



**CHALMERS**  
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# Measuring and Pricing the Value of Anti-Counterfeiting Services

A Case Study in Agriculture

Master's thesis in Management and Economics of Innovation

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# Measuring and Pricing the Value of Anti-Counterfeiting Services A Case Study in Agriculture

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## SUMMARY

Counterfeiting poses a significant threat across global industries, including agriculture, where it compromises food security, harms brand reputation, and leads to considerable economic losses. This thesis explores the value of anti-counterfeiting services through a case study of AGDA, a global agricultural company facing increasing counterfeit challenges. The purpose is threefold: (1) to determine how the value of anti-counterfeiting activities, specifically monitoring, detecting, and taking down counterfeits, can be measured; (2) to develop a pricing framework for offering these services to external parties; and (3) to identify the types of industries where such services can deliver the greatest value.

The study employs a mixed-methods approach, combining a comprehensive theoretical framework with empirical data from qualitative interviews and internal documents from AGDA. The theoretical portion draws from literature on customer value, brand valuation, pricing strategies, and counterfeiting typologies. Empirical findings highlight five core values driving customer preference for AGDA, quality, innovation, technical support, distribution network, and brand reputation, while also detailing regional differences in counterfeiting awareness and behavior.

Analysis reveals that the value of anti-counterfeiting services is multidimensional, incorporating not only direct cost savings from confiscated goods but also brand protection, customer loyalty, and emotional value. Moreover, in industries such as agriculture and pharmaceuticals where counterfeiting is deceptive, anti-counterfeiting services provide the highest value. When applying a pricing framework, traditional cost- and competitor-based pricing strategies are limited in capturing this full scope of value. Instead, value-based pricing, combined with service pricing theory, is identified as the most appropriate model since it supports a high degree of value appropriation. Recommendations are provided for AGDA to further develop its service offering, engage external clients, and refine its pricing model based on contextual industry characteristics.

Keywords: brand value, counterfeiting, value-based pricing, customer value, anti-counterfeiting strategy, service pricing, value exchange model, agricultural industry, luxury sector



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# 1. Introduction

*This chapter aims to introduce the subject of this thesis and why it is an essential and valuable subject to study. The segments of this chapter are background, problem discussion with research questions, the purpose of this study, and delimitations.*

## 1.1 Background

Counterfeiting has emerged as a pressing global challenge affecting nearly every sector of the global marketplace. Studies indicate that the global counterfeit and pirated goods trade has reached an estimated \$464 billion annually (OECD, 2021), accounting for approximately 2.5% of global trade. These activities not only erode the profits of businesses but also endanger consumer safety and jeopardize customers' trust in brands (UNODC, n.d.). Counterfeiting operations are frequently linked to organized crime, enabling organized crime organizations to finance other illicit activities such as drug trafficking, human trafficking, and terrorism (Europol, 2024; WCO, 2013). The operations thrive in environments with weak regulatory frameworks and exploit globally established supply chains, making enforcement an uphill battle (OECD, n.d.; Stevenson & Busby, 2015).

The agricultural industry, the industry in which the anonymized partner of this thesis study, AGDA, operates, counts among the industries highly affected by counterfeiting. Counterfeiting in agriculture poses unique risks to food security, farmers' livelihood, and environmental sustainability (Bayoumi, 2021). While precise numbers of the impact that counterfeiting has on the agricultural industry are difficult to determine, the World Trade Organization (2023) estimates that the annual loss from food fraud is \$30-50 billion. These low-quality products often lead to reduced crop yields, environmental damage, and substantial financial losses for farmers (FAO, 2022). Ensuring high-quality and safe agrichemicals is vital, especially in areas where yields are poor, and many people lack access to sufficient and nutritious food. Counterfeited agricultural products, thus, because of diminishing crop yields, contribute to starvation and poison farmers due to a lack of regulation (FAO, 2022).

AGDA is a large company in the agricultural sector with a revenue of USD 32.2 billion in 2023 and 60,000 employees (AGDA, 2024). It is a global organization operating in over 100 countries where the Chinese market achieved particularly strong results, boasting an 11% year-over-year sales growth in 2023. Their core business consists of crop protection, chemicals that protect crops against weeds, insects, and diseases, and seeds aiming to improve the yield and quality of crops (AGDA, 2025a; AGDA, 2025b). AGDA is heavily focused on innovation within its two core businesses, striving to be at the forefront of quality and progress in the industry (AGDA, 2025b; AGDA, 2025c). Being at the forefront of innovation entails steep R&D costs, leaving AGDA vulnerable to counterfeiters who benefit from AGDA's strong brand without the associated costs of development.

Counterfeiting is contributing to significant losses at AGDA. In 2023 alone, they confiscated crop protection and seed products to over USD 211 million, with COGS estimated to be 70% of the confiscated value (AGDA, personal communication 13-01-

2025). These losses, however significant they are, do not account for the damage counterfeiting has to the brand value of AGDA or the societal damage it entails. To combat the challenge of counterfeiting, AGDA has launched an internal program to deter, detect and take down websites and applications where counterfeits are sold (AGDA, personal communication 13-01-2025). However, despite the success of their program, taking down over 650 websites and applications in 2024, AGDA is struggling with financing their anti-counterfeiting solution. Ultimately, the anti-counterfeiting activities of monitoring, detecting, and taking down counterfeits are expensive, and the value of the activities is difficult to measure since the value of confiscated counterfeited products cannot be retained. Lastly, since AGDA often finds counterfeited products from other companies when performing raids on criminal organizations, they want to entertain the possibility of selling their program to increase revenues (AGDA, personal communication 13-01-2025).

The internal program launched by AGDA is an end-to-end service including five steps: intelligence management, investigation, rapid response, cross functional risk mitigation building and implementation improvement action plan (AGDA, personal communication 13-01-2025). In the initial step of intelligence management, AGDA employs an online detection tool powered by AI and machine learning. During subsequent steps, they utilize their unique capabilities within anti-illicit trade to ensure that counterfeits are detected, taken down and deterred. Since this program is firstly concerned with minimizing counterfeiting of AGDA's products, the customers are AGDA's senior management who provide funding. Secondly, AGDA have launched a pilot project to sell their program to other companies affected by counterfeiting. In that case, the customers are pilot companies in their program. Additionally, customers can also be considered as the end user who purchases spurious products. This thesis focuses on the pilot project and looks at how it can be implemented from a value and pricing perspective. However, the philosophy being the conclusions can be applied to an internal context within AGDA since the empirics are obtained from a case study on AGDA.

## 1.2 Problem discussion

The first problem to be investigated is the valuation of monitoring, detecting, and taking down counterfeits. As previously mentioned, AGDA has an idea of the value they are losing to counterfeiters (AGDA, personal communication 13-01-2025), but the value generated from seizing counterfeits remains undefined. This is further complicated by the inability to recover value from seized counterfeits, and the impact counterfeiting has on brand value. Tiwari (2010) defines brand value as "the net present value of future cash flows from a branded product minus the net present value of future cash flows from a similar unbranded product." Yet, what constitutes brand value, how it is affected by counterfeiting, and the complete picture of the value generated by AGDA's anti-counterfeiting activities require further investigation.

*RQ1: What determines the value of monitoring, detecting and taking down counterfeits?*

Secondly, AGDA is developing a program to monitor, detect, and take down counterfeits and wants to collaborate with and sell their service to other organizations. To accomplish this, AGDA needs to grasp the value of their service, which will be explored in research question 1, and formulate a pricing framework suited to their services. Finding the right price is complicated and there are three commonly used strategies to achieve it, namely: cost-based-, competition-based-, and value-based pricing (Hinterhuber, 2008). Furthermore, pricing is sensitive, and incorrect pricing will result in an imbalance between cost and value where purchases are not made, and both sides will end up dissatisfied (Khalifa, 2004).

*Research question 2: What can a pricing framework for selling the service of monitoring, detecting, and taking down counterfeits look like?*

Efforts to combat counterfeiting are crucial for protecting brand integrity, consumer safety, and economic stability across various industries. However, the effectiveness and value of anti-counterfeiting activities depend on market conditions, consumer behavior, and the enforcement landscape. Grossman and Shapiro (1986) emphasize that counterfeiting thrives in markets where consumers lack perfect information about product authenticity, allowing counterfeiters to deceive buyers or offer lower-priced alternatives to cost-conscious consumers. Additionally, Reynolds (2011) highlights that counterfeiting is particularly prevalent in markets where the price gap between genuine and counterfeit goods is significant, making affordability a key driver of counterfeit demand. While Staake et al. (2009) suggest that counterfeiting can sometimes increase brand awareness, the overall financial and reputational risks tend to outweigh these potential benefits. Given these complexities, understanding the market conditions that maximize the value appropriation of anti-counterfeiting efforts is essential.

*Research question 3: In what industries is the value appropriation of anti-counterfeiting activities maximized?*

### 1.3 Purpose

This study explores the value of anti-counterfeiting efforts, how they can be effectively priced, and the industry conditions that maximize their impact.

### 1.4 Limitations

Before commencing the thesis study, a few limitations were set to define the scope.

- This thesis is limited to studying AGDA as a reference point even if looking at more companies would increase the validity of the findings,
- This thesis did not do empirical research with customers who are impacted by counterfeiting as subjects, and

- This thesis only looks at the impact of counterfeiting on companies and not on society.

These limitations warrant concern with research quality due to decreasing validity, mainly by decreasing generalizability by only studying AGDA. Furthermore, since the thesis will not gather data directly from customers, assumptions will be made based on the theoretical study and employee observation of customer behavior. Lastly, counterfeiting has a large impact on society, as covered in the background, and the total value of anti-counterfeiting activities is greater than the value it provides to companies. However, the broader value of anti-counterfeiting activities was deemed infeasible to achieve relevant conclusions for AGDA within the timeframe.

### 1.5 Thesis structure

Since the thesis was primarily conducted with the theoretical framework as a foundation, the theoretical study was performed before the empirical study. It shaped the topics and questions in interviews and provided an indication of what documents are required from AGDA. The theoretical framework includes literature covering counterfeiting, customer value, brand value, value exchange and pricing. This section was updated after the empirical study was completed, adding new information to form relevant conclusions based on the empirics. Lastly, a summary of the theory mentioned in the chapter is presented.

As explained in the previous segment, the empirical study was shaped by the learnings of the theoretical study. It included interviews with staff at AGDA and documents provided by AGDA. Staff that were interviewed at AGDA had competencies within the theoretical fields that are covered in the theoretical study or had roles that have been affected by counterfeiting. Because of the scope of the thesis, ten interviews were conducted under strict time restrictions. Due to the strict time restrictions, interviews were focused on a few key topics aimed at providing complementary information to the theory and, consequently, answering the research questions.

After the empirics were presented, an analysis was conducted comparing the theoretical- and empirical studies, looking at similarities and discrepancies. The analysis is structured similarly to the theoretical study, where each theoretical concept is analyzed under its respective headlines. Employing such a structure in the analysis improves the readability of the thesis and makes the thesis cohesive. This chapter aims at adding value and creating new knowledge for corporations and researchers. Naturally, the goal of the analysis was to provide sufficient information to fulfill the purpose of the thesis and write conclusions that summarize without further analysis.

Lastly, a chapter including conclusions and discussion is introduced. Here, the research questions are answered in a concise manner and discussions regarding the conclusions and quality of the thesis are addressed. Hence, the discussion is a meta-analysis of the thesis while not directly addressing the topic of the thesis. In addition to discussing the thesis, recommendations for further work are presented aiming to provide AGDA with actions that add value to the conclusions of the thesis.

Additionally, since the scope of the thesis is limited, this section provides recommendations for further research to support researchers in adding further nuance to the topic.



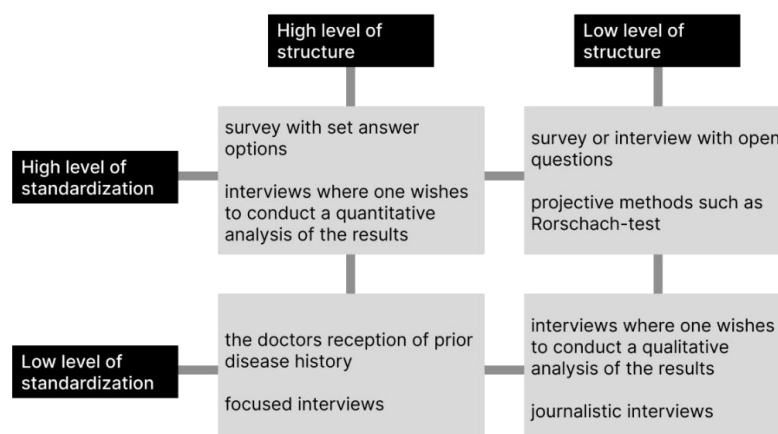
## 2. Method

*In this section, the methods used in this thesis are presented and then analyzed for quality and relevancy. Methods used in this thesis include a theoretical study and an empirical study comprised of interviews and documents provided by AGDA. Additionally, background information on methodology and validity and reliability is discussed.*

### 2.1 Method background

The methodological foundation of this thesis is based on a case study design. While the study does not focus on explicitly categorizing the approach as deductive, inductive, or abductive, the emphasis lies in describing the research process and the reasoning behind key methodological choices. As Bell et al. (2022) note, such classifications are most helpful when they aid in understanding how the research unfolds. In this study, a strong theoretical foundation guided the initial design, while empirical findings led to iterative refinements of both the focus and the theoretical framework. This interplay between theory and data aligns with the principles commonly associated with abductive reasoning.

Initially, established theories were used to inform the development of the structure of the empirical research and the interview guide. This use of theory to shape empirical exploration mirrors the deductive approach, where pre-existing knowledge forms the basis for investigation (Bell et al., 2022). However, as the empirical phase progressed, especially through the semi-structured interviews, unexpected insights surfaced that enriched and occasionally challenged the initial assumptions. As a result, the theoretical framework was revised and extended with new literature, which reflects the iterative and responsive nature of abductive research as discussed by Patel and Davidson (2019).



*Figure 1: Degree of standardization and structure in research (Patel & Davidson, 2019)*

Building on the research from Patel & Davidson (2019), and further confirmed by Bell et al. (2022), the distinction between obtaining quantitative or qualitative results lies in the approach to the methods rather than the methods themselves. This consideration was incorporated into the methodological framework of this thesis in

that the aim of research activities was assessed, and the degree of standardization and structure was applied accordingly.

Ultimately, this thesis is best understood as a qualitative case study. Case study research, as described by Bell et al. (2022), allows for the flexible integration of multiple data sources and supports a dynamic research process that adapts to emerging findings. This methodological choice is well suited for capturing the multifaceted nature of AGDA's internal decision-making processes and external market challenges. By prioritizing transparency and coherence over rigid classification, the methodological design contributes to the study's credibility and applicability.

## 2.2 Theoretical study

The literature review forms the scientific foundation of this thesis, covering key areas such as brand valuation, counterfeiting challenges, pricing strategies, customer value and intellectual property rights. Initially, the focus was on general books and scientific articles to establish a broad understanding of the covered topics. As the thesis progressed, more specialized sources were implemented to deepen the analysis. The theoretical framework is based on a combination of peer-reviewed articles, books and industry reports. Sources have been accessed through Google Scholar and the Chalmers Library. This approach ensures both breadth and depth, combining general theories with focused insights to support the research questions. While most of the theoretical framework was formed before the empirical framework, the literature review was an iterative process. New sources were added continuously to refine and expand the thesis's scope.

To identify relevant academic material, keywords such as "brand valuation," "impact of counterfeiting," "value-based pricing," "customer value," and "anti-counterfeiting strategies" were used. These guided the selection of literature that addresses both the economic and strategic aspects of the research topic. Given the soft science nature of the subject, special attention was paid to the credibility of the sources. To mitigate potential validity issues, preference was given to studies with strong empirical data to align with the methodological suggestions of Patel & Davidsson (2019). By critically comparing sources and incorporating various perspectives, the theoretical framework provides a robust theoretical base. The implications of this approach will be further explored in the discussion and recommendations sections of the thesis.

## 2.3 Empirical study

*This chapter presents the empirical study, which introduces new knowledge into the studied field. This thesis is based on two main data collection methods: document analysis and interviews. Together, these methods provide a detailed understanding of the research topic.*

### 2.3.1 Interviews

The interviews were conducted using a qualitative, semi-structured approach. While the interviews are concerned with different personas and time limitations, similar approaches will be applied. However, the questions will vary slightly in accordance

with the persona and what time is allotted and include both structured and unstructured questions. Structured questions aim to provide a clear understanding of the work process, while the unstructured questions allow interviewees to share their own experiences and attitudes on the topic (Patel and Davidson, 2019). Regarding the qualitative interviews, the degree of standardization varies between interviewees, but an interview guide serves as a foundation, combined with spontaneous follow-up questions to gain a deeper understanding of the interviewees' opinions and perspectives.

Respondents were divided into two groups based on their roles (persona) and availability. Group 1 consisted of individuals working directly with operational sales. These interviews were more structured and relatively short, focusing on capturing insights from those involved in day-to-day sales activities. Group 2, on the other hand, included more senior AGDA employees with responsibilities in both marketing and sales. Their roles provided them with a broader, more strategic perspective on the entire sales process. These interviews were longer and more exploratory in nature. While the same overarching themes were explored in both groups, the interview questions were adapted to reflect each group's unique perspective. This division allows for a richer analysis by comparing operational insights from Group 1 with strategic viewpoints from Group 2, increasing the overall validity of the findings. To summarize, the groups were divided by the following characteristics:

- **Group 1:** Comprised of employees working directly in operational sales. These interviews were shorter and more structured, focusing on capturing insights from day-to-day sales activities.
- **Group 2:** Included senior employees within marketing and sales who hold a more strategic and holistic view of the sales process. These interviews were longer and allowed for more in-depth exploration.

To encourage openness and honesty in the discussions, the interviewees' identities will be kept anonymous. Patel and Davidson (2019) highlight the importance of the interviews taking place in a non-judgmental and understanding environment to prevent respondents from adopting a defensive attitude. This will be achieved by ensuring that the interviewer is trustworthy by creating a comfortable and open atmosphere. Due to non-disclosure issues, the interviewees will not be named, and the replies will be presented generally rather than specifically.

### 2.3.2 Documents

Documents can provide the researcher with valuable background information about the company and its history (Bell et al., 2022). In this thesis, documentation has been gathered from AGDA to add a quantitative aspect and improve the validity of the thesis. These documents, created by professionals within the industry, contain quantitative data on AGDA's products, pricing, customer value and counterfeit challenges, offering valuable insights into the company's operations. According to

Blomqvist and Hallin (2015), collecting documents is a common method of gathering data as it allows for comparing and triangulating the information gathered from interviews. This approach ensures that the thesis remains within its defined scope while maintaining high-quality discussion and results (Patel & Davidson, 2019). Finally, part of the data gathered in this section, together with the literature study, serves as the foundation for the formulation of interview questions.

### 2.3.3 Empirical selection

The selection of interviewees will be based on a purposive sampling approach where the goal is to sample each participant in a strategic way, so that those sampled are relevant to the research questions for the thesis (Bell et al., 2022). Additionally, since the sample size is small, a non-random selection will provide the opportunity to assure quality measurements. Furthermore, as will be discussed in section 2.4, sampling deliberately improves the validity of the thesis because respondents will be chosen from varying backgrounds and demographics. Moreover, respondents will work in relevant areas such as sales, marketing and legal.

Below is a table presenting the interviewees, their roles, focal market, interview classification and duration of interview (table 1).

*Table 1: Empirical selection*

	Interview Group	Role	Focal Market	Duration
Interview person 1	Group 1	Regional Sales Manager Sindh	Pakistan	13:52
Interview person 2	Group 1	Marketing Lead	Egypt	12:13
Interview person 3	Group 1	Head of Marketing & Strategy Middle East	Poland	15:02
Interview person 4	Group 1	Divisional Manager Maharashtra	India	13:12
Interview person 5	Group 1	BR Center Commercial Director	Brazil	15:47
Interview person 6	Group 1	CP Marketing Head	Ukraine	16:44
Interview person 7	Group 1	Head of Corporate Security	Switzerland	11:27
Interview person 8	Group 2	Product Portfolio Head Brazil	Brazil	24:07
Interview person 9	Group 2	BR Marketing Director	Brazil	23:52
Interview person 10	Group 2	CP Marketing Lead Corn & DFC BU South East	Romania	28:47

## 2.4 Research quality

To determine the quality of business research, three criteria are typically employed, namely: reliability, replicability and validity (Bell et al., 2022). Ensuring that all criteria are considered at an early stage will make the conclusions more credible. Additionally, if a high research quality is assured, the results will be transferable to comparable situations and relevant to individuals outside the AGDA organization. In this segment, reliability, replicability and validity are discussed to motivate why the findings in this paper are of high quality and to present potential challenges.

Reliability describes the degree to which the results of a study are repeatable (Bell et al., 2022). It addresses whether measurements of concepts in business research, oftentimes quantitative research, are consistent. In other words, if an individual is measured in topic  $x$  on time  $t_1$ , they should present the same measurement on topic  $x$  on time  $t_2$ . The quantitative aspects of this thesis do not risk low reliability since the measurements are concerned with foundational learnings from AGDA and quantitative literature studies. However, the qualitative aspects of the thesis are susceptible to reliability challenges. There is a risk of subjective and ethnographical aspects impacting the measurements. Hence, the background and setting of the respondent should be considered when analyzing their response and concepts have been measured across several respondents to increase objectivity.

The next criteria for quality, replicability, describes the extent to which a study is replicable for other researchers (Bell et al., 2022). Replicability seems similar to reliability, as they both address repeatability. However, replicability describes a meta characteristic of a study, how well the method used was described, whereas reliability describes the repeatability of measurements. To achieve a high level of replicability, the researchers must clearly describe the procedures taken during the study (Bell et al., 2022). This thesis has a high degree of replicability since the philosophy underlying decisions regarding methodology and the methods themselves are clearly described. Even so, there are concerns regarding replicability because the ethnography of AGDA is not explained in detail. According to Bell et al. (2022), while conducting business research, it is important to explain the social circumstances of the object of study to ensure replicability. This is a limitation in the thesis and could be omitted to improve the research quality.

Validity is the third and final criterion for quality in business research. It is considered the most important criterion and is concerned with the quality of the conclusions generated from research (Bell et al., 2022). There are many facets of validity such as measurement, internal, external and ecological validity. Most relevant to this paper is external validity which describes whether the results of a study can be generalized beyond the research topic (Bell et al., 2022). The remaining aspects of validity are either concerned with quantitative research or research covering attitudes. Since the empirical study focuses on gathering specific facts from experts, attitudes are not an issue and, if they are, their impact will be mitigated by several measurements. As

mentioned in segment 1.4, this thesis has only studied AGDA and refrains from doing research at other organizations. This impacts the generalizability of the findings and consequently negatively impacts external validity. However, during the theoretical study, several papers studying other organizations and industries have been used. Generalizability will therefore be increased since the conclusions are based on a broad perspective from the theoretical study and a specific perspective from the empirical study.

As described in this segment, measures are taken to ensure a high research quality prior to conducting research. Yet, research quality and all its criteria will be discussed further during the discussion and recommendations for further work in this thesis. Likely, how the limitations and methods of this thesis have impacted research quality will be more apparent after the conclusions have been presented.

### 3. Theoretical framework

*This chapter presents a review of existing literature and theories relevant to the research area. It provides an overview of the general theory of counterfeiting, customer value, brand value, and pricing strategies.*

#### 3.1 Counterfeiting

Counterfeiting is not a new phenomenon, in fact, it is one of the oldest crimes in history (Cesareo et al., 2017). It is the act of producing and selling imitation goods that are falsely presented as genuine. Staake et al. (2009) define it as the unauthorized manufacturing of articles that closely resemble authentic goods, which may pass themselves off as registered products of legitimate companies. It affects various industries, including luxury fashion, pharmaceuticals, electronics and agriculture (Grossman & Shapiro, 1988). A common belief is that counterfeit goods mainly affect luxury brands due to their high price points (Reynolds, 2011). However, counterfeit markets are influenced by other factors, and certain characteristics distinguish them from other markets. The counterfeited goods share several defining characteristics that set them apart from the legitimate product (Agora Détectives, 2025):

- They are designed to imitate authentic goods, often making them difficult to distinguish at first glance.
- Counterfeiters often try to disguise their fake goods with familiar brand names and logos and trusted certification marks. Some also copy familiar packaging or design features.
- Counterfeits are typically produced with cheaper materials and lower quality standards, leading to variability in durability and safety.
- Counterfeit products are cheaper than the original price, making them more appealing to cost-conscious customers.

Grossman and Shapiro (1986) argue that counterfeiting can only thrive in markets where consumers do not have perfect information about the product they purchase. If buyers could immediately and without any cost verify a product's authenticity and quality, counterfeiters would struggle to pass off a product of inferior quality under a false label. Grossman and Shapiro (1986) further argue that in such a scenario, the counterfeiters would be forced to match the quality of legitimate brands, making counterfeiting unprofitable. According to Eisened & Schuchert-Guler (2006) and Wilcox et al. (2009), counterfeiting can be categorized into deceptive and non-deceptive counterfeiting. Deceptive counterfeiting occurs when consumers unknowingly purchase counterfeit goods, believing them to be authentic. Counterfeiters typically employ methods where counterfeit items are sold by individuals or stores claiming to be official representatives of luxury brands. Non-deceptive counterfeiting, on the other hand, occurs when consumers knowingly

purchase counterfeit goods, often motivated by price, accessibility, or status symbolism (Eisened & Schuchert-Guler, 2006; Wilcox et al., 2009).

As discussed during the background of this thesis, the financial impact of counterfeiting is substantial. According to OECD, global illicit trade in counterfeit and pirated goods amounted to \$464 billion, with counterfeit and pirated goods accounting for 2,5% of world trade (OECD, 2019). One key factor driving the counterfeit market is consumer demand (Stravinskiene et al., 2013). Grossman and Shapiro (1986) write that many individuals purchase counterfeit goods because they offer a cheaper alternative to expensive brands, making high-status products more accessible. Some counterfeiters are intentionally marked as genuine, while others are sold with the buyer fully aware of their inauthenticity. Many consumers are driven by financial constraints rather than a desire for status, viewing counterfeit goods as substitutes for the genuine product. Affordability also plays a crucial role in counterfeit consumption. Reynolds (2011) explains that one of the most significant drivers of counterfeiting is the gap between consumer's disposable income and the cost of genuine products. In markets where this gap is large, demand for affordable alternatives, whether counterfeit or not, is higher.

The implications of counterfeiting for manufacturers and brand owners are complex. Staake et al. (2009) argue that on one hand, companies may lose revenue because counterfeit goods replace their products and limit their ability to set prices. Counterfeits that are difficult to distinguish from the genuine product can lose the level of quality associated with the product or company. Additionally, if the fake product lacks quality and is hard to tell apart from the real product, it may harm the company's reputation (Staake et al., 2009). On the other hand, counterfeits can also result in increased brand awareness as well as creating a higher consumer demand. In some cases, exposure to counterfeit products encourages customers to eventually seek out and purchase authentic versions. Staake et al. (2009) describes this as a phenomenon linked to bandwagon and network effects. However, this potential benefit is often outweighed by the financial and reputational risks associated with counterfeiting. These risks are further increased by weak enforcement in countries where counterfeit production is widespread as well as by customers who knowingly purchase counterfeit products.

### 3.1.1 Counterfeiting in luxury goods

Luxury goods are often associated with exclusivity, prestige, and high quality (Stravinskiene et al., 2013). Their value is largely defined by their uniqueness and the emotional and symbolic meanings attached to them. Vigneron and Johnson (2004) identify key dimensions that differentiate luxury goods from standard products, including exclusivity, self-expression, and hedonism. Moreover, price plays a critical role in luxury value perception, as higher prices reinforce exclusivity and desirability. Wiedmann et al. (2007) categorize perceived value into financial, functional, individual, and social dimensions, highlighting how luxury goods serve as a means of self-identity and social distinction. Consequently, the popularity of a luxury brand often correlates with its likelihood of being counterfeited (Nia & Zaichkowsky, 2000).

In many cases, consumers are involved in non-deceptive counterfeiting and can distinguish counterfeits from genuine products based on factors such as price and distribution channels (Singh, D. P., 2021). Additionally, the perception of luxury brands remains influenced by elements such as packaging, retail environment, and promotional efforts. If luxury brands are not priced high, they risk losing their rarity and exclusivity (Nia & Zaichkowsky, 2000). Beyond economic considerations, Nia and Zaichkowsky (2000) argue that consumers often purchase counterfeit luxury goods for symbolic and social reasons. Many view luxury brands as a means of self-expression, and counterfeit products allow them to associate with high-status brands without the financial burden. Studies suggest that the symbolic value of luxury products can sometimes outweigh the importance of authenticity (Cademan et al., 2012). Counterfeit goods are also widely available and marketed to a broader consumer base, further undermining the exclusivity of genuine luxury brands. While luxury brands invest heavily in quality, marketing, and distribution strategies to maintain their status, the counterfeit market continues to expand, driven by persistent consumer demand (Singh, D. P., 2021). Strong brand visibility, combined with high consumer demand, sustains the counterfeit industry despite legal and technological efforts to combat it. Understanding the motivations behind counterfeit purchases and their broader market implications is essential for luxury brands seeking to protect their reputation and market position (Brandão & Gaddekar, 2019).

### 3.1.2 Counterfeiting in pharmaceuticals

Pharmaceutical counterfeiting, defined as the manufacturing and distribution of medicines that are fraudulently mislabeled or of substandard composition, has emerged as a global public health and economic challenge. It involves fake or falsified drugs that may contain incorrect or no active ingredients, improper dosages, or dangerous substances disguised in authentic-looking packaging (Newton et al., 2006). The World Health Organization (2017) estimates that approximately 1 in 10 medical products in low- and middle-income countries are either falsified or substandard. In some regions, such as parts of Africa, Asia, and Latin America, counterfeit medicines may account for up to 30% of the market (Nayyar et al., 2012). Although developed countries typically maintain stricter regulations, they are not immune; for example, counterfeit versions of the cancer drug Avastin were discovered in the United States in 2012 (FDA, 2012). The globalization of pharmaceutical supply chains has further complicated oversight and enforcement, enabling counterfeiters to exploit weak regulatory links and online platforms. The illicit trade in fake pharmaceuticals is highly lucrative, with the global market estimated to be worth tens of billions of dollars annually (OECD & EUIPO, 2020). The health consequences are severe, as counterfeit medicines contribute to treatment failure, drug resistance, and are associated with hundreds of thousands of deaths annually, particularly from diseases like malaria and pneumonia (World Health Organization, 2017; Nayyar et al., 2012).

Due to heavy losses and risks, pharmaceutical firms have invested heavily in anti-counterfeiting technologies such as serialization, holograms, and tamper-evident packaging, as well as in global supply chain monitoring systems (OECD & EUIPO, 2020). Many large manufacturers also collaborate with law enforcement to investigate counterfeit networks and support prosecutions. Despite these efforts, counterfeiters continue to adapt, mimicking authentic products with increasing sophistication and exploiting online pharmacies or secondary distributors (Newton et al., 2006). Furthermore, when counterfeit drugs cause harm, even unknowingly, legitimate companies may suffer reputational damage, as consumers often cannot distinguish between authentic and fake products (World Health Organization, 2017). In some cases, companies have been criticized for withholding information about counterfeit incidents, fearing market backlash (Nayyar et al., 2012). Data from the Pharmaceutical Security Institute indicates that counterfeiting incidents were reported in 137 countries, with a 38% increase between 2016 and 2020 (PSI, 2021), emphasizing the global and escalating nature of this threat.

### 3.2 Theory of planned behavior

Theory of planned behavior (TPB), developed by Ajzen (1991), presents a framework for understanding intentional consumer behavior. Consequently, it does not apply to situations of deceptive counterfeiting since the customer behavior must be intentional (Eisened & Schuchert-Guler, 2006; Wilcox et al., 2009). TPB suggests that behavior is guided by three components: attitudes toward the behavior, subjective norms and perceived behavioral control (Ajzen, 1991). In the context of counterfeiting, TPB posits that a consumer's decision to buy counterfeited products can be influenced by their personal beliefs, social pressure, and their perceived ability to access genuine products. This theory is particularly relevant in markets where counterfeit purchases are non-deceptive as consumers make a conscious decision while considering the premises of TPB. Furthermore, Bian and Veloutsou (2007) support this perspective, showing that social influence and attitudes significantly predict the decision to purchase counterfeits.

### 3.3 Customer value

Customer value is market perceived quality adjusted for the relative price of the product or service (Woodruff, 1997). To be successful, business must first understand how their customers perceive value, which involves recognizing the tradeoff between perceived benefits to be received and the perceived price for acquiring the product or service that delivers those benefits (Harmon, et al., 2009). Woodruff (1997) argues that these perceptions typically involve a tradeoff between what the customer receives (e.g., quality, benefits, utilities) and what the customer gives up to acquire and use a product (e.g., price). Furthermore, customer value refers to the emotional bond that forms between a customer and a producer once the customer has used a product or service and found it to provide an added value (Harmon, et al., 2009). It is something perceived by customers rather than objectively determined by a seller (Woodruff, 1997).

The concept of customer value can also be understood as a ratio of benefits received to costs incurred. Christopher (1996) explains that businesses must continuously improve the perceived benefits of their offerings while minimizing the total cost of ownership for customers. This idea can be expressed as a ratio:

$$\text{Customer value} = \frac{\text{Perceptions of benefits}}{\text{Total cost of ownership}}$$

According to Christopher (1996), the marketing task is to find ways to enhance customer value by improving the perceived benefits and/or reducing the total costs of ownership. In this equation, both *perceptions of benefits* and *total cost of ownership* should be measured relative to competitive offers. To deliver significantly superior customer value, markets must clearly define, communicate, and offer a “value proposition” that the target market perceives as better than the alternatives provided by competitors (Christopher, 1996).

Value is not just about monetary worth but also includes functional, emotional, and social aspects (Almquist, et al., 2016). The customer value hierarchy model provides a structured way to understand how customers perceive value (see figure 2). It suggests that customers conceive of desired value in a means-end way. Starting at the bottom of the hierarchy, customers evaluate products based on their attributes and performance. When purchasing and using a product, they form desires or preferences for certain attributes based on how well it meets their needs reflected in value in use and possession value, in the next level up in the hierarchy. Customers also come to desire certain outcomes based on how well they help achieve their goals and objectives (i.e., the highest level). Looking from the top of the hierarchy, customers use goals and purposes to attach importance to consequences. Similarly, significant consequences influence how customers assign value to attributes and their performances. The customer value hierarchy also effectively explains the value received. Customers evaluate products using the same desired attributes, consequences, and goals that are relevant for their current situation. Further, Woodruff (1997) argues that the customer’s use situation plays a critical role in both their evaluation and desires. When the use situation changes, the relationships between product attributes, consequences and goals, and purposes change as well.

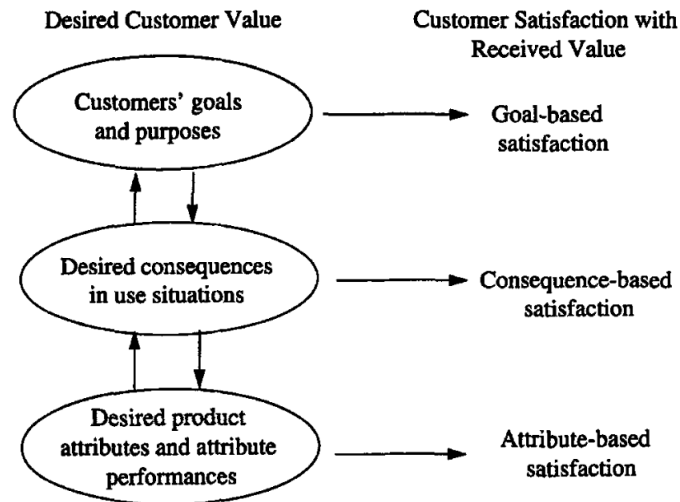


Figure 2: Customer Value Hierarchy Model (Woodruff, 1997)

### 3.4 Brand value

As mentioned in chapter 1.2, Tiwari (2010) defines brand value as “the net present value of future cash flows from a branded product minus the net present value of future cash flows from a similar unbranded product.” It refers to the overall worth of a brand in terms of its reputation, customer perception, and influence in the market. Brand value also includes brand recognition, customer loyalty, and the brand’s ability to differentiate itself from competitors (International Brand Equity, 2023). A strong brand enables companies to build trust with consumers and conduct business activities in a way that supports their strategic objectives (Gupta, 2020). According to Margarisová and Vokáčová (2016), brand value influences consumer purchasing behavior in several ways:

- *Brand perception: A brand has a positive, distinctive effect when customers take a branded product more positively than a non-branded one.*
- *Price sensitivity: Customers of strong brands tend to be less price-sensitive, meaning they are willing to pay a premium.*
- *Brand loyalty: A valuable brand encourages customer commitment, which may be reflected in behaviors such as waiting for a branded product when unavailable or actively searching for it on alternative distribution channels.*

While these aspects focus on individual consumers, brand value is also crucial for business customers. Webster (1992) argues that companies seeking practical benefits from brand value contribute to the brand’s overall competitiveness. When a brand provides value that meets the needs of business customers, it allows them to use that value to reach their business goals (Gupta, 2020).

Brand value consists of various factors linked to a brand's name and logo that can either enhance or reduce the value a product or service provides to both the company and its customers (Margarisová & Vokáčová, 2016). Margarisová and Vokáčová (2016) further argue that the main categories of brand value include brand awareness, perceived quality, brand associations, brand loyalty, and other brand assets. Each of these elements contributes to product value in different ways, such as increasing brand recognition, signaling reliability and commitment to customers, lowering marketing costs, attracting new buyers, creating a positive attitude/feeling, and providing an advantage over the competition.

The concept of brand value implies that what makes a brand unique is its distinct "personality", which differentiates it from competitors and provides tangible or intangible benefits to consumers (Christopher, 1996). According to Margarisová and Vokáčová (2016), building brand value depends on three major factors: (1) original selection of brand elements which form the brand or of its identity, (2) the way in which the brand is integrated into the supporting marketing program, and (3) associations indirectly transferred onto the brand due to connection of the brand with another entity (e.g., with a company, distribution channel or another brand). A strategic analysis of the brand, including customer and competitor insights, serves as the foundation for developing brand value. Margarisová & Vokáčová (2016) emphasize that by understanding external market factors and analyzing the brand itself, companies can establish a strong relationship between the brand and the customer which is based on value proposition representing benefits (functional, emotional, and self-expression).

### 3.5 Pricing strategies

In a free market, while the price of a product is a natural manifestation of the supply and demand equilibrium (Gale, 1955), companies can utilize pricing as a control mechanism to adjust it. For example, by decreasing the price of a product, demand will likely increase and, on the contrary, by increasing the price of a product, the demand will likely decrease. However, as research within pricing suggests, pricing is more complicated (Kienzler & Kowalkowski, 2017). There are several approaches to defining the pricing strategy of an organization and their degree of effectiveness depends on the premises of the industry in which the organization operates (Dolgui & Proth, 2010). Among the industry factors that impact pricing strategy are, a) seasonality of demand, b) customers' purchasing behavior, c) availability of alternatives on the market, d) customer heterogeneity, e) demand variability and uncertainty, and f) production rigidity.

The three approaches that will be covered in this thesis are cost-based, competitor-based and value-based pricing. More approaches to pricing such as high and low, market segmentation, discount, market penetration or price skimming (Dolgui & Proth, 2010), are either strategies in value-based pricing or product launch strategies. To exemplify, market segmentation strategy is when an organization prices a product differently depending on the market segment. The price is based on that different segments attach different values to what the product offers (Dolgui & Proth, 2010).

Hence, it is an approach within value-based pricing. Further confirmed by Avlonitis & Indounas (2005), cost-based, competitor-based, and value-based pricing acts as the foundational approaches.

### 3.5.1 Cost- and competitor-based pricing

Cost-based pricing is a pricing methodology where companies base their prices on adding a margin to the average cost of production (Dolgui & Proth, 2010; Avlonitis & Indounas, 2005). The margin is typically set according to the firm's targeted returns or break-even analyses. Competitor-based pricing, on the other hand, is when companies price according to the market's average prices (Avlonitis & Indounas, 2005). Companies either price above or below their competition to prioritize margins or sales volume. Additionally, in many cases, the market leader's price is adopted by other incumbents on the market since the leader has created a reference price for the customers (Avlonitis & Indounas, 2005).

Despite not being the most efficient pricing approaches according to researchers (Liozu, 2017; Dolgui & Proth, 2010; Hinterhuber, 2008), cost- or competitor-based pricing are the most common. They are mostly lacking due to their shared characteristic of not involving the customer in the pricing process. While cost-based pricing looks at the internal situation, competitor-based pricing looks externally, but only at competitors. The approaches have benefits, nevertheless, such as the price being easy to calculate and manage (Dolgui & Proth, 2010). These benefits are largely why they are the most common approaches to pricing (Hinterhuber, 2008). Companies do not need to spend money on customer surveys, data interpretation and value communication. Ultimately, it is costly to involve customers in the pricing process and cost- and competitor-based pricing provides a workaround.

### 3.5.2 Value-based pricing

Value-based pricing refers to the degree to which managers consider customers' perceptions of the value of a product when making pricing decisions (Ingenbleek, 2014). Sometimes called demand-based pricing (Srinivasan et al., 2008; Avlonitis & Indounas, 2005), it allows greater control of the supply and demand equilibrium and provides companies with the best method to appropriate value. While companies often fall back on past-price dependence when valuing a product (Srinivasan et al., 2008), value-based pricing offers a method where prices are set independently. This, however, results in the aforementioned challenges of value-based pricing concerned with more time investment and higher costs (Hinterhuber, 2008). Thus, in current management practices, value-based pricing is most applied to products that are difficult to imitate where the potential value appropriation is high (Ingenbleek, 2014).

To further explore the largest hurdles to adopting value-based pricing and the how they can be overcome, Hinterhuber (2008) studied 81 executives within different industries worldwide. The author arrived at the following conclusions listed in the table below (table 2).

Table 2: Challenges and mitigation strategies with value-based pricing

Challenge	Mitigation strategies
Value assessment	Conducting expert interviews; Focus groups with customers; Analyzing product attributes Assessing the value-in-use; Customer questionnaires
Value communication	Clear communication of product features; Communicate customer benefits; Tailoring communication to customer needs
Market segmentation	Use customer needs as the primary variable for market segmentation
Sales force management	Regulate the discount authority of sales personnel; Incentivize sales personnel through profitability; Sales training in value-based selling; Monitor sales force
Management support	<i>Specific to the company making adopting value-based pricing</i>

In addition to the challenges mentioned by Hinterhuber (2008), Liozu (2017) mentions that value-based pricing requires close cross-functional collaboration. Companies who struggled with value-based pricing declared that their lack of effective cross-functional collaboration between new product development and pricing team inhibited their ability to price new products. Companies need to consider all organizational dimensions of pricing before adopting value-based pricing (Liozu, 2017). This includes both looking externally to understand the customer, and internally to align the organization with the methodology.

### 3.5.3 Service pricing theory

While traditional pricing strategies focus on tangible products, service pricing introduces additional complexity because of the intangible and experiential nature of services (Avlonitis & Indounas, 2005). In services, customer co-creation of value is especially high and thus the pricing framework needs to account for the customer specific value capture. Moreover, unlike products, services cannot be stored or easily standardized which makes value communication and trust critical pricing variables (Zeithaml, 1998). Additionally, Homburg et al. (2005) emphasize that the efficiency of service pricing relies on the organization's ability to align pricing structures with service quality perceptions, relational outcomes and customer expectations. Since services often require co-creation of value between provider and customer, the pricing structure used must reflect shared outcomes and not rely on cost or competitor benchmarks (Homburg et al., 2005).

### 3.6 The value exchange model

The value exchange model is a benefits-cost model based on the work of several researchers within customer value and pricing (Khalifa, 2004). It illustrates the benefits of an exchange in psychic and utility value and the costs from both the customer's and the supplier's point of view (figure 3). Furthermore, the model presents the difference between the total value to the customer and total customer cost as the net customer value. Khalifa (2004) suggests that the net customer value results in a purchasing decision only if it is zero or above. This model is especially valuable since it integrates various components of net customer value, such as total customer ownership cost (included in "cost of search, acquisition, etc."), utility value, and psychic value, that are often considered separately in other frameworks (Khalifa, 2004).

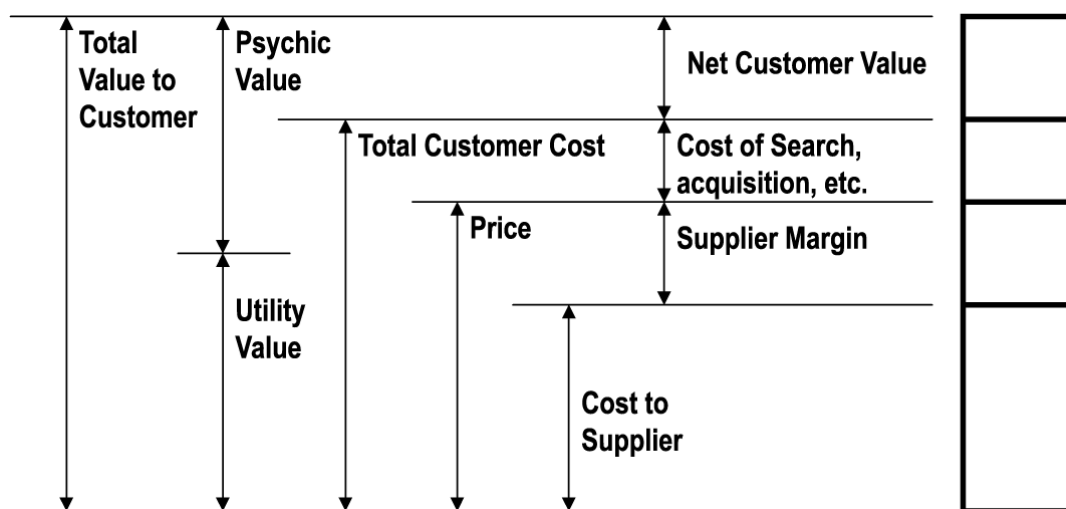


Figure 3: The value exchange model (Khalifa, 2004)

In accordance with the value exchange model, the total value to customer consists of utility value and psychic value. Utility value contains purely utilitarian qualities of a product or service (Kannan et al., 2013). These qualities impact the functionality of a product or service. According to value researchers, utility value does not create a great value surplus and instead satisfies customer expectations (Kannan et al., 2013; Groth, 1994). Moreover, development of utility value typically requires comparable investments of tangible resources.

Psychic value, contrary to utility value, does not originate from the functionality of a product (Groth, 1994). Instead, it consists of perceived customer values that often correlates with "feelings", "emotions" and "human needs". Groth (1994) presents that these values stem from psychic roots such as image, pride, status, safety and affinity. Furthermore, psychic value is created in the marketplace and not during production. Since it is shaped by subjective opinions among the customers, the psychic value of any product differs between customers (Groth, 1994). While some customers value status highly, others consider its value to be negative, opting to purchase products with no related status value. This makes the psychic value of a product challenging to estimate but its potential for value appropriation makes it lucrative for organizations to study.

### 3.7 Summary of theory

Below is a summary of the theory presented in this chapter (table 3). It highlights the theoretical topic, summary of learning and the sources that presented the learning.

Table 3: Summary of theory.

Topic	Summary	Source
<i>Counterfeiting</i>	Counterfeiting thrives in markets with imperfect information	Grossman & Shapiro (1986)
	Deceptive counterfeiting occurs when consumers are unaware of buying fakes	Wilcox et al. (2009); Eisend & Schubert-Güler (2006)
	Non-deceptive counterfeiting occurs when customers knowingly purchase counterfeits	Wilcox et al. (2009); Eisend & Schubert-Güler (2006)
	Price gaps and limited access to authentic products are major drivers of counterfeit demand	Reynolds (2011); Tom et al. (1998)
	Counterfeiting can increase brand awareness in some cases	Staake et al. (2009)
	There is a demand for counterfeited luxury goods that drives growth in the counterfeit market	Cademan et al., (2012)
	Pharmaceutical counterfeiting poses a major global health and economic threat	Newton et al. (2006); World Health Organization (2017)
	Counterfeiting harms pharmaceutical companies' reputation	Nayyar et al. (2012)
	Customers unknowingly purchase counterfeits in pharmaceuticals	OECD & EUIPO (2020); World Health Organization (2017)
<i>Customer value</i>	Customer value is perceived as a trade-off between benefits and costs	Woodruff (1997)
	Benefits include functional, emotional and social aspects	Almquist et al. (2016)
	Total cost includes price, effort, time and risk	Christopher (1996)
	Psychic value originates from subjective emotional associations	Staake et al. (2009)
	Behavior is shaped by attitudes, subjective norms and perceived behavioral control	Ajzen (1991)
	Theory of planned behavior suggests that customer buy counterfeit due to their personal beliefs, social pressure, and their perceived ability to access genuine products	Bian & Veloutsou (2007)

<i>Brand value</i>	Brand value is the net present value of branded cash flows minus those of unbranded options	Tiwari (2010)
	Strong brands reduce price sensitivity and build customer loyalty	Margarisová & Vokáčová (2016)
	A brand's personality influences differentiation and customer trust	Gupta (2020)
<i>Pricing</i>	Cost-based pricing adds a markup to production cost but ignores customer value	Dolgui & Proth (2010); Avlonitis & Indounas (2005)
	Competitor-based pricing uses market averages or leader prices to determine price	Avlonitis & Indounas (2005)
	Value-based pricing focuses on customer-perceived value and supports higher value capture	Hinterhuber (2008); Ingenbleek (2014)
	Barriers to value-based pricing include assessing and communicating value	Hinterhuber (2008)
	Organizational alignment is critical for value-based pricing to work	Liozu (2017)
	Services are intangible, co-created and experiential making pricing complex	Zeithaml (1998)
	Relational outcomes and trust are key components in service pricing	Homburg et al. (2005)
<i>Value Exchange</i>	Net customer value arises when perceived benefits exceed perceived costs	Khalifa (2004)
	Utility value reflects functional aspects like performance	Kannan et al. (2013)
	Psychic value is subjective and socially shaped	Groth (1994)

## 4. Empirical results and analysis

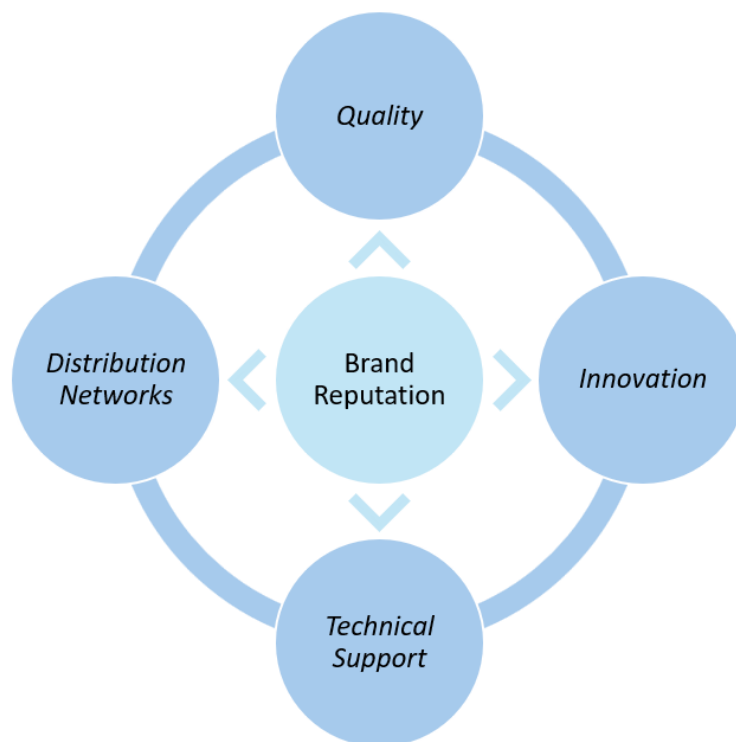
*In this chapter, the interview findings will first be presented and divided into why customers choose AGDA and the counterfeiting situation. Secondly, the findings from documents will be outlined and compared to the interview findings. Lastly, the results from the empirical study is analyzed and compared to the theoretical findings.*

### 4.1 Empirical findings

*This section presents the findings from the interviews and documents are presented and categorized into customer value and counterfeiting.*

#### 4.1.1 Why customers choose AGDA

During the interviews, five core values, quality, innovation, technical support, distribution networks and brand reputation, that makes customers buy AGDA products over their competitors became apparent (figure 4):



*Figure 4: The values that drive customers' purchasing decisions*

- **Quality:** When purchasing AGDA products, farmers are assured of receiving the best possible quality for the price they pay. AGDA invests heavily in R&D to ensure its products remain at the forefront of the market and consistently meet customer expectations. The company operates across both high-end and mid- to low-end segments, striving to deliver superior value in each. Their product portfolio is central to their promise of quality where customers, regardless of the budget, will be able to purchase high-quality AGDA products. While quality differentiation is evident in all markets, it is particularly pronounced in less mature markets, where alternatives are often generic products.

- **Innovation:** Innovation is deeply embedded in AGDA’s business model. Through significant R&D investments, the company maintains a competitive edge and has historically revolutionized the pesticide industry with groundbreaking product developments. Beyond product innovation, AGDA continuously enhances its customer engagement and distribution strategies. By leveraging educational networks and streamlining communication, the company fosters stronger relationships with farmers. Additionally, its innovative supply chains extend reach to remote customers, improving their experience while expanding AGDA’s market share.
- **Technical support:** Recognizing the importance of customer relationships, AGDA actively supports farmers to maximize their success. Field representatives provide hands-on education and guidance throughout the farming process, offering services ranging from pesticide application training to strategic planning for improved yields. Prioritizing trust and value communication, AGDA continues to develop digital tools that broaden access to support services, ensuring more farmers can benefit from expert assistance.
- **Distribution networks:** Given that farmers operate in rural areas, efficient distribution networks are essential, particularly in vast markets like India and Brazil. AGDA collaborates closely with retailers and franchise partners to reach remote locations while ensuring customers receive authentic products. Accessibility and timing are critical in agriculture, and AGDA’s extensive network allows farmers to obtain the products they need when they need them. For instance, in India, the company has achieved strong market penetration through 70,000 retailers and nearly 3,000 distributors. This robust distribution framework presents a significant competitive advantage that is difficult to replicate.
- **Brand reputation:** With a strong heritage and decades, sometimes centuries, of market presence, AGDA has built a reputation for reliability and consistent quality. This long-standing trust reinforces the company’s brand equity and enables it to price products in alignment with their value. Furthermore, AGDA continuously strengthens its reputation by delivering high performance across its core values. Trust serves as an implicit quality guarantee; when customers purchase AGDA products, they do so with confidence in their investment.

One respondent working as Head of Marketing described the consumer purchasing decision process in depth. Specifically, they described it as “customers compare perceived value and perceived costs and decide on the product with the highest value to cost ratio.” The role of marketing, as they explained, is to increase the perceived value of the product by communicating its value. Technical support and distribution networks are aspects that add extra value to the product to beat competitors on value when the product quality is comparable. They further explain that value is divided into rational and emotional aspects and, which of these aspects the customers prioritize, depend on the purpose of the product. At AGDA, customers prioritize rational values

as the performance of AGDA products are crucial to their business. As long as the product performs well, the brand does not matter. The respondent estimated that customers buy AGDA products based on 20 percent emotional value and 80 percent rational value.

When studying the core values that drives customers' purchasing decisions, there were some discrepancies. Firstly, different market attribute different core values as their main competitive advantage. For example, in a market like India, where the AGDA brand has been around for 200 years, brand reputation plays a large role. Moreover, distribution networks are particularly important to reach remote farmers in the large country. In a market like Brazil, where the AGDA brand is younger, building that brand is of importance and emphasis is put on other values to achieve a strong brand reputation. Secondly, the seeds and pesticides are reliant on different values in Brazil. AGDA seeds are novel in Brazil, their quality is comparable to competitors' options, and they sell them through associates. Regarding the pesticides, on the other hand, the brand is established, and they differentiate on quality. Consequently, the approach AGDA employs depend on the situation opting to create and capture value efficiently.

#### 4.1.2 Counterfeiting within AGDA

Counterfeiting presents a significant challenge for AGDA, particularly in key markets such as Egypt and India. In Egypt alone, fake agricultural products make up an estimated \$200 million market. In India, the complicated distribution system makes it hard to track and stop counterfeit sales. The interviews made it clear that the impact of counterfeit products varies depending on the region. In less developed markets, customers are more likely to be misled, while places like the Middle East, buyers often choose counterfeit products knowingly because they are cheaper.

There are different reasons why customers buy fake products. Some are misled into buying them due to lack of awareness or deceptive marketing practices. Many farmers in these regions are highly influenced by retailers, who serve as the primary link between them and counterfeit supplier. In some cases, customers do not fully understand the quality of genuine AGDA products, which prevents them from recognizing the value they are losing by purchasing counterfeits. Contrariwise, there are also customers who are aware that they are buying counterfeit products but choose them due to lower prices. However, these customers often return to AGDA after experiencing poor product performance, realizing the long-term benefits of purchasing genuine products.

Customer reactions to counterfeit products vary widely. Some feel deceived and respond aggressively, occasionally posting on social media to publicly criticize AGDA when counterfeit products fail to meet expectations. Others, who knowingly purchase counterfeits, often regret their decisions after encountering negative outcomes, leading them to seek genuine AGDA products in the future. The lack of awareness about the quality difference between authentic and counterfeit products future complicates the issue, as some farmers do not immediately recognize the potential

losses, they incur by using inferior substitutes. Below is a table summarizing the reasons for buying counterfeits and the following customer reactions (table 4).

*Table 4: Summary of reasons for and reactions to buying counterfeit*

Reason	Reaction
Lack of awareness or exposure to deceptive marketing	Customers are deceived and could respond with frustration criticizing AGDA products publicly on occasion
Influenced by retailers promoting counterfeit products	Farmers are buying counterfeits unknowingly and feel frustrated when products underperform
Unaware of the value of genuine AGDA products	Customers do not recognize the true loss of value and continue to purchase counterfeits without realizing it
Deliberate choice due to the lower price of counterfeit products	No frustration since they knowingly bought the counterfeit buy often opt to choose genuine products after experiencing poor results

To address counterfeiting, AGDA has different strategies that includes competing across both premium and commodity product markets. There are also efforts to enhance product security and enforce anti-counterfeit measures in certain regions where the company collaborates with authorities to track counterfeit operations. However, these initiatives remain relatively limited due to the challenges associated with large scale counterfeiting networks. Organizations such as CropLife works towards mitigating counterfeiting, but face challenges in execution. A key aspect of AGDA’s anti-counterfeiting strategy is retailer engagement. Given that retailers significantly influence farmers’ purchasing decisions, AGDA focuses on strengthening relationships with legitimate retailers to ensure the distribution of authentic products. Educating farmers on the risks and consequences counterfeit products is another critical component of this strategy.

#### 4.1.3 Document findings

Documents, as an empirical approach in this thesis, were gathered on the Brazilian market. The purpose of gathering these documents was to gain insight into the strategy at AGDA and provide AGDA’s approach to creating customer value. Since their strategy is based on years of experience and data obtained in the market, it adds an additional perspective to the interviews. The three strategic pillars mentioned in the documents are full portfolio, grower access and differentiated services.

- **Full Portfolio:** This pillar describes AGDA’s endeavor to both compete across several segments in the market and provide customers with holistic solutions for their farming. AGDA describes this pillar as critical to maintaining their competitive advantage through direct sales and their loyal dealer network. Reaching many different segments and supplying customers with a full portfolio that covers their needs is critical to accelerate the ramp-up of

innovation. Additionally, this pillar provides resilience in the marketplace since AGDA can compete where the demand is at its highest.

- **Grower Access:** This strategic pillar aims to strengthen AGDA's commercial reach and value capture by tailoring its approach to different market segments. A specialized direct sales force is deployed to engage large growers more effectively, ensuring that high-value customers receive personalized support and solutions that maximize returns. At the same time, a loyal and well-managed distribution network plays a critical role in expanding grower penetration, defending market access from the threat of generic competitors, and accelerating the adoption of innovative technologies and products.

Moreover, AGDA seeks to extract greater value from its proprietary distribution platform, SYNAP, using it as a key lever to enhance customer proximity and reinforce strategic differentiation. Recognizing the importance of scale in the broader market, they also aim to uphold and improve their relationship with agricultural cooperatives. Aligning incentives and collaboration secures placement and uptake of AGDA's innovative portfolio in their mass-market channels. To summarize, these initiatives form a cohesive strategy to strengthen the market position, drive growth, and sustain long-term competitive advantage.

- **Differentiated services:** This strategic pillar focuses on enhancing the value proposition through customer tailored financial, digital and agricultural support. By offering financial solutions that help reduce farmers' risks, AGDA strengthens customer loyalty, creates additional differentiation and boosts the competitiveness of its product portfolio. Furthermore, the integration of digital tools and agricultural services empowers farmers with data driven insights and expert guidance. This further enriches the customer's experience and positions AGDA as a trusted partner with the farmers.

The findings from the documents align well with the findings from the interviews in several ways. Firstly, AGDA's strategic pillar of full portfolio resonates with the identified customer values of both innovation and quality. Their full portfolio is an exhibition of quality across several segments and helps accelerate innovation. Secondly, grower access directly satisfies the customer values of distribution networks and quality. They are able to reach remote customers while creating personalized solutions to improve customer specific quality. Thirdly, their strategic pillar of differentiated services aligns with the customer value of technical support. Moreover, it adds quality to the holistic experience of AGDA products and serves as a method to improve brand reputation. In summary, while studying the Brazilian market, it was made apparent that markets follow similar strategies world-wide to satisfy customer needs and stand out against the competition.

## 4.2 Analysis

*In this section the empirical result is compared to the theoretical framework looking at counterfeiting, customer value, brand value, value exchange and pricing.*

### 4.2.1 Assessing the counterfeiting threat

Counterfeiting poses a complex and complicated challenge for AGDA, not only from a financial point of view but also due to the behavioural, psychological and social factors that influence customers' purchasing decisions in different markets. This section will analyse the empirical findings from AGDA's markets through the key theoretical frameworks to better understand the customer mindset and inform future anti-counterfeiting strategies.

According to Grossman and Shapiro (1986), counterfeiting thrives in markets where consumers cannot assess the authenticity or quality of a product. This is especially prevalent in places like India and Egypt, where farmers rely on local retailers to recommend products. These customers often do not know enough about AGDA's brand or how to check if a product is genuine or not, resulting in an easier time for counterfeiters to sell fake products and a harder time for AGDA to protect their reputation and sales. This makes AGDA vulnerable, not only because of counterfeit loss, but because they lack the channels to effectively communicate their value opposition to the end user. Further, this lack of information creates two distinct consumer behaviours, as described by Wilcox et al. (2009). Deceptive counterfeiting, where customers unintentionally purchase fakes and non-deceptive counterfeiting, where they are aware but accept the trade-off for a lower price. Empirical findings from AGDA's interviews support this distinction. In most markets, customers were often deceived by counterfeit products that were convincingly packaged and sold through seemingly legitimate channels. In contrast, several customers in the Middle East knowingly purchased fakes, often driven by economic necessity and justified their decision by comparing the price against expected performance.

Further, Reynold (2011) observed that affordability is a key driver of counterfeit consumption, especially in price sensitive markets. The empirics have shown that in price-sensitive markets like the Middle East, many customers consciously choose counterfeits because they cannot afford AGDA's premium prices, even though they are aware that the product is not the original one. This means that customers are not necessarily rejecting AGDA's products but are instead making decisions due to budget constraints. Some customers who initially purchased counterfeit products have eventually returned to AGDA after experiencing low-quality results or crop damage. This also supports the theory of Staake et al. (2009) that counterfeit exposure can sometimes reinforce brand awareness and loyalty. These customers recognize the value of AGDA's products through the negative experience and may become more brand loyal over time.

In addition to price and experience, a consistent theme across interviews was the high level of trust that customers place in the local retailers. In several markets, customers rely more on what their retailers recommend than on their own brand awareness. This reflects how retailer trust can outweigh brand trust, especially in rural or less

developed markets. For AGDA, this creates a challenge. Even when farmers are aware of AGDA as a quality provider, the purchasing decision often comes down to what the retailer has in stock or promotes. When intermediaries hold the strongest influence, the link between brand trust and purchase decisions weakens (Grossman & Shapiro, 1986; Staake et al., 2009). Therefore, AGDA's brand cannot function effectively unless retailers also act as brand ambassadors and are educated to recommend genuine products.

Another aspect that influences these decisions is the customers' underlying attitudes, which can be explained by Ajzen's (1991) Theory of Planned Behaviour (TPB). In many Middle East markets, the empirics show that customers knowingly choose counterfeits because they believe it is the most cost-effective decision. This behaviour aligns with *attitude*, the first dimension of TPB. If customers believe counterfeits are good enough for their needs, and the price difference is significant, they are more likely to justify the purchase. These customers often recognize the quality difference but accept the risk for short-term savings (Ajzen, 1991; Bian & Veloutsou, 2007). The second dimension of TPB is *subjective norms*. This is also something that was evident in the interviews. Customers are heavily influenced by their social environment including friends, neighbours and local retailers. If counterfeit usage is widespread and normalized within a community, individuals are more likely to follow the same behaviour.

The final component of TPB is *perceived behavioural control* which refers to whether customers feel they are able to access genuine products at all (Ajzen, 1991). While AGDA highly prioritize their distribution network, in some remote locations, AGDA products are difficult to obtain. As a result, even when the customers want to buy the real product, they are unable to due to price, distance or availability. This feeling of lack of control contributes to counterfeit usage. Not necessarily because of preference, but because the authentic product is not practically reachable (Ajzen, 1991; Bian & Veloutsou, 2007). This was particularly common in large rural markets like India or regions with weaker distribution channels. Saying all this, the scenario where customers willingly purchase counterfeits is exceptionally rare at AGDA. Especially if they have perfect information regarding the value of AGDA products and the value of counterfeit alternatives.

#### 4.2.2 Customer value insights

The concept of customer value is central to understanding why customers choose one product over the other, especially in competitive and price sensitive markets. Across interviews, it became clear that AGDA customers do not base their decisions solely on price. According to Woodruff (1997), customer value is defined as market perceived quality adjusted for the relative price of a product or service. This perspective highlights that value is a perception formed by customers, not a feature objectively set by sellers. Harmon et al. (2009) further emphasize that customer value involves a trade-off of what the customers receives versus what they give up, something that is

reflected in AGDA's customer base. For example, interview data shows that AGDA's customers are not just motivated by price but by a combination of product quality, innovation, technical support, accessibility, and brand reputation; with many respondents describing the decision-making process as comparing "perceived value to perceived cost." One respondent explained that AGDA wins customer preference by increasing perceived value through support services and product performance, especially when product quality is comparable to competitors. Technical support and distribution were mentioned as particularly important factors that add value beyond the product itself. Rather than competing solely on product features, AGDA enhances the total value proposition through added services and local responsiveness.

The customer value hierarchy model (Woodruff, 1997) is also useful in interpreting AGDA's strategy. At the attribute level, customers value AGDA's reliable and well performing products. At the consequence level, these products lead to better outcomes, such as improved yields and more predictable farming results. At the highest level, these consequences help farmers achieve their long-term goals. Technical support and distribution were mentioned as particularly important factors that add value beyond the product itself. Further, the importance of different value elements varies across markets. In India for example, technical support and distribution are critical for value perception due to the size and complexity of the market. In Brazil, different products are associated with different value drivers. AGDA's seeds are newer in the Brazilian market and are sold through associates, meaning that distribution and relationship building are essential to delivering value. Their chemicals are perceived as high quality and differentiate more clearly on product performance. These differences also highlight Woodruff's (1997) point that customer value is context dependent and influenced by the customer's specific situation and goals. One interviewee estimated that AGDA customers' purchasing decisions are driven by approximately 80% rational and 20% emotional factors, showing that customer value is not only about functional outcomes but also about trust and brand confidence.

### 5.2.3 The role of brand value

AGDA's brand value plays a key role in why customers choose its products over the competitors. This value is tied to the products themselves, but to the broader experience AGDA offers through technical support and strong distribution networks. Rather than focusing only on theoretical measures of brand value, such as future cash flow comparisons (Tiwari, 2010), what stands out in the empirical findings is how customers perceive AGDA's brand as a guarantee of reliability and performance, especially in business-critical decisions like chemicals and seed purchases. During the interviews it was clear that brand reputation was one of the five core values consistently mentioned, alongside quality, innovation, technical support, and distribution networks. This aligns with Margarisová and Vokáčová's (2016) view that brand value is composed of key elements such as brand awareness, perceived quality, and brand loyalty. These components were reflected in the way consumers spoke about AGDA, not just as a provider of agricultural products, but as a trusted partner. For example, in India, where AGDA has operated for over 200 years, brand reputation

significantly influences purchasing behaviour. Customers here associate the brand with consistent quality and reliability, demonstrating the kind of brand loyalty that Margarisová and Vokáčová (2016) argue creates resistance to price-based competition.

Brand value also acts as a safeguard against challenges like counterfeiting, particularly in markets like Egypt and India. Interview data shows that customers who mistakenly purchase fake products often return to AGDA after experiencing poor results, indicating a strong underlying trust in the brand. Others knowingly buy counterfeits due to price but later regret the decision. This supports the theoretical idea that brand value includes emotional and symbolic dimensions (Christopher, 1996), offering reassurance and a sense of security, especially when performance matters. In these instances, AGDA's brand serves as a proxy for quality, and its reputation helps it recover customer trust even after negative experiences. To summarize, while brand value in industries such as luxury clothing constitute status and exclusivity (Vigneron & Johnson, 2004), brand value in the agricultural industry acts as an insurance of high performance.

#### 4.2.4 Modeling value exchange

To have a standardized approach when assessing the value of anti-counterfeiting activities, formulate an accurate pricing framework and grasping what industries boast the largest value appropriation of anti-counterfeiting activities, the value exchange model created by Khalifa (2004) will be applied. Khalifa's (2004) model shares a customer value philosophy with Christopher (1996) as Christopher explains customer value as a ratio of perceived benefits to total costs of ownership. When inspecting Christopher's (1996) definition of customer value, it becomes evident that it aligns with what Khalifa (2004) calls net customer value since net customer value equals the difference between total value and total cost of ownership. Furthermore, the categorization of utility and psychic value as the components of total value, is discussed by Almquist et al. (2016) who describes the aspects of value as functional, emotional and social. To summarize the introduction to this segment, the value exchange model encapsulates the ideas of several value researchers making it a trustworthy tool to achieve the conclusions of this thesis.

Firstly, the value situation at AGDA is presented in figure 5 using a simplified value exchange model based on the work of Khalifa (2004). In accordance with the empirical study, customers value utility aspects more than psychic aspects. While one of the interviews directly commented that the value at AGDA consists of 80% rational value and 20% functional value, the other respondents also pronounced utility values. The respondents presented quality, innovation, technical support and distribution networks as core values, which is in line with Kannan et al. (2013)'s definition of utility values as functional aspects of a product. Kannan et al. (2013) exemplifies utility values as drivers of performance, which four of the five core values signifies. Moreover, the respondents did not describe psychic values such as image, pride or status when describing the underlying motivations for purchasing AGDA products (Groth, 1994). This further indicates that the purchasing decision is based on utility

values rather than psychic values. In the figure below (figure 5), the net customer value is greater than the total customer cost resulting in a purchasing decision. Note that the total customer cost exceeds the price due to customer acquisition costs such as finding the relevant product and obtaining it from a retailer.

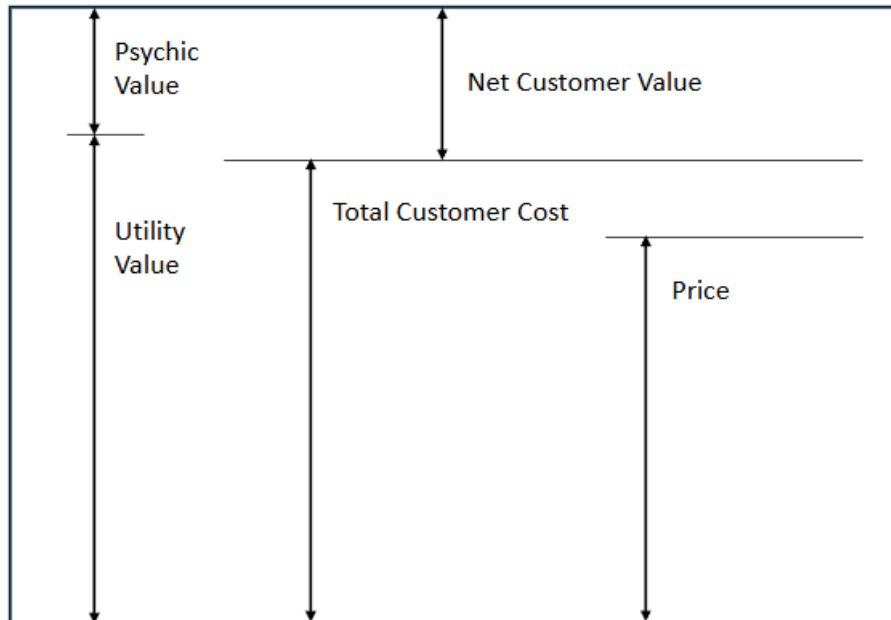


Figure 5: The value exchange model applied to AGDA

Counterfeiters exploit the perceived value of AGDA products by using deceptive methods, as explained by Wilcox et al. (2009) and Eisend & Schubert-Güler (2006), to sell their products. Since they are deceptive, customers are unaware of buying counterfeits or, as explained by several respondents in the interviews, customers are unaware of the true value difference between AGDA and counterfeit products. This means that customers are buying counterfeits knowingly in some scenarios, yet they are deceived by not having perfect information. Grossman and Shapiro (1986) described that counterfeiting thrives in markets with imperfect information. In accordance with the empirical study, the agricultural market has segments of imperfect information, especially in remote areas or in less mature markets. Consequently, the perceived value of AGDA products is not equal to the real value of AGDA products in segments of imperfect information. Therefore, customers choose to buy counterfeit products, thinking that the value of the counterfeited products is comparable to that of AGDA products. To illustrate this phenomenon, two figures have been created where one depicts the perceived value of counterfeited products and the actual value of counterfeited products (figure 6).

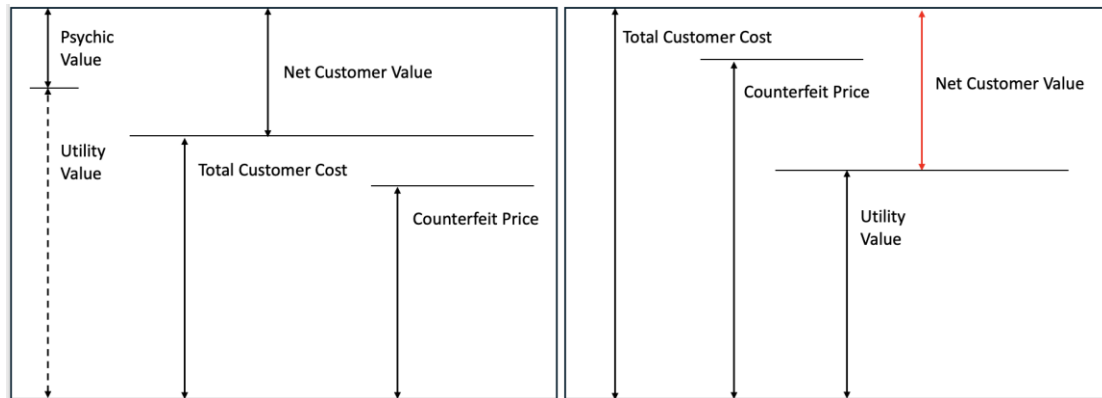


Figure 6: Comparison of perceived value and real value of counterfeited products

In the figure to the left, the customer's perceived utility value is illustrated with a dotted line. Since the counterfeit price is lower than AGDA's price, the customer thinks that they are gaining a larger net value when compared to buying authentic products. However, as discovered during the empirical study, customers often return to AGDA or display frustration after using the counterfeited products. This suggests that the net customer value is negative, in other words, that the total customer cost exceeds the total value. According to Khalifa (2004), a purchasing decision should not occur if the net customer value is negative, further suggesting that customers make purchasing decisions without perfect information. AGDA are working actively against imperfect information through services that communicate the value of AGDA products. Value communication is a common challenge in value-based pricing and acts as a method to decrease imperfect information and increase value appropriation (Christopher 1996; Grossman & Shapiro, 1986; Hinterhuber, 2008).

As explored in segment 3.1.2, the pharmaceutical industry shares similar issues with counterfeiting; customers unknowingly purchase counterfeit products (OECD & EUIPO, 2020; World Health Organization, 2017). Hence, the counterfeiting method is deceptive and risks both reputational and economic damage to incumbents in the pharmaceutical industry (Eisend & Schubert-Güler, 2006; Nayyar et al., 2012; Newton et al., 2006; Wilcox et al., 2009). By understanding the deceptive counterfeiting and value situation at AGDA, it can be inferred that the pharmaceutical industry shares a similar value segmentation of high utility value. Additionally, the net customer value of counterfeited pharmaceuticals is negative since customers are experiencing dire consequences due to the consumption of spurious products (Khalifa, 2004; World Health Organization, 2017). Consequently, the value exchange could be modelled similar to figure 5 and figure 6 when AGDA's value exchange was modelled.

Contrary to AGDA's products, luxury goods are predominantly sold through psychic value as opposed to utility value. This was made clear by Stravinskiene et al. (2013) and Vigneron and Johnson (2004) who argued that factors such as status, exclusivity and prestige drive purchasing decisions in the luxury sector. These factors align with Groth's (1994) identified roots of psychic value. Hence, the total value in the value exchange model should mostly be psychic value. That there is a demand for counterfeited luxury goods (Cademan et al., 2012), suggests that customers are gaining a positive net customer value by purchasing them (Khalifa, 2004).

Furthermore, customers are less likely to be fooled since counterfeited luxury goods are predominantly non-deceptive due to clear pricing and packaging distinctions (Nia & Zaichkowsky, 2000). Below there is a figure based on this analysis that illustrates the value of luxury goods and the value of counterfeited luxury goods (figure 7).

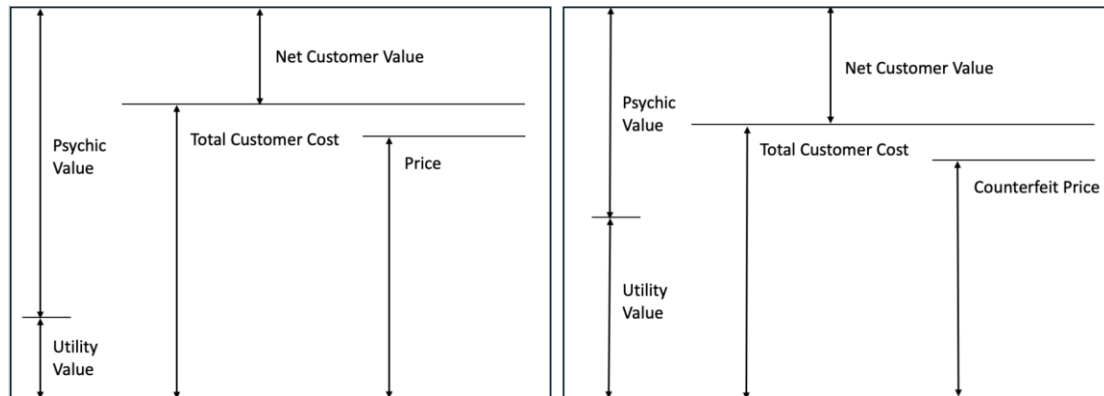


Figure 7: Comparison of the value of genuine and counterfeited luxury goods

When it comes to products where psychic values are the main drivers of a purchasing decision, it is difficult to create a general model due to the subjective nature of psychic values (Groth, 1994). In other words, the total value and the ratio of psychic and utility value likely varies depending on the customer. These figures best represent customers in either the authentic luxury or the counterfeit luxury segment who demand the respective products. They furthermore represent a non-deceptive situation where the customer is aware of the value that they are receiving and is willing to purchase the product due to a positive net value (Eisend & Schubert-Güler, 2006; Khalifa, 2004; Wilcox et al., 2009). Hence, the value model varies greatly between deceptive and non-deceptive counterfeits and, by extension, between utility values and psychic values driving customer purchasing decisions. In utility industries such as agriculture and pharmaceuticals, customers are obtaining negative net customer value when purchasing counterfeits.

Lastly, despite brand value being a critical component to AGDA's success and strategy, the value exchange model and prior mentioned theory does a poor job to explain that value. During the interview study, it became apparent that AGDA's brand acts as an assurance of high quality and functionality, but psychic values and brand theory, as presented in chapter 3, primarily discuss the added value that brand brings to a product (Groth, 1994; Tiwari, 2010). For instance, Tiwari (2010) describes brand value as the additional value brand adds to a product, yet the brand in itself carries little value when applied to a value exchange model (Khalifa, 2004). It appears as if brand value plays a different role in rational decision making than it does in emotional decision making. In the luxury sector, Tiwari's (2010) definition holds true as customers pay a premium for a branded product despite similar functionality to a comparable unbranded product (Stravinskiene et al., 2013; Vigneron & Johnson, 2004). Consequently, there is a relationship between non-deceptive counterfeiting and brand value as a psychic driver of a purchasing decision. Naturally, the contrary relationship is present between deceptive counterfeiting and brand value, where the brand value is a communicator of utility value.

#### 4.2.5 Validity of pricing frameworks

In the theoretical framework, the three most prevalent pricing frameworks cost-based, competitor-based and value-based pricing were presented (Dolgui & Proth, 2010; Avlonitis & Indounas, 2005). How suited these frameworks are for an organization depends on the organization's situation and the products that they sell. Looking at AGDA, in many markets, their customers choose their products due to high quality and brand trust, especially from a historical perspective. Their unique selling points indicate that the imitability of AGDA products is low and thus have a high potential for value appropriation. Consequently, AGDA is suited for a value-based pricing approach in accordance with theory (Ingenbleek, 2014). However, in some markets, the sales staff at AGDA stated that they are utilizing discount strategies to beat competitors in terms of price and obtain market shares. This indicates that comparable products are available in certain markets, increasing imitability and prompting the use of cost-based or competitor-based pricing. Subsequently, despite being the same product, different markets or situations may require different pricing frameworks.

In this thesis, the same reasoning will be used when evaluating the pricing framework for AGDA's anti-counterfeiting pilot project. While AGDA sells products that go unchanged over different markets and industries, the pricing methodology used for the products depends on the market and industry. For instance, if the potential for value appropriation of anti-counterfeiting activities is high, a value-based pricing methodology is best suited (Srinivasan et al., 2008; Avlonitis & Indounas, 2005). On the other hand, in markets and industries where the potential value appropriation is low, AGDA may avoid the challenges associated with value-based pricing mentioned by Hinterhuber (2008) and Liozu (2017) by employing cost- or competitor-based pricing methods. This necessitates evaluations of each customer prior to offering a price of the service. In accordance with the purpose of this thesis, the conclusions will help AGDA decide on pricing frameworks and shorten their assessment process.

#### 4.2.6 Applying pricing frameworks

In this segment, the applicability of different pricing frameworks to AGDA's anti-counterfeiting service will be analysed. As AGDA explores the potential of monetizing its internally developed software, selecting an appropriate pricing model becomes critical. Since the service is intangible, co-created and deeply rooted in value perception rather than direct product features, pricing approaches should be adapted to the context of services to maximize value appropriation (Homburg et al., 2005; Zeithaml, 1998). Lastly, a cost versus value mindset from AGDA's point-of-view will be applied to suggest relevant pricing frameworks tailored to the situation of the specific customer.

Cost-based and competitor-based pricing are the two most commonly applied pricing approaches due to their simplicity and ease of implementation (Avlonitis & Indounas, 2005; Dolgui & Proth, 2010). However, with regard to selling a service, there are issues with implementing cost-based or competitor-based pricing. Firstly, neither cost-based nor competitor-based pricing is customer-centric when presenting a price

(Hinterhuber, 2008; Liozu, 2017). Instead, cost-based pricing looks internally at the costs of developing the product while competitor-based pricing looks at what competitors charge. This is problematic when selling a service since the value of services are largely co-created and hence requires the focal firm to account for the specific customer (Avlonitis & Indounas, 2005). Secondly, Homburg et al. (2005) explains that service quality perceptions, relational outcomes and customer expectations play a critical role in the efficiency of pricing in services. This poses challenges to AGDA as they are a new player in the anti-counterfeiting industry and do not have previous customer interactions that communicates the value of AGDA's product.

Despite these challenges, there is room for cost-based and competitor-based pricing for AGDA's solution. The pricing approaches, while sub-optimal for value appropriation, are beneficial in that they are easier to calculate and manage (Dolgui & Proth, 2010). Thus, for customers where the value of anti-counterfeiting activities is relatively low, AGDA can implement cost-based or competitor-based pricing. This would enable AGDA to ship their software quickly and obtain crucial data in the further development of their software and future pricing decisions. In accordance with segment 4.2.4, customers who operate in industries similar to the luxury segment, industries with a high psychic value (Groth, 1994), should be targeted with these approaches. Since the counterfeiting is non-deceptive and customers are demanding counterfeit products, the value appropriation of anti-counterfeiting measures is low; customers would not have bought the genuine product due to price constraints (Wilcox et al., 2009). Among the two approaches, competitor-based pricing is more appropriate for AGDA in these markets, as it provides a pricing anchor aligned with market expectations. Particularly in situations where perceived customer value is limited, and direct cost structures may not reflect customer willingness to pay (Avlonitis & Indounas, 2005).

In markets where anti-counterfeiting activities creates significant value, a value-based pricing approach is most suitable for AGDA (Hinterhuber, 2008). As presented in segment 3.5.2, value-based pricing involves setting prices based on the perceived benefits to the customer rather than internal cost structures or market averages (Ingenbleek, 2014). In industries such as agriculture and pharmaceuticals, where counterfeit products can cause direct lost sales and harm to customers, anti-counterfeiting measures are likely perceived as critical. Customer purchasing decisions in these industries, as explored in segment 4.2.4, is predominantly based on utility value meaning that customers prioritize the functional attributes of products (Khalifa, 2004). As a result, counterfeiting is deceptive, and the value appropriation of anti-counterfeiting measures is hence high. Consequently, the perceived net value of customers to AGDA's anti-counterfeiting service exceeds the cost of service, enabling AGDA to capture increased value through strategic pricing.

The empirical findings in chapter 4 further support the application of value-based pricing in high-value segments. For example, interviewees operating in highly regulated or sensitive markets expressed concerns over the performance and safety risks associated with counterfeit products. That some customers returned to AGDA

after negative experiences with counterfeits also illustrates that perceived value, especially rational, utility value, drives purchasing behaviour (Woodruff, 1997). These customers initially opted for counterfeits due to lower prices or accessibility, but after experiencing poor performance or product failure, they reassessed the trade-off between cost and quality. Additionally, AGDA's program offers intangible benefits such as customer trust, legal protection and technological differentiation, all of which are difficult to imitate and thus suitable for value-based pricing (Hinterhuber, 2008). To apply this approach effectively, AGDA must develop market segmentation strategies based on counterfeit risk and value sensitivity, communicate the service's benefits clearly and ensure cross-functional alignment supporting consistency (Liozu, 2017).

While these strategies are essential, implementing them is not without challenges. One key difficulty lies in accurately assessing the perceived value of the service from the customer's perspective; especially when there are both tangible and intangible benefits. As highlighted by Hinterhuber (2008), value assessment, communication and internal coordination are the three most common obstacles when adopting value-based pricing. AGDA may also face internal resistance from sales teams used to simpler pricing models and from customers who are unfamiliar with tailored pricing approaches. To mitigate these challenges, AGDA can adopt strategies mentioned by Hinterhuber (2008) learned from studying 81 executives across various industries. Firstly, the company should invest in expert interviews and pilot projects to better quantify perceived value. Secondly, AGDA should tailor its value communication by relating service features directly to business outcomes such as reduced brand erosion, increased sales and customer safety. Lastly, AGDA must enable cross-functional collaboration between product development, marketing, legal and sales to ensure alignment in pricing logic and customer needs (Liozu, 2017). With these strategies in place, AGDA can overcome internal and external barriers to value-based pricing and fully capitalize on the service's value appropriation potential in select industries.



## 5. Concluding discussion

*This chapter summarizes the findings in the thesis by answering the three research questions posed in chapter 1. Drawing from the analysis with insights gained from a literature- and empirical study, the following conclusions address the value of anti-counterfeiting activities, suitable pricing strategies for such services and the industries where value appropriation from anti-counterfeiting is most significant. Moreover, the section discusses these results and presents recommendations for further work.*

### 5.1 Answering the research questions

*RQ1: What determines the value of monitoring, detecting and taking down counterfeits?*

The value of AGDA's anti-counterfeiting activities lies in both mitigating financial loss and preserving long-term brand integrity. Importantly, the analysis distinguishes between deceptive counterfeiting where customers unknowingly purchase spurious products, and non-deceptive counterfeiting where customers are aware of buying counterfeits. Deceptive counterfeiting results in direct lost sales as customers would rather buy genuine products while also resulting in undermined customer trust and reputational damage. Non-deceptive counterfeiting represents a different behavioral pattern where there is a direct customer demand for counterfeit products. While it may cause brand damage, there are theoretical studies suggesting that non-deceptive counterfeiting may increase demand for the genuine product. In other words, the value of anti-counterfeiting activities encapsulates regaining lost sales and protecting the perceived value and consistency of offerings in a deceptive counterfeiting market. But, in a non-deceptive market, anti-counterfeiting activities are potentially valuable in decreasing brand damage, yet the value is inconclusive due to the prospective benefits and no loss of direct sales.

*RQ2: What can a pricing framework for selling the service of monitoring, detecting and taking down counterfeits look like?*

A value-based pricing framework is the most appropriate model for AGDA's anti-counterfeiting service given its intangible nature and variable importance across different contexts. The service offers protection against reputational harm, restores lost revenue and increases customer trust; benefits that differ greatly between customers and markets. Unlike cost-based or competitor-based pricing which overlook subjective benefits, value-based pricing allows AGDA to tailor prices based on the perceived impact of counterfeiting and strategic value of protection. The flexibility of value-based pricing ensures that AGDA can capture value proportional to the benefit provided while incentivizing clients to invest in long-term protection. However, in markets where the expected benefits of customers are relatively low, AGDA may employ a competitor-based pricing framework to avoid the inherent costs of value-based pricing.

*RQ3: In what industries is the value appropriation of anti-counterfeiting activities maximized?*

The potential for value appropriation through anti-counterfeiting activities is maximized in industries where the purchasing decision is driven by utility values tied to performance, safety or regulatory compliance such as agriculture and pharmaceuticals. These industries experience significant consequences from counterfeiting, ranging from safety risks and reputational loss to directly lost sales and operational setbacks. The cost of counterfeit goods often exceeds lost sales, encompassing damage to trust and customer relationships. The analysis of AGDA's agricultural operations shows that clients place high value on product reliability and support infrastructure, making AGDA more willing to invest in counterfeit protection. In contrast, industries with low brand sensitivity or where buyers knowingly purchase counterfeits may offer lower potential for value capture. Thus, AGDA's service should be targeted towards industries where authenticity is a requirement and not merely a differentiator.

## 5.2 Discussion

*In this segment, challenges that were encountered during the process of writing the thesis are presented and discussed. Furthermore, certain key decisions taken during the writing process are motivated.*

### 5.2.1 How the conclusions were achieved

While writing the thesis, certain concerns regarding the empirical study have been raised. Firstly, a large part of the thesis regards customer value and how it shifts between markets and industries. Meanwhile, no empirical studies have been made where the customers of AGDA or any comparable companies are interviewed. Consequently, all the information on customer value has been obtained through the lens of AGDA employees. This filter might have impacted the conclusions in a negative manner as the validity of second-hand opinions is lower than interviewing the first-hand source. Secondly, this thesis is built around the anti-counterfeiting service created by AGDA and no interviews have been conducted with people working with it or companies who have taken part of their pilot. This required the authors to work around this limitation through a case study of AGDA and their counterfeiting situation instead of interviewing customers directly which would have improved the conclusions. Thirdly, the authors were somewhat limited when conducting the empirical study due to time limitations of respondents. Due to the limitations, the empirical study was restricted to focusing on a few areas, as made evident by the few questions posed in the interview guide, inhibiting more nuance in the conclusions. Lastly, the thesis covers the luxury segment quite extensively without having any empirics regarding luxury.

Considering the methodological limitations explored in the previous paragraph, the authors adapted the thesis. When building the theoretical framework, literature covering a wide range of industries and where customer value was studied directly was used to offset not interviewing customers directly. Furthermore, since the empirical study lacked in volume and width, the theoretical study provided the

foundation where the case study filled a gap in the theory. For instance, prior to conducting the empirical study, the chapter on the value exchange model was written. This allowed the authors to deliberately study AGDA to create a value exchange model based on their situation. This approach shaped the empirics so that the authors could investigate the precise situation in customer value and counterfeiting at AGDA while the theoretical framework provides width and volume. This is one of the reasons why luxury goods are particularly covered in the theoretical framework; since the authors could not obtain empirics on the subject, it was important that the literature study provided them with a strong foundation on which to draw conclusions.

### 5.2.2 The theoretical framework

When the theoretical framework was written, the authors explored what they deemed was necessary to reach relevant conclusions opting against superfluous information. For example, there are more factors impacting pricing decisions than mentioned in chapter 3.6, yet they sufficed when deciding on pricing frameworks for AGDA. There are many specific pricing strategies, but the authors decided to limit the pricing segment to pricing underlying pricing philosophy not delving into specific strategies. Moreover, the thesis analyzes industries of high utility value and industries of high psychic value but not industries that operate in the middle of them. This limitation was made intentionally since there is less counterfeiting literature in these segments, and they would consequently require extensive empirical research. Had the authors been less limited in their empirical outreach, these industries could be studied as well, adding more nuance to the conclusions.

A theory which could have been further expanded upon in the thesis is behavioral economics. Behavioral economics covers how psychological, social and emotional factors affect individuals' economic decisions (Kahneman, 2003). It challenges the assumption of full rationality often present in classic economic models. While the thesis does cover these factors when discussing customer value and the value exchange model, there is another field within behavioral economics called attitude change. Albarracín & Shavitt (2018) describe attitude change as the process by which individuals alter their evaluations or preferences in response to new information, persuasive communication or cognitive dissonance. The authors concluded that this theory would be highly applicable in non-deceptive counterfeiting since customers are willingly buying counterfeits. However, in deceptive counterfeiting, there is no need to change the behavior of customers since it is a matter of misinformation rather than customer behavior. The empirical study found that customers are predominantly tricked into buying counterfeits or lack sufficient information to make an informed decision. Consequently, attitude change theory would not contribute a great deal to the conclusions.

### 5.2.3 Issues with value-based pricing

As a final note in the discussion, in addition to the internal challenges presented with value-based pricing, there is an external risk. Due to the tailored nature of value-based pricing, where customers receive different prices, customers are going to pay different amounts for the same service. If customers communicate, there is a risk that the customer who paid 200\$ is upset after learning that another customer only paid 150\$,

for instance. This is an inherent risk to value-based pricing and is especially prevalent in intangible products such as the anti-counterfeiting service that AGDA offers. It is difficult for the customer to estimate the relevant price for a digital service as opposed to estimating the price of physical products. Which is also why value-based pricing works well. AGDA can somewhat mitigate this risk by tailoring their service offering in addition to tailoring their price. For example, they can offer extended services to high-paying customers or offer educational workshops. This, consequently, increases the perceived value of AGDA's service, motivating a higher price.

Another challenge with value-based pricing stems from high psychic value products. This poses a challenge since the psychic value of a product is unique to the specific customer and difficult to appreciate on a case-by-case basis. However, psychic value behaves differently in B2C and B2B. In B2C, it is common for the psychic value to be high and a significant share of the total value underlining purchasing decisions. Evidently in the luxury segment discussed in this thesis, but also in customer electronics where customers are willing to pay more for an iPhone than a comparable unbranded product. In this scenario, producers shape the value of a product where historical pricing provides a foundation for the customer's perceived value. In B2B, psychic value is generally less important than utility value when making a purchasing decision. When psychic value is of importance, it contributes to some kind of function; it promotes utility in some way. For example, an office purchasing more luxurious furniture to satisfy employees or haulers buying comfortable seats for their trucks to attract efficient drivers. Consequently, if AGDA's anti-counterfeiting service would be a high psychic value product, further investigation would be required to find what function their psychic value enables.

#### 5.2.4 What pricing frameworks could look like

This section aims to propose examples of what the price of AGDA's anti-counterfeiting solution could be based on the pricing frameworks discussed in this paper. The examples are simplified and rooted in the description of the different frameworks throughout the thesis while the numbers that the prices are derived from are assumptions. Firstly, there is an example of a cost-based method for determining the price of AGDA's service (table 5). In this example, the costs associated with the service are noted and the price is calculated by finding the break-even price based on the target sales and adding a 10% margin.

*Table 5: Cost-based pricing example*

<b>Cost-based Expenditures</b>	<b>Cost (EUR/YEAR)</b>	<b>Target sales</b>	<b>Desired margin</b>	<b>Final price (EUR/YEAR)</b>
Salaries	350000	50	10%	7999
Software	2000			
Marketing	10000			

Cost-based approaches, as established in the analysis, are difficult to apply in services as services typically consist of intangible and co-created value and costs (Zeithaml, 1998). Furthermore, since AGDA's solution likely includes consulting hours that vary

depending on the customer, the costs will depend on the needs of the customer. However, if AGDA decides to sell their software, in other words, the first step of their anti-illicit program regarding intelligence management, AGDA could charge a lower fixed price with a higher volume due to reduction in salary costs.

The next example presents how prices can be determined through a competitor-based approach (table 6). To find the right price, the average prices of different competitor groups are presented where each group is divided by quality and scope of solutions. For example, in the low-end segment, competitors are selling a simple software solution while the high-end segment deals in end-to-end anti-counterfeiting solutions of high quality. The final price is estimated by positioning below the comparable offer since AGDA is a new entrant in the industry. Moreover, obtaining a high volume will aid AGDA in understanding their customers and build a presence in the market.

*Table 6: Competitor-based pricing example*

<b>Competitor-based Competitors</b>	<b>Segment</b>	<b>Scope</b>	<b>Comp. price (EUR/YEAR)</b>	<b>Final price (EUR/YEAR)</b>
Group A	Low-end	Software	299	289
Group B	Mid-range	Software	419	409
Group C	Mid-range	End-to-End	7799	7599
Group D	High-end	Software	699	679
Group E	High-end	Ent-to-End	9899	9699

Similarly to cost-based pricing, competitor-based pricing is difficult to implement in services with varying customer needs. Depending on their needs, they will require more or less extensive consultancy to achieve their goals. Additionally, competitor-based pricing would require AGDA to really understand their solution and how it compares to its competitors. Consequently, thorough benchmarking and customer surveys are required to identify their position.

The final pricing methodology, and the most relevant framework for AGDA, is value-based pricing. There are a few methods that AGDA can use to achieve a value-based price, one of them being to evaluate the individual value of a specific customer and price accordingly. This approach is low in terms of standardization and would require a collaborative effort between AGDA and their client. Tailoring their price in this manner is the most effective way to maximize value appropriation and the conclusions in this paper can aid AGDA when deciding which customers qualify for this approach. Another approach which allows for a higher degree of standardization while maintaining a tailored approach to each customer is presented below (table X). This approach applies a “max price” of 14 000 EUR that gets reduced by industry and customer specific discounts. To clearly explain the methodology, industries are graded on potential value appropriation using three grades but note that the grading can include more factors such as market price sensitivity. Moreover, the customer specific discount is set at an arbitrary 1000 EUR per year to allow for negotiation and could be modified once more experience has been gained.

Table 7: Value-based pricing example

<i>Value-based</i>	Value potential	Industry discount	Specific discount span	Final price (EUR/YEAR)
Industry				
Industry A	Low	40%	1000	8400-7400
Industry B	Medium	30%	1000	9800-8800
Industry C	High	10%	1000	12600-11600

This approach allows for flexibility while maintaining a high degree of standardization and customer specific value pricing. It is advised that the max price is stable and the industry discount, and the specific discount span, are adjusted to find the right price. If AGDA scales up their sales using this approach, they will receive interesting data such as variance in the discount span, fluctuation in required industry discount and variation in sales volume. All these data points help AGDA make informed decisions and move towards a stable and standardized value-based approach.

As a reminder to the reader, the numbers used in the examples are assumptions. The methods behind the examples are based on the analysis and theory in the thesis in tandem with professional experience among the writers of this thesis. Therefore, it is placed in the discussion of the thesis and not the analysis. While these examples can provide subjects and background for researchers, the main purpose of the examples is to provide AGDA with a hands-on approach to implementing pricing frameworks. If AGDA were to implement them, they would naturally be required to conduct further research to determine the correct numbers used in the examples.

### 5.3 Recommendations for further work

Listed below are a few recommendations for further work. These recommendations can provide extra value for this thesis or be treated as separate study subjects for new research.

- **Customer perceptions and willingness to pay for anti-counterfeiting services:** The study did not collect data directly from customers of anti-counterfeiting services. Further research can explore how users perceive the value of anti-counterfeiting efforts and how much they are willing to pay for the solution.
- **Cross-industry comparison of anti-counterfeiting value:** While this thesis focuses on agriculture empirically, a comparative study exploring how different industries, pharmaceuticals, electronics, luxury, etcetera, value anti-counterfeiting would help generalize findings. It would also further assist AGDA in developing an accurate value-based pricing framework.
- **Societal impact of counterfeiting beyond firm level:** Due to scope limitations, this thesis narrowed its focus to firm-level consequences of counterfeiting. Future studies can expand to investigate the societal impacts of counterfeiting such as its influence on food security, public health, criminal organizations, environmental harm and rural economies. This would provide a more holistic

valuation of anti-counterfeiting measures and could possibly motivate a higher price point for AGDA's service.

- **Quantifying brand value loss due to counterfeiting:** The thesis mentions erosion of brand equity due to counterfeiting but lacks a precise model for quantifying that loss. Investigating a quantified model of brand equity could provide a better understanding of customer value and help AGDA price their service precisely.



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## Appendix

### Appendix 1 – Interview guide

<b>Group</b>	<b>Duration of interview</b>	<b>Questions</b>
Salespeople in local markets (6 interviews)	10-15 minutes	<p>Why do your customers buy AGDA products over your competitors' options?</p> <p>Have you been in contact with customers who have bought counterfeits? How are those conversations?</p>
Marketing employees at AGDA (4 interviews)	25-30 minutes	<p>Who are your customers? (demographic, high-end or low end, etcetera)</p> <p>Why do your customers choose AGDA? What makes AGDA stand out?</p> <p>Coming from a marketing background, how do you think that counterfeiting threatens AGDA?</p> <p>Do you have any documentation, for example, customer surveys, internal presentations describing customers, customer mapping, etcetera?</p>







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