
<b>Buyers</b>	Very strong	Very strong	Very Strong
<b>Production executives</b>	Strong	Strong	Very Strong
<b>Quality control executives</b>	Weak	Strong	Strong
<b>Maintenance executives</b>	Weak	Weak	Weak
<b>Users</b>	Weak	Weak	Weak
<b>Marketing executives</b>	Weak	Strong	Very Strong
<b>General management</b>	Weak	Weak	Strong
<b>R&amp;D Executives</b>	Weak	Weak	Strong

With new buying decisions, a problem is fresh to decision-makers meaning that a lot of information is required and that alternative solutions are relatively unknown – all solutions are considered as new. With a modified re-buy, the problem is not new, but it is different from a previous situation. Information is required with modified re-buy situations, but relevant experience is useful, buying decisions need new solutions. Within a rebuy situation, the problem is identical to previous cases, and no – or little – information is required with no need for alternative solutions. (cf. Fill & Fill, 2005, p. 119.)

### 2.4.3 *Organizational Buyers' Center*

Several individuals make organizational purchases with different roles in the buying process. Since decisions can take a long time and often require cross-departmental input from both technical, commercial, and finance departments, the buying process gets complex. These relationships between seller and buyer are, as previously discussed, highly valuable, and over long periods of time, they can become stable due to a high degree of interdependence between buyer and seller. Every organization has a buyers' center, also referred to as the decision-making unit, although not every organization has the same roles within the unit. (cf. Havaladar, 2005, p. 5.)

Although the names buyers' center and decision-making unit imply that it is a formal or structured business unit – it is not. The actual size and composition vary depending on the needs of the organization. In the situation of a straight re-buy, the buyers' center can be one or two individuals, for example, a purchasing agent; meanwhile, the buyers' center for a new task can include more than 20 cross-departmental representatives. (cf. Kotler, Pfoertsch & Michi, 2006, p. 26.)

The members of a buyers' center are classified according to their role in the buying decision, and they all act with consideration of the crucial dimensions on and in the buyers' center. Initially, a buyers' center consisted of up to five roles: users, buyers, influencers, deciders, and gatekeepers. (cf. Webster & Wind, 1972) However, two functions have been added since addition: initiators (users or others in the organization requesting a purchase) and approvers (the people who authorize the deciders or buyer' decision). Multiple people can have one of the seven roles, and one person can have more than one role. (cf. Keller, 2009, p. 27.)

1. **Initiators** detect that there is a need for something; they are users or others in the organization requesting a purchase. Initiators can come from different levels in a company, from front-line employees to high-level managers.
2. **Users** are those that will use the purchased product or service in the end. In most scenario's it is the user who initiates the buying process and helps with defining the product requirements. The influence of the user depends on the sector of activity and corporate culture. The higher qualified the user, the weight the user has on the buying process.

3. **Influencers** can be anyone considered to influence the buying decision – their influence comes from defining specifications and providing further information for the evaluation of alternatives.
4. **Deciders** are those who have the final say on product requirements and on the selection of suppliers. They make the final decision on the purchase.
5. **Approvers** are the people who authorize (or disapprove) the proposed actions of deciders. Before any action gets taken on the final decision of the purchase, this approval is needed.
6. **Buyers** are the people who have the formal authority to select the supplier and arrange the purchasing terms. Their role is choosing the right vendor and taking part in negotiations.
7. **Gatekeepers** are controlling the flow of information towards members of the buying center. They are the people who have the power to prevent, for example, sellers from reaching members of the buying center can either help or hinder a salesperson from contacting the users or deciders.

The concept of a buying center presents a challenge for marketing. The business marketer must know who participates in the decision and how much influence and impact each participant has. They must also understand what evaluation criteria each of the participants uses. B2B purchasing choices result from an intricate collaboration between the buying center members. (cf. Kotler & Armstrong, 2017, p. 192.)

#### 2.4.4 *Organizational Buying Processes*

Eight stages in an organizational buying process should be considered. New and complex buying decisions usually go through all eight stages while in the straight re-buy situations, some steps can be skipped. **Figure 7** shows the eight different stages of the business buying process, although actual business buying processes are more complicated than the eight-step (or for that matter, any linear process) figure suggests. (cf. Åge, 2011, p. 1585.)

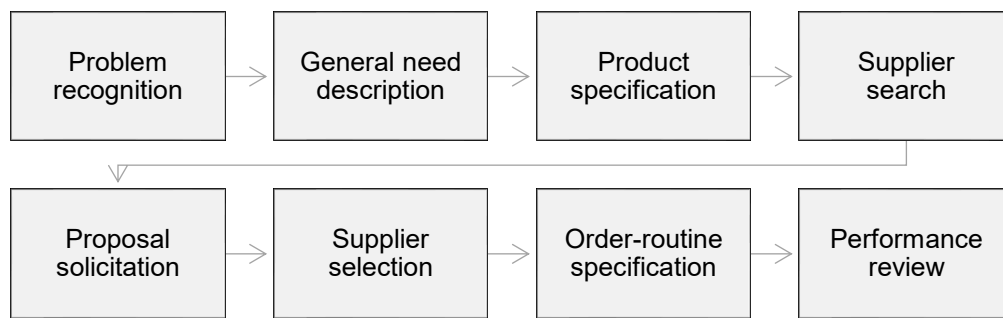


Figure 5: The 8-stage business buying process. based on (Kotler & Armstrong, 2017, p. 195.)

The buying process starts when a problem gets recognized, which can either be the result of internal or external stimuli. Reasons for a new need can be, for example, that the buying company decides to launch a new product requiring equipment and materials, an organization can have their existing equipment break, or a purchasing manager is dissatisfied with the current supplier due to lack of quality or service. External factors can be inspiration a buyer gets from outside the company such as advertisements, sales offer at a lower price or better quality, and many more. (cf. Kotler & Armstrong, 2017, p. 195.)

After recognizing there is a need, the next steps are for the buyer to describe the general characteristics and the size of the order of a needed item. After giving a general description, the buying organization will have to decide on the specific needed technical product characteristics for the required item (cf. Kotler & Armstrong, 2017, p. 195.). On these points of the business buying process, there is academic criticism on the linearity of these models. The models are deficient in failing to capture the dynamic nature of B2B sales processes due to several dimensions coexisting. (cf. Åge, 2011, p. 1585.)

With the exact technical product characteristics ready, the organization can search for the suppliers that best meet the organizational needs. The newer, complex, and costly the buying task, the more time a buyer will spend searching for the right supplier. Due to organizations turning to the internet for this search, there is an advantage for marketers. The responsibility of salespeople in this context is to make sure that their firm is considered in the supplier search stage. (cf. Kotler & Armstrong, 2017, p. 195.)

The next step is the solicitation of a proposal. The buyer invites qualified suppliers to submit proposals. Essential for business marketers is to consider these proposals as marketing documents – not just technical documents. The presentation of the

proposal should inspire confidence and make the suppliers' organization stand out from others. The goal of this proposal is to win in the supplier selection stage. The members of the buying center will rate suppliers against attributes such as service quality, supplier reputation, competitive pricing, delivery track-record, and times and increasingly on ethics. The result of this stage is one or multiple selected suppliers. (cf. Kotler & Armstrong, 2017, p. 197.)

The last step of the actual buying process is the order-routine specification stage. In this stage, the buyer writes the final order with the chosen suppliers, listing the exact specifications, quantity, delivery times, policies for returning, and warranties. When maintenance, repair, and operating items are involved in the purchase order, buyers might choose to opt for blanket contracts instead of periodic purchase orders. The advantage of these types of arrangements is that they offer longer-term relationships for resupplying and support at a fixed price. (cf. Kotler & Armstrong, 2017, p. 197.)

The final stage of the buying process, which comes over the purchase, is the performance review, also referred to as evaluation. The buyer assesses the performance of the seller based on factors such as end-user satisfaction, cost, quality, delivery, flexibility, innovation, ethics, and more. Extensive models for the evaluation of suppliers can be used, taking factors into account that differ per organization. (cf. Nair, Jayaram & Das, 2015, p. 6.)

## **2.5 Technological Disruptions in High-Tech Markets**

In the initial situation, technological disruptions have been mentioned as one of the main needs behind a repositioning concept. This chapter describes what a technological disruption is, how these can be dealt with, and will describe some examples where technological disruption took place.

### *2.5.1 Definition and Trends on Technological Disruption*

There is debate surrounding the term disruptive technology, researchers disagree if the factors 'disruptive technology meets the standard of performance demanded by the mainstream market' and 'new entrants displace the dominant incumbent' should be included. Some include the factors while others do not (cf. Tellis, 2006, p. 35.). The term 'disruptive technologies' was introduced back in 1942 and described 'creative destruction'. Disruptive technologies are technical innovations that render existing, established technologies obsolete or radically altered. Currently, the

following technological platforms are being focused on with regards to being or expected to be disruptive (cf. Thomas, 2019, pp. 1-3.):

- Artificial Intelligence, Machine Learning, and Neural Nets;
- Biotechnology, Genome Editing and Synthetic Biology;
- Blockchains and Smart Contracts;
- Geoengineering and Earth Systems Engineering;
- Nanotechnology;
- Quantum and Biological Computing and Molecular Communication;
- Robotics and Automation (incl. Drones and Additive Manufacturing); and
- Sensors and the Internet of Things.

The reasoning behind mentioning the variety of disruptive technological platforms is that with technological disruptions, the threat can come from an area where you might not expect it. Geoengineering and biological computing are the least likely to have an impact on the smart mobility and fare ticketing markets; all the others could have an impact in the medium to long term.

Although organizations and researchers focus on the factors listed above, McKinsey Global Institute publishes a similar list and points out in its rapport that such a list is incomplete. Due to the nature of technology and innovations, there are always surprises. Although deficient in the sense that some platforms will disappoint, or other ones will emerge, it is agreed upon by experts, academics, and respected industry leaders that these are a good indication of impactful technologies. (cf. McKinsey Global Institute, 2013)

### *2.5.2 Competition and Adoption of Disruption*

Trout's book on repositioning discusses the topic of disruptive technologies: "Disruptive technologies are today arriving in the marketplace with impressive regularity. Huge companies always find change difficult, but the reality is unless you keep on evolving, you're dead. It's evolution rather than revolution that counts" (Businessnews Publishing, 2014, p. 13.).

Because of the nature of disruptive technologies, many technologies are or have been disruptive. Organizations focus on in the previous chapter listed platforms, but any platform has the chance to become disruptive. Technical innovations rendering existing technologies obsolete can cause both positive or harmful direct and indirect social, economic, and ecological disruptions (cf. Thomas, 2019, p. 1.). Selesky &

McCann state in their section on continuous change thinking and scenarios that “competitive disruptions can spill out of the industry container and incite wider social effects and consequences” (Selsky & McCann., 2008, p. 171.).

A disruptive technology initially underperforms compared to established solutions in the mainstream markets. Eventually, disruptive technologies displace the established ones. In the process of the established technology being displaced, the same movement can be seen at firms: the organizations that support the disruptive technology replace the organizations that supported the previous, established ones. (cf. Danneels, 2004, p. 247.)

### 2.5.3 Early Warning Signs Assessment

Examples such as Uber, Airbnb, Spotify, or Amazon have disrupted traditional business models. “The interconnected processes of globalization and rapid technological change, particularly the emergence of technologies related to networked computers, have profoundly disrupted traditional forms of corporate organization and created new business models as well as opportunities.” (Fenwick & Vermeulen, 2015, p. 600.). It is crucial for established organizations to keep up with potential disruptive threats; for this purpose, the ‘Early Warning Signs Assessment’ has been developed by Anthony et al. describing the seven early warning signs of disruptive change (cf. Anthony, Gilbert & W. Johnson, 2017, p. 102.).

Table 3: Assessing early warning signs: the seven specific early warning signs of disruptive change (Anthony, Gilbert & W. Johnson, 2017, p. 213.)

Stage	Sign	Low Risk	Moderate Risk	High Risk
Stage 1: Circumstances	Customer loyalty	Stable / Increasing	Decline	Rapid decline
	Venture investment	Little / None	Substantial Early-stage Activity	Substantial Growth-stage activity
Stage 2: Catalysts	Policy Changes	Little / None	Under consideration or discussion	In the process of being implemented
	Industry entrant activity	Little / None	Growth at low-end or fringe of the market	Entering or present in the mainstream
	Customer habit shift	Stable	Changes at the fringes	Change in the mainstream

<b>Stage 3: Impact</b>	<b>Business model innovation</b>	Entrants optimizing existing models	Entrants experimenting with different models	Entrants successfully executing different models
	<b>Profit margins</b>	Stable or increasing	Slow decline or increase due to cost management	Rapid decline

Although the above model is described as straightforward – the signs can be hard to spot. The author of the model advises organizations to “go to the periphery”, “pay attention to small things”, “think about what could happen in the future, not what is happening now”, to “involve outsiders” and lastly to “assess the cost of inaction”. (cf. Anthony, Gilbert & W. Johnson, 2017, pp. 108-110.).

#### 2.5.4 Technological Disruption: Cases

The cases of Uber and Airbnb are mentioned as well-known disruptions. In this chapter, the disruption of ridesharing and Smart City will be discussed.

#### Ridesharing

The development of a variety of technologies and a variety of trends have put in place the ideal climate for ridesharing apps to prosper. Examples of such technologies are Google Maps (and similar services), the Global Positioning System (GPS), the adaption of mobile devices and mobile apps, and the globalization of all these factors. These services have allowed apps such as Uber and Lyft in the United States, goCatch in Australia, WhipCar in England, and many more in other parts of the world, to disrupt the traditional taxi industry.

Ridesharing has not only disrupted the business operations of traditional taxi services – but it has also become a threat to services such as public transportation. In the United States, ownership and low-cost of car ownership are already competing: “Easy availability of cars and a low cost of driving makes it difficult for public transportation to compete.” (Buehler, 2018, p. 10.).

With the taxi and livery systems continuing its fight, trying to stay relevant, a publication titled ‘Uber takes the passing lane’ (Schneider, 2015, p. 19.) advises: “City and state officials have the opportunity to stay relevant on this issue, but only after objective recognition of the economic, technological, and municipal advantages of this new augmentation to the public transportation system, while working in the best interest of their constituents”.

## **Public Transportation in Singapore (Smart City)**

Singapore is an early adapter of implementing mobile apps with the aim of improving public transport. The case of Singapore is considered a success being voted as the most “technology-ready” nation by the World Economic Forum in both 2015 and 2016, with the variety of apps being mentioned one of the drivers behind this (cf. World Economic Forum, 2016, p. 16.).

The apps leading this disruption were MyTransport, MyConcierge, Grab, Gothere.sg, SG Buses, and Locomole. Together these applications can provide personalized travel information based on user-provided data in combination with information collected throughout the city, such as traffic cameras tracking traffic in real-time (cf. European Bank for Reconstruction and Development, 2019, p. 26.). Singapore is leading in rankings for smart-cities. For example, the IMD Smart City Index 2019, which focuses on citizens’ perceptions, shows Singapore as first with a triple-A rating, followed by Zurich, Oslo, Geneva, and Copenhagen (cf. IMD, 2019), other Smart City (related) rankings rate Singapore first, or among first.

The Smart City concept is enabled by disruptive technologies and has the potential to disrupt traditional industries such as the taxi industry by offering a more convenient and reliable alternative, automotive industry by providing a decreased need (car) ownership, industries tied to the need for oil and gasoline, and more.

## **2.6 Characteristics of the Smart Mobility Industry**

The previous chapters have mostly focussed on the high-tech markets and disruption. This chapter focusses on the in chapter 2.1 introduced term of smart mobility. The benefits and economic impact and trends surrounding smart mobility will be addressed.

### *2.6.1 Impact and Benefits of Smart Mobility*

Smart Mobility impacts how we travel. People use other modes of transportation instead, or alongside, a gas-powered vehicle. Popular forms are public transportation, ride- or car-sharing, kick-scooters, subways, taxis, different types of bicycles, walking, and an ever-growing list of more possibilities. Smart Mobility is part of the global need to decarbonize – ultimately to achieve ‘zero emissions’, increase safety to a level of ‘zero accidents’ and increase efficiency. It is considered a tool for smart and sustainable cities. (cf. Geotab, 2018)

Smart Mobility is a radically different way of thinking on how everybody gets around, how the increasing populations make their daily commute while decreasing the carbon footprint. Aside from emissions and accidents, the factor of vehicle ownership is kept in consideration. The combination of urbanization, resource reprioritization, the increase and availability of delivery services, and the expectation of autonomous mobility will result in a decline of personal ownership. Smart Mobility could see as a result, 'zero ownership' and predictions are made that someone born today will not need to get a driving license, nor will they ever own a car. (cf. Neckermann, 2015, p. 7.)

### 2.6.2 *Key Principles of Smart Mobility*

Based on the available literature on smart mobility, seven fundamental principles can be defined on which smart mobility is built (cf. Geotab, 2018):

- **Accessibility:** One of the fundamentals of smart mobility is that it should be affordable (and therefore accessible) to everyone.
- **Clean Technology:** Instead of using pollution-causing vehicles, the goal of smart mobility is to use zero-emission vehicles.
- **Efficiency:** Disruptions kept to a minimum, and the traveler gets to the destination in as little time as possible – a benefit from the lesser congestion.
- **Flexibility:** With smart mobility, people have the choice to choose between multiple forms of transportation. They can choose the means of transport that best fit their current situation, choosing either the fastest, the cheapest, or the most comfortable option.
- **Integration:** Instead of taking a bus from A-Z, the goal of smart mobility is to go from door-to-door, regardless of chosen transportation mean.
- **Safety:** Fatalities and injuries to a minimum.
- **Social Benefits:** Because all these principles are accessible to everyone, a fundamental principle of smart mobility is to provide a better quality of life to all citizens.

The relevance of these fundamental principles lies in the deeper understanding it provides of customer behavior. For the development of any concept, it is important to know about the needs of the end-consumer, and about the driver behind the trend of smart mobility.

### 2.6.3 *Economic Impact of Smart Mobility Industry*

Smart mobility has benefits with regards to reduced congestion, decreased fatalities, and a lesser carbon footprint. These benefits have direct economic benefits associated. According to the National Highway Traffic Safety Administration, traffic accidents cost approximately €270 billion (\$300B) per year in the United States alone. Another estimated 11 billion liters of fuel go to waste stuck in traffic. Cities and respective industries can save billions in productivity and fuel cost. Removing drivers from the equation allows people to work during their commute, providing further advantages in productivity (cf. Liberty Advisor Group, 2019). According to a report from ABI Research enterprises, governments and citizens could save approximately €4.5 trillion (\$5B) per year by 2022 by adopting Smart City technologies, although not exclusively smart mobility. (cf. Bonte, 2017, p. 6.)

For the megacities of the future, especially in places like Asia, accessible mobility will be fundamental for liveability and economic growth. With the increased vehicle utilization, reduction in congestion, and with no more personal vehicle ownership, the cost per mile for small vehicles (1.6km) could be reduced from \$1 (€0.90) to approximately 10 cents per mile. Either a low fee or a flat fee for unlimited access to all forms of transportation, including bike-sharing programs and transit, is being explored and can contribute to making mobility accessible (cf. Bonte, 2017, pp. 12, 13.). Programs such as these can be the future of ticketing, and thus, the future of brands such as MIFARE.

### 2.6.4 *Trends and Innovation in the Smart Mobility Industry*

Smart mobility is an industry where digital innovation has an impact. Previously the innovations in this industry have had a focus on smaller technology-driven improvements such as smart route planning. On a larger scale, technology-driven improvements have a relatively small impact. To achieve a more considerable impact on a city, nation, and worldwide level, it is necessary to align efforts among stakeholders and to collaborate in a typical business model. (cf. Turetken et al., 2019, p. 9.)

Within the industry of smart mobility, five large forces driving the evolution of automotive transportation and mobility can be categorized. These technological innovations and shifts in preference or social trends are changing how companies

develop vehicles. These industry-changing forces and mega-trends are shown in figure 5. (cf. Corwin, Eamonn & Vitale, 2015)

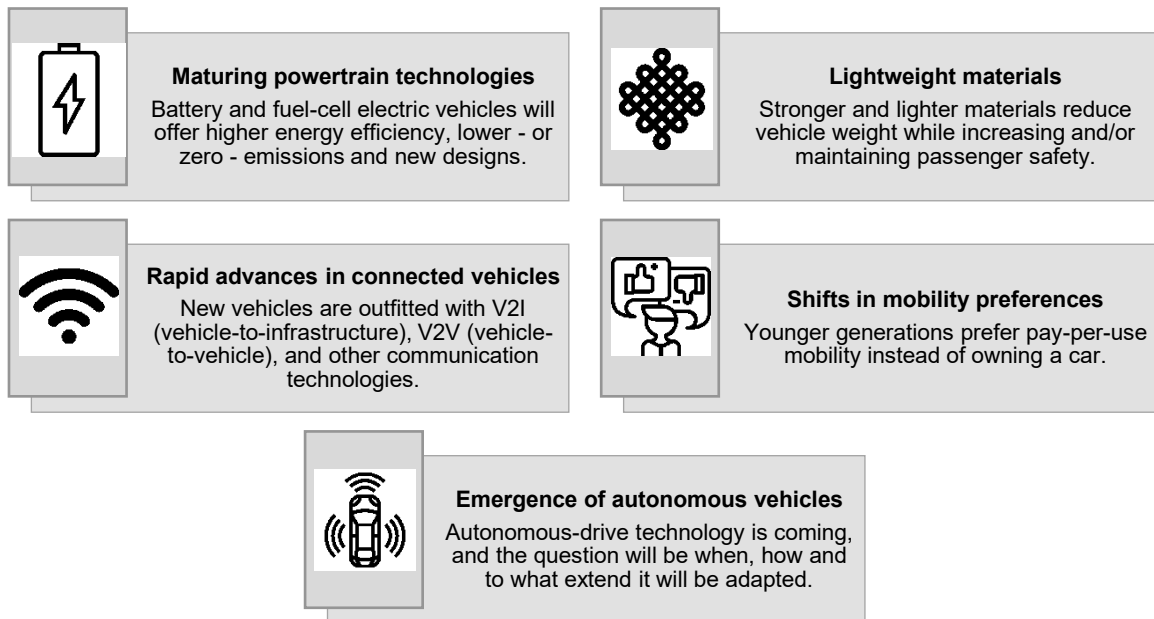


Figure 6: Converging forces transforming mobility, based on (Corwin, Eamonn & Vitale, 2015)

Although no one can currently know the exact extent of these social trends and innovation, they do have the potential to radically alter the mobility industry and contribute to smart mobility. A radically altered industry would have effects on business models, competitive dynamics, value creation, and customer value propositions. (cf. Corwin, Eamonn & Vitale, 2015)

### 2.6.5 Special Relevance of Fare Ticketing in the Smart Mobility Industry

Fare ticketing has importance in the smart mobility market – for all these services, unless the model of Luxemburg is followed where transportation is free, will have to be paid for by the user. Automated fare collection helps the parties within the smart mobility industry with these payments.

Within there are various types of collecting fares: In public transport, fares are, in most situations, no longer being collected by hand but instead by Automated Fare Collection (AFC). AFC means replacing the manual collection with machines, resulting in more reliable, time-efficient, and cheaper ticketing. Additional benefits of AFC are, for example, flexible fare plans being introduced, promotional events can be held, and online fare management tools can be provided to the customer. (cf. Lackner, 2017, p. 2.)

### 3 Brand Repositioning in an International B2B Market

Chapter three goes in-depth on brand repositioning and positioning by first describing the essentials surrounding the roles of branding, followed by the roles of (re)positioning. The chapter will further describe how a repositioning strategy looks like, and how concepts are found, selected, and implemented.

#### 3.1 Definitions

The term brand includes brand management, brand awareness, brand (re)positioning, branding strategy, branding environment, branding functions, brand equity, and more. Brand repositioning is a unique form of positioning.

##### 3.1.1 Definition of Brand

According to ISO standards, a brand is recognized as an “important intangible asset” and “brands can confer considerable advantages, such as building customer loyalty and enabling a price premium for the branded product” (ISO/TC 289, 2017). Due to the wide-ranging use of the word, a significant variation can be found defining the term ‘brand’. The American Marketing Association (AMA) defines a brand as “a name, term, design, symbol or any other feature that identifies one seller’s good or service as distinct from those of other sellers” (American Marketing Association, 2017). The overview of the definitions of the term can be found in the table below.

Table 4: Collection of definitions for the term 'Brand'.

Author/Institution	Definition
<b>AMA</b>	“A name, term, design, symbol, or any other feature that identifies one seller’s good or service as distinct from those of other sellers.” (American Marketing Association, 2017)
<b>Burmann, Meffert, and Kirchgeorg</b>	“Bundle of functional and non-functional benefits, which, from the target groups’ point of view, differentiate the brand from competitors’ offers in a sustainable way.” (Meffert, Burmann & Kirchgeorg, 2015, p. 28.)
<b>Esch</b>	Images in the mind of the target groups which act as a form of identification and differentiation and influence the decision-making process. (cf. Esch, 2012, p. 22.)
<b>Kapferer</b>	“A brand is a name with the power to influence.” (Kapferer, 2018, p. 11.)
<b>Kotler</b>	“A brand is a name, term, sign, symbol, or design or a combination of them, intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of the competitor.” (Kotler & Armstrong, 2017, pp. 251, 252.)

<b>Ries, Brandtner</b>	“A proper name with a specific meaning in the mind of the prospects.” (Brandtner, 2019, p. 7.)
<b>The internationally agreed-upon legal definition</b>	“A sign or set of signs certifying the origin of a product or service and differentiating it from the competition.” (Smith, 2012, p. 29.)

One of the most common points of disagreement for experts is on what exact definition to settle when it comes to brands. Each expert provides a slightly different description or finds a way to nuance the definition of a brand, as is apparent from the table above. The same applies when measuring the strength of a brand – how one can measure a brand and what (limited) number of indicators one can use. (cf. Kapferer, 2018, p. 7.)

The approach, as described by Kapferer, states that the right for a brand to exist is found in its power to influence the market, which takes time (cf. Kapferer, 2018, pp. 9-11.). The definition is in a constant phase of evolution, which is apparent from authors changing their previously given definitions. All authors agree that a brand is one of the critical assets of a company regarding the global marketing strategy. (cf. Krueger & Nandan, 2008, p. 30.)

In this thesis, the definition as given by Kapferer is followed, which is very similar to the other definitions. “a brand is a shared desirable and exclusive idea embodied in products, services, places and/or experiences. The more this idea is shared by a larger number of people, the more power the brand has.” (Kapferer, 2018, p. 10.).

### 3.1.2 *Definition of Brand Repositioning*

Brand repositioning describes “the addition, elimination, or modification of functional and/or non-functional benefit features of a brand which has already been introduced on the market, with the intention of altering the benefit associations of relevant target groups” (Feddersen, 2010, p. 33.). Trout & Rivkin describe repositioning as: “Repositioning is how you adjust perceptions, whether those perceptions are about you or about your competition. In both cases, in order for your strategy to work, you must understand how the mind works or how people think.” (Trout & Rivkin, 2009, p. 10.). Brand repositioning is seen as a unique form of positioning.

The following broader definition for positioning is followed for this thesis: “Brand positioning is the planning, implementation, control, and continued development of a position which conforms to the brand identity within the relevant target groups’

perception, is geared to the consumers' wishes, is differentiated from its competitors, and can be achieved by the company's own resources and competences" (Feddersen, 2010, p. 29.). Positioning focusses on how an organization differentiates itself in the mind of its prospect (cf. Trout & Rivkin, 2009, pp. 10, 11.). Brand positioning contains two phases: firstly, establish a position and then maintaining or changing this position, the changing of a position touching on repositioning (Burmann et al., 2017, p. 114.).

The repositioning of a brand has become increasingly popular in mature industries due to intense competition, changing consumer preferences, and the high cost of developing and introducing a new brand (cf. St-James, 2001, p. 164.). Research shows that first must recognize the importance of functional and symbolic repositioning (cf. Simms & Trott, 2007, p. 297.).

An essential aspect of repositioning that reoccurs in this thesis is described by Trout & Rivkin in their books: "so-called experts in the field have worked hard at trying to keep things complicated and confusing" and "try not to over-research or overthink your positioning or repositioning strategy - simple and obvious will do the trick" (Trout & Rivkin, 2009, p. 205.).

## **3.2 Roles of International Branding**

In this chapter, the roles of international branding will be discussed. First, the branding triangle will be examined, then the different roles of international branding are described, and lastly, the relation between the international branding roles will be discussed.

### *3.2.1 Roles of International Branding*

The branding triangle designed to go with the definition of branding, as designed by Kapferer, and helps in structuring most issues related to brand management such as what the right balance of tangible and intangible benefits is, how a brand concept should be embodied in products and services, how a product or service should be identified (and where), what name or signs should be used internationally, how often the brand should be updated or modernized, if the name should be changed, and lastly if the brand (name, logo, product, concept) should be globalized. (cf. Kapferer, 2018, p. 10.)

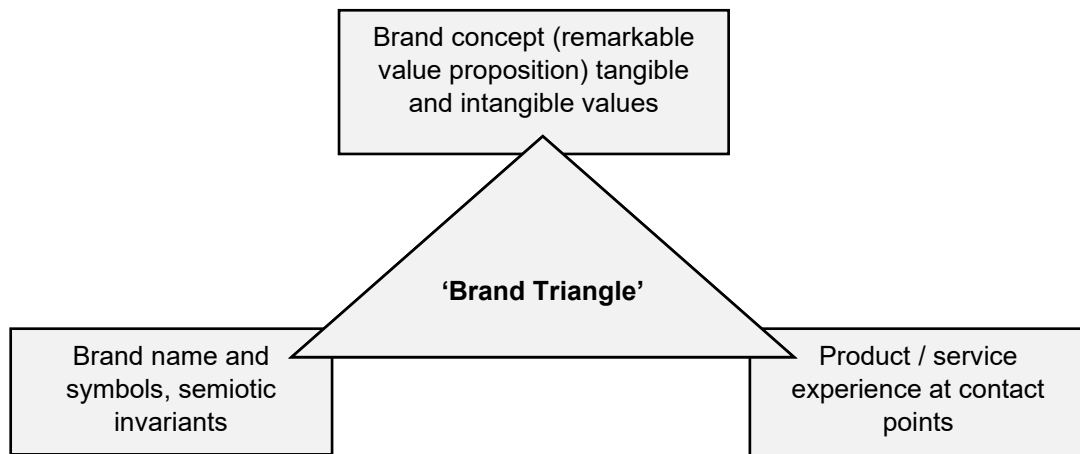


Figure 7: The Brand Triangle based on (Kapferer, 2018, p. 10.)

Branding policy is considered a major issue within the overall marketing strategy of any firm (cf. Douglas, Craig & Nijssen, 2001). When operating internationally, the importance of branding seems to differ: international branding used to be seen as not having the same prominent position within international marketing, as it was previously not covered within extensive literature reviews (cf. Whitelock & Fastos, 2007, p. 252.). The meaning of the term international branding is shifting over time; international branding was seen as merely the decisions on the use of the brand name in international marketing (Onkvisit & Shaw, 1989, p. 22.). Nowadays, international branding relates to all the decisions involved in the development process of a brand on an international level. (cf. de Chernatony, Halliburton & Bernath, 1995, p. 10.)

Looking at a firm from a resource-based perspective shows that a firm is a bundle of resources, divided into six categories, consisting of physical and intangible assets (Grant, 1991, p. 119.). Organizations can use these resources to gain an advantage over their competitors (Peteraf, 1993, p. 188.). The brand name is an intangible asset and considered necessary for achieving these high returns (Wernerfelt, 1984, p. 172.).

### 3.2.2 Relations Between the International Branding Roles

The inter-related relationships between the various international branding roles are shown in the conceptual framework below. The arrows indicate positive determinants. Global marketing strategy is, for example, a positive determinant of brand performance and international marketing (financial) performance. Brand repositioning in this model refers to the adaptation of a domestic brand's position for international customers. **Figure 8** shows the position of brand repositioning in this framework (cf. Wong & Merrilees, 2007, p. 387.)

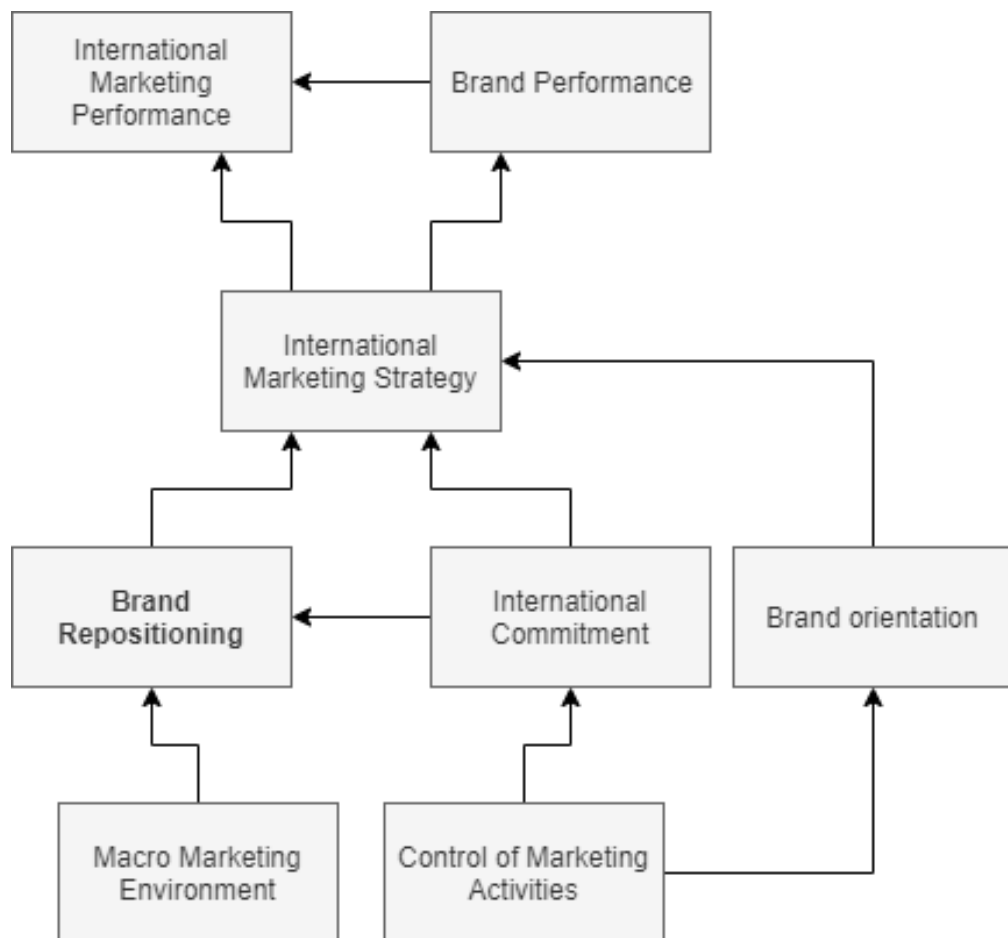


Figure 8: Conceptual framework of the international branding strategy. Arrows indicate a positive determinant. based on (Wong & Merrilees, 2007, p. 388.)

Research on 300 Australian firms operating in international markets reveals that the model above is valid. “Branding occupies a central place in domestic marketing research but has been somewhat neglected in the international context.”. In the conceptual framework, branding plays several roles concerning international performance. It is concluded that brand performance is a suitable measure of end performance. (cf. Wong & Merrilees, 2007, p. 388.)

### 3.3 Imperatives of Brand Repositioning

In this chapter, the terms, targets, and success factors of brand repositioning will be discussed. An introduction to analyzing brand positioning models will be provided.

#### 3.3.1 *Different Terms and Their Relation to Brand Repositioning*

Associated terms to repositioning are 'variation', 'brand re-launch', 're-branding', and 'dynamization'. A product variation is "an alteration in the bundle of features through which a product which is already on offer has been determined thus far" (Brockhoff, 2019, as cited in Feddersen, 2010, p. 114.). The term brand-relaunch is a form of product variation when, an already to the market introduced product, has one or more product properties widely altered (cf. Meffert, Burmann & Kirchgeorg, 2015, p. 447.). The terms 're-launch' and 'variations' are considered on the adequate level of brand management and not on the strategic level (cf. Feddersen, 2010, p. 114.).

Re-branding is another term for the re-naming of brands and associated brand characteristics, and although frequently used in the business press, it is not often used in academic publications (cf. Muzellec & Lambkin, 2006, p. 804.). The considered to be the most challenging brand identity element to change is the brand name (cf. Bonotto, 2018, p. 51.). Re-branding is mostly caused by mergers and acquisitions but can have other causes such as scandals, strategy shifts, and many more (cf. Muzellec & Lambkin, 2006, p. 803.).

Lastly, dynamization is a specific part of repositioning with a focus on changing external environments: "A dynamization by changing the identity becomes necessary whenever a brand's external environment changes, primarily due to changing consumer needs, which renders the previous brand benefit irrelevant or makes it necessary to add a new brand benefit to the brand promise. Dynamization by changing the identity is thus based on a repositioning of the brand" (Burmann et al., 2017, p. 144.).

#### 3.3.2 *Brand Repositioning Aims*

Burmann et al. state on repositioning, which they refer to as a unique form of positioning: "Once a brand positioning has been achieved, it can usually not just be statically maintained over time" (Burmann et al., 2017, p. 113.). Positioning is, therefore, dynamic because, in the definition described aspect of continuous

development, it has two phases: the first phase is to establish a position, and the second phase is maintaining or changing this position.

“Excess brand extension resulting from chaotic growth may lead to loss of brand coherence and playing down the brand’s value in the audience’s eyes.” (Janiszewska & Insch, 2012, p. 12.). For organizations, there is a need to make decisions that avoid causing this loss of brand coherence. Brand repositioning aims to avoid the loss of brand coherence by changing the benefit associations of the relevant target groups. The ‘benefit associations’ consist of functional and non-functional benefit features related to a brand and can be added to, eliminated altogether, or modified (cf. Feddersen, 2010, p. 33.).

In the context of the repositioning aims, repositioning is described as a tool to achieve the so-called ‘Three C’s of Business’: competition, change, and crisis. Trout’s book on repositioning is titled after these three c’s and explains that these three are the reason behind the need for repositioning: “When you consider the three cs of competition, change, and crisis, you can see why repositioning is a strategy whose time has finally come.” (Trout & Rivkin, 2009, p. 5.). An organization beats the competition by challenging its rivals, differentiating its product, standing out from the crowd, and by increasing value. Change (with the times) stands for using the latest innovations, communications, and multimedia resources. The last C stands for crisis and focusses on anything from things such as company scandals and negative press to generally increased costs (cf. Chatterjee, 2010, p. 84.).

The three brand repositioning aims that are followed for this thesis are shown in figure 10.

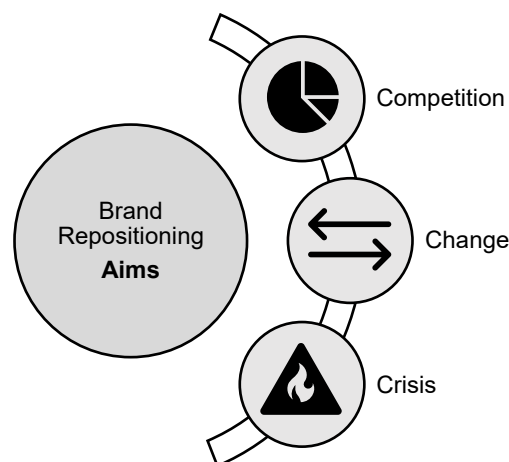


Figure 9: Three Aims of Brand repositioning (figure by author)

Repositioning has different roles at every stage of the management process. In the analysis stage, it indicates the scope, areas, and research issues. It also analyzes the competitive activity and the behavior of target groups. In the planning stage, positioning takes the role of verifying specific types of activity and hierarchizing these specific types. In the last stage, the implementation stage, positioning indicates the areas, methods, techniques, tools, and means. In the evaluation or controlling phase, the position of positioning is the measuring of effectiveness and measuring to what extent objects are achieved. (cf. Janiszewska & Insch, 2012, p. 18.).

### 3.3.3 *Brand Repositioning Success Factors*

An essential aspect of successful positioning is consistency; repositioning is easiest when the change is consistent with existing associations. A risk that comes with repositioning lies in the chance to decrease or completely lose a brand's credibility since the repositioning of a brand requires the definition of buyer association (cf. Laforet, 2009, p. 118.). When the currently existing association a buyer has with a brand is not consistent with the repositioning, two concerns arise: "the existing associations can inhibit the repositioning effort. Second, they may well be important to a worthwhile segment which could be potentially alienated by the repositioning" (Aaker, 1991, p. 151.).

In a study focused on the repositioning of BMW's 'Mini' brand, two crucial factors were considered for judging the success of the repositioning efforts: the symbolic (emotional) and the functional (rational) level. In the case of BMW, it was considered a success since the brand was repositioned to have high-level build quality as opposed to value for money while maintaining the brand's key associations. (cf. Simms & Trott, 2007, p. 306.)

An important aspect to consider during repositioning is not losing existing associations that were build up over time: "Changing associations is wasteful when associations that have been nurtured over a long time period are allowed to dissipate when a new association is emphasized." (Aaker, 1991, p. 151.). A critical success factor for a successful repositioning is "the optimal mix between reinforcing and new brand information" (Burmam et al., 2017, p. 144.). In Burmann's book on identity-based brand management, von Weizsäcker is quoted as stating that "successful dynamization can only succeed if a sufficient number of important identifying features remain unchanged. This "medium" mix of old, reinforcing

information (confirming expectations) and new characteristics ensure maximum communication impact. Both too many new features (“insufficient fit”) and too little innovation (“overdone fit”) must be avoided.” (von Weizsäcker, 1974).

When using public relations as a drive of a repositioning campaign six basic rules are mentioned by Trout for success: start by figuring out your current position, come up with the repositioning strategy, convince everybody to use the repositioning approach, put publicity first and advertising strategy, go for the slow build-up rather than one large event and lastly continuously evaluate how the repositioning is going (cf. Businessnews Publishing, 2014, p. 21.).

### 3.3.4 Analyzing Brand Position: Intensity and Models

In order to understand what the repositioning intensity is, it is first essential to understand what a positioning model is since the repositioning intensity is shown in such a model: “Positioning models reflect the positions of brands from the consumer’s perspective and can be understood as a simplified representation of the memory structures on the part of the consumers” (Burmam et al., 2017, p. 115.; Esch, 2012). A variety of methods are available for analyzing brand positioning.

“Repositioning intensity indicates the extent to which relevant consumers perceive the brand position to have changed with regard to its functional and/or non-functional benefit dimensions when comparing two distinct points in time.” (Recke, 2011, p. 62.). The difference between the original brand position and the (planned) new brand position is shown in figure 11:

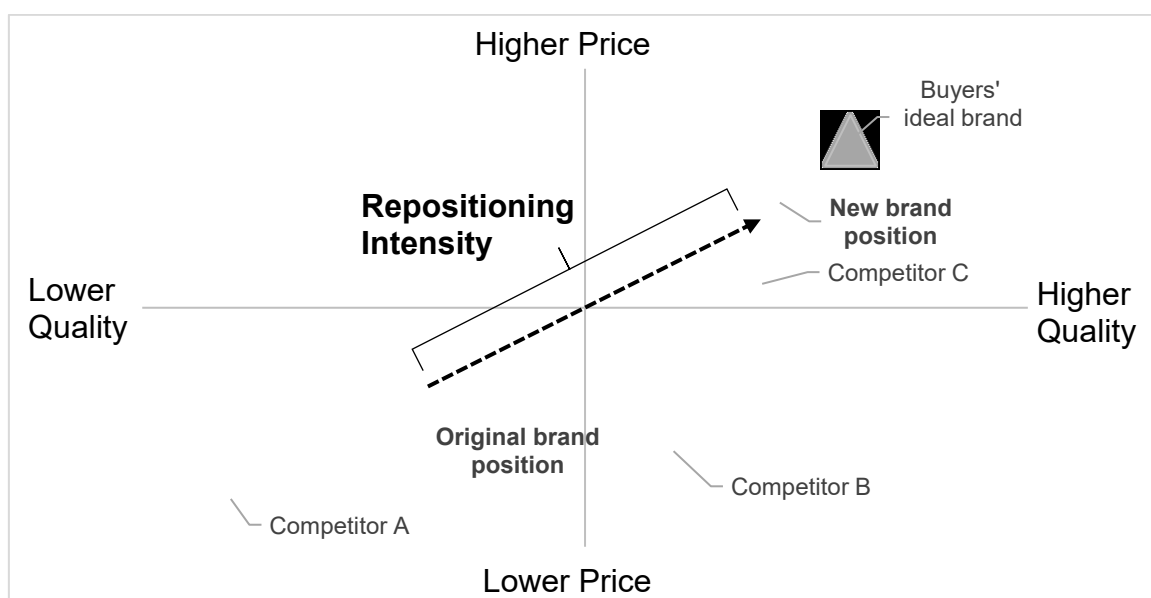


Figure 10: The intensity of the repositioning is shown in a positioning model, based on (Burmam et al., 2017, p. 115.)

The X-axis shows the dimension of quality, while the Y-axis shows the price positioning dimension. The original brand position could be weak since competitor B has higher quality at a lower price. In this example, a brand competing in the lower price and quality segments is repositioning itself to a much higher quality surpassing one of its competitors in price (competitor C) and two competitors in quality (competitors B and C). The difference between the original position of the lower price/quality and the new position of a high price/quality is the repositioning intensity. The lowest-quality, which is also the lowest-price competitor (competitor A), is not affected in this example. In fact, competitor A gets more room in the price-fighting segment, while staying furthest away from buyers' ideal brand (Burmans et al., 2017, p. 115.). Burmann's model does not only describe product quality, but the quality can instead refer to many aspects of the brand, only focussing quality and price is widely scrutinized by researchers (cf. Iyer et al., 2018, p. 4.).

### **3.4 Brand Repositioning Models & Strategy**

In this chapter, relevant models will be discussed, and the different strategies will be introduced. The considerations which must be taken into account for them will also be explained.

#### *3.4.1 Customer Perspective Towards Repositioning*

Drummond et al. give four alternative options for brand repositioning: image repositioning, market repositioning, 'product' repositioning, and total repositioning (cf. Drummond, Ensor & Ashford, 2008, p. 207.). In table 5, the four different alternatives are shown.

In a lower part of the table, the consumer perceptions towards brand repositioning are added based on the buyers' interpretation of brand repositioning decisions, which should be considered in all strategies (cf. Simms & Trott, 2007, pp. 300, 301.).

Table 5: Alternative options available for brand repositioning and the customer perspective based on (Drummond, Ensor & Ashford, 2008, p. 207.) and (Simms & Trott, 2007, p. 301.).

Brand Repositioning Alternatives	Unchanged Target Market	Changed Target Market
<b>Unchanged Service Offering</b>	Image Repositioning	Market Repositioning
<b>Changed Service Offering</b>	Product Repositioning	Total Repositioning

Consumer Perception	Symbolic Brand Characteristics	Symbolic Brand Characteristics
<b>Existing Functional Brand Characteristics</b>	Brand Positioning Maintained	Emotional Repositioning
<b>New Functional Brand Characteristics</b>	Rational Repositioning	Complete Repositioning

There are three different positioning alternatives: strengthen the current position that a brand has, search for a new and unexploited position or to reposition (cf. Björkdahl, 2004, p. 38.).

### 3.4.2 Introduction to Different Strategies

Where Brandtner & Ries describe three repositioning approaches: ‘back to basics’, ‘focusing on a lead product and lead service’, and ‘building a second brand’ (Brandtner, 2019, p. 107.), Feddersen describes three different forms, stating that repositioning comes in characteristics: active, reactive, and indirect (cf. Feddersen, 2010, p. 61.).

With active repositioning, an organization focusses on the customer needs of which they are not aware yet: the latent needs. With reactive repositioning, the more traditional approach, organizations focus on satisfying customers’ previous needs by doing so in a way superior to that of the competition (cf. Feddersen, 2010, p. 61.).

Indirect (passive) repositioning is divided into three options. The first option is changing the ‘ideal conception’ of buyers towards their own brand, which is considered very time-consuming and expensive and is rarely used. The second option is changing the perception of competing brands, depending on if legislation allows while keeping their own brand position unchanged. The third option is to introduce a new and non-latent ‘evaluation dimensions’, achieving a differentiated

market-approach (cf. Feddersen, 2010, p. 62.). Urde & Koch add to these models the importance of coping with industry competitors, stating that the strategy must be both brand-oriented as well as market-oriented, describing repositioning cases as being a puzzle (cf. Urde & Koch, 2014, p. 483.).

Within high-tech markets, the most crucial cause of repositioning can be new technology; new technology has been named as a reason for a change in the form of repositioning as far back as 1984. David Berstein argued in his book 'Company Image & Reality' that needs for change come from the current brand identity being mistaken or unclear, a decline in the market, increasing costs, new and more robust competitors, change of overall market needs, and lastly, from new technology being introduced (cf. David, 1984).

### 3.4.3 *Considerations Surrounding the Right Strategy*

In a Finish study on brand positioning for large worldwide operating industrial B2B firms providing customer solutions, four strategies were identified: customer value diagnostic, global solution integrator, high-quality sub-systems provider, and the long-term service partner (cf. Jalkala & Keränen, 2014, p. 253.).

Jalkala & Keränen conclude that there is no single brand positioning strategy: "None of the case companies fall into a single brand positioning category. Instead, several features of each positioning strategy can be identified in all case companies" (Jalkala & Keränen, 2014, p. 258.). Data collected from B2B brands across different industries concludes that these B2B firms develop specific positioning strategies, the development of specific positioning strategies is supported by both proactive and responsive market orientation types (cf. Iyer et al., 2018, p. 10.).

### 3.4.4 *Jalkala & Keränen's Identify Three Strategies*

In the table below, three strategies, as identified by Jalkala & Keränen, are ordered in a table. Extensively described in their work, as mentioned in the considerations surround strategy chapter, is that there is not a single strategy that fits all companies but that, instead, companies have several features of each proposed brand positioning strategy (cf. Jalkala & Keränen, 2014, p. 253.).

The 'Value Diagnostic' dimension is added in the paper but left out of the table below, the value diagnostic is not a strategy but has the defining characteristics of identifying customer's latent needs, understanding industry development trends and

customers' business processes, and lastly that of delivering demonstrable value with the key capability of consultative capability value assessment capability

Table 6: Brand positioning strategies for firms providing customer solutions based on (Jalkala & Keränen, 2014, p. 258.)

	Global solution integrator	High-quality sub-systems provider	Long-term service partner
<b>Defining characteristics</b>	Operating as a global integrator of sophisticated technologies and services for the customer's best interest	Providing high-quality sub-systems and innovative technologies	Committing to long-term customer relationships and delivering superior service
<b>Key capabilities</b>	Capability to design and integrate systems Network and partner management capability	Capability to innovate and integrate different technologies into functional sub-systems	Operative service capability

The 'value diagnostic' strategy, not shown or identified in this table, emphasizes the capability to identify latent needs and the ability to understand industry development trends along with customers' business operations, the value should be measured by the customer and recognized – not only delivering on what the customer wants but also demonstrating the value (cf. Jalkala & Keränen, 2014, p. 258.). This strategy aligns with the active variant described by Feddersen with regards to the focus on latent needs (cf. Feddersen, 2010, p. 61.).

The 'global solution integrator' has the brand positioning focus on global capabilities with regards to designing and integrating systems while rallying external network actors. The goal of these actions is to make the most out of the technological capabilities of other firms. With this strategy, the supplier does not put the focus on its own brands but positions itself as an integrator (cf. Jalkala & Keränen, 2014, p. 258.).

A second strategy is to emphasize the ability to deliver high-quality sub-systems along with innovative technologies via the 'quality sub-systems provider'. Unlike the previous strategy, there is a focus on the supplier's own products — firms using this strategy focus more on technological and innovative know-how as opposed to service and integration capabilities (cf. Jalkala & Keränen, 2014, p. 259.). The strategy entirely relies on a supplier's ability to build and deliver on these high-quality subsystems in order to enhance the buyers' operational performance (cf. Cassia & Francesca, 2019, p. 115.).

The last strategy is that of a 'long-term service partner' with a focus on offering the best possible service, committing. The goal of this strategy is of thinking of projects

as never-ending but instead as shifting to ‘modifications and lease’. It should be a constant cycle of partnerships, new projects, and a focus on building, maintaining, and committing to long-term relationships (cf. Jalkala & Keränen, 2014, p. 259.). There is no single strategy that outperforms all the others on all the measurable positioning dimensions (cf. Fuchs & Diamantopoulos, 2010, pp. 1780-1781.).

### 3.5 Brand Repositioning Ideas

After looking at different brand repositioning strategies, this chapter will take brand repositioning ideas into account. Firstly, the four-step process of differentiation will be discussed, then Jack Trout’s vision will be explored, before taking a look at what happens when Reposition seems impossible. This chapter ends with a short look at how to select the right path.

#### 3.5.1 Four-Step Process of Differentiation

The four-step process developed by Trout and Rivkin provides the steps an organization needs to take in order to differentiate when operating in an international market. Constructing the unique selling proposition is described under the label of “creativity vs. logic” as being a science as opposed to an art (Trout & Rivkin, 2008, p. 76.).



Figure 11: Four steps of differentiation based on (Trout & Rivkin, 2008, p. 76.)

**Step one** is to “make sense in the context”, creating “a quick snapshot” by taking the competition into account. It is essential to know your and the competitors’ strengths and weaknesses, as perceived by your target group. The message should start with what the marketplace knows about your competition. (cf. Hesselbein, 2010, p. 36.)

**Step Two** is to find the required differentiating idea. In this step, organizations seek not to be the same as their competitors. Being unique would mean being one of a kind. The fundamental regarding differentiating ideas is to let go of the need for the differentiating to be product related. (cf. Trout & Rivkin, 2008, p. 78.)

**Step Three** is to “have the credentials”, meaning to have the ability to demonstrate either the difference in the product, offered services, or other types of differentiation (cf. Trout & Rivkin, 2008, p. 78.). The need for credentials comes from buyer skepticism. It is essential to have the credentials to back up claims, but the amount of transparency an organization shows will have to be decided on since increased transparency in buyer-supplier relationships comes with both positive, but also adverse effects. (cf. Hultman & Axelsson, 2007, p. 633.)

The last step, **Step Four**, is to communicate the differentiation. The importance of this step lies in the fact that buyers will not be aware of the differentiation without it being communicated to them (cf. Trout & Rivkin, 2008, pp. 79, 80.). The better product or differentiated service has an advantage, but will not necessarily win; better perception tends to be the winner (cf. Hesselbein, 2010, p. 36.).

Essential for getting your differentiation idea to success, or the required level of differentiation, is that only having one is not enough. Organizations and the people driving the ideas generally think that good ideas only need professional marketing. Marketing is described by Trout and Rivkin as “a game fought in the mind of the prospect”, you, however, get further with a mediocre idea combined with a large budget than with a great idea with little. A communication program is needed to market the differences a firm offers (cf. Trout & Rivkin, 2008, p. 80.). Additional to these approaches, as described by Hisrich & Ramadani, are the eight differentiation approaches described by Trout & Rivkin.

### 3.5.2 *Jack Trout on Differentiation – Inspiration for Repositioning Ideas*

Organizations, specifically industrial companies, are urged to seek differentiation (cf. Leonidou & Hultman, 2018, p. 2.), and that differentiation is needed to maintain market share (cf. K. Sen, 2014, p. 96.). Jack Trout's model on Differentiation can serve as a creative approach in developing repositioning ideas.

Organizations following differentiation strategies are met with both positive and negative impacts: differentiation strategies allow firms to sustain their current performance to a greater extent than, for example, a cost-leadership strategy but comes at the same time with more risk and can be associated with unstable performance (cf. Banker, Mashruwala & Tripathy, 2014, p. 872.).

With those factors in mind, most importantly, the factor that there is no one strategy that suits all, it can be valuable to look at the eight differentiating approaches suggested by Jack Trout, as shown in Table 7.

Table 7: Eight Differentiation Approaches with regards to repositioning as Described by Jack Trout based on (Trout & Rivkin, 2008)

Key reasons behind different strategies	
<b>Be First</b>	Customers and buyers generally only remember the first and ignore what comes second onwards. Although being first has, as described in chapter 2.2, less impact in B2B markets.
<b>Attribute Ownership</b>	Owning attributes can be one of the more robust differentiators. Attributes such as 'Experience', 'safety', and more can be owned by a company and brand. Attributes are a distinctive feature of a product and brand.
<b>Leadership</b>	Standing out as a leader is a good thing when it comes to a position in the market. Buyers see big as useful. Leadership is considered the most dominant way of differentiating. Leadership comes in the flavors of sales-, technology-, and science-leadership.
<b>Heritage</b>	Heritage can be seen as a substitute for leadership; brands that are around for long times can give prospects the feeling of dealing with a leading brand even if it is not. It communicates the brand as secure and established and is one of the more influential psychological factors. Brands often take advantage of this differentiator by listing the year in which they were founded (example)
<b>Market Specialty</b>	Being a specialist in a particular area can lead to differentiation, companies can survive by using specialty as the differentiator. The tricky part is that a successful specialist must stay specialized without chasing other businesses, effectively eroding the positioning as a specialist.
<b>Preference</b>	Preference, also referred to as being the most popular choice, is a strong differentiator. Both B2B and B2C buyers have the tendency to follow the crowd
<b>Production</b>	Because many production efforts get lost in marketing, sales, targets, and continuous pushing of new and improved products, a look inside can create powerful idea's for differentiating. When looking into how exactly a product works, powerful differentiating ideas can be found; once the idea is found, it can be nearly dramatized for differentiating.
<b>Latest</b>	Within the high-tech world, people are used to continuous new iterations and generations of products. Generally, buyers are not interested in buying obsolete products, so competitive advantage, and differentiating can be achieved by positioning the brand as offering the latest (and greatest).
<b>'Hotness'</b>	The hotness strategy takes advantage of the follow-behavior of people, similar to leadership and preference strategies. By communicating the successes of a brand, you attract more buyers. That said, being 'hot' and outgrowing your competitors in terms of sales is an excellent way to gain market share, but a new positioning and market strategy is needed for maintaining that position once you achieve those levels.

Different strategies and models are described in which repositioning concepts can be categorized. The eight differentiation approaches are the inspiration for any

repositioning idea. Trout & Rivkin note: “Just focus on one powerful differentiating idea and drive it into your prospect’s mind.” (Trout & Rivkin, 2009, p. 14.), although this powerful idea can come from all the different key approaches.

### 3.5.3 *When Repositioning is Impossible*

Trout & Rivkin describe being ‘big’ as being the ‘enemy of change’: Repositioning requires a certain degree of flexibility which size makes very difficult, if not impossible (Trout & Rivkin, 2009, p. 76.). The only solution for brands and organizations that have become too big is to launch a new brand operating on their own; brands retain the flexibility to deal with anything that might happen in the competitive business environment (cf. Trout & Rivkin, 2009, p. 77.).

“repositioning is not about changing people’s minds. It’s about adjusting perceptions in their minds” (Trout & Rivkin, 2009, p. 18.). Once the market makes up its mind, there is no changing possible. With that knowledge in mind, the focus will be on changing the perception (in their mind), the changing of perception, and the challenges that come with that are discussed in chapter 3.5.1: *Changing Prospects’ Perception*.

### 3.5.4 *Selection of the Right Idea*

In order to select the right idea, a model has to be designed that suits the needs of the organization. After initially selecting the factors which are important for the idea to succeed, and after coming up with relevant positioning strategies, a table must be made where these ideas are listed and someone internally at the company, experienced with the market and the product, should rate the different factors.

An additional factor that should be added is the ‘weight’ of the different attributes, one attribute might be more important than the other one, and this should be taken into consideration. The end result will be a score-system providing ratings for each attribute in relation to a positioning concept, and then the final weighted scores deciding on what positioning concept to move forward with. This form of rating-system is referred to as a decision matrix or selection matrix.

## **3.6 Implementation of Brand Repositioning**

After selecting the right ideas for Brand Repositioning, the next step is the implementation of brand repositioning, discussed in this chapter.

### 3.6.1 Brand Repositioning Implementation Success Factors

Implementation is one of the fundamental stages of a successful brand repositioning as it affects the overall success of the repositioning campaign most. Defined as: “Brand strategy implementation is the implementation of the brand strategy through the marketing mix” (Merrilees, 2005, p. 203.). Companies seeking to reposition their brands need three components: vision, orientation, and strategy implementation – with brand strategy implementation being the last and most crucial step (cf. Merrilees, 2005, p. 208.). Implementation impacts the effectiveness of positioning and has particular importance (cf. Janiszewska & Insch, 2012, p. 18.).

One of the most important considerations for the implementation phase is the need to get the entire organization on board, the most significant contributor to repositioning failing are functional silos (cf. Gyrd-Jones, Helm & Munk, 2013, p. 1069.). It is not reasonable to expect from a repositioning concept that functional silos can be quickly broken down, critical factors are summed up for successful brand management implementation while keeping the silos intact:

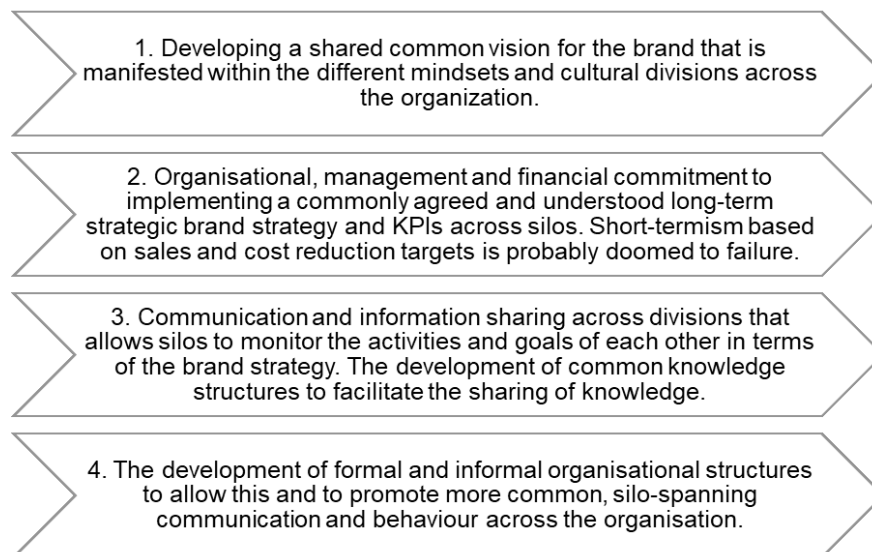


Figure 12: Critical factors for successful brand repositioning implementation (Gyrd-Jones, Helm & Munk, 2013, p. 1074.)

Brandtner writes in his blog-post on the importance of two phases: the confirmation phase and the novelty phase. Confirmation describes humans preferring the familiar thing while the novelty phase describes the interest of humans to learn new things, which should build on what previous knowledge is already there. Because of these phases, Brandtner recommends that brands should start with PR, and once the PR campaign is successfully completed, the brand can focus on positioning via advertising: “First PR - then advertising” (cf. Brandtner, 2019).

### 3.6.2 Brand Repositioning Implementation: Stages and Key Activities

Three aspects are fundamental for the implementation of repositioning: educating the employees on the changed positioning, documenting all the changes for internal usage and customer support, and the third continuous action is to communicate the brands' intended position (cf. Koch & Gyrd-Jones, 2019, p. 46.). Positioning and repositioning are implemented through communication (cf. Merrilees, 2005, p. 203.). The current trend, recognized by organizations, is towards integrated marketing communications (cf. Czinkota, 2012, p. 394.), which will be discussed in chapter 4: Communication of Brand Repositioning in an International B2B Market.

For the implementation phase, the three implementation related stages of the seven-stage model for positioning work will be followed, as proposed by Koch & Gyrd-Jones. The seven stages of positioning work built on the existing CBP (Corporate Brand Positioning) model (cf. Koch & Gyrd-Jones, 2019, p. 47.). With Koch describing repositioning in another publication as one big puzzle (cf. Urde & Koch, 2014, p. 483.) and Jalkala & Keränen explaining that there is not a single repositioning model or implementation which fits for all brands but that instead, organizations should have features from different strategies (cf. Jalkala & Keränen, 2014, p. 253.), the first four steps will not be discussed in this thesis. Repositioning should be adjusted based on the specific situation via organizational input.

Stage	Key Activities and Key Choices
(5) Specifying brand position elements	<p><b>Key Activities:</b> Narrowing down differentiating elements for the intended brand position, producing linguistic drafts, visually translating position elements, and turning strategic changes into applicable corporate stories</p> <p><b>Key Choices:</b> Designing messages for corporate-level use, and designing messages for business-, segment-, or industry-specific position purposes to enhance the relevance</p>
(6) Educating and convincing internal stakeholders	<p><b>Key Activities:</b> Verifying and fine-tuning brand position, educating managers across the group in the latest marketing knowledge to secure the positive impact of changes</p> <p><b>Key Choices:</b> Introducing initial work-in-progress results via global management forums to spark interest among top managers across the group</p>
(7) Implementing the intended position	<p><b>Key Activities:</b> Preparing brand position documents such as brand books, brand stories, and platform documents, arranging pilot implementation workshops with selected business units, and turning intended brand positions into applicable business stories</p> <p><b>Key Choices:</b> Utilizing external events such as Investor relations meetings or group-wide industry fairs to test internal and external reactions</p>

Figure 13: Stages 5-7 of positioning work developed by (Koch & Gyrd-Jones, 2019, p. 47.)

### 3.7 Repositioning Controlling

Brand controlling is defined as “the supply of information to and consultation of all points involved with brand management, in conjunction with a higher coordinating role to support the brand-specific planning, management and control processes within the company” (Meffert, Burmann and Kirchgeorg, 2015 as cited in Burmann et al., 2017, p. 234.). The main objective of brand controlling is described as “comprehensive support of the brand management with respect to optimizing the result” (Burmann et al., 2017, p. 235.).

Controlling is needed since the type of positioning strategy used affects the positioning success of a brand (cf. Fuchs & Diamantopoulos, 2010, p. 1763.). Controlling comes, aside from knowing if the goals are reached, with the additional benefits of an enhanced likelihood of successful implementation and an enhanced managers’ understanding of the market and positioning (cf. Simkin, 1996, p. 375.).

Brand repositioning controlling consists out of the controlling of the individual development repositioning steps, controlling the actual realization of the repositioning via the marketing mix, and lastly, the controlling of the results (cf. Fendeková & Mandat, 2011, p. 17.).

Within brand controlling, five categories of approaches are described: financial approaches, behavioral approaches, combined brand valuation approaches, stakeholder-oriented brand valuation approaches, and lastly, the identity-based brand valuation (cf. Burmann et al., 2017, pp. 254-268.). The measuring and understanding of a brand image are important for both branding research and practice and are an essential part of the controlling (cf. Plumeyer et al., 2019, p. 227.).

An instrument that is frequently used for positioning controlling is measuring the brand image, with image profiling being the most-known tool. With image profiles, brands are evaluated by the customer according to a list of associations, when this research on brand positions is being conducted it can be compared with, if available, other brands resulting in an easy to understand the image of where each brand is positioned (cf. Burmann et al., 2017, p. 238.).

## **4 Communication of Brand Repositioning in an International B2B Market**

This thesis has focused on communication. By understanding the importance of integrated marketing communication, and by understanding the tools, targets, and processes of communication, a communication guideline can be developed. This chapter will describe those terms by first explaining what IMC is, and then discussing the steps needed for successful IMC. The communication guideline is part of the repositioning concept.

### **4.1 Definitions Brand Communication vs. IMC**

The definition of brand communication is “the combination of activities that influence customers' opinions of a company and its products” (Cambridge University Press, 2020). The strength of an organization's brand communications depends on how well the brand identity is integrated into supporting marketing communication programs (cf. Arens & Weigold, 2018, p. 180.).

In the context of this thesis the term IMC, short for Integrated Marketing Communications, will be used more frequent having a related and similar meaning, for which the following definition will be followed: “IMC is the stakeholder-centered interactive process of cross-functional planning and alignment of organizational, analytical, and communication processes that allows for the possibility of continuous dialogue by conveying consistent and transparent messages via all media to foster profitable long-term relationships that create value.” (Porcu et al., 2016, p. 124.).

Brand communication focusses on defining and understanding the brand position, communicating the brand value, studying the brand competitiveness while sharing this brand image to the customers and stakeholders through advertisements and other means, IMC makes sure that all the right channels are used to reach the right customers at the appropriate times, with the right message (communication mix).

### **4.2 Communication Challenges of Brand Repositioning**

#### *4.2.1 Challenges of Perception*

One of the challenges that come with repositioning is the fact that a prospects' mindset will have to be changed. Jack Trout and Al Ries refer to marketing not as a battle of products but as a battle of perception. Changing a prospects' mind is

considered very difficult since once a perception gets into a prospects' mind, it is interpreted as a universal truth (cf. Ries & Trout, 1993, p. 21.). For this reason, aspects of repositioning can be considered more challenging than with positioning.

Ries & Ries continue in their book on branding about the need for consistency describing that a brand cannot get into the mind unless it actually stands for something, a change in the market does not mean that the brand should change, it should not lose its essential characteristics (cf. Ries & Ries, 2002, p. 97.), adding on Aaker who stated that when a brand is not consistent with the repositioning, multiple concerns arise (Aaker, 1991, p. 151.).

#### 4.2.2 *Changing Prospects' Perception*

Having a clear position in the mind of a prospect is one of the, if not the most critical goal in marketing (cf. Prabhakar Rajkumar & Abraham, 2018, p. 160.). Changing a prospects' mind is a challenge, so much so that one of the 'laws of marketing' is that "You can't change a mind once it's made up" (Ries & Trout, 1993, p. 16.). This statement shows a challenge for repositioning but can, at the same time, be debated due to its generalizing nature. A variety of options are listed below for changing perception.

Because a made-up mind is hard to change, well thought out tactics will have to be used for prospects to open their minds. An example is when an organization starts to communicate a problem or shortcoming, by communication a problem, people tend to open their minds instinctively. Communicating a problem is communicating a negative; this tactic can be considered a risk, especially when the buyer does not understand it. When using this technique, it is essential to shift to something positive immediately – you are not issuing an apology for the brand (cf. Ries & Trout, 1993, pp. 90-91.). Repositioning is all about changing prospects' minds, and communication is the tool for executing these concepts.

#### 4.2.3 *The Need for Communication*

With regards to getting a concept repositioning implemented, Sreenivas et al. state: "It is not enough to carefully analyze internal organizational strength and weakness, marketers must think about communication channels to reach their target customers" (Sreenivas, Lakshmi Narayanamma & Kalpana, 2018, p. 3.). When considering successful repositioning case studies, it is apparent that many of the repositioning strategies were relying on communication opposed to a product or

service modification – the image of the brand has a direct impact on the buyers' behavior (cf. Sreenivas, Lakshmi Narayanamma & Kalpana, 2018, p. 4.).

For a repositioning concept to work, there is a need for continuous communication: “An intuitive way of achieving successful repositioning is to communicate the new positioning of the brand with enough repetition so that strong links are formed in consumer memory between the new attribute node (i.e., the repositioning attribute) and the brand name” (Jewell, 2007, p. 232.). From a B2B perspective, the critical challenge of brand repositioning is creating the right communications program (cf. Daramola-Martin, 2009, p. 304.).

### **4.3 Imperatives of Communication**

The field over B2B communication is ever-changing. Traditional promotional tools are used, such as print advertising, articles, trade shows, and sales visits, while modern tools, such as online advertising, whitepapers, webinars, social media, and web microsites, are used for getting a message across more than ever before (cf. Dan, 2018, p. 14.). Since this chapter will have a focus on IMC, the skepticism towards ICM should not be ignored: a variety of papers criticize IMC for the lack of measurement to the effectiveness of programs (cf. Slutskiy & Ordeix, 2019, p. 291.). Due to the complex interactions between the different promotional mix elements, it is nearly impossible to measure the interactions, benefits, and effectiveness (cf. Semenik, 2002, p. 545.).

The criticism goes far back, and within this thesis, the concept of IMC freely will be used for creating a successful repositioning concept. “Despite the fact that there are a number of criticisms of IMC as over the last ten years that the IMC concept has been debated and developed, this initiative has been accepted by many marketing leading theorists and writers.” (Kitchen et al., 2004, p. 25.). Although (communication) agencies move away from using the term IMC in describing a method for competitive advantage, the firms instead switch to terms such as integrated campaigns and put more focus on disruptions such as Big Data and social media (cf. Slutskiy & Ordeix, 2019, p. 295.). IMC is, however, still very much alive: “the value of using a coordinated approach to managing organizational communication has not disappeared” (Slutskiy & Ordeix, 2019, p. 295.).

Currently, the development of modern communication technologies is considered unprecedented and uncommon; more and more B2B technologies come available

(cf. Hes, 2020, p. 1.). Social Media tools such as LinkedIn, WhatsApp Business, and Facebook Business, but also online tools such as Pay-Per-Click Marketing, Email Newsletters, and Blogs, see increasing development and use within the B2B markets (cf. Hes, 2020, p. 6.). However, not every communication tool is suitable.

Communication is the key challenge of every organization (cf. Daramola-Martin, 2009, p. 304.), and at the end of the day: it is the reason that your customer decides to do business with an organization and not its competitor (cf. Hackely, 2010, p. 73.).

#### **4.4 Communication Targets**

Communication targets depend on what the metrics for success are. Examples of marketing communication targets and metrics can be increased traffic to a website or blog, increased contact with the customer, or simply the number of sales and leads that can be attributed to the specific communication monitored.

Within brand repositioning, the communication targets are increased awareness and changed customer perception of the brand. This changed customer perception directly influences the buyers' behavior (cf. Sreenivas, Lakshmi Narayanamma & Kalpana, 2018, p. 4.).

In the following chapter, 4.5, Integrated marketing communication will be discussed. The target of integrated marketing communication is creating both the most efficient, and at the same time, the most effective communication mix possible, suited for the organization, product, and positioning (cf. Keller, Apéria & Georgson, 2012, p. 292.).

#### **4.5 Integrated Marketing Communication (IMC) Mix**

##### *4.5.1 Four Sources of Brand Messages*

In the integration triangle of IMC, as shown in figure 14, four different sources of company/brand messages which stakeholders receive are introduced by Tom Duncan: planned, product, service, and unplanned (cf. Duncan, 1997, p. 91.). Each of these messages has an influence on the buyer/stakeholder, so it is essential for marketers to know where the message originates from if they can influence them, how much that would cost, and of course, what effect they have (Arens & Weigold, 2018, p. 180.).

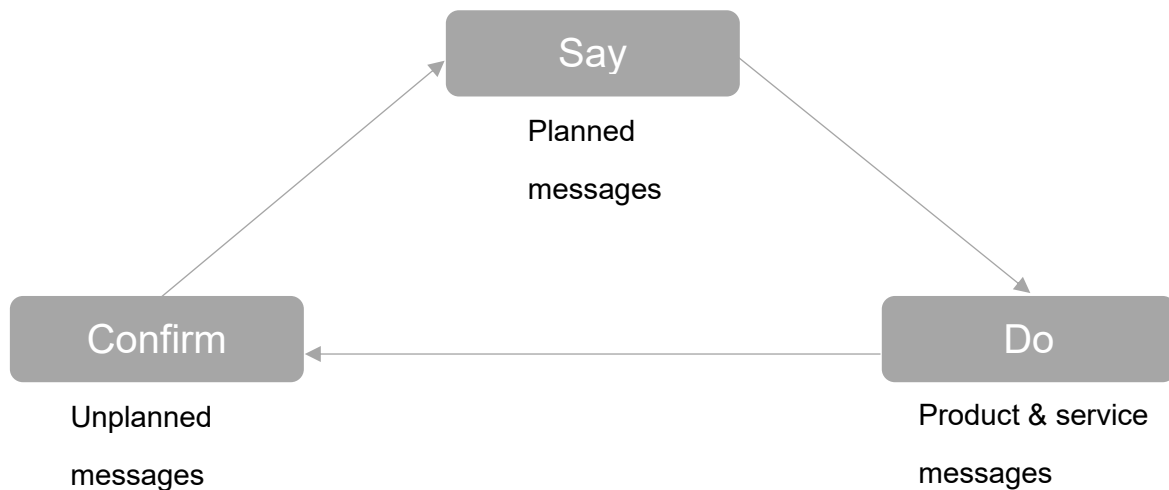


Figure 14: The integration triangle based on (Arens & Weigold, 2018, p. 181.)

The planned message is also referred to as the traditional marketing communication message such as advertising, sales promotions, personal selling, sponsorships, and more. An explanation of a selection of these tools can be found in the next chapter 4.4.2: IMC Tools. With regards to impact, planned messages are described as having a lower impact: “These often have the least impact because they are seen as self-serving” (cf. Arens & Weigold, 2018, p. 180.). Creating the right communication program focusses mostly on the planned messages (cf. Daramola-Martin, 2009, p. 304.) and IMC takes that one step further: IMC theory describes that every element of the marketing mix is the sending of a message (cf. Porcu et al., 2016, p. 124.), these three additional sources are described below:

Product messages relate to product or service aspects such as price and distribution and have a significant impact on the prospect. The product message should align with the offered quality, service, and should deliver on promises (cf. Arens & Weigold, 2018, p. 181.).

Service messages occur when employees interact with buyers. An interesting factor here is that service employees are in most organizations overseen by operations. Meanwhile, the service messages have a higher value than the planned messages. The solution for this, which is considered best-practice within IMC, is to align with all employees what marketing message should go out. Negative messages are kept to a minimum, and the goal is to put as many positive messages out via this source as possible (cf. Arens & Weigold, 2018, p. 181.).

The last form of communication sources is unplanned messages. Organizations have little control over these messages since they can originate from many sources

such as journalists, competitors, social media, word-of-mouth, or from events simply out of organizations control such as the weather or disasters (cf. Arens & Weigold, 2018, p. 181.). The best way to control these messages is by providing the needed resources for these parties to do their job, making sure provenly wrong information is corrected, and overall offering a good product/service.

#### 4.5.2 *IMC Tools*

Many tools are part of integrated marketing communication in B2B markets. Public relations, personal selling, direct marketing, digital marketing, advertising are all part of the IMC Tools (cf. Arens & Weigold, 2018, p. 179.).

Exhibitions such as a trade show or expo play a significant role for B2B organizations, it offers the opportunity to show the latest products and services, and have potential buyers directly try them out. Face-to-face contact is made with industry-relevant exhibit participants. The packaging dimension is also part of IMC and relates to how the product is delivered. The packaging has the primary purpose of ensuring the safe delivery of the product but can perform many more functions such as informing or attracting customers and differentiating from the competition.

Points of purchase (POP) is another form of communication tool but is not as relevant in B2B markets compared to B2C. These are generally promotional materials placed at the actual point where the purchase is being made. In B2B, the focus can instead be put on, for example, the offices when potential clients visit, although it is rarely the actual point of purchase. Sponsorship is an, usually monetary, investment in any kind of activity with the return of getting exposure from that activity. Sponsorship is considered a thematic communication instrument in which the sponsor (organization) helps the sponsee (receiver of the funds) achieving goals (cf. Lagae, 2005, p. 155.). Event marketing ties a brand to meaningful activity in, for example, the education, entertainment, or cultural sector. It is a result-oriented marketing communication tool that promotes a brand image, products, services, or even organizational 'personality' (cf. Martensen & Gronholdt, 2008, p. 140.).

The most crucial aspect of all these tools is that they are effective when they work together instead of in isolation. IMC aims to create a consistent, uniform, and seamless experience for customers (cf. Arens & Weigold, 2018, p. 179.).

### 4.5.3 *IMC Process*

Customer delivered value should be maximized; IMC is fundamental for firms to innovate and deliver a competitive response to their customers (cf. Ul Rehman & Syed Ibrahim, 2011, p. 190.). The process of IMC consists, generally, of eight steps which have to be followed in the process of IMC (Rėklaitis & Pilelienė, 2019, p. 76.):

- Target audience identification;
- Determining the communication objectives;
- Creating a communication message;
- Selecting a media channel;
- Deciding on the budget;
- Deciding on the marketing communication mix;
- Measuring the results; and
- Managing and coordinating the overall IMC.

Two critical considerations surrounding the IMC process are that “The IMC process starts with the customer or prospect and then works back to determine and define the forms and methods through which persuasive communications programs should be developed” and that “It is critical to consider IMC as a process, not a thing” (Percy, 2008, p. 6.).

### 4.5.4 *IMC Requirements & Budgeting*

The context between the different communication instruments is of importance, although there is a complex interaction that is hard to measure (cf. Semenik, 2002, p. 545.). The final stages of the IMC planning process are preparing the communications budget and selecting IMC tools, which will be used.

The different IMC tools can be put in a table. Notable is when dealing with the budget to give each different tool their own appropriate budget. At the same time, different market segments (when there are multiple) should get their own appropriate budget.

A variety of methods can be used for deciding on how large the budget should be. The most common methods for determining on differentiated or entrepreneurial promotion budgets are the following five (cf. Hisrich & Ramadani, 2018, pp. 154, 155.):

1. Affordable: What the company can afford, considered the least useful since it puts promotional spending last.

2. Percentage-of-sales: A fixed percentage of past or expected future sales revenue. For this method, a comparison should be made to what competitors are spending.
3. Competition-based: Comparing to competitors, considering difficult since competitors are not transparent on their promotional spending
4. Fixed-sum-per-unit: Spending a fixed amount per (expected) unit sold.
5. Objective-and-task: Considered the best method for establishing a budget, by first defining the specific objectives and then determining what kind of promotion is required, the right budget is made.

Having implemented consistent and thought out communication will have to be controlled. The next chapter, 2.6, describes the benefits of communication controlling.

## 4.6 Communication Controlling

The benefits of controlling marketing communications are improved decision making, risk reduction, improved campaign, cost savings due to efficiency and effectiveness, and general knowledge that is considered helpful with a follow-up or next campaign (cf. Pickton & Broderick, 2005, p. 515.). Controlling, in general, is widely accepted and considered needed by organizations worldwide: "Almost all of today's executives are in agreement that the solution to the majority of corporate problems involves obtaining better control and use of existing corporate resources, looking internally rather than externally for the solution." (cf. Kerzner, 2017, p. 2.)

Because of the integrated nature of IMC, it is hard to measure the exact successes achieved through IMC (cf. Slutskiy & Ordeix, 2019, p. 291.), chapter 4.3 goes more in-depth on these shortcomings. The possibilities to measure successes related to IMC are both long-term and hard to directly connect to the implementation or use of IMC.

For the controlling of the different elements of marketing communication, (Pickton & Broderick, 2005) describe three forms which can be evaluated:

- Efficiency: Executing marketing communications in the right way.
- Effectiveness: Doing the right marketing mix activities.
- Economy: Sticking to the (negotiated) budget.

Most organizations choose to evaluate the sales effect. This approach is however difficult due to the many variables in the marketing environment, the uniqueness of all the individuals in the market, the concept of lagged variables and the cumulative effects of both the new and, when applicable, previous promotions (cf. Pickton & Broderick, 2005, p. 519.).

Most large organizations have their own way of doing controlling, and the controlling of an organization should be applied and adjusted to marketing controlling. In general, any organization trying to control a process will follow three steps: measure, evaluate, and correct. The first step is to measure through both formal and informal reports the degree to which progress towards marketing and communications objectives are made, then to evaluate it by determining the causes of factors that are not going as expected, which can be both positive and negative. The second step of the evaluation is to find possible. The third and last step is to correct the evaluated causes by taking action, controlling is reiterative. The three steps are shown in figure 15 (cf. Kerzner, 2017, p. 193.).

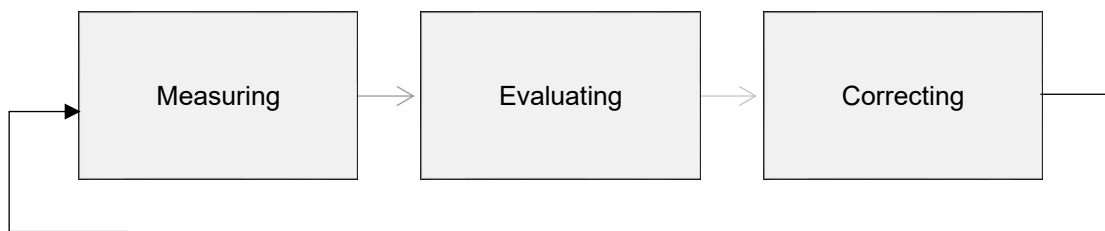


Figure 15: Three Steps of Controlling, based on (cf. Kerzner, 2017, p. 193.)

## 5 Conclusion

This theoretical section lays the foundation for developing and reviewing different repositioning concepts with a focus on communication for brands operating in the high-tech smart mobility markets. One of the key findings in the literature is that there are many definitions for the terms discussed in this thesis, hence the definition chapters explaining the differences and deciding on what definition will be followed in this thesis.

In the comparison between high-tech vs. regular offerings, the differences were not significant. Although the lifecycle of high-tech solutions is usually short and the market, in general, sees more innovation, well-experienced marketing managers responsible for such offers state that their objectives and tasks are the same as when offering non-technical solutions.

The *'Early Warning Signs Assessment'* describes the need for repositioning, which originates from disruptive changes and disruptive technology. Once a company is aware of the need to change, something of which repositioning can be a part of, the questions regarding strategy arise. Chapter 3.4. gives a good overview of the different models and strategies with Jalkala's model going as far as to describe three specific repositioning strategies of which organizations can 'pick' as if it were a menu. The four-step model of differentiation provides the needed structure

The book by Jack Trout is not called *'Differentiate or Die'* for no reason: organizations are urged to seek differentiation, and it is needed, not only to increase but also to maintain market share.

Integrated Marketing Communications (IMC) is a concept that is still very alive today (as described in chapter 4.3). One of the biggest challenges is changing the prospects' mind. Differentiating, in combination with a well thought out concept executed via integrated marketing communications, is the best shot at doing so. Powerful communication tools are available to all organizations.

For repositioning concept to work, and in order to get the information needed to create a repositioning concept in the first place, it is fundamental to have an awareness of the need for communication, and for this communication to be consistent, integrated and based on a thought-out strategy that aligns with the organization carrying it out.

## 6 Environmental Analysis

The environmental analysis starts with an introduction to the ticketing market, describing the available technologies and the differences between them. The market trends and competitor analysis follow a more in-depth look at the market environment will be given, and lastly, the target group is described.

### 6.1 Introduction to the Ticketing Market

For public transport, the fares are, in most situations, no longer being collected by hand but instead by Automated Fare Collection (AFC). AFC means replacing the manual collection with machines, resulting in more reliable, time-efficient, and cheaper ticketing. Additional benefits of AFC are, for example, flexible fare plans being introduced, promotional events can be held, and online fare management tools can be provided to the customer. (cf. Lackner, 2017, p. 2.)

There are three technologies that are being considered for AFC systems:

- 'Magstripe' tickets, introduced in the 1970s;
- QR codes, barcodes, and similar scannable codes;
- Contactless: paper, plastic, and mobile tickets.

In the next three subchapters, the technology will be described, and a comparison will be made. It is essential for brand positioning to understand why a specific product is being chosen over another in order to gain a deeper understanding of the market. This thesis focusses on the third variant described: contactless.

#### 6.1.1 *Magstripe Tickets*

The magstripe tickets (magnetic stripe card) carry data stored within a thin strip of magnetic media, has been around since the early 1960s, and was invented by IBM (cf. IBM, 2004, p. 2.). The magstripe card rolled out in the '70s, got traction, and caught on globally in the '80s and was used everywhere in the '90s (cf. Svigals, 2012, p. 74.). In the '70s, it entered transport ticketing and grew rather quick, remaining the basis for several large AFC installations, including New York City and Paris (cf. Lackner, 2017, p. 3.). Within the last two decades, magstripe is being replaced with alternatives such as barcodes and contactless technologies since those provide higher degrees of security and durability. Although magstripe offers

some security due to re-writing capabilities, the cards can be relatively easily cloned (cf. Lackner, 2017, p. 3.).

As one journal states: "This love child [magstripe] of the airline and banking industries has survived for half a century. But the end is finally near" (Svigals, 2012, p. 73.)

#### 6.1.2 QR codes, barcodes, and similar

Barcodes are methods of representing data in a visual, and machine-readable form and are commonly seen in supermarkets, product tags, hospitals, packages and parcels, and thousands of more uses. "A QR code (short for "quick response" code) is a type of barcode that contains a matrix of dots." (TechTerms, 2015). QR code, introduced in 1994, is a unique kind of barcode composed of many small black squares on a white background offering the benefits of being able to store more information and providing higher reading speeds (cf. TechTerms, 2015). QR is established as an ISO (ISO/IEC18004) standard.

The traditional barcodes have been a part of many AFC installations around the world and are exceptionally well known for being used at airports. In the last decade, the QR code became increasingly known for displaying tickets on mobile, expanding the use across the public transport sector. The benefit of QR on mobile is that a ticket does not have to be printed but can instead be purchased online, potentially minimizing both the costs for transit authorities and efforts on the side of the user. At the same time, this use for the technology is still unproven, and there is still a lack of standardization. Barcodes and QR codes are by far the easiest tickets to copy since anyone with a camera, scanner, or devices with screenshot functionality can make duplicates of the ticket, preventing fraudulent use of these tickets requires the AFC installations to be online at all time to perform checks on if the tickets have been used multiple times (cf. Lackner, 2017, p. 4.). A study into the use of mobile ticketing for high-speed rail concluded that passengers with high innovative characteristics are found to be more likely to use both contactless and QR codes for tickets (cf. Cheng, 2013, p. 157.). Contactless ticketing will be described next and offers much more security functionalities compared to QR and barcode.

### 6.1.3 *Contactless Smart Card Ticketing*

Smart card ticketing refers to the use of a memory IC or microcontroller IC for providing contactless ticketing in the smart mobility industry, among other industries. For use in AFC installations, the smart cards, which can be used with paper, plastic, and mobile tickets, store the fare information and use Radio Frequency Identification (RFID) technology for transmitting this data contactless.

The original technology for contactless ticketing was the brand on which this thesis is written: MIFARE by NXP was introduced in 1994 and is described as “originally developed for automated fare collection in public transport, but that was just the beginning.” (NXP Semiconductors N.V., 2019), many other uses followed. MIFARE is an ISO (ISO/IEC 14443) standard.

Near Field Communication (NFC) is an invention inspired by RFID. Because all of the large phone manufacturers are committed to incorporating NFC capabilities into their devices, the transition to mobile for contactless ticketing can be made. The example of MIFARE is compatible with NFC when the device allows the needed functionality.

### 6.1.4 *Comparison of AFC technologies*

With those three types of ticketing introduced, it is important to understand why one is being chosen over the other. The three different categories are compared in five key areas: usability for the customer, throughput speed, vulnerability to environmental conditions, security & fraud resistance, and costs.

Magstripe sees a learning curve for how the ticket should be inserted, and misfeeds cause frustrations and delays. Bar/QR codes read at better rates and often have no need to insert the card into the reader; they do, however, require a display to be on. Contactless has the benefit of working with on an intuitive ‘tap-and-go’ system and comes with the benefit of still working when the device is off or non-functional.

When considering the throughput speed for tickets, a general rule is that the tickets should be read in under 500ms. Magstripe exceeds this 500ms target, which can cause delays during peak times. Bar/QR codes can meet the 500ms target, although this depends on the user’s experience level. Contactless technology meets the 500ms target in nearly all scenarios. Fare tickets see a lot of use, and one ticket can be used for several days, weeks, or even years, depending on the AFC installation. Magstripe is relatively vulnerable since the data can be erased by magnetic

interference with, for example, a smartphone. Bar/QR codes do not have this drawback since it's based on scanning the image but can be rendered unreadable when not stored properly. Contactless technology is, for the most part, not affected by magnetic interference, and with the IC being located inside the ticket or device, the chances of damaging the card are, although present, at a minimum.

When it comes to security and fraud, a lot of additional factors play a role since it will depend on the AFC installation. Magstripe generally registers a ticket as invalid upon redemption, reducing the possibility of reuse. Replication technology is widely available for both magstripe and bar/QR codes. In a European Commission decision, it is stated that: "The weaknesses of QR codes compared to NFC is confirmed by competing players such as Infineon, STMicroelectronics, and Gemalto. One device OEM points to the very low security level that QR codes provide compared to NFC/SE." (European Commission, 2018, p. 34.).

Additional problems with bar/QR codes is that relatively expensive infrastructure is needed for the prevention of reuse – since the printed code cannot be updated in the same way magstripe is updated. Contactless being the most modern solution offers by far the most security and fraud resistance. A reader can, depending on the installation, render the ticket invalid when redeemed, avoiding reuse, and cryptographic algorithms and originality signature checks are in place for avoiding the duplication of the ICs.

#### 6.1.5 *Cost comparison of AFC technologies*

Comparing costs between the different solutions is difficult since much depends on the scale of the AFC installation, the level of customer support that is expected, and the agreements in place between parties. In most situations, magstripe installations have high maintenance costs, need more personnel on-site, and require more maintenance while having a relatively cheaper per-ticket cost. Bar/QR code installations require less maintenance than with magstripe, although the needed online infrastructure can cause increased costs. With contactless AFC installations, no online infrastructure is required, and due to the tap-and-go nature of the technology supporting stuff needed at a minimum. The per-ticket price is higher than with the alternatives, but depending on factors such as overhead, customer expectations, additional third-party revenue options, and others, the benefits can, in many situations, outweigh the higher cost.

In table 8, the comparison of the three main AFC technologies is put in a ranking. Contactless is the clear winner on the first four aspects while magstripe loses on all but security & fraud resistance (where it offers some basic functionality).

Table 8: Comparison of AFC technologies

	Magstripe	Bar/QR code	Contactless
Usability	-	+	++
Throughput speed	-	+	++
Environmental Conditions	-	+	++
Security & Fraud Resistance	+	-	++
Costs	Heavily depending on AFC Installation		

The comparison of different technologies clearly demonstrates the advantages of contactless ticketing. Although the alternatives magstripe and bar/QR code are still commonly used, they are rapidly being replaced by contactless solutions. In some instances, the costs for replacing existing systems might not be worth the benefits that contactless solutions fare ticketing brings; however, in general, the rise of smart card ticketing is clearly visible. This growing market has been described in chapter 1 and will be further expanded on in the next chapter: 6.2.

## 6.2 Smart mobility and Smart Card Ticketing Markets

Smart card ticketing, as described in the previous chapter, refers to the use of a memory IC or microcontroller IC for providing contactless ticketing in the smart mobility industry, among other industries. Smart cards use proprietary systems such as MIFARE (developed and trademarked by NXP) and Calypso. Due to smart cards being reusable, they have a longer lifespan than non-reusable paper tickets.

'Counterfeit', 'clones', 'copies' and 'alternatives' are circulating on smart card markets. There is little to no information available on the exact amounts circulating and being used. Estimates on the number of counterfeits range from 20 to 60%, with markets such as China having "nearly only clones/counterfeits/alternatives" (Perchthaler, 2020). The actual market of smart cards could exceed, in case of the high estimate, over a billion units. This market is not analyzed for this thesis.

The smart card market sees a steady increase year over year. In figure 16, the increase over the past three years and the forecast up until 2024 are shown for the

different IC brands. The data shown in the graph is not specific to the smart mobility industry; approximately half the market is ticketing-related (cf. ABI Research, 2020).

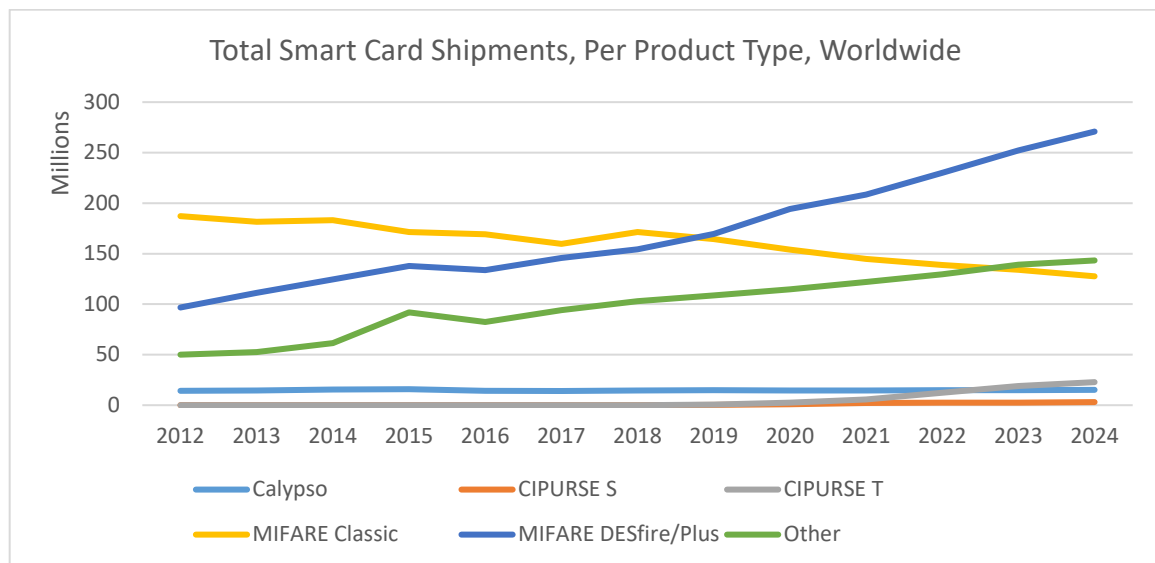


Figure 16: Total Smart Card Shipments, worldwide, across industries (ABI Research, 2020)

**Figure 16** shows that MIFARE DESFire/Plus is expected to continue its growth while MIFARE Classic will keep declining. MIFARE DESFire/Plus took over MIFARE Classic in 2019. Competing products such as CIPURSE S, CIPURSE T, and Calypso are not expected to exceed a combined 50 million by the end of 2024. The ‘Others’ are experiencing growth similar to MIFARE DESFire/Plus, growing from its initial 50 million back in 2012 to an expected 143 million in the next four years (cf. ABI Research, 2020). Interesting will be to see where the eventual expected replacement of physical cards – the described smartphone access, such as MIFARE 2GO, will have an influence on these numbers. As of now, the overall market, including that for ticketing, is expected to increase. In the next chapter, a look at the different competing companies will be provided.

### 6.3 Competitive Environment Analysis

NXP is the market leader in the world markets regarding IC shipments. The total market size of smart card IC sales for contactless ticketing is estimated at 265.8 million units in 2019. NXP has a share of 73.2% on the global market, meaning that in 2019 just under 195 million units shipped, 73.2% is an increase of 0.5% from 2018. The smart card IC vendor market can be split up into the smart card IC memory market estimated at 111.5 million units, and the smart card IC secure microcontroller market estimated at 154.3 million units, together forming a total of

265.8 million units. NXP has a market share of 74% in the memory market and 72.6% in the secure microcontroller market. (cf. ABI Research, 2020)

NXP operates in a lot of markets and therefore has many competitors across industries. Due to the innovative and disruptive behavior of technology, additional competition can arise from start-ups and other parties not seen as competition before, as discussed in chapter 2.4 of this thesis. A good example of these disruptions is that of smartphone access, to which MIFARE 2GO is the response. Below, the two main competitors in the ticketing market are described: Infineon and STMicroelectronics.

### 6.3.1 Competitor: Infineon



Figure 17: Logo Infineon

Infineon is a German semiconductor manufacturer with approximately 41.000 employees and €8.0 billion in sales (cf. Infineon, 2019, p. 8.). Infineon was founded similar to how NXP Semiconductors was founded, where NXP Semiconductors split off

Philips, Infineon was founded in 1999 as a spin-off from Siemens AG, starting official business activities on the first of April 1999 (Infineon, 2015). Siemens AG is a much larger multinational conglomerate company with approximately 385.000 employees (cf. Siemens, 2019, p. 9.).

Infineon, like NXP, has a strong presence in the automotive sector. Approximately 44 percent of Infineon's revenue comes from the Automotive sector (ATV), 30 percent from the power management & multimarket segment (PMM), 18 percent from industrial power control (IPC), and 8 percent from digital security solutions (DSS). (cf. Infineon, 2020, p. 2.)

Infineon is the runner up to NXP in the smart cards' IC vendor market for contactless ticketing with an overall market share estimated at 19.6% in 2019, down 0.2% from 2018. Infineon sees a market share in 2019 of 19.7% in the memory market, and 19.4% in the secure microcontroller market. (cf. ABI Research, 2020)

### 6.3.2 Competitor: STMicroelectronics



Figure 18: Logo STMicroelectronics

STMicroelectronics is a French-Italian multinational semiconductor manufacturer, which also produces electronics. STMicroelectronics is headquartered in Geneva, Switzerland. Although the headquarters are based in Geneva, the company is registered under the holding STMicroelectronics N.V. in Amsterdam, The Netherlands (cf. Bloomberg, 2020). Currently, STM has approximately 46.000 employees worldwide gaining it's €8.5 billion revenue mainly from the 'Analog, MEMS & Sensors (AMS) Group' (39%), the 'Automotive & Discrete (ADG) Group' (34%) and the Microcontrollers & Digital ICs (MDG) Group' (27%) (cf. STMicroelectronics, 2020, p. 2.).

STMicroelectronics holds the third place in the smart card IC vendor contactless ticketing market with a market share estimated at 1.9% in 2019, down 1.2% from 2018. STMicroelectronics has a market share of 3.2% in the secure microcontroller market, down 2.1% from 2018. (cf. ABI Research, 2020)

## 6.4 In-Depth Analysis of Environment

NXP is a globally operating company with employees across 35 countries. Because of the size and operations of the organization, political factors have effects on the daily business. A recent example of this was the planned acquisition of NXP by Qualcomm; this merger was announced in October 2016 and canceled in July 2018 due to the Chinese merger authority not approving it (cf. Mitsuru & Akihide, 2018).

In other areas, trade policy has an allegedly direct effect on NXP; NXP is one of Huawei's key suppliers, and the NXP stock price "went down 2.5 percent", reportedly as a direct result of United States President Donald Trump announced a series of measures on Huawei (cf. Cerulus, Starks & Geller, 2019). Factors such as work regulations, product safety, taxation, anti-trust, levels of corruption across the world, and more are not specific to NXP but are political factors that NXP is dealing with on a daily basis.

The semiconductor industry is closely affected by the world economy, in fact, journalist study the semiconductor industry to get a better perspective on the overall economy, writing: "The chip industry itself has savage mini-cycles. When it turns down, it is a sign of trouble ahead in the world economy. When it perks up, as it has

done recently, there is reason to be more optimistic.” (cf. Buttonwood, 2020). NXP itself states that some of the megatrends being watched are shifts in regional economic balance, stating the Business Continuity System under the guidelines of ISO 22301 and IATF 16949 Section 6.1.2.3. are in place, although these are more oriented towards serious incidents or disasters (cf. NXP, 2019).

Every company, including NXP, operating in the semiconductor industry or operating as a provider to the smart mobility industry, publishes a regular corporate responsibility report. NXP provides additional to the corporate responsibility report supplier code of conduct to extend these social responsibilities to suppliers and contractors (cf. NXP, 2018, p. 42.). Other social factors include cultural, demographics, class structures, and education levels. These do not differ in impact from other organizations operating globally. With regard to employee development and growth, both formal and informal aspects are described by NXP – both talent development programs and leadership development programs are available on a formal and informal base (cf. NXP, 2018, p. 52.). NXP Semiconductors is globally ranked as a positive place to work based on employee rating via popular rating platforms with an average rating of 3.9/5 on Indeed (cf. Indeed, 2020), and 3.7/5 stars on Glassdoor (cf. Glassdoor, 2020). These ratings are similar to competitors such as Infineon, STMicroelectronics, and competitors in different industries in which NXP is competing.

A 2014 study on the transportation and ticketing IC market has analyzed all major vendors and scored them across different aspects such as NFC readiness and support, multi-application capabilities, level of security, differentiation factors, and support of emerging standards. After giving all of these factors, a score an average score has been calculated for all. The result shows NXP as leading on innovation followed by Infineon, STMicroelectronics, and lastly, Samsung. NXP has a score of 92.7, Infineon 84.7, STMicroelectronics 68.0, and Samsung 52.1. (cf. ABI Research, 2014, p. 4.).

An explanation for the highest score is provided: “NXP has solutions deployed in more than 736 cities across 70 countries and is now looking toward enabling and serving the future contactless ticketing market through its higher-end MIFARE DESFire platform, providing additional security through its physical unclonable function (PUF) solution, and mobile enablement via MIFARE4Mobile” (ABI Research, 2014, p. 13.). For Infineon, which comes in at a close second, the

explanation states that Infineon scored well across the board: “From an innovation perspective, Infineon scored well across the board, driven by its strong NFC portfolio, experience in multiapplication enablement, and support of emerging standards and protocols such as ITSO, VDV, and CIPURSE.” (ABI Research, 2014, p. 10.).

Different markets have different environmental standards and norms. These factors are usually tightly integrated with political factors. All the large players report in their CSR reporting on their environmental ambitions and progress. NXP is given an ESG (Environment, Social, and Governance) Risk Rating of 9.2/100 on environmental risk. Other players in the market score similar scores under 10; Infineon scores a 6.2/100, and STMicroelectronics scores 3.4/100 (cf. Yahoo Finance, 2020). These scores are considered good. ESG data provided by Sustainalytics, Inc. gives NXP in January 2020 a ‘Low Controversy Level’ of 1/5 – the higher the score, the more severe controversies with the most substantial potential impact. The ‘peer average’ score is 0.9/5, meaning that NXP is not overperforming but average in the industry on the topic of controversy level. (cf. Yahoo Finance, 2020)

Semiconductor companies, including NXP, are frequently sued or sue in order to protect intellectual property. Impinj, for example, alleges that NXP is infringing on 26 patents in a 2019 lawsuit (cf. Levy, 2019), at the same time, NXP is actively suing organizations which are allegedly infringing on their intellectual property, as was the case in 2012 when NXP sued BlackBerry maker RIM alleging infringement of 6 patents (cf. Stempel & Sharp, 2012). Legal disputes are not the focus of this thesis, and these cases are mentioned to illustrate the landscape in the semiconductor industry.

The legal framework and institutions within the European and American markets are robust. In other parts of the world, protecting intellectual property rights is more complicated because governments have other interests. The estimates are that China nearly exclusively uses smart card ‘clones’, although little to no information is available on the exact amounts circulating (cf. Perchthaler, 2020). Many of these multibillion-dollar projects are reportedly financed by China; the government frequently has majority equity in the projects (cf. OECD, 2019, p. 53.).

## 6.5 Target Group Analysis

NXP's position in the smart mobility industry with regards to fare ticketing sees complexity originating from the changing end-customer demands and expectations. System integrators are responsible for having the ticketing solutions up and running on the side of the PTA's. At the same time, NXP is innovating/evolving its products/solutions and wants these changes implemented. In order to achieve this, close cooperation with the system integrators is required.

**Figure 19** shows the distribution structure, with system integrators (SI) being the customers of NXP, which provide the solutions to the PTA's. One system integrator can have one or more IC manufacturers providing solutions, and one PTA can have one or numerous system integrators providing products and solutions. This graph is simplified and refers to the distribution structure of a solution. The inlay designer/manufacturer is not displayed since it has no relevance to the thesis.

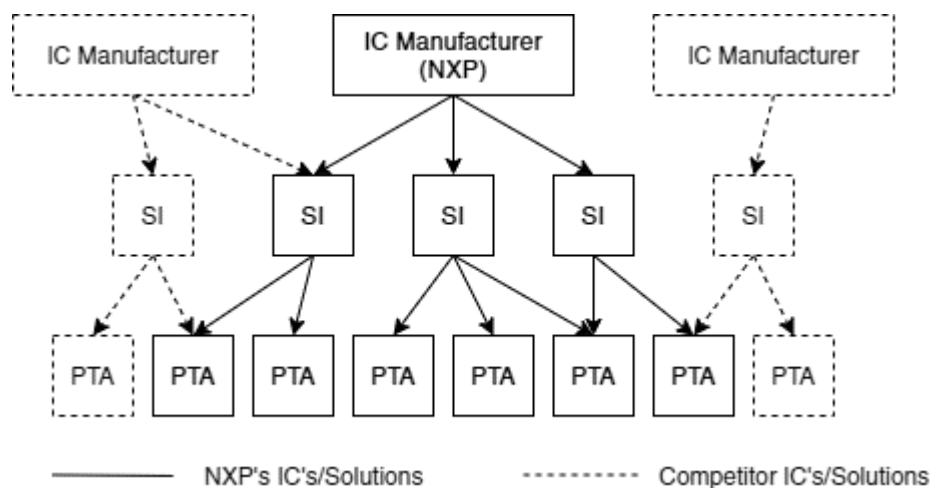


Figure 19: Distribution Structure in the Fare Ticketing Market (simplified)

The repositioning concepts focus is on two areas, considered the main target group: all PTA's worldwide, responsible for selecting the solutions, and the system integrators having the role of advising the global PTA's. In order to get a deeper understanding of the needs and perceptions of the main actors in the smart mobility industry with regards to ticketing, primary research is required, which will be conducted in the form of qualitative in-depth interviews.

## 7 In-Depth Study

In this chapter, the study conducted for this thesis will be discussed. Starting with the research design, followed by the results and conclusions that can be derived.

### 7.1 Research Design

For this master thesis, qualitative research will be conducted because it is useful for identifying intangible factors. The method used is interviews with experts; in-depth interviews are optimal for collecting data from individuals with regards to perspectives and experiences, which is needed for the repositioning concept (cf. Flick, 2018, pp. 95-105.). The research is inductive since a 'bottom-up' approach is used. Common themes and categories will be coded exploratory. The ten-step research design is shown in table 10, the list of 16 experts (of which 8 'NXP internal' and 8 'NXP external') in **Appendix 2**, and the interview guidelines in Appendix 3 and 4, information surrounding the coding is added in Appendix 7.

Table 9: Research Design

Stage	Description
1. <b>Research Target</b>	The objective of the research is to fill the information gaps with in-depth knowledge in order to create a repositioning concept with a focus on communication for the brand MIFARE.
2. <b>Information requirement</b>	<ol style="list-style-type: none"> <li>1. Underlying understanding of the structure, shape and market trends of the smart mobility industry</li> <li>2. The needs and perceptions of the main actors in the smart mobility industry with regards to ticketing</li> <li>3. Finding motives and drivers of the main actors with regards to the selection of solutions in the smart mobility industry</li> <li>4. A deeper understanding of the position of NXP and main competitors - find out how MIFARE is currently perceived from the perspective of an expert</li> <li>5. Obtain an understanding of the requirements with regards to communication</li> </ol>
3. <b>Method</b>	Qualitative market research <ul style="list-style-type: none"> <li>▪ Internal expert interviews – experts are considered people who work a minimum of 3 years in the industry, at NXP, in a senior position such as product/general/marketing/sales manager, director, head of a department, etc.</li> <li>▪ External expert interviews – experts are considered people who work a minimum of 3 years in the industry, in a senior position such as product/general/marketing/sales manager, director, head of a department, etc.</li> </ul>
4. <b>Sample size</b>	Sixteen experts, of which eight external (external meaning outside of NXP). The experts are listed in the appendix.
5. <b>Recruitment</b>	All participants were invited via email.
6. <b>Instrument / Questionnaire</b>	Interview guidelines with open questions, closed questions and several scale questions, prepared around the following four topics: <ol style="list-style-type: none"> <li>1. Market Environment and Trends Surrounding Smart Mobility</li> <li>2. Buyer Behavior, Requirements, and Influences for Smart Mobility Markets</li> <li>3. The current positioning of NXP and Competitors in Smart Mobility</li> <li>4. Communication Requirements: Information Sources and Tools</li> </ol> The survey is designed based on Uwe Flick's "Designing Qualitative Research" recommendations and best practices. (Flick, 2018, pp. 96-105.).



### 7.2.1 *Structure, Shape and Market Trends of Smart Mobility*

The experts describe the smart mobility market with regards to fare ticketing the same: many players are named, with NXP leading the smartcard market on both presence and innovation. (Public) transport authority (PTA's) use system integrators (SI), which implement products made by semiconductor companies, mainly NXP.

Interesting within the market is that although consultants, system integrators, and semiconductor companies all compete – the public transport authorities do not. The opposite is often the case; according to the experts, public transport authorities benefit from an overall rising use and acceptance of public transport as a means of transportation and do not compete.

There are four main trends mentioned by the experts: the move to mobile devices, using open-loop payment solutions for fare ticketing, smart mobility, and Smart City in the context of usage of data. The most discussed trend is, by far, the move to mobile (smart) devices: *“mobile devices are becoming more the centerpiece of what people are using to make their journey”* (II1, 2020, Pos. 34). This trend to mobile devices is being described as important by every expert, although many experts in the field state that no one technology here is a must, as long as it works on mobile devices: *“You want to use your phone for everything. Also, for transport payment, that's the trend - and I'm not talking about which technology. But it should work with phones, somehow.”* (II2, 2020, Pos. 32). Many experts name MIFARE 2GO in relation to the trend of the move to mobile devices.

Although not every expert goes 'as far', some state that the physical ticket, in the long term, is a format of the past: *“I think the ticket is a format of the past. I mean, for example, I constantly forget my purse over the last half a year since I actually have my credit card and my debit cards in my mobile phone.”* (II7, 2020, Pos. 18), *“I think that there's no purpose for plastic cards for public transport anymore.”* (II7, 2020, Pos. 19)

Nearly all the experts describe the future as one where personal ownership will be decreasing, or even non-existent, although disagreement exists on the period in which we will see this future. The increase in shared mobility will come with an increase in traditional public transportation systems. This increase, and in support of this trend, it will be increasingly important to offer a convenient and reliable solution while at the same time guaranteeing the high throughput speed of contactless ticketing.

The trend of Smart City and the usage of data is often mentioned in the same sentence as 'GDPR'. While certain regions, such as East Asia, have different requirements for such systems and already have the infrastructure for it in place, the experts are unsure about the future of data-sensitive solutions, such as biometrics, for the European market. However, many experts do not rule it out.

The trend of open-loop payment, which means paying with your regular bank-issued card, both via smart device or card, is mentioned across interviews and in different contexts. Some interviewees argue that open-loop payment would not work well due to different market conditions, such as low-ticket prices: *"Here in my country, in Slovakia, we have tickets which are like 30 cents, euro cents. This is an area where it's quite hard to introduce open-loop solutions."* (IE1, 2020, Pos. 33).

Although the discussion of open-loop vs. closed-loop can be held, a new product within the NXP Secure Payment department provides both on one chip. The head of marketing\* of this department had the following to say: *"in my product line, we positioned the P71, with open-loop payment alongside MIFARE as a kind of convergence product where banks can promote both opened and closed-loop together. And so, I think we can have a very positive coexistence."* (II8, 2020, Pos. 4).

When discussing trends with internal and external experts, the expectations for the coming years and the long-term trends were discussed. Although some experts point out that most of the actual implementation of these trends will be highly uncertain, some refer to the past to show how fast we move: *"I mean if you look back to the last 20 years, would you have expected what we have today?"* (II7, 2020, Pos. 24).

Both internal and external experts anticipate global tech giants to enter the market of fare ticketing, and rightfully so – these brands have lots of coverage and have announced a variety of products in which they will be involved. The CTO\* of a large Slovenian\* firm states: *"I think global brands will go into transportation. I think global brands like Apple, Google or maybe Amazon or Alibaba"* (IE1 2020, Pos. 41), internally at NXP there is also agreement over where this competition will come from: *"you cannot think about public fare ticketing anymore without thinking about the tech giants; Google and Apple. Before, you would not think that they will play a role [...] I think these companies are interested in playing a part in public fare ticketing."* (II5, 2020, Pos. 24).

Competition from start-ups is another topic – due to the, later described, needs and perceptions within the industry, it can be difficult for a start-up to enter. *“This business is not very keen on allowing start-ups to enter.”* (II4, 2020, Pos. 68). What it usually comes down to is the inability to make a decision without having the backing, the industry does not want to take risks: *“the end clients, like municipalities, they don't want to play with the guy who is a newcomer, they need to have all these solid references before they make any sort of decision.”* (IE4, 2020, Pos. 39).

### 7.2.2 Motives and Drivers of Main Actors in the Smart mobility Industry

The motives and drivers of the actors change over time. Experts agree that the industry is slow-moving in many aspects, and the same is present for the end-customers. There is a change in behavior noticeable: *“It [used to be], “I have to buy a ticket and travel”, or “I don't have to buy it, I have to buy a season ticket”. Now, “I have apps, what kind of opportunities do they provide?”.*” (IE8, 2020, Pos. 13).

However, acting on changing demands can require innovation. Innovating is considered a barrier for PTA's since innovative solutions are often unproven, the CEO\* of New Zealand's\* Snapper\* states on the requirements of PTA's: *“they prioritize heritage, trust, reliability because in the end an AFC system is a financial system and need to be able to responsibly, regularly and reliably collect revenues on behalf of the city.”* (IE3, 2020, Pos. 69). According to the experts, political motives and drivers can mean two things in the industry of smart mobility: the preference to choose a local supplier, or that of choosing one considered low risk.

The most important factor is the overall cost of the installation. The buying process when seeking a solution is usually to talk to other operators, attend conferences/meetings, and have consultants inform you, the following step is to put out a tender. Once the tender is put out, it is a matter of who can provide the solution for the best price, of course meeting the tender requirements: *“So they have to tender, and when you put out the tender, it's 99% that they have chosen the winner by the price. So it's the price.”* (IE1, 2020, Pos. 67). The other factors that weigh an important role in the buying process are the track record and preference of current (if chosen) system integrator.

By far, agreed upon by all experts, the most important for introducing new solutions into the market is to get it working on a large, well-known location. PTA's look at other installations and talk to other authorities. These projects are referred to as

'lighthouse projects' and considered fundamental for a successful product/service launch. Setting up one of these lighthouse projects means supporting that specific customer more than regularly, potentially providing a discount and making sure that the relationship with the authority is better than ever.

### 7.2.3 Needs and Perceptions of Main Actors

The needs of the main actors in the smart mobility industry with regards to fare ticketing can be described on three different levels from NXP's perspective: the end-user (consumer), the authority providing the service (the PTA) and the system integrators using and providing NXP's solutions.

The authority will be the 'one that's paying' in most situations, with regards to these PTA's the experts state: *"what they want is less and less responsibility for an own ticketing standard or an own ticketing medium or an own ticketing fare collection system. I think, I mean look, all the clearance for payments of all retailers is pretty much outsourced."* (I17, 2020, Pos. 42).

The needs of the end consumers are also clear, and all experts agree: the most important factor for all end-users is that the system works and is easy to use – all other factors added to that can improve the experience. From the PTA's point of view, there are many more requirements, most importantly, the overall cost, security, wear and tear, usability, and throughput speed. The CEO\* of New Zealand's\* Snapper\* states: *"the overall cost is most important for the PTA's, security is next, followed by the environmental conditions, depending on the scenario. Usability is fourth, and throughput speed is last because it's generally assumed that that's going to be OK."* (IE3, 2020, Pos. 82).

The internal experts have been provided an additional survey asking on how important they believe certain factors are and then to estimate what they believe customers find important. The data is, anonymized, available in Appendix 6. The majority of the internal experts believe that the overall cost is the most important one for the selection of an AFC solution. The least important factor is environmental wear, which refers to how long the specific product (for example, a plastic card or paper tickets) will last for before it breaks or needs replacement.

The experts themselves have different priorities than what they expect the customers to have. The experts believe that usability is by far the most important factor, followed by security. Cost is considered one of the least important factors.

Three other factors were brought up, which the experts considered important for the selection of solutions: data privacy of the end customer, the media attention surrounding the implementation of the product, and lastly, and the experience of both the system integrator and that of the semiconductor manufacturer.

#### 7.2.4 Communication Requirements

Customers in the smart mobility market seeking fare ticketing solutions inform themselves according to the experts in a few different ways. The first step is described as 'simple online searches' to find what is available within the markets. The most common way for PTA's to inform themselves after that is by looking at what other PTA's are doing; these visits are referred to as scouting visits. The earlier explained transparency originating from not having competition plays a large role.

After knowing what other authorities are doing, the next step is to directly contact system integrators and to use a consultant with the relevant knowledge. A big factor often brought up surrounding this topic is that authorities can be loyal to their existing integrator. Consultants are commonly mentioned but not necessary for many PTA's due to a high level of in-house expertise.

Further knowledge and information, often the information described as the in-house expertise, is gained from industry events. These conferences and exhibitions, together with word-of-mouth from colleagues and the consultant input, will shape the decision. A decision does not immediately refer to what solution to go with – it often refers to what specification to go with, which is of high importance in this market. What gets put on the tender is described by all the experts as fundamental.

Communication tools stay traditional in this industry: *"I wouldn't see that there's a lot of change. It's a very traditional industry with only a few being very innovative"* (I11, 2020, Pos. 174), states an internal expert. This thinking is echoed by the rest of the experts. However, 'traditional' might not mean the same as what it used to – experts name communication tools such as whitepapers, websites & blogs, online training, and webinars under the traditional communication tools, which in chapter 4.4.2 would be listed under the more modern tools. These online webinars and training see popular demand according to several internal experts dealing with them: *"It's a very good mix, attending those webinars. We have transit agency training; we have partners like Google joining. We also have system integrators joining, card makers, everyone, everyone across the value chain."* (I13, 2020, Pos. 199)

One of the exceptions of communication tools mentioned by many experts, which the experts do not consider traditional, is social media. Although experts mention LinkedIn by name as the social media of choice – they do not limit it to LinkedIn. Experts bring up the importance of building and maintaining a community surrounding the brand, keeping current and potential customers informed on the developments. One expert states: *“it's less about the tool itself but more about the communication strategies”* (II2, 2020, Pos. 146)

The requirements surrounding the introduction of a solution also translate into communication requirements, the following quote refers both to communication and delivering on it by providing a seamless implementation of the solution: *“you need the different players to be lined up [...], and for those to be lined up, it [the introduction] cannot be too complicated. [...] it's our job to try and simplify that and make it as seamless as possible”* (II8, Pos. 66)

Regarding additional special requirements which must be considered in communication, the experts brought up many, but similar requirements. Transparency plays a role within this industry: *“some markets are more transparent, some markets are maybe not so transparent”* (IE1, 2020, Pos. 92), referring to the fact that it's either a government authority or a company with somehow the government behind it: *“you're dealing here mostly with government authorities, and if they're not governmental authorities, then they might be a limited company with a government authority behind it.”* (IE5, 2020, Pos. 86). There are big differences between regions: *“Asia is very different from Europe. I think that's an important consideration.”* (IE5, 2020, Pos. 87). Other special communication requirements that were brought up were GDPR and its worldwide impact, such as the use of data: *“the information transparency is a very important point. We want to know what happens with data or how it's being used.”* (II5, 2020, Pos. 158).

PTA's are in a difficult situation due to all these circumstances: *“the most important thing is that public transport authorities are trapped between 'kind of' wanting to be innovative to get good press and at the same time being super conservative as they need to avoid bad press.”* (II2, 2020, Pos. 164). Adapting a solution such as MIFARE 2GO, moving physical tickets to on-device, will show to be an interesting transition when PTA's are wary of bad press.

### 7.2.5 NXP's & MIFARE's Positioning

Because of the described motives, drivers, needs, and perceptions, the internal experts agree on the importance of positioning; some go as far as stating it is the most important asset: *"I think the brand position is the biggest asset."* (II2, 2020, Pos. 96). Although there are some experts that state that the brand positioning to end-customers, which is currently non-existent, is not important in the current situation, they do point out the importance for the brand positioning for partners and current customers: *"if you're looking to the supply chain with our partners, like the system integrators, here, the brand is really important, because they know a lot of the history, what they get out of their MIFARE portfolio and out of the product, and therefore it resonates very well."* (II6, 2020, Pos. 75). The market presence of MIFARE has been described in the environmental analysis and sees the branding that one might expect for such a market share: *"public transport companies, system integrators, they all know MIFARE, the end customer typically doesn't."* (II4, 2020, Pos. 110).

The importance of the positioning of MIFARE is recognized by external experts across roles – by system integrators, PTA's, and competitors, mostly relating to the proven track record of the brand. The experts state that *"everybody is recommending going with the MIFARE brand because they know it's working and reliable."* (IE4, 2020, Pos. 58). Specific to the marketing campaign: *"I would say it's very important that you have a good brand or a really good marketing campaign."* (IE6, 2020, Pos. 143) - *"The brand positioning is key."* (IE8, 2020, Pos. 80)

The 16 interviewed experts have been interviewed for approximately 60 minutes on these different topics. The internal experts have also been provided a survey per email requesting the categorization of 10 different factors on importance. Firstly, they were asked to rank the positioning based on their own importance, then that of the two main competitors in the IC-fare ticketing industry (STMicroelectronics\* and Infineon\*), and lastly, how they believe NXP is positioned. An important consideration is that the companies cannot be compared to each other based on these rankings and that a low ranking for an attribute does not mean that the experts regard it as non-important – simply that the other factors are in the current situation more important or better positioned.

What became clear of this additional survey is that the perceptions of the interviewees (which all work at NXP) and those of the company (perception of NXP) differ only slightly. The only gap between the two (more than two rankings apart) can be found in the importance of offering high security: the experts do not view it as having the same importance within the smart mobility/fare ticketing market as that provided by NXP, with regard to this importance. The target is to bring technology into the market with the latest security measures and best performance. Reputation and quality are, by far, the two highest-rated attributes within the perception of NXP and according to their own perception. Providing low prices is, according to all experts, the least important and also the least of NXP's positioning. Table 10, on the next page, shows the different rankings based on this additional study. The # stands for the ranking, with one being most important/best positioned and ten being least important/positioned. The score on the right shows the total amount of points given to the attribute by the experts, and fewer points mean a more important/better position.

#	Experts Rating of Importance	score
1	Good reputation	23
2	High quality	28
3	Reliable Product	29
4	Competence in smartcard	31
5	Competence in cloud solutions	41
6	Innovating on technology	42
7	Flexible Partner	44
8	High security	46
9	Reliable Delivery	58
10	Low on price	68

#	Perception of NXP	score
1	Good reputation	20
2	Competence in smartcard	21
3	High quality	31
4	High security	38
5	Reliable Product	39
6	Innovating on technology	41
7	Competence in cloud solutions	43
8	Flexible Partner	61
9	Reliable Delivery	63
10	Low on price	68

#	Perception of STMicroelectronics*	score
1	Good reputation	26
2	Low on price	31
3	High quality	34
4	Competence in smartcard	38
5	High security	39
6	Innovating on technology	44
7	Reliable Product	48
8	Reliable Delivery	54
9	Flexible Partner	56
10	Competence in cloud solutions	64

#	Experts Rating of Importance	score
1	Good reputation	13
2	High quality	26
3	Reliable Product	30
4	Competence in smartcard	31
5	Competence in cloud solutions	40
6	Innovating on technology	41
7	Flexible Partner	50
8	High security	53
9	Reliable Delivery	65
10	Low on price	67

Table 10: Outcomes Additional Survey: Positioning from internal Experts

As mentioned, competitors cannot be compared with this method; it can, however, be pointed out that the employees of NXP view both competitors as being strong on price and reputation while not being as strongly positioned on attributes such as being flexible, cloud solutions and innovating. The data collected, used for the making of table 10, can be found, anonymized, in Appendix 5.

The experts, on the one hand, recognize NXP as the leader on innovation, similar or the same to how it was ranked in the ABI report discussed in chapter 6.3. While recognizing NXP as the leader on innovation, many describe, when further asked about it, MIFARE more like evolution. MIFARE 2GO is the exception in this evolution, MIFARE 2GO is more seen as innovation opposed to evolution. The NXP employees discuss their work, and the MIFARE brand passionately.

**Figure 21** shows in short how the MIFARE brand is seen with regards to innovation, from the perspective of the experts. Introductions of products such as MIFARE PRO, MIFARE PROX, MIFARE Ultralight, MIFARE DESFire, MIFARE Plus, and the evolution of these products have been considered. The last spike was in 2018 when MIFARE 2GO was introduced, seen as innovative by the experts. There are three fictive paths ahead for MIFARE, displayed after the 2020 line. The first one is stagnation, in this situation, NXP stops innovating on MIFARE. The second option is the continuation of evolution, at a similar rate as before. The third option is that of strong innovation – massively disrupting the smart mobility/fare ticketing market by rolling out new MIFARE services and products. The most likely positioning, based on the talks with the experts, will be between that of ‘evolution’ and ‘innovation’, but most of the internal experts would like to see the innovation line followed

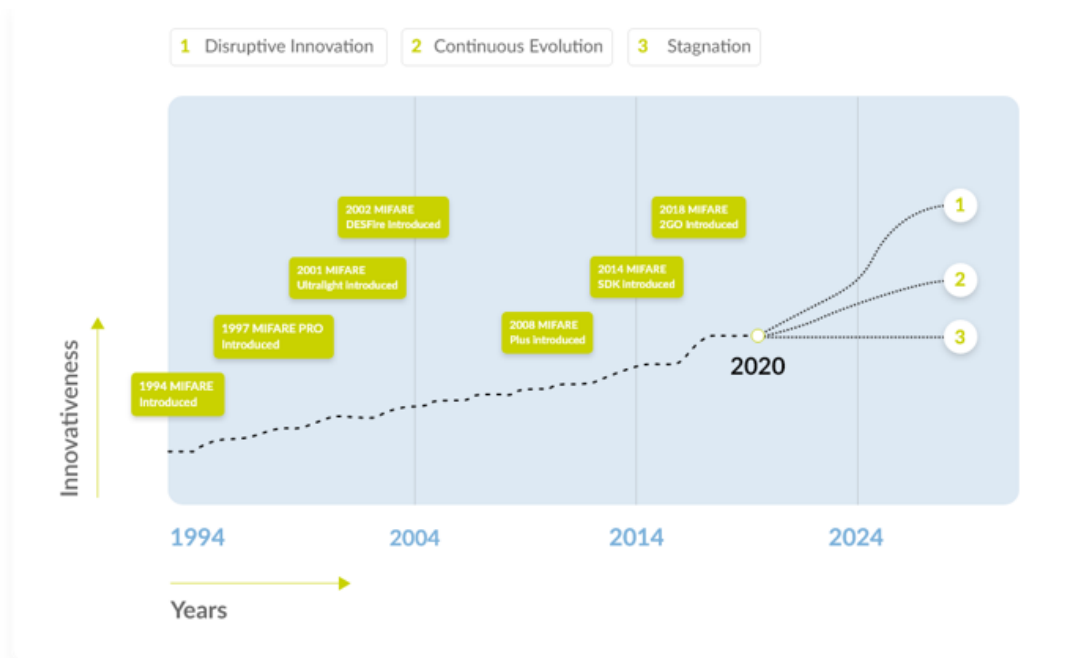


Figure 21: History and possible future of MIFARE position regarding innovation

In conclusion, NXP with the MIFARE portfolio is recognized as a leader in innovation. The MIFARE portfolio is seen as innovative, MIFARE 2GO specifically is seen as very innovative. The innovation is internally described as evolution, and there is the risk of stagnation – although this risk exists for any company in any industry.

### 7.3 Conclusion

The smart mobility market with regards to fare ticketing shows the trend which NXP has already acted upon with MIFARE 2GO – products will move to smart devices, more specifically: the smartphone. While this trend is rolling out, it also becomes clear that there is a need for the traditional solution (that of using physical (smart) cards) next to the mobile device solution.

The experts state that the industry is slow-moving, many factors, described in chapter 7, play a role in the decision-making process. Most notably is the factor of taking risks and politics – PTA's do not want to take risks, they want a solution that works elsewhere, somewhere larger than their own installation. The decision-makers are aware of what chip is being used by their system integrator, they know the MIFARE brand, and it stands for trust, reliability, and is known for its reputation.

An important takeaway from the research is that competition and threats are more present than ever before. Competition comes from all directions: existing producers (such as Samsung) entering the IC market, start-ups showing potential, tech giants publicly show interest in providing solutions, and large payment providers such as Mastercard and VISA promote open-loop payment for fare ticketing – some competition might offer a chipless solution resulting in the shrinking (or decreasing the growth) of the entire (IC) industry.

The position of MIFARE is considered strong, according to the experts stronger than the NXP brand. MIFARE is seen as the most innovative brand, but over the years, the experts refer to it as evolution instead of innovation. The risk to continue this evolution, or the risk of stagnation, continuously exists. At the same time, MIFARE wants to be seen as more innovative, MIFARE 2GO has shown to be the right step in that direction.

Communication within the smart mobility market for fare ticketing is unlike other industries. PTA's do not compete with each other and are therefore more transparent than in other industries. Traditional means of information gathering and communication tools are used. However, the definition of 'traditional' is not as traditional as one might expect – webinars, online training, and other digital means of communication are actively used and regarded as traditional. The other means and tools are mainly: exhibitions, conferences, consultants, and scouting visits.

## 8 Implications

Taking the major findings and result into account, implications are described. From both primary and secondary research, the following factors are listed which must be considered for MIFARE's brand positioning:

- The smart mobility market seeking fare ticketing solutions is slow-moving. Customers in the smart mobility market are risk-averse; for them to consider a solution, they want to be sure it will deliver on all promises.
- Customer demands are continuously changing, and customers are getting more demanding by seeing the trend to mobile in the payment industry. This trend of using your smartphone (and connected smart-devices) for fare-ticketing is recognized by all the experts. The only debate is on the timeframe.
- PTA's use modern communication tools and ways of seeking information, while at the same time relying on and sticking with the more traditional ways.
- Competition can come from many, not only the traditional players.
- MIFARE is still seen as the reliable go-to brand for fare ticketing, MIFARE is a very strong brand, recognized by all experts in the industry.
- Although customers are interested in innovation and weigh innovation when making the decision – the main selection criteria are cost, reliability, compatibility, and reputation. The customers in the market seek a solution that fits their needs; they are not looking for the most innovative, 'impressive' solution.

NXP with MIFARE sees itself in an interesting position. On the one hand, it has a strong brand with loyal customers across industries, on the other hand, the end-customer does not know the brand, and the existing solution could potentially, in a spacious amount of time, be replaced by software solutions using the phone-built in chips to provide fare-ticketing solutions. The companies planning to enter, or already entering the market, such as Uber, Apple, Mastercard, VISA, and more, are known for disruption. NXP once disrupted the market with MIFARE, but it's most likely not in NXP's best interest to see the market get disrupted again.

## 9 Brand Repositioning Concept for MIFARE

This chapter discusses the aim, strategy, and success factors before introducing the five repositioning alternatives. From these five alternatives, one will be selected based on the success factors, which will be the recommended alternative.

### 9.1 Brand Repositioning Aim

The conclusion of the market analysis and expert interviews indicate that the global smart mobility market for fare ticketing is slow-moving but is expected to see new competition from both traditional and new organizations. Not only is competition entering – **the expectation is that the market will be more disrupted than in the previous 25 years of MIFARE**. MIFARE 2GO has entered the MIFARE portfolio, fundamentally changing the positioning of the MIFARE brand.

The positioning aims for MIFARE and all the brands that fall under the MIFARE brand are to create the perception that MIFARE is and will continue to lead the market – not necessarily in terms of market share but as being the provider to offer the best solution for the customer needs. MIFARE is already seen as the solution when it comes to transport ticketing but must continue to better the positioning within the entire smart mobility market, both to succeed in the other segments of smart mobility and to maintain the current positioning in the ticketing market.

The three-brand repositioning aims that will be followed for the concepts, based on the environmental analysis and expert input, are shown in figure 22.

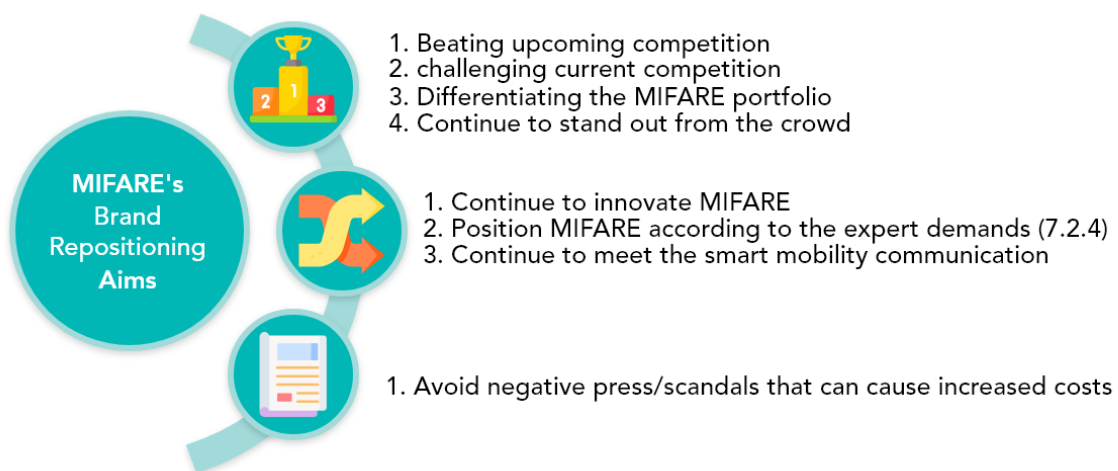


Figure 22: MIFARE's Three Aims of Brand Repositioning

## 9.2 Brand Repositioning Strategy

For MIFARE's brand positioning, three different strategies can be followed:

1. Preservation of the brand position
2. Transformation of the brand position
3. Establishment of a new brand

Preservation of the brand position would mean ignoring the disruptions in the market. With this strategy, MIFARE would effectively 'stay where they are' and bet against the market moving forward. With the transformative strategy, MIFARE aims at bringing the brand positioning to that required by the (technological) market disruptions. The third strategy, establishment of a new brand, would leave the MIFARE brand under the preservation strategy – to die out.

The company goals considered, the first strategy does not fit MIFARE. There is insufficient reason to believe that MIFARE and NXP can not play a big role in the new market. The in-depth study has proven MIFARE employees to be knowledgeable and aware of current and upcoming disruptions. The second and third strategies are worth considering, and alternatives can be developed surrounding them.

During the interviews, the experts confirmed Jalkala & Keränen's conclusion that there is no single brand positioning strategy. MIFARE is supported by both proactive and responsive market orientation positioning strategy types. Repositioning is a tool to achieve the so-called 'Three C's of Business': competition, change, and crisis. The strategies identified in chapter 3.4.4 fit the needs of MIFARE, a positioning strategy of MIFARE should be positioned around the strategies 'global solution integrator', 'quality sub-systems provider', 'long-term service partner', and 'value diagnostic' (identifying customers' latent needs).

### 9.3 Brand Repositioning Success Factors

As mentioned in the theoretical chapters, MIFARE's repositioning comes with the risk of decreasing or losing a brand's credibility (cf. Laforet, 2009, p. 118.). An essential aspect of successful positioning is consistency; repositioning is easiest when the change is consistent with existing associations.

- **Consistency:** MIFARE must maintain, as best described by Weizsäcker: "a sufficient number of important identifying features" (von Weizsäcker, 1974).
- **Differentiating:** Positioning focusses on how an organization differentiates itself in the mind of its prospect, MIFARE should see clear differentiation.
- **International:** With MIFARE being internationally recognized, used, and marketed, a repositioning concept should be globally accepted and not specific to certain regions
- **Tempo:** With the smart mobility market being slow-moving, Trout's rules for success must be followed: with the repositioning strategy, go for 'a slow build-up' rather than 'one large event'.
- **Simplicity:** MIFARE's new positioning needs to have a degree of simplicity for it to remain understandable for the target group and in order to avoid alienation, as described in chapter 7.
- **Image:** MIFARE is by experts seen as reliable, secure, competent, and as offering high quality – the repositioning must be meeting the same or higher standards.
- **NXP:** The positioning of MIFARE should align with that of NXP.
- **Potential:** The MIFARE positioning should take all the special requirements, trends, developments, and more relating to the customers in the smart mobility market into account.

The concerns of "alienating the worthwhile existing segment, and the existing associations inhibiting the repositioning effect" (Aaker, 1991, p. 151.) must be addressed. Existing associations that were build up over time should not be lost.

## 9.4 Five Brand Repositioning Alternatives

In this chapter, five brand repositioning alternatives, developed as described in chapter 3.5, will be described, which will be selected based on in chapter 9.3 described criteria. The selection will be made via a weighted-factor model, as described in chapter 3.5.4, which will result in one of the alternatives being worked out as the final concept for this thesis.

### 9.4.1 *Alternative 1: "MIFARE is Original"*

Jack Trout states that differentiation takes place in the customer's mind. Being the first or being positioned as 'the original one' has an advantage. MIFARE has, according to all experts, the opportunity to do this. A positioning such as this one is like how Coca-Cola is positioned as the original cola" MIFARE could be positioned as being the "original solution for fare-ticketing".

The benefits of this approach can be positioning MIFARE in a lasting way, with having this almost 'legendary' positioning there is less need and demand to innovate and more emphasis on providing the solutions in which NXP is provenly reliable and good at. On the other hand, there comes the risk of being beaten by existing or new competitors: the yellow cabs in New York were also seen as original, but now travelers are ordering Ubers and discussing smart mobility.

### 9.4.2 *Alternative 2: Innovator, Winning the Market Through Innovation*

According to expert interviews, NXP is strong in, although often described as evolution, innovation. NXP is seen as the most innovative IC manufacturer. NXP can lead the market positioning itself as the innovator.

The benefits of this alternative are clear – innovation creates attention, people will be drawn to the MIFARE brand to learn more about the innovations and usually believe that innovative solutions can realize cost savings, positive media attention, and a generally positive impact within their organizations. The drawback is the risk of being positioned as the opposite: in the traditional market, the players want something that works and is proven, exactly how MIFARE is currently positioned. Innovation would cause uncertainty, the risk of highest costs, and the risk of negative media attention when things do not perform the way they should – as can be the case with state-of-the-art technologies. A second risk is stagnation or a return to evolution after being positioned as innovative, companies such as Apple can

release (subjectively) great new products but will still be criticized for not innovating enough – due to their positioning.

#### 9.4.3 *Alternative 3: Lead the Market with the Complete Portfolio*

NXP has a lot of experience, an impressive and well-recognized portfolio, and it has already introduced the new MIFARE 2GO solution under the MIFARE brand. MIFARE is in a unique position where it can position itself as providing the complete portfolio while keeping the emphasis on the new and innovative MIFARE 2GO solutions. The reason that they can take advantage of this position is that MIFARE customers are traditional and risk-averse. PTA's actively look for innovation, and the innovation factor of MIFARE plays a role in the decision-making process. At the same time, there is a high possibility that they opt for the more traditional 'proven' solution with compatibility for a potentially later out roll of the innovative solution (such as MIFARE 2GO).

The danger of this approach can be that wanting the best of both worlds can end up unsuccessful. An example is Kodak, back in the late '90s, Kodak positioned itself as best of both worlds: analog and digital, although still alive, the company is not what it once was.

#### 9.4.4 *Alternative 4: Breadcrumb Marketing: "MIFARE Inside"*

'Breadcrumb Marketing' is often brought up by experts and refers to marketing directly to the end-customer. One of the frequently brought up cases is that of chip manufacturer Intel promoting their CPU's in laptops with 'Intel Inside' stickers (and an advertising campaign to go with it). It should be noted that the term coming up in interviews, 'MIFARE Inside', is a reference to the campaign of Intel Inside; this is most likely not a slogan that can be considered in running the campaign.

The drawback of this strategy is that it is incredibly expensive to do and will require much negotiation with partners as they might not want to show MIFARE branding on their cards and within the mobile applications. In this study, there is no clear evidence that this should be the way forward other than an interest in the idea from many internal and external experts. Alternative four that of breadcrumb marketing can be a valuable thesis topic on its own, which will be a recommendation if another alternative is selected.

#### 9.4.5 *Alternative 5: Launching a New Brand (instead of MIFARE 2GO)*

Instead of MIFARE 2GO, NXP could launch a new brand, other than MIFARE 2GO. The existing MIFARE portfolio could continue to serve the markets it does today, while a new brand would be marketed to the smart mobility market.

Trout & Rivkin describe being 'big' as being the 'enemy of change': Repositioning requires a certain degree of flexibility which size makes very difficult, if not impossible (Trout & Rivkin, 2009, p. 76.). The only solution for brands and organizations that have become too big, is to launch a new brand operating on their own; brands retain the flexibility to deal with anything that might happen in the competitive business environment (cf. Trout & Rivkin, 2009, p. 77.).

One of the biggest drawbacks is that the new brand would not be able to profit from the current strength of the MIFARE brand.

#### 9.4.6 *Evaluation of the Alternatives*

Based on the requirements & success factors described in chapter 9.2, the five different alternatives have been rated by the MIFARE marketing director and the author. In order to make sure that one person within NXP does not have too much influence over what alternative is selected the following actions have been taken: the results have been discussed with two other people in managing positions within NXP, the 16 interviews have been analyzed on if decided on alternative aligns with how the market has been described, and lastly, the mentor from Campus02, Michael Brandtner, has been asked for his input from the perspective of a branding expert.

Columns #1 till #5 stand for the five different alternatives. The columns 1-W till 5-W show the scores with the added 'weight' taken into account. In table 11, the higher scores are marked in green while the lower scoring scores are marked in yellow. The highest score for each requirement is marked in bold.

Table 11: Evaluating the different repositioning alternatives

Criteria	#1	#2	#3	#4	#5	Weight	1-W	2-W	3-W	4-W	5-W
Consistency	1	3	4	1	1	x4	4	12	16	4	4
Differentiating	1	4	3	4	4	x3	3	12	9	12	12
International	4	3	4	4	4	x3	12	9	12	12	12
Tempo	1	1	4	2	1	x2	2	2	8	4	2
Simplicity	4	2	3	4	1	x2	8	4	6	8	2
Image	4	3	4	3	1	x4	16	12	16	12	4
NXP	1	4	4	1	1	x2	2	8	8	2	2
Potential	1	3	4	2	1	x4	4	12	16	8	4
Total	17	23	30	21	14		51	71	91	62	42

In table 12, the third alternative, leading the market with the complete portfolio, comes out as the winner in both the initial rating and after applying the weighted factors. This alternative will be further described in the next chapter and worked out for this thesis. As described, these scores have been discussed with other partners.

#### 9.4.7 Recommended Repositioning Alternative

Based on the discussion with NXP, with the input of the author of this thesis, the preferred repositioning alternative is alternative 3: **leading the market with the complete portfolio**. The alternative of innovator and breadcrumb marketing are the runners up. The least valuable alternative is that of launching a new brand.

NXP with MIFARE should not position solely around the new solution but be the player that offers everything – including the most innovative solution, which happens to be MIFARE 2GO. The new MIFARE 2GO solution will make its way to market, according to experts, due to the market demand being there for it and due to current projects working on implementing it. The result of these implementations will be the earlier discussed ‘lighthouse projects’ being present – these should be emphasized as it is by far, according to the experts, the most important asset when convincing others to use a solution.

Many clients want the reliable, field-tested solutions that have been around for years and not make a move to mobile; for these clients, there is a huge portfolio currently offered. A customer will look at NXP, see the innovative MIFARE 2GO solution, but choose to opt for an older solution because it fits better for their situations, risk-preparedness level, budget, and with the perceived needs of the end-customer.

They will do so knowing that if they need a more innovative solution in the future, they can also get that with MIFARE, meaning that if competitors offer services, they will think in the back of their head 'I was already offered this solution by my current supplier'. MIFARE stands for compatibility – by offering the complete portfolio, a customer will feel like all their needs are taken care of, now and in the future.

This positioning alternative also does not exclude the aspects mentioned in the second alternative. These aspects are needed to have an innovation factor that is demanded, according to chapter 7.2.4.

## **10 Repositioning Communication Through IMC**

This chapter goes in-depth on the implementation of the repositioning alternative by first describing the international considerations and challenges. Secondly, the communication targets and target group are defined – the well-discussed PTA's and system integrators. An extensive part of this chapter is devoted to the variety, and special requirements, of the communication tools. The reason for the communication tools chapter being so extensive is that – unlike other industries – there are, according to the experts, many special requirements. Lastly, extensive communication guidelines and the proposed budget are provided.

### **10.1 International Considerations & Challenges**

In this research, attention has been given to special communication requirements in the industry of smart mobility and the fare collection portion of it. The fare collection portion comes with additional needs, but these are, for the most part, political. There are no special cultural communication requirements for these markets – other than the well-studied non-market-specific cultural communication requirements, which are known by NXP employees in the region. There is no preference for 'taste' or other than that it might describe the willingness of cultures to embrace and use new solutions (such as smartphone/mobile ticketing).

Standardization of the entire brand with regards to appearance and positioning is not possible for such a large brand, despite the low number of cultural requirements. It is recommended for NXP to use the strategy of adapting where needed while trying to standardize where possible.

### **10.2 Communication Targets & Target Group**

Describing the targets of communication has importance since this is how success can be measured. It is also important for the parties to be aware of the aims so that the motivations behind the communication and marketing efforts are understood.

The following main aim, based on the concept of leading the market with the complete portfolio, is given: MIFARE should not only stand for the 'old' way but increasingly standing for the 'new' way, while not losing the 'old' way out of sight. The communication aim aligns with the repositioning aim of creating the perception that MIFARE is leading – and will continue to lead the market. As described, the

MIFARE brand gets too much of its revenue, loyalty, and more from the business as an IC manufacturer, a market in which it is leading and proven. At the same time, MIFARE needs to lead the market for smartphone access providing form factor independent fare ticketing solutions.

By positioning MIFARE as the complete offering, the ambitious main goal of maintaining a market share of 77 percent during the transformation from physical cards to on-device between the period of 2020 and 2025 can be achieved. As described – losing clients preferring the legacy solution by not positioning with them in mind could decrease the market share as existing competition will continue to provide these solutions. The sub-goals are also being met in this communication aim: the first goal is to bring MIFARE 2GO to a hundred cities before 2025, and the second one is to position MIFARE not only as a hardware brand (referring to the solutions pre-MIFARE 2GO).

For the repositioning communication, two main target groups are defined: all PTA's worldwide, responsible for selecting the solutions, and the system integrators having the role of advising the global PTA's.

### **10.3 Communication Integration Sources**

The aim of Integrated Marketing Communications is to allow for continuous dialogue via consistent and transparent messaging via all media in order to maintain and create value-creating long-term relationships. This will be achieved via the, in the theoretical chapter discussed, four sources of planned, product, service, and unplanned brand messages.

Within MIFARE product messages relate to the price and distribution of the products and services within the MIFARE portfolio. MIFARE is positioned as a secure and high-quality solution across the portfolio and is backed by a reliable, trustworthy organization (NXP), known for being a reliable partner. The internal experts have both in their personal rating of importance and, in their perception of NXP, rated the factor 'price' as least important. NXP positions its product with a healthy, non-disclosed profit margin, which, on many occasions, can exceed that of its direct competitors. NXP will continue to do so under the brand positioning of 'Lead the Market with the Complete Portfolio'. It is recommended that NXP does not change its price and distribution of MIFARE based on the recommended positioning, assuming they continue to deliver on the offered quality, service, and promises.

The service messages occur when the employees interact with the buyers. For the MIFARE brand, two additional steps are considered; NXP employees can communicate down the line, not only with the system integrators but also with the customers of the system integrators, or with the end-customer (the consumer using the product). Based on the proposed positioning, there is no need to engage in service-related messages with the end consumer, as a further study on this will be proposed. The goal of the service messages is to put as many positive and consistent messages out as possible, in the communication tools chapter the different tools will be discussed to do so.

The last forms of sources are unplanned messages. NXP has no control over these messages as they originate from a variety of sources. The experts have indicated social media to play a large role in the MIFARE brand and smart mobility industry, and therefore special care will have to be given to monitoring those. From the customers' perspective (PTA's), unplanned communication messages are considered more influential compared to the traditional and planned forms of communication. Specific for the smart mobility industry is the opportunity to create these unplanned messages, mainly that of word-of-mouth, via the many conferences being held within the fare ticketing industry. Additional attention has been given to include those in the communication tools chapter.

## 10.4 Communication Tools

In this chapter, the different communication tools relevant to MIFARE will be described. In figure 23 below, the recommended communication tools are shown.

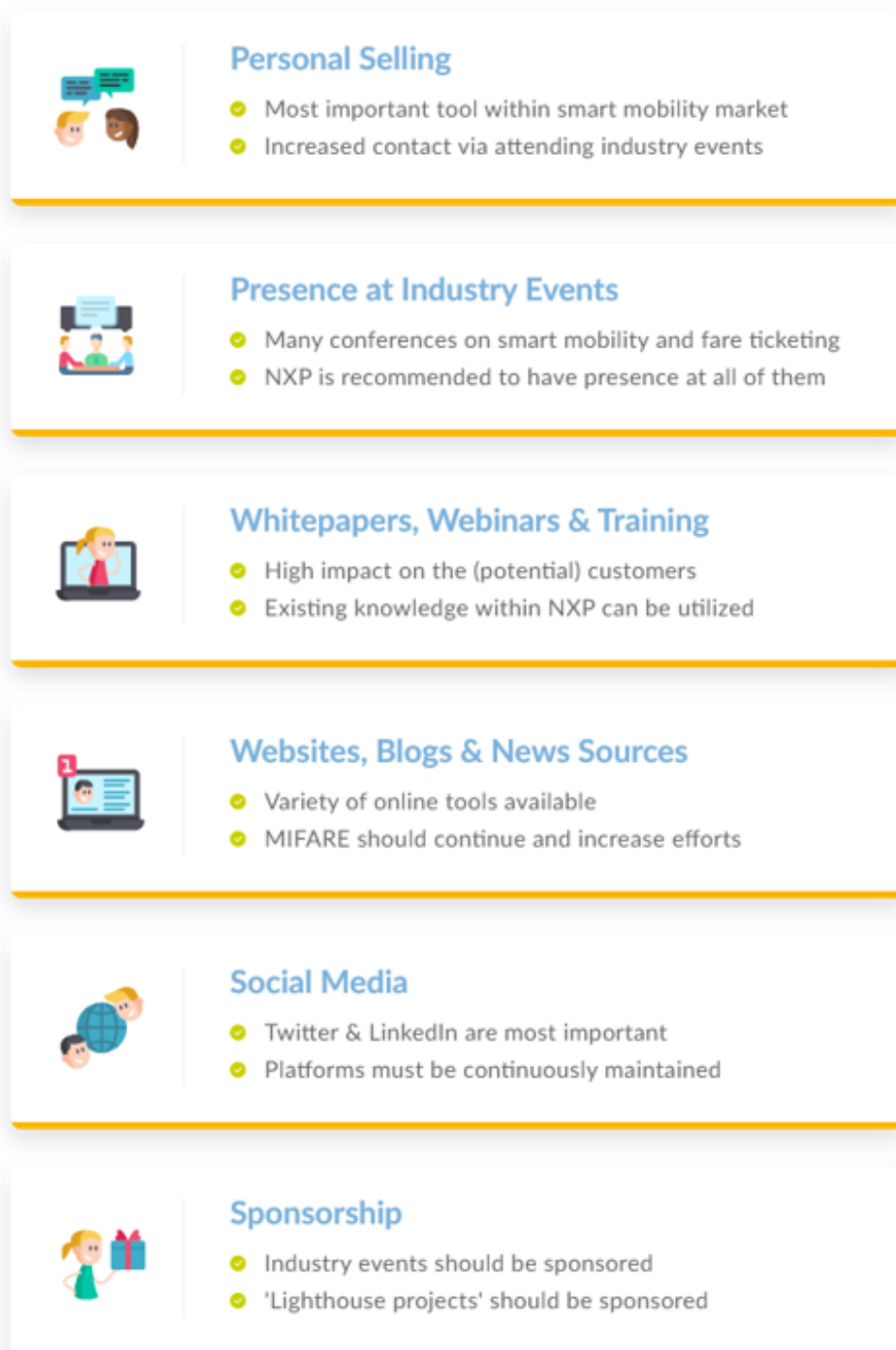


Figure 23: Overview of communication tools

#### 10.4.1 *Personal Selling*

Personal selling is considered the most important communication tool within the smart mobility market. Personal selling allows the establishment and maintenance of durable, long-term, and value-adding business relations. MIFARE must be able to voice themselves as being the expert, which can be challenging in a market where all parties have a high level of expertise. One of the frequently mentioned fundamentals within the market of smart mobility is that of reliability: reliability in the dimensions of product, service, delivery, and commitment. Personal selling builds this necessary trust.

The employees of NXP are aware of all the qualities MIFARE offers for a variety of solutions. As shown in the extended survey under internal experts, there is a clear view of what NXP offers and on what NXP excels in. The employees must continue to express this positioning with customers and partners in the field. Since the MIFARE employees have all the qualities and trades needed for excelling at personal selling, the other requirement is for NXP to continue to communicate the positioning of MIFARE. The last action NXP can take to increase the impact of personal selling is to increase the contact employees have with customers and partners – for this, it is recommended to have a presence at as many networking events as possible. The experts were very clear about one thing: customers in the smart mobility market attach great value to these events, and having a strong presence at these events will position MIFARE in the minds of these prospects.

#### 10.4.2 *Presence at Industry Events*

Conferences, tradeshow, and forums play an important role in the smart mobility market – and there are many of them. NXP already had a strong presence at some of these events and is recommended to continue this. In a discussion with both internal and external experts, a variety of industry events came up. The main events at which NXP is recommended to have a presence with MIFARE are listed below. It should be, however, noted that this is a static list and that the marketing department of NXP should continue to track potential new opportunities in this space.

The conferences below mainly focus on smart mobility, transit ticketing, and transportation payments. There are many other conferences with a focus on other

aspects of both public and private transportation, some of which have a much broader focus.

- Conferences organized by **Global Mass Transit Report** – NXP is listed as one of its clients (cf. Global Mass Transit, 2020). Global Mass Transit Report is described as providing decision-makers with up-to-date and comprehensive information and analysis on the global mass transit industry. NXP is not listed on any upcoming and has not participated in the past five years.
- **Transport Ticketing Global** – NXP was a ‘silver sponsor’ for the 2020 edition (cf. Transport Ticketing Global, 2020). In the 2019 edition, NXP has used this event in collaboration with partner Google to promote the digitalization of MIFARE (cf. NXP Semiconductors, 2019).
- **Transport Payments Asia Pacific** – NXP was a ‘gold sponsor’ for the 2019 edition, featuring the products MIFARE DESFire EV2, MIFARE DESFire Light, and MIFARE 2GO. Focus on the Asian market for transit ticketing, smart mobility, and transport payments (cf. MIFARE.net, 2019). The event is held in a different location every year.
- **Transport Payments South Asia** – NXP was a ‘gold sponsor’ for the 2020 edition (cf. APSCA, 2020). Similar to the Transport Payments Asia Pacific conference but focusing on transit payments and smart mobility in the Indian market.
- Events organized by the **International Association of Public Transport**, although not many conferences are listed, one of the key activities of the UITP is organizing networking events, conferences, and meetings. NXP a member of the UITP organization (cf. UITP, 2020). Their best-known conference is SITCE. NXP used to participate in the UITP World Congress but has not attended recently. One of the biggest European events focusing on transportation, hosted bi-yearly, is **IT-TRANS**. NXP has sponsored this event in the past years. The 2020 event has been canceled because of the 2019-2020 coronavirus pandemic.
- **Intelligent Transportation Society** has a global network organizing events per-region and on the national level. The largest conference, **ITS World Congress**, is an annual one that NXP has attended frequently across

departments. NXP is listed as a 'premium partner' of 'itsnetwork' partners, such as connect (cf. Connekt, 2020). NXP is planning to participate in the ITS 2021 annual event in Hamburg.

- **TRUSTECH** is a show focusing on identification and payments. NXP has sponsored this event in the past years. The event is also known as '**CARTES**'. MIFARE transit ticketing solutions are presented here.

Special care must be given to avoid the phenomenon of *predatory publishing & conferences*. The 'Think. Check. Attend. (thinkcheckattend.org)' initiative can provide a guide for choosing what conferences to attend, although aimed to assist researchers and scholars.

#### 10.4.3 *Whitepapers, Webinars, and Online Training*

Although in the interviews referred to as traditional – whitepapers, webinars and online training sessions are not traditional communication tools. The study has shown that these tools provide value, as indicated by both internal and external experts. The MIFARE team is already actively participating in webinars and online training sessions, and the recommendation is to continue doing so. Whitepapers are great at educating the customers in the smart mobility market on a specific topic as they can be authoritative, in-depth, and persuasive reports. Whitepapers frequently came up in interviews but are not, or not frequently, published by the MIFARE team. Other organizations, such as Masabi, are more regularly publishing whitepapers, as can be found on, for example, [intelligenttransport.com](http://intelligenttransport.com). The recommendation here would be to find the right people to write these and to post once every three months on all the available, relevant channels. An overview of topics is given below; although any MIFARE related whitepaper is considered valuable in adding to the positioning of being the provider with the complete portfolio, the following topics came in interviews:

- Topics related to the type of ticketing technology will contribute to the information available for PTA's during the selection process.
- Topics related to futuristic solutions will contribute to MIFARE's positioning of being able to keep up and stay a reliable partner - not only for current technologies but also for the future of fare ticketing.
- Topics related to smart mobility and Smart City will contribute to increased MIFARE exposure for these trends.

- Topics related to the importance of originality (of solutions such as MIFARE) will contribute to NXP being selected as a vendor with MIFARE specific tenders, although these topics will need to be run by the legal department.

When seeking whitepaper topics, the most efficient strategy is to ask clients and prospects what they are curious about, what they need help with, and what problems they are experiencing.

#### 10.4.4 *Websites, Blogs, and News Sources*

It is important for the MIFARE brand to convey the positioning message through its own online presence, including the website and blog, and through third parties. On MIFARE's own platforms, there is total control over what is being posted – under this positioning strategy, the focus should be on echoing the same type of content as in the whitepapers: authoritative, in-depth, and persuasive content. With reliability and field-tested solutions being so important in the smart mobility industry, it is advisable to highlight as many installations as possible. The larger installations should get priority when giving attention to cities and organizations using the MIFARE portfolio, the experts have described that all customers looking for solutions look at the bigger partners to see what solution they are using.

Under the tooling of websites, blogs, and online news sources, two categories can be described: the ones managed by NXP and the third parties to which NXP has little to no control. The sources managed by NXP are the following:

- MIFARE Newsletter: <https://www.mifare.net/en/newsletter/>
- MIFARE Newsroom: <https://www.mifare.net/en/about-mifare/newsroom/>
- NXP Blog: <https://blog.nxp.com/>

The current platforms, NXP's self-hosted blog, which is actively promoted across channels, suits the needs of NXP. The MIFARE team is recommended to consider using different platforms for posting content. Examples of these platforms are Medium.com and LinkedIn.com Articles. Posting on these platforms can increase the accessibility of the content and increase SEO – although the latter is not considered an essential improvement as the mifare.net site has very high visibility.

Frequently posting blogs is considered recommended, not only for driving traffic: having recent blogs posted on the sites will increase the feeling of legitimacy. Not doing so creates an opposite effect – when the blogs are not maintained, and old

entries are visible, it provides a negative appearance. There are solutions available to improve this appearance (such as not showing the dates prominently), but those are not recommended for a brand such as MIFARE. Instead, it is recommended to increase the number of blog posts to at least two a month. If two MIFARE related blog posts per month are not achievable, it should be considered to tackle a larger topic and split that up across blog posts to achieve this target. The NXP website and the MIFARE.net website can be used to promote activity surrounding events via displaying traditional 'banners'.

The sources not managed by NXP are broad; an extensive list would relatively quickly be outdated. It is up to the NXP marketing department to continuously track the sources relevant to the customers and prospects, and engage where possible. Where in the past there was a trend of customers actively following a small selection of blogs via, for example, their RSS feed, nowadays the customers reach many types of blogs via Google searches, social media, and forwarded posts. Some examples, mentioned in the interviews, are listed below:

- <https://www.intelligenttransport.com/> (Reporting broadly in the space of smart mobility, has an extensive whitepaper section on the site).
- <https://www.nfctimes.com/> (Described by the external experts as “the best independent articles about new transit payment schemes that are launched”).
- <https://www.nfcw.com/> (Lists NXP as one of their partners, among with a variety of other companies operating in this space).

As described in the IMC framework, these messages are considered unplanned messages. The MIFARE team has little, but not zero, influence over these messages - the journalist posting them are independent. Positive coverage from these sources is essential since the prospects will, usually, trust these sources more than content written by NXP due to an expected bias from NXP's side. NXP can provide insights and additional information where possible but should not try to intervene with the objectivity of the journalist; doing so can cause negative coverage and negative WOM. Other sources include journals, such as the Journal of Intelligent Transportation Systems. Journals should only be influenced by using an academic approach.

#### 10.4.5 *Social Media*

Both internal and external experts have indicated that platforms such as Facebook, YouTube, Instagram, Pinterest, and others, are currently not relevant for MIFARE. Although indicated as not relevant – these platforms do have a large number of viral posts surrounding smart mobility and smart cities. Newer and emerging platforms, such as TikTok, Lasso, Steemit, Vero, and Snapchat, do not have any alignment with MIFARE, smart mobility, Smart City, or fare ticketing. MIFARE has little to gain under this positioning strategy from being an early adopter on these platforms and should focus on the currently established, ‘proven’ social media. MIFARE should consider entry into other platforms once they are proven to have MIFARE’s customer base on there. The platforms currently used by MIFARE customers are, as indicated in the interviews and shown by the existing activity: Twitter and LinkedIn.

##### **10.4.5.1 LinkedIn**

In the interviews, the usage of social media has frequently been brought up as a communication tool, which is expected to increase in importance. Currently, MIFARE has a strong presence on LinkedIn. MIFARE is using a personal account on LinkedIn instead of an organization account. On LinkedIn, the /in/ accounts are personal accounts and /company/ accounts are not. MIFARE, with its LinkedIn presence, violates LinkedIn’s user agreement section 8.2. Although not likely, seeing that MIFARE has been active on this account for longer, it could see the profile get removed. Violation of this clause results in a suspension of the account (cf. LinkedIn, 2020). MIFARE is advised to continue its strong presence on the platform and consider migrating, if possible, to a company account to avoid deletion.

NXP Semiconductors has a group on LinkedIn with over 9000 members and a company profile with over 270.000 followers (as of March 2020) (cf. LinkedIn, 2020). Blogging (as described in chapter 10.3.4) and sharing blogs, links, resources, activity, and conference material via these profiles can be of high value to the MIFARE brand. The large profile with over 270.000 followers has been posting MIFARE content in the past.

### 10.4.5.2 Twitter

MIFARE has a following of approximately 1750 on Twitter with the handle NXP\_MIFARE. The account is losing followers according to tracking site Socialblade at a rate of 1-2 per month, meaning that the follower count is stable. The account does not frequently post except for when it retweets the NXP handle, or tweets surrounding an event. The engagement the account gets, based on the following it has, is considered low by Socialblade. (cf. Socialblade, 2020)

The recommendation is to continue to use the MIFARE twitter handle in the same way. Although engagement is low, the tweets do show up frequently in Google results. It is also better to have little presence than no presence at all on Twitter. The exception would be complete inactivity – it is not recommended to cease activity completely. Lastly, as with any large brand and fitting under this positioning strategy, it is recommended to seek verification from twitter (the ‘blue’ badge). MIFARE can also consider claiming the @MIFARE handle instead of @NXP\_MIFARE since the MIFARE brand is well registered worldwide by NXP. However, this is a legal discussion since the current owner Masayuki Aoyama is running ‘Mifare Foods’ under this handle. NXP’s main twitter account under the handle NXP has close to 50.000 followers and is Twitter verified. It is recommended to have this account retweet the content of the NXP\_MIFARE handle for additional exposure.

### 10.4.6 Sponsorship

In the smart mobility industry, there are two important sponsorships. The first one is sponsoring industry events, such as conferences and forums. An overview of conferences has been provided in chapter 10.3.3. The MIFARE team should continue to sponsor events which it has sponsored before – if the data collected from these events indicate success. The MIFARE team should also actively seek new sponsorship opportunities and show presence at these events. MIFARE is currently known by all industry players and should continue to be visible.

The second type of sponsorship is that of sponsoring installations: giving a discount and additional support to authorities that are willing to be among the first when trying new solutions. These sponsorships create the earlier described ‘lighthouse projects’ and are fundamental in the smart mobility industry.

## 10.5 Communication Guideline

Part of the repositioning concept is structured communication guidelines. The communication plans have been worked out based on the needs within this concept.

### 10.5.1 Abbreviations and descriptions

Abbreviations are used in the communication plan for better readability:

**W.S.** Whitepaper Selection Phase – the topics should be considered on which the whitepaper will be written. In this phase, it is important to consider the upcoming events. Ideally, the topic aligns with the events being held around the date of release. In this phase, the right candidate, or candidates for writing the paper will also be selected.

**W.D.** Whitepaper Development Phase – the whitepaper will be studied and written in this period by the selected candidate(s).

**W.R.** Whitepaper Review Phase – leading up to the publishing of the whitepaper, the whitepaper will be reviewed by other NXP employees. If needed, an external review can be conducted.

The figure below shows the events listed in the communication plan. All the dates, including the 2020 dates, are estimates. The dates are uncertain due to the (ongoing) 2019-2020 coronavirus pandemic.

Abbr.	Event name	Estimated date
TPAP20	TPAP20 Transport Payments Asia Pacific 202	Mid-September 2020
SITCE20	UITP International Transport Congress & Exhibition 2020	Late-October 2020
TT20	TRUSTECH / CARTES 2020	Early-December 2020
IT-T20	IT-Trans 2020	Early-December 2020
TTG21	Transport Ticketing Global 2021	Late-January 2021
TPSA21	Transport Payments South Asia 2021	Late-February 2021
TPAP21	Transport Payments Asia Pacific 2021	Mid-September 2021
SITCE21	UITP International Transport Congress & Exhibition 2021	Late-October 2021
TT21	TRUSTECH / CARTES 2021	Early-December 2021

Figure 24: Abbreviations used in planning & event overview

### 10.5.2 *Integration of the Processes*

As extensively mentioned in chapter 4, all the tools and processes must be integrated with each other. The communication plan is structured with the repositioning aim, and communication aims in mind.

In the communication plan, all the relevant industry events are listed and a brief period before and after the events are assigned for each event. In these periods, preparations are made for the event, and the marketing department must be actively informed about the event developments. Some of these periods overlap each other.

Briefly, before this event-period starts, the engagement on social media (Twitter and LinkedIn) starts as well. In the second row, these periods are assigned in blue. Some tweets and announcements surrounding the events can be made in this period.

As mentioned in chapter 10.4.3, whitepapers are an important addition to the MIFARE communication strategy. Although originally six whitepapers were recommended in this 18-month period, the decision has been made to develop only four. Fewer white papers being developed than recommended is due to the many events being held in those periods - the available resources on NXP's side are insufficient to realize it. Whitepapers need to be given the time they need.

Every whitepaper has three phases (as described in chapter 10.5.1) and is followed-up by engagement on social media, as indicated by the blue periods in the planning. The whitepapers are scheduled to release shortly before the newsletters so that the months (October 2020, April 2021, July 2021, and January 2022), where a whitepaper is published it can be integrated into the newsletters.

Three webinars are being given in the 18-month period and are, like with the whitepapers, scheduled to be released shortly before the newsletters for that month (October 2020, April 2021, and October 2021) so that they can be integrated.

Certain activities such as social media, providing training and webinars on request, and providing additional newsletters for more spontaneous activities cannot be scheduled ahead of time since it is unknown if, and what exactly will be requested. These activities should be monitored by the marketing team and used at discretion in alignment with the communication strategy. Blog posts are different: while they should be posted continuously (target: 2/month), they cannot be planned in, because they should be written based on topics and trends relevant in that moment. The expectation is that they will be related to Smart City and Smart(phone) Access.

### 10.5.3 Communication Plan

**The 18-month communication plan has been added in Appendix 11 (the last page of this document).**

The planning shown in figure 25 is added for the many ‘event periods’ (as shown in the 18-month communication plan). With every event being different, the exact planning can not be used for every event. Some events might require additional preparations and a higher level of engagement, and others require little preparation and effort, other than being present. Not every activity is essential; this will have to be decided on the tactical level by the marketing team. The exception is phase **(0)**; these two activities will always have to be conducted.

Phase	Activity
(0)	Research into the event – main questions: what value does this specific event add to MIFARE and what audience will be attending. What NXP will colleagues be able to attend the event?
(0)	In the case of participation: what kind of participation is fit for NXP. Will the recommended budget in chapter 10.6.2 be followed for attendance and sponsorship, or are changes made? decide on the type of attendance: attending with/without a booth, with/without a speaker, and with/without a panel discussion
Pre-event	Final selection of what staff will be present
Pre-event	Final selection of speaking/panel topic and discussion, depending on the event and actualities
Pre-event	Announce internally that the event will be attended and to what extend
Pre-event	‘Press-release’ of attending and sponsoring the event
Pre-event	‘Advertisement’ of the participation and/or sponsorship of the event in the newsletter
Pre-event	‘Advertisement’ of the participation and/or sponsorship of the event by placing a banner and/or blog article on the MIFARE and NXP websites. It can be the same as the press-release.
Pre-event	Run Twitter advertisements related to the event presence, if possible: link to the blog, website announcements, or press-release. Emphasize sponsorship where possible.
Pre-event	Design of trade-show booth if applicable
Pre-event	Design of materials for tradeshow if applicable
Pre-event	Training of staff if applicable
Event	Provide continuous engagement when relevant across platforms
Event	Social-media campaign continues with event-relevant posts. Use event hashtags if available
Post-event	Social-media postings with event-relevant posts, emphasize sponsorship, use event hashtags
Post-event	Publish blog-article on the event participation
Post-event	Include event highlights/blog-article, when available, in the newsletter

Figure 25: Event-related activities

## 10.6 Communication Budget

### 10.6.1 Considerations for the Budget

The following considerations have been made surrounding the budget. The estimated budget is provided on the following page, chapter 10.6.2.

- Whitepapers are usually written internally by NXP; these costs/hours are not considered for the budget. When copywriters and graphic designers are involved, it adds a cost of, on average, €2500. When the paper is written by an external party, the cost is around €5000 before the design is done. With all these costs considered, and a white paper costing between €2500 and €7500, the average whitepaper cost has been budgeted for €5000.
- Three webinars have been estimated at around €5000 each. Webinar costs can range between €0 and €10.000 depending on what the partner is being chosen. Licensing cost for webinar infrastructure is available via an existing corporate-managed license.
- The partners provide the training without cost to NXP, the party participating in these training pays for them. However, €500 is budgeted per quarter for providing the partners with up to date training knowledge and material.
- Twitter Ads have not been run before. The proposed €5000 is spread across the months in which conferences are being held. Q2 2021 will not be advertised in since no events are surrounding that timeframe.
- LinkedIn ads will not be run, partly due to the account not being the right account type for the MIFARE brand.
- Event costs are estimates and include sponsorship, booth, graphics, and where relevant: speaking slot and panel discussion.
- Higher event costs can be due to the type of sponsorship relevant to MIFARE and the amount of floorspace selected by the team.

On the right side of the budget, the percentages of individual tasks as a part of the total budget are shown. These percentages can be used for forming a more solid budget in case the budget differs from the one provided here. For example, when the available budget is €50.000 more, an additional €900 can be allocated to promoted tweets. However, the percentages should not be taken at face value but should instead be used in combination with the marketing department's expertise.

### 10.6.2 Proposed 18-Month Budget

An estimated budget to realize the provided 18-month planning is shown in figure 26. The percentages of each activity as part of the total budget have been added on the right, excluding the employee costs (which include wages, travel, accommodations, and more).

Activity	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Total	% of Budget
<b>Whitepapers, Webinars, Etc.</b>								
Whitepapers: Publishing & External	€ 5.000,00	€ 0,00	€ 5.000,00	€ 5.000,00	€ 0,00	€ 5.000,00	€ 20.000,00	7,3%
Webinars: Publishing & External	€ 5.000,00	€ 0,00	€ 5.000,00	€ 0,00	€ 5.000,00	€ 0,00	€ 15.000,00	5,5%
Trainings: Partners	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 3.000,00	1,1%
<b>Websites, Blogs, News sources</b>								
Sponsorship industry websites	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 3.000,00	1,1%
Sponsorship news outlets	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 500,00	€ 3.000,00	1,1%
<b>Social Media</b>								
Twitter (Promoted Tweets)	€ 1.000,00	€ 1.000,00	€ 1.000,00	€ 0,00	€ 1.000,00	€ 1.000,00	€ 5.000,00	1,8%
LinkedIn	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	0,0%
<b>Attendance &amp; Sponsorship</b>								
Event: TPAP20	€ 8.000,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 8.000,00	2,9%
Event: SITCE20	€ 0,00	€ 30.000,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 30.000,00	11,0%
Event: TT20	€ 0,00	€ 35.000,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 35.000,00	12,8%
Event: IT-T20	€ 0,00	€ 40.000,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 40.000,00	14,7%
Event: TTG21	€ 0,00	€ 0,00	€ 30.000,00	€ 0,00	€ 0,00	€ 0,00	€ 30.000,00	11,0%
Event: TPSA21	€ 0,00	€ 0,00	€ 8.000,00	€ 0,00	€ 0,00	€ 0,00	€ 8.000,00	2,9%
Event: TPAP21	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 8.000,00	€ 0,00	€ 8.000,00	2,9%
Event: SITCE21	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 30.000,00	€ 30.000,00	11,0%
Event: TT21	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 35.000,00	€ 35.000,00	12,8%
<b>Total amounts excl. employee</b>	<b>€ 20.500,00</b>	<b>€ 107.500,00</b>	<b>€ 50.500,00</b>	<b>€ 6.500,00</b>	<b>€ 15.500,00</b>	<b>€ 72.500,00</b>	<b>€ 273.000,00</b>	<b>100%</b>
<b>Employee related costs</b>	<b>€ 55.000,00</b>	<b>€ 55.000,00</b>	<b>€ 55.000,00</b>	<b>€ 55.000,00</b>	<b>€ 55.000,00</b>	<b>€ 55.000,00</b>	<b>€ 330.000,00</b>	(not calculated)
<b>Total cost</b>	<b>€ 75.500,00</b>	<b>€ 162.500,00</b>	<b>€ 105.500,00</b>	<b>€ 61.500,00</b>	<b>€ 70.500,00</b>	<b>€ 127.500,00</b>	<b>€ 603.000,00</b>	<b>100%</b>

Figure 26: 18-Month communication budget

## 11 Brand Repositioning Controlling

MIFARE's positioning strategy needs controlling; otherwise, effectiveness and efficiency, which have been noted as fundamentals of integrated marketing communication, cannot be improved on. Further – the effectiveness of the repositioning concept remains unproven without the statistics to back it up. In this chapter, recommendations will be made for controlling.

The specific target has been set by MIFARE to **maintain MIFARE market share of 77 percent** during the described transformation from physical to on-device; this target should be measured continuously. The target of bringing MIFARE 2GO **to a hundred out of 750 by NXP defined cities should be reached in 2025** and continuously monitored. These two factors, the market share of the entire MIFARE brand and the rollout of the MIFARE 2GO solutions, are considered the two key KPI's for the success of MIFARE.

The first recommendation for controlling is to conduct market research on positioning after 18 months (the period for which the in-depth communication guidelines are written). This market research will result in the targets (positioning MIFARE as not only standing for the 'old' way but increasingly standing for the 'new' way, while not losing the 'old' way out of sight) as either successful or not. The market research will have to deliver on what the perception of MIFARE and MIFARE 2GO is. If the repositioning and communication targets are reached, the market share and MIFARE 2GO city-rollout should also be looked at.

The second recommendation is to repeat this research after five years. With mindsets changing slowly, five years is the ideal period to reflect on what progress has been made.

Further – social media metrics, such as followers on Twitter, followers/connections on LinkedIn, and more metrics alike, should be monitored. A decline in engagement or following should be directly acted upon. Social media metrics can be monitored continuously by the marketing department. Additional KPI's that must be monitored are the traffic to the different NXP-hosted websites, engagement on newsletters and webinars, and in the bigger picture – the number of returning and new clients. These last KPI's being continuously monitored means that action must be taken on a tactical level. On the strategic level, the two key KPI's for the success of MIFARE should be used.

## 12 Conclusion & Further Recommendations

MIFARE is a strong brand with knowledgeable and passionate people working on it. The members of the MIFARE team are aware of where the market is moving but are dealing with the reality of NXP being an IC manufacturer - with healthy margins on the MIFARE portfolio. The industry is slow-moving, new customers are requesting field-tested solutions, those responsible for the entire MIFARE revenue. The MIFARE team celebrates the '25 years of MIFARE', but the emphasis does not seem to be in the next 25 years, but rather on the past 25.

In the interest of staying successful in the long-term, it is important to lead and follow the path of innovation; however, not as fast as some other employees would like. MIFARE should position itself as offering the complete portfolio, including smartphone access, besides continuously supporting and highlighting the strengths of the other MIFARE solutions. PTA's and SI's which are seeking solutions can have a variety of reasons to opt for an existing solution - providing compatibility or 'future-proofing' with a mobile solution can help convince them to go for NXP, however, positioning MIFARE as the 'smartphone access provider of fare ticketing' might push those customers to a competitor. The risk with competitors being chosen is not only the loss of revenue from that instance but also the solution not being compatible with the MIFARE 2GO solution in case their demands change in the future.

One additional recommendation that has come up during the writing of this thesis is to investigate the concept of breadcrumb marketing and/or to launch a new brand. These topics have been brought up by many internal and external experts and can, although expensive, strengthen NXP's long-term success. The topics, as briefly described in alternatives 4 and 5, would be a suitable topic for a follow-up study.

In terms of a **personal conclusion**, I can say that the smart mobility industry is incredibly interesting. The specific parts of this industry see much potential, and I expect the entire world to see these changes coming in the next five years, which will be interesting for me to follow, being well-informed on the topic. Most surprising to me is to what extent the experts are willing to share their knowledge on these topics – which was, of course, much appreciated. I have always been interested in branding and positioning, and this thesis has helped strengthen that interest. The research into this topic has been rewarding, but after well over 100 pages of content, I still feel like I have much to learn on the industries in which MIFARE operates.

# MIFARE'S POSITIONING CONCEPT

"Lead the Market with the Complete Portfolio"

## INITIAL PROBLEM & SITUATION

On the one hand, a growing market and changing customer demands offer opportunities for NXP, but on the other hand, it also bears the risk of current or new competitors gaining market share in the smart device enabled market for transit ticketing.

MIFARE wants to be perceived as the brand offering contactless solutions; however, currently, they are likely too often merely seen as a producer of (physical) smartcards.

## DISRUPTIVE TRENDS



SMARTPHONE



OPEN-LOOP



SMART CITY

## COMMUNICATION TOOLS

The following communication tools are considered important within this industry, for this concept

- ✓ Personal Selling
- ✓ Presence at Industry Events
- ✓ Whitepapers, Webinars & Trainings
- ✓ Websites, Blogs & News Sources
- ✓ Social Media
- ✓ Sponsorship



## COMPANY GOAL

The primary aim of NXP Semiconductors is to maintain the leading position of MIFARE in the contactless smartcards business in the smart mobility industry with a market share of 77 percent during the transformation from physical cards to on-device between 2020 and 2025.



## POSITIONING GOAL

Create the perception that MIFARE is and will continue to lead the market - not necessarily in terms of market share but as being the provider to offer the best solution for the customer needs.



## TARGET AUDIENCE

NXP with MIFARE provides the solutions to system integrators and should target both the system integrators and the public transportation authorities.



## SPECIAL REQUIREMENTS

The market in which MIFARE is operating knows many special requirements: presence at industry events, online activities and well-setup IMC is of high importance



## REPOSITIONING STRATEGY

'Three C's of Business': competition, change, and crisis. MIFARE'S strategy fits that of the global solution integrator, quality sub-systems provider, long-term service partner, and that of identifying customers' latent needs.



## THE COMPLETE PORTFOLIO

NXP with MIFARE should not position solely around the new solution but be the player that offers everything - including the most innovative solution, which happens to be MIFARE 2GO

MIFARE stands for compatibility - by offering the complete portfolio, a customer will feel like all their needs are taken care of, now and in the future.



## BUDGET & Controlling

The total budget has been estimated at

€603.000,00

for an 18-month period.

For the MIFARE brand a variety of important KPI's must be continuously monitored. In addition to the monitoring of these KPI's, follow-up studies must be conducted after a period of 18 months and 5 years.



FACHHOCHSCHULE DER WIRTSCHAFT

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## 14 Appendix

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# 1 Research Design

Stage	Description
1. <b>Research Target</b>	The objective of the research is to fill the information gaps with in-depth knowledge in order to create a repositioning concept with a focus on communication for the brand MIFARE.
2. <b>Information requirement</b>	<ol style="list-style-type: none"> <li>6. Underlying understanding of the structure, shape and market trends of the smart mobility industry</li> <li>7. The needs and perceptions of the main actors in the smart mobility industry with regards to ticketing</li> <li>8. Finding motives and drivers of the main actors with regards to the selection of solutions in the smart mobility industry</li> <li>9. A deeper understanding of the position of NXP and main competitors - find out how MIFARE is currently perceived from the perspective of an expert</li> <li>10. Obtain an understanding of the requirements with regards to communication</li> </ol>
3. <b>Method</b>	<p>Qualitative market research</p> <ul style="list-style-type: none"> <li>▪ Internal expert interviews – experts are considered people who work a minimum of 3 years in the industry, at NXP, in a senior position such as product/general/marketing/sales manager, director, head of a department, etc.</li> <li>▪ External expert interviews – experts are considered people who work a minimum of 3 years in the industry, in a senior position such as product/general/marketing/sales manager, director, head of a department, etc.</li> </ul>
4. <b>Sample size</b>	Sixteen experts, of which eight externals (external meaning outside of NXP). The experts are listed in the appendix.
5. <b>Recruitment Strategy</b>	All participants were invited via email.
6. <b>Instrument / Questionnaire</b>	<p>Interview guidelines with open questions, closed questions and several scale questions, prepared around the following four topics:</p> <ol style="list-style-type: none"> <li>5. Market Environment and Trends Surrounding Smart Mobility</li> <li>6. Buyer Behavior, Requirements, and Influences for Smart Mobility Markets</li> <li>7. The current positioning of NXP and Competitors in Smart Mobility</li> <li>8. Communication Requirements: Information Sources and Tools</li> </ol> <p>The survey is designed based on Uwe Flick's "Designing Qualitative Research" recommendations and best practices. (Flick, 2018, pp. 96-105.).</p>
7. <b>Fieldwork</b>	<ul style="list-style-type: none"> <li>▪ Survey period: February 2020</li> <li>▪ Pre-testing with a manager (Andre Perchthaler) at NXP</li> <li>▪ Interviews: <ul style="list-style-type: none"> <li>▪ Personal interviews at NXP in Gratkorn</li> <li>▪ Personal interviews in other Austrian locations</li> <li>▪ Skype (for business), or alternatives, with experts</li> </ul> </li> <li>▪ Taking notes at interview, recorded by phone/skype</li> </ul>
8. <b>Data preparation</b>	<ul style="list-style-type: none"> <li>▪ Period: February and March 2020</li> <li>▪ Transcription of recordings</li> <li>▪ Aligning with notes and adding non-verbal communication</li> <li>▪ Entering in system</li> </ul>
9. <b>Evaluation and interpretation</b>	<ul style="list-style-type: none"> <li>▪ Period: February and March 2020</li> <li>▪ Qualitative content analysis with program 'maxqda'</li> </ul>
10. <b>Report</b>	<ul style="list-style-type: none"> <li>▪ Period: February and March 2020</li> <li>▪ Graphical interpretation</li> <li>▪ Analyzed and written out for thesis in chapter 7</li> </ul>

A-Table 1: Research Design

## 2 Selection of Internal and External Experts

### 2.1.1 Internal Expert Interviews (within NXP Semiconductors)

Code	Name	Organization	Role / Title	Location
II1	Christian Lackner	NXP Semiconductors	Segment Manager of IoT Security, Previously: Segment Manager of MIFARE	Austria
II2	Paul Hubmer	NXP Semiconductors	Segment Manager MIFARE	Austria
II3	Daniela Burgstaller	NXP Semiconductors	Marketing/Communication Manager SMR	Austria
II4	Theo Kedzierski	NXP Semiconductors	MIFARE Licensing Manager	The Netherlands
II5	Georg Bauer	NXP Semiconductors	MIFARE IP protection, Anti- counterfeit	Austria
II6	Daniel Rinner	NXP Semiconductors	Product Manager MIFARE	Austria
II7	Martin Gruber	NXP Semiconductors	Product Manager MIFARE	Austria
II8	Alasdair Ross	NXP Semiconductors	Head of Marketing Secure Payment	Germany

A-Table 2: Internal Experts

### 2.1.2 External Expert Interviews (outside of NXP Semiconductors)

Code	Name	Organization	Role / Title	Location
IE1	Stanislav Piecka	Transdata	Chief Technology Officer	Slovakia
IE2	Barry Dorgan	NTA Dublin	Head of Ticketing	Ireland
IE3	Miki Szikszai	Snapper Services Ltd	Chief Executive Officer	New Zealand
IE4	Amor Chowdhury	Margento	Chief Executive Officer & Chief Technology Officer	Slovenia
IE5	Greg Pote	APSCA	Chairman	China
IE6	Lukas Steinemann	LEGIC Identsystems AG	Product Manager	Switzerland
IE7	Uwe Groth	Dormakaba	Senior Project Leader Digital & Mechatronics	Switzerland
IE8	Ralph Gambetta	Calypso	Managing Director	Germany

A-Table 3: External Experts

### 3 Interview guidelines: Internal (NXP) Interviews

**Information on participant and interview**

Name of participant	
Job Title	
Department	
Email address	@nxp.com
Telephone no:	
Date of Interview	00-00-2020 at 00:00 CEST
Location of Interview	(Location) / (Medium such as Skype, Teams, Telephone)

**Introduction**

Thank you for scheduling the time for this interview. I will start by giving a short introduction to the motivations behind the interview and what will be done with the output. For my master’s degree in International Marketing at the University of Applied Sciences: Campus02, I am writing a master thesis surrounding the MIFARE brand. Your input, together with the input of other experts in the field, will contribute to answering the information gaps which currently exist.

I will record the interview as this is needed for analyzing it with the program ‘maxqda’. The interview will take approximately 60 minutes, depending on the amount of input, discussing four topics.

It is good practice to inform you relating to expected personal risks and benefits. I have not been able to determine any risk or benefit that would have an impact on you. Our conversation will be kept confidential, and if any questions occur, you are always able to contact me, or if there is a need, go directly to my manager Andre Pertchaler.

**Room for comments on the Introduction**

Reaction:	
-----------	--

**Interview guidelines start on the next page → → → →**

**Topic: Market Environment and Trends Surrounding Smart Mobility**

<p>1. How do you assess the <b>current situation</b> in the smart mobility market with regards to public fare ticketing?</p>	<p><i>It can be answered widely. No specific follow-up questions required. The interviewee can talk both about the economic or competitive situation — question meant to get insight into how the current situation is seen.</i></p>
<p>2. A. How is, in your view, the smart mobility market with regards to public fare ticketing <b>structured</b>?</p> <p>B. Who are the main/leading market participants?</p>	<p></p>
<p>3. What are the <b>current main trends</b> surrounding smart mobility and public fare ticketing?</p>	<p><i>Examples: technological, economical</i></p>
<p>4. What do you expect to be the major <b>future trends</b> in this market?</p>	<p><i>Examples: technological, economical</i></p>
<p>5. What impact do you expect these current and future trends have on the industry?</p>	<p><i>If not mentioned in Q3/Q4.</i></p>
<p>6. A. From your point of view, what semiconductor, or other company is currently <b>leading</b> on innovation in the smart mobility market and with regards to public fare ticketing?</p> <p>B. A 2014 <b>ABI research report</b> lists NXP Semiconductors as first with regards to innovation and implementation, Infineon second and STMicroelectronics third. What are your thoughts on those rankings?</p>	<p><i>Each vendor was assessed against a total of 10 criteria and accordingly ranked based on scores achieved. RMS (Root Mean Square) method results in ranking: NXP at 92.7, Infineon 84.7, and STMicroelectronics at 68.0. Ranking based on ABI methods. No Chinese companies included.</i></p>

**Topic: The current positioning of NXP and Competitors in Smart Mobility**

<p>7. The top three IC vendor's combined market share increased to approximately 97 percent in 2019. How do you expect this market to change in the short and long term?</p>	<p><i>(NXP, Infineon &amp; STMicroelectronics)</i>  <i>Short term: 1-4 years</i>  <i>Long term 5&gt; years</i></p>
<p>8. Do you expect any new competition to enter the market – and if so, what companies do you feel are likely to enter?</p>	<p><i>For example phone manufacturers, cloud solution providers, startups</i></p>

9. Which **semiconductor companies** are currently showing an **upward** and which one a **downward trend**?

10. How do you see **NXP's MIFARE** brand regarding **innovation**?

*When not mentioned in the answer: Ask the same about MIFARE 2GO*

11. Where do you expect **NXP's MIFARE brand** to be in **5 years**?

*When not mentioned in the answer: Ask the same about MIFARE 2GO*

12. How do you currently see **NXP's MIFARE brand positioning**?

*When not mentioned in the answer: Ask the same about MIFARE 2GO*

13. How important do you believe **NXP's MIFARE brand positioning** is in the **AFC industry**?

*Regarding all brands, not one single line. Not specific to MIFARE 2GO*

---

**Topic: Buyer Behavior, Requirements, and Influences for Smart mobility Markets**

---

14. A. Who are the **key players** when it comes to a **decision-making process**?

B. How is the **final choice** made for what company and product to go with?

15. A. Out of the following five factors, what factor do you **expect a customer** to find the **most and least important** when **selecting the type of AFC**?

*Usability (Easy to use)  
Throughput speed  
Security (Fraud reduction)  
Environmental Conditions (wear of the product)  
Overall Cost*

B. In **your opinion**, which one is **most and least important**?

C. Are there **other factors** than these five which you or a customer believe is important?

16. What factors are **most important for a customer** to be **satisfied with an AFC installation**?

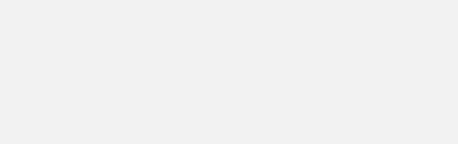
*For example, one of the above-mentioned factors, or perhaps factors related to service, if so – what precisely?*

17. To what extent do you believe the **image/positioning** of either a **semiconductor**

brand (NXP, Infineon) or that of a brand (MIFARE) plays a role in the **decision-making process**?

**Topic: Communication Requirements: Information Sources and Tools**

- 18. A. Imagine the **customer perspective** (transport agency), what **information sources** are used for them to inform themselves about the **offerings of semiconductor companies**?
- B. **What** would be the ideal **information source** for informing customers (transport agencies)?
- C. **Why** would this be the ideal **information source**?
- D. What **other information sources** can you list - if any?
- 19. What **communication tools** do you expect to become **more important** in the future within the discussed industries? – **And why**?
- 20. What is, in your opinion, the **best way** to introduce a **new solution** in the smart mobility market?
- 21. If not mentioned already, what are **special requirements** which must be considered within the smart mobility/fare collection industry?



Usually already answered in 18A

*(for example: A new version of an already used product, the move to mobile tickets, or other unknown futuristic solutions)*

*For example: Related to communication, culture, transparency, etc.*

# 4 Interview guidelines: External Expert Interviews

## Information on participant and interview

Name of participant	
Organization	
Job Title	
Department	
Email address	@
Telephone no:	
Date of Interview	00-00-2020 at 00:00 CEST
Location of Interview	(Location) / (Medium such as Skype, Teams, Telephone)

### Introduction

Thank you for scheduling the time for this interview. I will start by giving a short introduction to the motivations behind the interview and what will be done with the output. For my master's degree in International Marketing at the University of Applied Sciences: Campus02, I am writing a master thesis delivering a concept for a large NXP brand. Your input, together with the input of other experts in the field, will contribute to answering the information gaps which currently exist. The aim of the thesis is to come up with repositioning concepts.

I will record the interview as this is needed for analyzing it with the program 'maxqda'. The interview will take approximately 60 minutes, depending on the amount of input.

Our conversation will be kept confidential, and if any questions occur, you are always able to contact me, or if there is the need to go directly to my Campus professor, Michael Brandtner, whose information I can provide.

### Room for comments on the Introduction

Reaction:	
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Interview guidelines start on the next page → → → →

# Interview guidelines: External Expert Interviews (2)

## Topic: Market Environment and Trends Surrounding Smart Mobility

<p>1. How do you assess the <b>current situation</b> in the smart mobility market with regards to public fare ticketing?</p>	<p><i>It can be answered widely. No specific follow-up questions required. The interviewee can talk both about the economic or competitive situation — question meant to get insight into how the current situation is seen.</i></p>
<p>2. A. How is, in your view, the smart mobility market with regards to public fare ticketing <b>structured</b>?</p> <p>B. Who are the main/leading market participants?</p>	
<p>3. What are the <b>current main trends</b> surrounding smart mobility and public fare ticketing?</p>	<p><i>Examples: technological, economical</i></p>
<p>4. What do you expect to be the major <b>future trends</b> in this market?</p>	<p><i>Examples: technological, economical</i></p>
<p>5. What <b>impact</b> do you expect these <b>current and future</b> trends have on the industry?</p>	<p><i>If not mentioned in Q3/Q4.</i></p>
<p>6. What do you expect the end customer to think of these <b>current and future</b> trends?</p>	
<p>7. From your point of view, what semiconductor, or other company is currently <b>leading</b> on <b>innovation</b> in the smart mobility market and with regards to public fare ticketing?</p>	

**Topic: The current positioning of NXP and Competitors in Smart Mobility**

<p>8. Do you expect any new competition to enter the market – and if so, what companies do you feel are likely to enter?</p>	<p><i>For example, phone manufacturers, cloud solution providers, startups, etc.</i></p>
<p>9. Which <b>semiconductor companies</b> are currently showing an <b>upward</b> and which one a <b>downward trend</b>? – <b>Why</b>?</p>	<p><i>If the interviewer has questions answered more broadly (so for example, speaking about system integrators, or others), then answer about those</i></p>
<p>10. What smartcard technology do you consider currently <b>important</b> in the market?</p>	<p><i>Calypso, MIFARE, CIPURSE, Others</i></p> <p><i>Note: not interested in IP/legal issues. Focus on the branding/positioning side of things.</i></p>
<p>11. What fare-ticketing/AFC/smart mobility related brands do you consider to become <b>more</b> and <b>less important</b> in the market in the next five years</p>	<p><i>concrete examples are welcome, also – why?</i></p>
<p>12. What fare-ticketing/AFC/smart mobility related brands do you consider <b>innovative</b> – and <b>why</b>?</p>	<p><i>Usually answered/mentioned in Q10</i></p>
<p>13. How important do you believe <b>brand positioning</b> is in the <b>AFC/Smart Mobility industry</b>? – and <b>why</b>?</p>	<p><i>Regarding all of the brands. It does not have to be specific to brands/technologies such as MIFARE, CIPURSE, Calypso.</i></p>

**Topic: Buyer Behavior, Requirements, and Influences for Smart mobility Markets**

<p>14. A. Who are the <b>key players</b> when it comes to a <b>decision-making process</b>?</p>	<p><i>(so within the agency / SI / etc. who? why?)</i></p>
<p>B. How is the <b>final choice</b> made for what company and product to go with?</p>	<p><i>If not answered in Q14</i></p>
<p>15. A. Out of the following five factors, what factor do you <b>expect a customer</b> to find the <b>most</b> and <b>least important</b> when <b>selecting the type of AFC</b>?</p>	<p><i>Usability (Easy to use)</i>  <i>Throughput speed</i>  <i>Security (Fraud reduction)</i>  <i>Environmental Conditions (wear of the product)</i>  <i>Overall Cost</i></p>
<p>B. In <b>your opinion</b>, which one is <b>most</b> and <b>least important</b>?</p>	
<p>C. Are there <b>other factors</b> than these five which you or a customer believe is important?</p>	<p><i>If not already mentioned in Q15A/B.</i></p>

16. What factors are **most important for a customer** to be **satisfied with an AFC installation**?

*For example, one of the above-mentioned factors, or perhaps factors related to service, if so – what precisely?*

17. To what extent do you believe the **image/positioning** of either **a semiconductor brand** (NXP, Infineon, etc.) **or that of a smartcard brand** (CIPURSE, MIFARE, Calypso, etc.) play a role in the **decision-making process**?

*The question might need an explanation. These are multiple questions in one, so it can take a while to get the full answer.*

**Topic: Communication Requirements: Information Sources and Tools**

18. A. Imagine the **customer perspective** (transport agency), what **information sources** are used for them to inform themselves about the **offerings of semiconductor companies**?

*"imagine" unless talking to a customer.*

B. **What** would be the ideal **information source** for informing customers (transport agencies)?

C. **Why** would this be the ideal **information source**?

D. What **other information sources** can you list - if any?

Usually already answered in 19A

19. What **communication tools** do you expect to become **more important** in the future within the discussed industries? – **And why?**

20. What is, in your opinion, the **best way** to introduce a **new solution** in the smart mobility market?

*(for example: A new version of an already used product, the move to mobile tickets, or other unknown futuristic solutions)*

21. If not mentioned already, what are **special requirements** which must be considered within the smart mobility/fare collection industry?

*For example: Related to communication, culture, transparency, etc.*

We have reached the end of the interview. Is there anything else that you would like to add? Are there any essential points we haven't talked about which you believe I should know about?

## 5 Data from Additional Conducted Survey

The chart below shows the data collected for the additional survey, described in chapter 7.2.4. #1 - #8 are the eight experts, anonymized. EX stands for the experts' point of view, A stands for competitor A, B stands for competitor B, NXP stands for the positioning of NXP. Total is the scores of all experts added up for that attribute, and RANKING shows the prioritization of the different attributes for the viewpoint.

Expert:	#1	#2	#3	#4	#5	#6	#7	#8	TOTAL	RANKING
	EX	EX	EX	EX	EX	EX	EX	EX		
Good reputation	9	1	1	1	4	4	2	1	23	10
High quality	2	4	2	1	5	6	4	4	28	9
Reliable Product	1	2	6	1	8	8	1	2	29	8
Competence in smartcard	6	3	3	7	3	3	3	3	31	7
Competence in cloud solutions	7	5	7	7	2	2	5	6	41	6
Innovating on technology	10	8	5	1	1	1	8	8	42	5
Flexible Partner	8	6	4	1	6	5	7	7	44	4
High security	4	7	9	1	7	7	6	5	46	3
Reliable Delivery	3	10	8	1	9	9	9	9	58	2
Low on price	5	9	10	4	10	10	10	10	68	1
	A	A	A	A	A	A	A	A		
Low on price	6	1	1	1	1	1	1	1	13	10
Good reputation	1	4	4	1	4	2	6	4	26	9
Competence in smartcard	4	3	2	7	2	4	5	3	30	8
Reliable Product	5	2	8	1	3	3	4	5	31	7
High quality	2	5	5	1	5	10	10	2	40	6
Reliable Delivery	9	7	3	1	6	5	3	7	41	5
High security	3	6	6	4	7	9	9	6	50	4
Competence in cloud solutions	10	8	10	1	8	6	2	8	53	3
Flexible Partner	8	9	7	7	9	8	8	9	65	2
Innovating on technology	7	10	9	7	10	7	7	10	67	1
	B	B	B	B	B	B	B	B		
Good reputation	1	4	4	7	1	2	2	5	26	10
Low on price	5	1	3	4	5	7	5	1	31	9
High quality	2	5	10	7	2	3	1	4	34	8
Competence in smartcard	8	3	1	1	8	5	9	3	38	7
High security	3	6	7	7	3	4	3	6	39	6
Innovating on technology	4	10	2	4	4	6	4	10	44	5
Reliable Product	7	2	6	7	7	10	7	2	48	4
Reliable Delivery	6	7	5	7	6	9	6	8	54	3
Flexible Partner	9	9	8	1	9	1	10	9	56	2
Competence in cloud solutions	10	8	9	4	10	8	8	7	64	1
	NXP	NXP	NXP	NXP	NXP	NXP	NXP	NXP		
Good reputation	3	1	2	4	2	4	2	2	20	10
Competence in smartcard	4	3	1	4	1	2	3	3	21	9
High quality	2	4	3	4	4	6	4	4	31	8
High security	1	6	7	1	7	5	6	5	38	7
Reliable Product	7	2	9	4	8	7	1	1	39	6
Innovating on technology	5	8	5	1	5	1	8	8	41	5
Competence in cloud solutions	9	5	4	7	3	3	5	7	43	4
Flexible Partner	8	7	10	4	10	9	7	6	61	3
Reliable Delivery	6	10	8	4	9	8	9	9	63	2
Low on price	10	9	6	7	6	10	10	10	68	1

A-Table 4: Additional Survey Data

## 6 Data from Additional Conducted Survey (2nd)

The following data is collected from the internal (within NXP) experts. Expert 8 has not provided answers to these questions but did provide the data visible in Appendix 5. The results are in response to the following question, asked per email:

*Out of the following five factors, which one is most, and which one is least important when selecting the type of AFC?*

- Usability (Easy to use)
- Throughput speed
- Security (Fraud reduction)
- Environmental Conditions (wear of the product)
- Overall Cost

**Customer finds most important:**  
**Customer finds the least important:**

**Personally, finding the most important:**  
**Personally, finding the least important:**  
**Any other factor which you might consider important:**

	Expert #1	Expert #2	Expert #3	Expert #4
<b>Customer most important</b>	Cost	Speed	Cost	Cost
<b>Customer least important</b>	Env. Wear	Env. Wear	Env. Wear	Env. Wear
<b>Pers. most important</b>	Usability	Usability	Usability	Usability
<b>Pers. least important</b>	Env. Wear	Env. Wear	Env. Wear	Cost
<b>Other</b>	Data Privacy	Media attention	-	-

	Expert #5	Expert #6	Expert #7
<b>Customer most important</b>	Cost	Usability	Cost
<b>Customer least important</b>	Env. Wear	Env. Wear	Env. Wear
<b>Pers. most important</b>	Usability	Security	Usability
<b>Pers. least important</b>	Env. Wear	Cost	Env. Wear
<b>Other</b>	Experience	-	-

	Most	Second	Third
<b>Customer most important</b>	Cost (5)	Usability (1)	Speed (1)
<b>Customer least important</b>	Env. Wear (7)	-	-
<b>Pers. most important</b>	Usability (6)	Security (1)	-
<b>Pers. least important</b>	Env. Wear (5)	Cost (2)	-
<b>Other</b>	Data Privacy (1)	Media Attention (1)	Experience (1)

A-Table 5: Second Additional Survey Data

## 7 MAXQDA Coding & Brief Overview

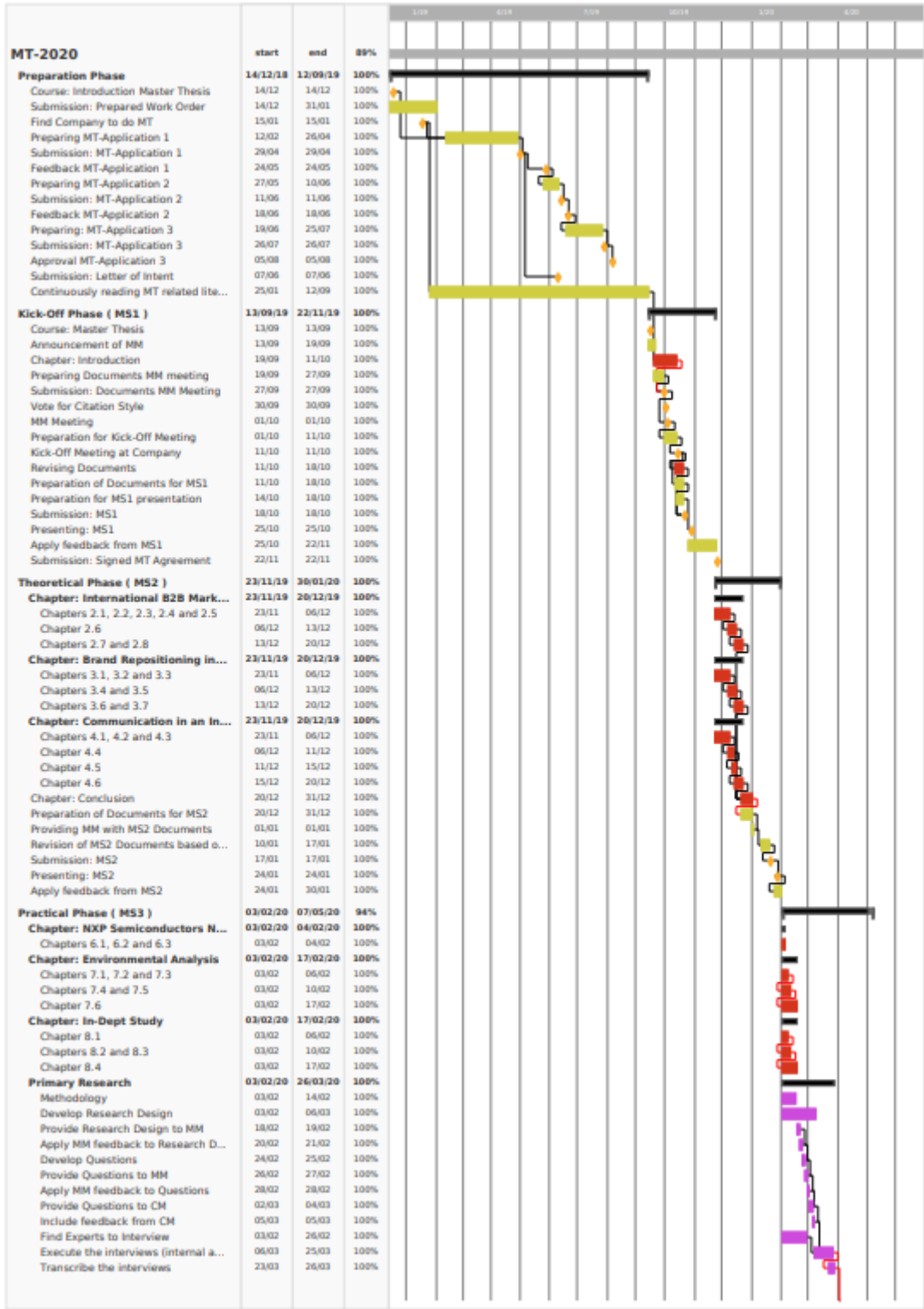
The table below shows the coding system used. The 16 interviews have been categorized under 'internal' and 'external'. A total of 1222 codes have been applied in four main categories: 'information chapters', 'trends', 'competition', and 'general'.

Codename	EXTERNAL	INTERNAL	SUM
(1) IC market share for ticketing	0	6	6
(1) market structure/shape	3	17	20
(1) (market) trends	95	116	211
(1) Current Situation	5	12	17
(2) needs: reliability	7	12	19
(2) needs and perceptions of main actors	10	22	32
(3) driver: political	10	17	27
(3) Selection of solutions	10	25	35
(4) MIFARE innovating	2	20	22
(4) Importance of positioning	8	19	27
(4) Positioning of MIFARE	45	43	88
(5) Special Communication Requirements	12	10	22
(5) Introducing new solutions	3	23	26
(5) communication tools	11	32	43
(5) Informing as customer (PTA)	3	12	15
trend: more security	2	2	4
trend: QR codes	0	20	20
trend: Additional usecases	3	19	22
trend: smartcity (broad interpretation)	4	15	19
trend: openloop payment	23	59	82
trend: direct to customer branding	1	16	17
trend: use of data (broad interpretation)	9	10	19
trend: contactless ticketing	6	11	17
trend: move to mobile/smart device for ticketing	37	40	77
Brand: Calypso	20	8	28
Infineon upwards	0	4	4
ST upwards	0	3	3
Infineon downward	0	4	4
NXP upwards	0	5	5
New competition entering	28	43	71
NXP leading on innovation	0	12	12
Competitor: STMicroelectronics	5	21	26
Competitor: Infineon	11	38	49
Expertise of expert	6	6	12
Ending the interview	7	9	16
GDPR/privacy related	1	4	5
Introduction	7	9	16
Region: ASIA / CHINA	62	0	62
Interesting example	0	1	1
Slogans	0	3	3
citing	5	13	18

A-Table 6: MAXQDA Coding Overview

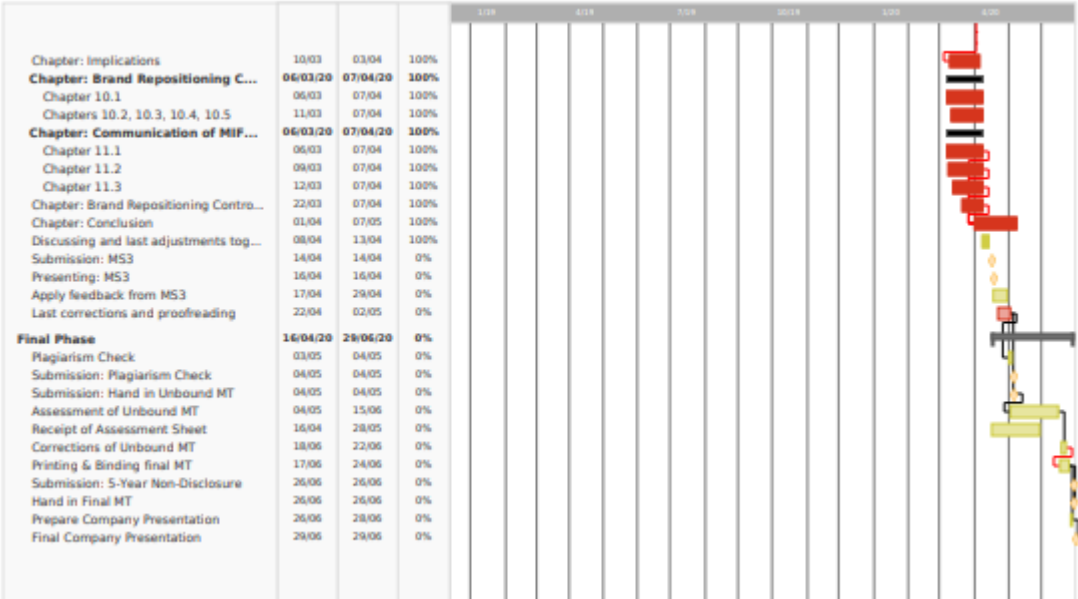
# 8 Overall Project Planning

For the project plan, the software *teammantt* has been purchased. A print-out of this online environment is visible below, with current progression updated.



A-Figure 1: Main Planning for Thesis

(continuous planning)



A-Figure 2: Further Planning of Thesis

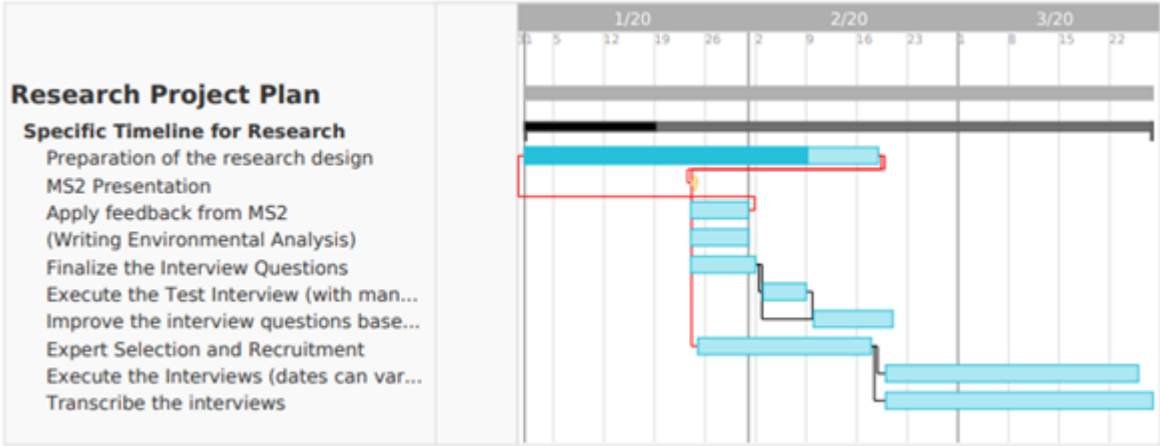
Due to the specific nature, feedback provided by MM, and a more clear overview of what is needed, a specific research project plan has been developed visible in appendix 9.

## 9 Market Research Project Plan

Next to the extensive overall project planning, this research project plan is developed. The research project plan will gradually get updated, depending on new developments, feedback, and expert responses. The variable of experts is relatively unreliable with regard to timing. When the experts have a date to be interviewed, each of them will be added to the planning in terms of a 'milestone'.

The thesis will continue to be written, and parts of this planning can be found in the overall project planning.

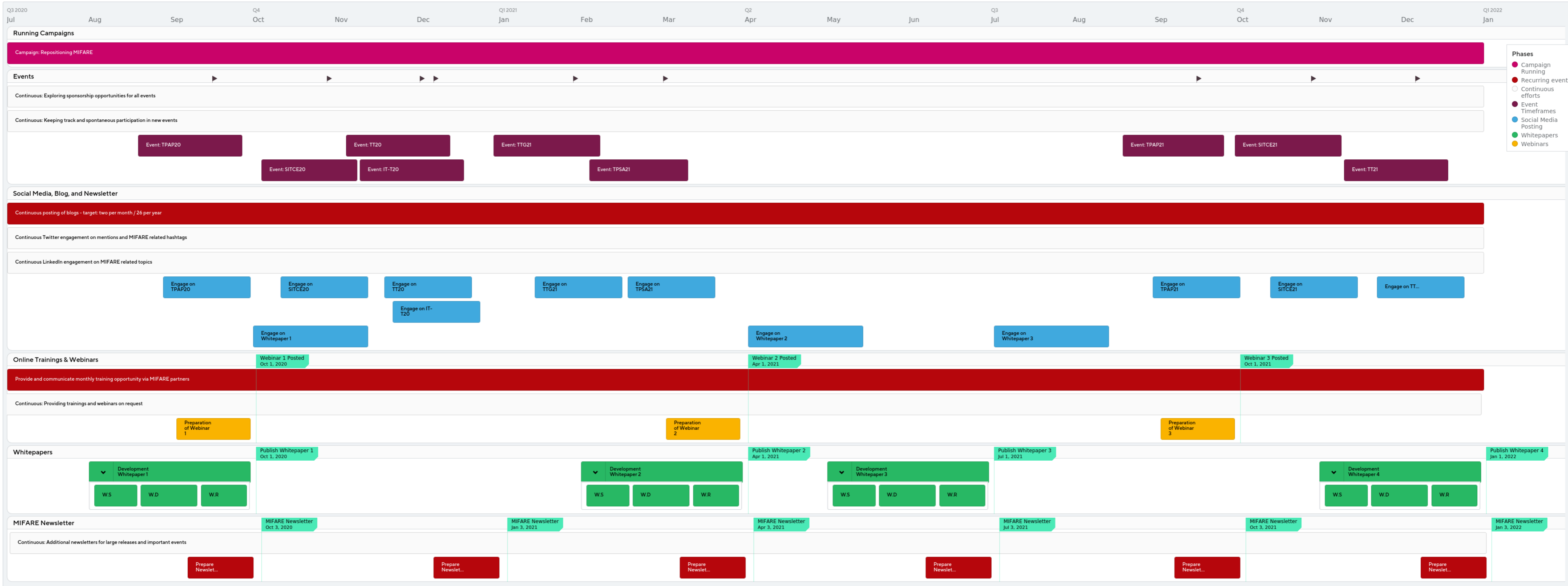
For the market research project plan, the software *teamgantt* has been purchased. A print-out of this online environment is visible below.



A-Figure 3: Market Research Project Planning

# 10 Communication Planning

Below the communication planning can be found. In the printed version, this planning can be cut-off due to printer limitations. An online version can be found via the following: [Link \(NXP Login required\)](#) and [Link \(Campus 02 Login required\)](#).



A-Figure 4: Integrated Communication Planning (18-months)