The Price of Information: Evaluating Customer Responses to Information-as-a-service (InaaS) Pricing Models

An explorative case study with three InaaS software firms

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Abstract

Companies have to constantly adjust their data acquisition strategy as new information sources have become increasingly available. This has made it more complex for InaaS vendors to configure pricing models that align well with customer expectations. This study explores how InaaS vendors can configure price in order to maximize customers' perceived value in markets with asymmetric information dynamics. By conducting an exploratory case study with three InaaS vendors, we have been able to interview several Norwegian real estate industry professionals. Through these interviews, ten parameters where identified relating to pricing that we suggest affect customers' perceived value of vendors' products. Additionally, we discuss *how* these parameters affect customers' perception of value in light of the different pricing models of our case companies. Our findings indicate a prevalent preference among interviewees for a subscription-based pricing model, primarily driven by its simplicity and cost predictability. We also find our interviewees highly prefer trials as a tool to evaluate a products value. Nonetheless, our research suggest that there is no single universal pricing model that maximises perceived value for all customers. Therefore, we recommend that vendors take our proposed parameters into account, as they explore what pricing configuration aligns best with their customers.

Glossary

Price setting is also known as price orientation. This Involves the methods that companies use to set their list price toward customers.

Pricing model consists the aspects of pricing related to the pricing structure and value communication.

Pricing strategy is the strategy connected to all activities concerning pricing.

Pricing structure consists elements for customer charges. In this paper, we categorize it into two parts: payment flow and assessment base. Payment flow addresses how often customers are billed, including single or recurring payments. The assessment base defines whether charges are tied to usage-dependent factors (e.g., transactions, log-in time) or usage-independent factors (e.g., named-user, machine count).

Value communication has the goal to communicate the products' value to the customers. Notably, value communication is significant different from marketing techniques that have the ultimate goal as to increase the suppliers' market share and revenue.

Parameter in this paper's context is factors that could shape customers' perceived value.

Preference defined by Cambridge Dictionary "the fact of liking or wanting one thing more than another". In this paper, a preference could be affect by customers' perceived value.

Land developer is a property owner that develop and manage properties.

Land manager is not owning any properties. Their objective is to manage properties for land developers.

Realtor is a property broker that participate and contribute with own network and information resource in both land developers and land managers needs. Their participation could appear in sell-buy process and tenant management of properties. The realtors do not own any properties.

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1   Introduction

The pricing decision is one of the most critical decisions that a firm can make in order to steer a company towards growth and profitability (Lancioni & Gattorna, 1993). In fact, no tool in the marketing toolbox can either increase sales or reduce demand more quickly than pricing strategy (Hinterhuber, 2004). While scholars have extensively delved into pricing for several decades, the topic is still evolving due to ongoing advancements in information technology (IT).

As IT has evolved, so has the mechanisms for creating, sharing, and monetizing information. The emergence of big data has made information a strategically important resource for competitive advantage (Arora & Rahman, 2016; Serrato & Ramirez, 2017). As a result of this, the value of information has skyrocketed and almost every organisation is scrambling to figure out how they can extract the most value from data (Cleveland Jr, 1999). In the recent decade, the concept of marketing and selling InaaS has arisen to capitalize on these new market opportunities.

Information has become especially important in markets with asymmetric information dynamics. According to Isaacson (2009) and Akerlof (1978), information asymmetry could be recognized as an imbalanced information exchange between actors that share information with others. In such contexts, obtaining accurate data may grant competitive advantages, financial gains, and various benefits to actors who possess the right information (Nayyar, 1990). With the recent surge of new data, leveraging information asymmetry has become more challenging (Kajtazi, 2010). Therefore, a heightened adoption of new data sources may be necessary to sustain their current market standing.

Our thesis focuses on one of the markets where this is becoming relevant; the Norwegian commercial real estate market (Asphjell, 2020). According to Norwegian Association of Real Estate Agents (NEF), there has been an increased adoption of InaaS products in the Norwegian market in the recent decade. The information provided encompasses data such as footfall statistics from nearby streets, trip details from e-mobility scooters and comprehensive data sets containing rental prices for specific areas. Commercial real estate professionals have historically built up market knowledge, closed information networks and information sensing capabilities that have allowed them to acquire, operate and sell

properties at more favourable prices then their competitors. They strive to exploit market asymmetries by expending wast resources in capturing and making sense of information about their respective markets. Because of the this, we believe they can become early adopters of new information providers.

As more and more data is being produced by sources that previously were not publicly available, it has become more difficult to perceive what the benefits will be of using different InaaS. Consequently, it also has become more complex for InaaS vendors to configure pricing models that align well with customer expectations that change rapidly. While there exists a plethora of strategies that firms might employ to set prices for their products, understanding how these methods resonate with the target audience may offer invaluable insights into the potential success of a pricing strategy. Thus, it becomes pertinent to understand customer perceptions vis-à-vis these pricing models, which leads us to our research question:

How can InaaS vendors configure price to maximize customers' perceived value in markets with asymmetric information dynamics?

To answer our research question, we have delineated two sub questions that will guide and structure our inquiry. The second sub question will be discussed in light of our three case firms' pricing models.

1. What parameters could form customers' perceived value?

2. How does these parameters affect customers' perceived value?

Exploring our research question may add insight into the multifaceted preferences of customers, shedding light on what they deem as attractive and how they react to different pricing models.

1.1   Objective of the Research

The overarching objective of this research is to explore parameters that could shape customers' perception of value toward InaaS pricing models. Furthermore, we want to explore how aspects of pricing models can be configured to maximise customers' perceived value. This investigation aims to provide a deeper understanding of how these parameters impact the customers' perceived value of InaaS services, ultimately influencing purchasing

decisions. Another objective of this research is broadening our understanding of whether delineations of SaaS such as InaaS deserves research attention. We are interested in whether pricing research and pricing practices from SaaS are applicable to InaaS or whether new theory has to be developed specifically for InaaS.

From our inductive perspective, this study is an attempt at a foundational work with implications for both researchers and practitioners. The paper may contribute to a solid grounding for further pricing research and development. This purpose has shaped our methodological choices and overall research approach.

Effective pricing is a critical aspect of any business, therefore it has become a complex area of research, encompassing various factors. These include, but are not limited to, price discrimination, discounts, as well as intricate components like price structure. Additionally, strategies such as skimming and penetration pricing, along with considerations of pricing policy and overall price level, contribute to the multifaceted nature of pricing research.

Given its complexity, our study solely focuses on pricing models and explore numerous elements within the topic and the interplay among these. It is also relevant for our study to explore how customers evaluate potential benefits to be received, as this can improve our understanding of how their perceived value is formed. Therefore, the scope of our research will suggest how software vendors can take customers' perceived value into consideration when communicating the potential benefits of their products.

1.2   Paper Outline

This paper is structured across seven chapters. It commences with an introduction, outlining research questions and presenting the scope of our study. In Chapter 2, we delve into the relevant literature that forms the foundation for our problem formulation. Moving forward, Chapters 3 and 4 detail our research methodology, encompassing a comprehensive review to prepare the collected data for presentation as findings. Chapter 5 presents the findings, utilizing both paragraphs and tables. We analyze the findings in the context of existing theoretical frameworks, applying them to three real cases contributed by our case firms in Chapter 6 to answer our research questions. Finally, Chapter 7 concludes the thesis by presenting limitations and suggestions for further research

2 Literature Review

Pricing, central to a firm's strategic positioning, holds significant implications for profitability and market perception. Amidst the surge of data and the rise of 'as-a-service' models, contemporary pricing strategies for IT services warrant a comprehensive academic exploration. This literature review will provide an overview of pricing in a digital context, delve into the intricacies of perceived value, and offer insights into the software-as-service (SaaS) paradigm, while highlighting notable gaps in the extant literature.

2.1 The Importance of Pricing

Marketing is comprised of four essential elements: 1) product, 2) promotion, 3) placement, and 4) price. The first three elements reflect a company's efforts to establish value in the marketplace. Conversely, the fourth element, price, signifies the company's pursuit of obtaining the profit from that established value. The price charged is one of the most important metrics that a service provider can control to encourage the usage of its services (Mazrekaj et al., 2016). If we consider effective product development, promotion, and placement as the seeds of business success, then the value derived through pricing can be likened to the harvest. It's important to note that effective pricing alone cannot make up for deficiencies in the execution of the initial three elements, and the same holds true in reverse (Nagle & Müller, 2018).

Pricing takes a central role in the strategy of most companies (Diller, 2008; Simon, 1992). To thrive in today's competitive business landscape, service providers must carefully balance their pricing strategies between growth and profitability. This interplay of growth and profitability has been thoroughly investigated by Deloitte Consulting LLP, there the company compiled a time-series dataset encompassing 394 companies, spanning from 1970 to 2013, categorizing them as exceptional, mediocre, or poor performers matched by industry based on metrics: return on assets, stock value, and revenue growth (Nagle & Müller, 2018).

Their final conclusion is: "*a [near term] focus on profitability, rather than revenue growth or [stock] value creation, offers a surer path to enduring exceptional performance*".

<div align="right">(Nagle & Müller, 2018) p. 3</div>

Notably, Deloitte's data reveals that exceptional performers often allocate slightly more resources than their competitors to research and development (R&D) and sales, general, and administrative (SG&A) expenses. This exceptional profitability, and ultimately exceptional stock valuations, are underpinned by higher per-sale profit margins, which, in turn, fuel initiatives for revenue growth without compromising those margins (Nagle & Müller, 2018).

The pricing decision is one of the most critical decisions that a firm can make, whether they are planning the introduction of a new product or service, or repositioning an existing product or service. No tool in the marketing toolbox can either increase sales or reduce demand more quickly than pricing strategy. Nevertheless, pricing has largely been neglected by managers (Hinterhuber, 2004). Despite all laments of intensified price competition and the perceived difficulty of raising prices, empirical research by McKinsey Company has shown that less than 15 percentage of companies do any systematic research on pricing (Clancy & Shulman, 1993).

P. Hunt and Saunders (2013) have through 700 projects created the five levels of world-class pricing roadmap, illustrated in figure 2.1. The roadmap's goal is to help companies to benchmark their maturity of pricing journey. This model illustrates the progression of vendor maturity levels of pricing, starting from Ad Hoc and advancing towards Mastered, achieved through gaining control of the pricing process, acquiring a profound understanding of product value and service delivery to customers, and optimizing operations.
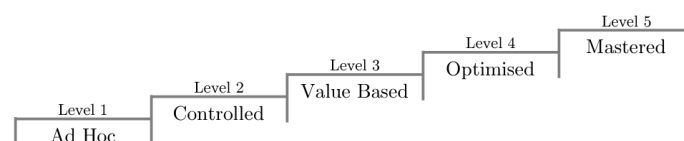
Figure 2.1: Five levels of World-Class Pricing by P. Hunt and Saunders (2013)

Through the study, it is shown that more than 30 percent of companies are operating at the first level of maturity, and that the majority of companies operated in the second level of pricing performance (S. Hunt, 2008). Firms that understand the strategic role of pricing and utilize a higher-level approach to setting prices, can make better decisions throughout the service development and implementation process (R. Harmon et al., 2009).

By understanding how customers value service alternatives, these firms can arrive at prices that customers are willing to pay, while increasing financial performance.

Advancements in technology have resulted in a substantial increase in data, which some information providers are utilizing to identify customers who can be served more profitably. This is a pertinent example of a higher level of pricing capability, because they identify which customers are more willing to pay for the unique offerings the company provides. A superior understanding of the customers' requirements can also result in better efficiency of meeting these requirements compared to competitors (Nagle & Müller, 2018).

In case of erroneous decisions, the company's reputation and customer relations can be at risk. Despite this high importance, a multitude of deficiencies regarding pricing strategies can often be identified, including rationality deficits in form of ad hoc decisions (Florissen, 2008). Hence, our study is trying to underscore the importance for vendors to evaluate their level of pricing maturity. This assessment is crucial for evolving pricing strategies to enhance financial performance and maximize customers' willingness to pay.

2.2   Pricing Strategies - Value-based Approach

Literature identifies three main pricing approaches: cost-based pricing, competition-based pricing, and value-based pricing (Hinterhuber, 2008; Kienzler & Kowalkowski, 2014). Many companies employ a traditional cost-based pricing approach by determining prices based on the costs associated with their products and services (Gale & Swire, 2012; R. Harmon et al., 2005). However, value-based pricing is considered the most effective approach for achieving increased profitability and sustained success (Hinterhuber, 2008), due to its goal to capture more value by maximizing customers' perceived value (R. Harmon et al., 2009).

The value-based pricing approach is particularly relevant in the information technology services industry, where it can help service vendors differentiate themselves and effectively price their offerings (R. Harmon et al., 2009). As R. Harmon et al. (2009) mentioned in the paper "Pricing Strategies for Information Technology Services: A Value-Based Approach":

> "*a [near term] focus on profitability, rather than revenue growth or [stock] value creation, offers a surer path to enduring exceptional performance*"

(R. Harmon et al., 2009) p. 210

However, value-based pricing is challenging to implement in practice due to its time-consuming and costly nature (R. Harmon et al., 2004; Liozu, 2017).

A key literature for our understanding of pricing is the "Strategic Pricing Pyramid" framework developed by Hogan and Nagle (2005), illustrated in figure 2.3. This work has impacted our study by giving us a starting point for the foundational structure in our study. Our focus is specifically directed towards the initial three tiers of the pyramid, namely value creation, price structure, and value communication. This deliberate choice stems from our research objective, which confines our investigation to the pricing process up to this point. By honing in on these critical elements, we aim to gain a comprehensive understanding of how value creation is perceived, how the price structure is formulated, and how value communication contributes to the strategic pricing dynamics within the scope of our study. Nevertheless, this paper will encompass all five steps in this section, ensuring readers gain a holistic understanding of the framework.

The Strategic Pricing Pyramid contains five steps:
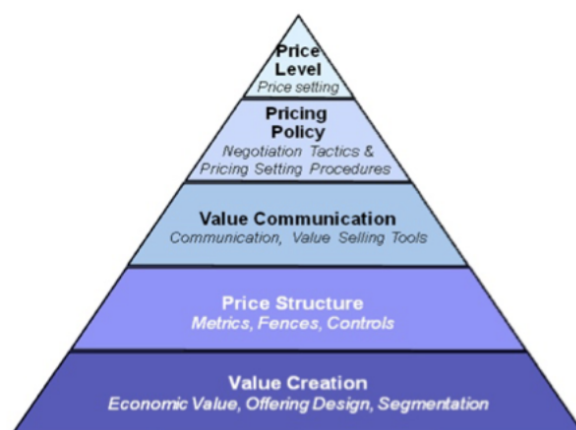
Figure 2.2: The Strategic Pricing Pyramid by Hogan and Nagle (2005)

Value Creation

The concept of value creation is frequently expressed as a fundamental truth, stating that the value of an item is essentially determined by the willingness to pay (WTP) of customers. At times, customers may perceive a lack of "value for money", causing reluctance for repeat purchases and discouraging others from making a similar choice. Conversely, there can be resistance to pay any price for groundbreaking innovations, often

stemming from a lack of personal or trusted experiential opinion regarding the potential value these innovations could bring to their lives (Nagle & Müller, 2018).

Vendors always expect to set prices that can capture the value of their solution and that can also maximize their profits. Only few companies actually understand how much value their products create for customers. Therefore, the goal of the value creation in a value-based pricing approach is to guide vendors to efficiently generating meaningful value for different customers, in order to persuade customers to pay prices that align with their perceived benefits to be received (Hogan & Nagle, 2005). Figure 2.3 illustrates the early adoption of perceived value in a value-based pricing approach.

Value-Based Pricing

(Customer-Value Centric)

Figure 2.3: Value-based Pricing Approach by R. Harmon et al. (2009)

Price Structure

After developing products that create value, vendors must determine how most profitably to capture a share of the created value in both volume and margin. The challenge is that customers will value the differentiating features of products and services differently, due to varieties in their abilities to pay, their subjective preferences and their prior experience (Hogan & Nagle, 2005).

A common mistake made by vendors is assuming that their objective is to establish a single price for the product rather than customized prices that align with different customer needs. The perceived value of the same product can vary significantly depending on the customer. Setting a uniform price for a product in such cases ensures that at least one customer group will receive an inappropriate price. For example, pricing high for customers with high WTP introduces the risk of overpricing for customers with lower WTP, potentially reducing overall profits, and vice versa. Some vendors try to address this challenge by implementing an average price, but this approach also falls short, as it remains too high for customers with low WTP while potentially leaving revenue untapped for customers with high WTP (Hogan & Nagle, 2005).

A proposed solution to this dilemma involves establishing a price structure that aligns with the perceived benefits to be received rather than being solely based on the products delivered. Two techniques for creating such a pricing structure include 1) pricing metrics and 2) pricing fences. For example, in a unisex hair salon, the pricing metric might be "per cut," while the fences could involve factors like "per length," recognizing that treating longer hair typically requires more time for a hairdresser than short hair. This solution ensures a more nuanced and tailored pricing structure, accommodating the diverse value perceptions among different customer segments, which maximizes profitability (Hogan & Nagle, 2005).

Value Communication

A successful pricing approach must justify the prices charged in terms of the value of the benefits provided (Nagle & Muller, 2018). The challenge for vendors are to determine which approaches are most appropriate and develop the messaging tools to help customers understand the value offered by their products (Hogan & Nagle, 2005).

According to Hinterhuber (2008), *"an effective communication of value is especially difficult in environments where customers are inundated with advertising"*. The vendors in the study with Hinterhuber (2008) reported that it has become increasingly difficult in the past 10-15 years to get their customers' attention due to the saturation of advertising.

Customers are rarely the rational actor portrayed in traditional economic theory (Becker, 1962). An exploding field called behavioral economics has uncovered numerous anomalies in consumer decision-making that contradict the traditional economic principle of utility maximization (Karacuka & Zaman, 2012). For instance, community-held norms around fairness can constrain the price a pharmaceutical firm can charge, even for a life-saving drug with no viable alternatives. Customers also employ mental shortcuts, often comparing analogous products to assess relative value. Consequently, many consumers perceive a USD 60 bottle of wine at a restaurant as a bargain if other wines on the menu are priced higher, yet the same USD 60 bottle may feel expensive if surrounded by USD 40 alternatives. Due to these anomalies, it becomes essential to recognize that customers evaluate prices in the context of the entire purchase situation (Nagle & Muller, 2018). However, this irrationality doesn't imply that customers consistently approach pricing irrationally; rather, they tend to conserve time and mental energy by employing imperfect but convenient decision rules

(Nagle & Muller, 2018). Consequently, effective value communication becomes vital for customers to discern these anomalies and comprehend the value created by the product.

Regarding the vital role of value communication, Hinterhuber (2008) have suggested three levels of sophistication to improve the communication of value to customers: 1) communicating product features, 2) communicating customer benefits and 3) communicating benefits in accordance with customer needs. There are many factors to consider when creating price and value communications. Ultimately, the vendors goal is to get the right message, to the right customers, at the right point in the purchase decision-making journey (Nagle & Muller, 2018).

Pricing Policy

Pricing policy refers to rules or habits, either explicit or cultural. This determines how a vendor varies its prices when facing other factors beyond value and cost, posing a threat to achieving its objectives. Effective policies allow companies to meet short-term goals without prompting customers to alter their behavior in manners detrimental to future sales volume or profitability. In contrast, inadequate pricing policies create incentives for customers, sales reps, or channel partners to engage in behaviors that undermine future sales or customers' WTP. In economic terms, robust pricing policies facilitate price adjustments along the demand curve without altering expectations in ways that negatively impact customers' future purchases (Nagle & Muller, 2018).

Price Level

As suggested by Hogan and Nagle (2005), price setting represents the crucial intersection of value creation and its extraction. Vendors aim to capture a fair share of the created value, optimize long-term profitability and enhance their market position. There is rarely an "optimal" price suitable for all customers, due to their varies motivations for purchase. While economic theory outlines a method for setting an "optimal" price against a known demand curve, assuming "all other things" being equal, reality presents a scenario where these variables are never truly equal. Price setting is a complex process with plenty of variables, and the objective to pricing managers is to estimate how prices vary across segments to better assess the potential profit impact of price level adjustments (Nagle & Muller, 2018).

Synthesis

The Strategic Pricing Pyramid highlights the critical role of deeply understanding the value creation of a product or service, in order to price correctly toward customers and gain sustained profitability. Value creation can may in many forms, there could be system usability, service variety and personal connectivity (Haile & Altmann, 2016). The common characteristic of all value creations are that these create value for customers' preferences and needs. After values are created for customers, to price correctly becomes crucial. The Strategic Pricing Pyramid recommends aligning the price configuration with value creation to ensure coherence between creating and capturing value.

Next, when the price structure has been configured, vendors will need to communicate it to the different segments of their customers. Hogan and Nagle (2005) argue that an inadequate communication of value can elevate price sensitivity among customers and intensifying negotiations. Moreover, Hogan and Nagle (2005) put forth the idea that pricing inherently involves the skill of managing customer and employee expectations to encourage more profitable behaviors. Hence, companies are required to create pricing policies to set these expectations. Only after all the preceding elements have been consider, can the final price for a product or service be set in the price level layer (Spruit & Abdat, 2012).

In conclusion, value-based pricing has the advantage of potentially capturing higher profit margins if customers perceive a high value in the software. However, it requires a deep understanding of customers' needs, pain points, and the tangible benefits the software provides. In addition, the value-based pricing approach is influenced by a range of factors, such as company-related and market-driven factors (Indounas, 2020). The importance of these factors have been emphasized by Zhu and Lu (2005) who illustrates the effect through two-sided network externalises, which in some instances impacted the optimal pricing strategies for buyers and sellers. When executed well, this strategy can lead to better customer relationships, as pricing is directly tied to the value delivered, creating a win-win scenario for both the provider and the user (R. Harmon et al., 2004). However, value-based pricing can be challenging in form of time-consuming and costly to implement (R. Harmon et al., 2004; Liozu, 2017). Previous research identified obstacles to implementation such as value assessment, communication, segmentation, sales force

management (Hinterhuber, 2008). Furthermore, there are elements that may impact the value-based pricing process and hinder vendors from establishing and obtaining value-based prices. Töytäri et al. (2017) discusses this issue, emphasizing that pricing decision-makers in an organization might face institutional pressures, including socially prescribed norms, rationalized meanings, and beliefs about profitable pricing approaches. Pricing is generally a well researched topic and the reviewed literature gives a comprehensive understanding of foundational concepts that relate to this study.

2.3   Perceived Value of Customer

This study is focused on the relation between pricing approaches and customers perception of value when evaluating services. In the following section, a thorough review of literature on the topic is presented.

Perceived value is defined in terms of the trade-off between perceived benefits to be received and the perceived price for acquiring the product or service that delivers those benefits (Woodruff, 1997). The marketing literature expressly puts perceived value as a key driver of client satisfaction (Eggert & Ulaga, 2002; Lam et al., 2004). Customers judge the value in their specific use context (Kowalkowski, 2011), based in the customer's specific business situation, guided by institutional constraints (Zucker, 1987), and behavioral influences (Cyert & March, 2015).

The perception of value is dynamic (Kleinaltenkamp et al., 2022). R. Harmon et al. (2009) suggest that comprehensive knowledge of the customer can result in more appropriate approaches to pricing strategy. The key success factor for pricing structures is that vendors can clearly identify customer requirements and customers' willingness to pay (Wertenbroch & Skiera, 2002). Therefore, vendors have to balance the trade-off between the cost for acquiring knowledge and the potential revenue obtained from this (Ning & Rong, n.d.). Since capturing of customer's perceived value is costly, large vendors have an advantage over smaller vendors because of their large amount of resources available for market research (Rohitratana & Altmann, 2012). However, the customer's perception of value may change over time in terms of both the relative importance and the business impact of different facets of value (Flint et al., 2002).

While perceived value is conceptually distinct from satisfaction, the two concepts are

frequently linked in prior literature. For example, McDougall and Levesque (2000) found that perceived value contributed to customer satisfaction in a number of service delivery contexts. Caruana et al. (2000) found that perceived value significantly mediated the relationship between perceived service quality and satisfaction with service marketing. Yang and Peterson (2004) found that perceived value significantly influenced customer satisfaction in online services. Lam et al. (2004) observed that perceived value had a significant antecedent effect on satisfaction in their study of business to business (B2B) services. Similarly, L. Liu and Ma (2005) argue that *"customers are likely to be more satisfied with an offering as the ability of the offering to provide consumers what they need, want, or desire increases relative to the costs incurred"*. This discussion suggests that perceived value is an important antecedent of satisfaction, particularly when it is necessary to capture the purchaser's subjective perceived benefit of the product or service.

The role of perceived value provides an enhanced theoretical lens to understand why clients are satisfied with a particular technology (Kim et al., 2013). For example, perceived value was the strongest predictor of satisfaction in Lai's model of mobile device service (Lai, 2004). Clients tend to be satisfied with a service when they find the service is valuable, even though they are unable to confirm their expectation during the service delivery process (J.-W. Liu et al., 2015).

Service providers should understand what these trade-offs are and how to influence product and service configurations that can maximize customer value and business outcomes (Raman et al., 2021). Given the individual variability in customers' perceived value, numerous studies have delved into the concept of customization and its significance (Dellaert & Stremersch, 2005; Gilmore & Pine, 2000; Kotha, 1995; Varki & Rust, 1998). Many of these studies highlight the substantial value customization holds, emphasizing its impact on customers' willingness to pay and overall attitude toward the product, particularly in comparison to standard products. This preference for customization, resulting in a closer fit to individual preferences has been observed across various industries, including the service-oriented decision support system (DDS) sector (Demirkan & Delen, 2013; Franke et al., 2009; Wind & Rangaswamy, 2001).

The context-specific and dynamic nature of value leads into different evaluation of value in different business situations, and at different times (Töytäri et al., 2015). The power

of choice mandates that those configurations that deliver superior value will win in the marketplace. In order to create the foundation for setting prices, it is necessary to identify the relevant set of value drivers for the market segment being targeted and understand the importance of each in the purchase decision (J. C. Anderson et al., 2000; Rao, 1993). Customer value drivers are emotional links that summarize customer perceptions about the product and firm, create positive attitudes and feelings, provide the basis for differentiation, and provide the reason to buy (Flint et al., 2002; Harrington, 2007).

R. Harmon et al. (2009) describes four factors that influence customers' value perceptions in a value-based pricing approach; 1) Economic Value, 2) Performance Value, 3) Supplier Value and 4) Buyer Motivation. Factor 1) and 2) are closely associated with products' functional value, while factors 3) and 4) are associated to emotional- and knowledge value.

1. Economic Value is shaped by the customers' perceptions about the cost of acquiring, owning, installing, using, and disposing of a product (Digrius & Keen, 2002; Forbis & Mehta, 1981; T. Nagle, 1984; T. Nagle & Holden, 1998; Sheth et al., 1991).

2. Performance Value is rooted in customers' perceptions of the utility to be derived from a product's functional features, advantages and associated benedits (Sheth et al., 1991).

3. Supplier Value reflects customers' perceptions about the credibility of the provider and trust in the business relationship, directly linked to brand acceptance. A strong brand acts as a significant barrier to competition, as it takes considerable time to alter perceptions about a company (R. R. Harmon & Coney, 1982).

4. Buyer Motivation delves into customers' psychological motivations for a particular purchase, playing a central role in the decision-making process (Monroe, 1971, 1973; Zaltman, 2003).

Buying Situation is another factor that can impact any pricing approach. This factor includes variables such as: customers' task requirements (Belk, 1975; Coney & Harmon, 1979; R. R. Harmon & Coney, 1982), customers' resource capability including budgets, infrastructure and technical skills (Belk, 1975), decision horizon (Wright, 1974; Wright & Weitz, 1977), social influences (Belk, 1975; Zaltman, 2003), experience level with related products (J.C.Mowen, 1987) and product availability regarding to access objective

information of a product for assessing products' performance and risk (J.C.Mowen, 1987; Tversky & Kahneman, 1973).

Analyzing the value of software for customers needs to be in the center of thought. Hence, the price of the software must be aligned to the customers' perceived benefits to be received. Consequently, choosing the right pricing strategy is of great importance for software vendors as to attract and retain customers and keep competitors at bay (Asgarpour et al., 2014). In order to justify such an alignment in perceived value, pricing strategies are now increasingly taking into consideration a customer-centric mind set, by associating price perceptions to pricing configurations (Schneider, 2012).

2.3.1   Customer Decision-making Strategy

After a vendor has introduced their product and its pricing, it is imperative to gain an understanding of customers' decision-making processes to capture potential value misalignment. This involves delving into the factors that influence customers during their evaluation and selection stages. Exploring how customers weigh various attributes, perceive value, and navigate through different pricing options aids in fine-tuning the pricing strategy to better meet customers' expectations. Additionally, insights into customers' decision criteria contribute to the refinement of the product's positioning, ensuring it aligns seamlessly with the target market's needs and preferences.

Due to a large number of existing cloud-providers offering different solutions(Boussoualim & Aklouf, 2015), exploring various customer decision-making methods becomes crucial. Edelman and Singer (2015) proposed a framework for the decision journey of consumers, that consists six steps: 1) consider, 2) evaluate, 3) buy, 4) experience, 5) advocate and 6) bond. Regarding this paper's field of study, we think "evaluate" is most relevant in this setting due to our research questions.

Chai et al. (2013) have performed a systematic literature review with 123 international journal articles, where the authors have categorized 26 decision-making methods in three categories: 1) multicriteria desicion making (MCDM) techniques, 2) mathematical programming (MP) techniques and 3) artificial intelligence (AI) techniques. For all three mentioned categories, customers' perceived value takes an important role. This seminal work provides a foundation for our understanding that perceived value has a large influence

on customers' decision making process.

2.4   Everything-as-a-service

Service oriented thinking is one of the fastest growing paradigms in today's business world (Demirkan et al., 2008). Enter the "as a service" model, a beacon in the expansive sea of big data. Driven by cloud computing's (CC) scalability and accessibility, new subsets of XaaS have emerged, tailored specifically to address big data's challenges and opportunities (Delen & Demirkan, 2013). This evolution, encompassed under the umbrella term "Everything as a Service" or XaaS (Cavalcante et al., 2016). This approach, due to its flexibility of adoption, has gained the attention of both academic and business entities, especially in the development of world-leading technologies such as CC and the Internet of Things (IoT) (Niknejad et al., 2020).

This paper specifically delves into InaaS, a sub-service category within the broader domain of SaaS. Notably, SaaS is one of the three primary cloud service models in the IT industry, alongside Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) (Goyal, 2013). The CC paradigm is illustrated in fire 2.4.
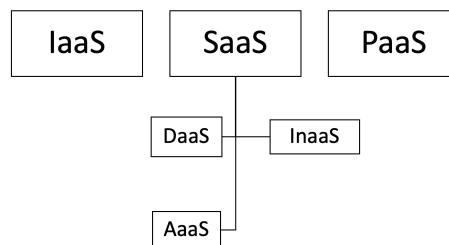
Figure 2.4: CC Paradigm (Goyal, 2013)

2.4.1   Software-as-a-service Paradigm

SaaS provides software application vendors a web based delivery model to serve big amount of clients with multi-tenancy based infrastructure and application sharing architecture so as to get great benefit from the economy of scale (W. Sun et al., 2008). In the past decade, SaaS has been one of the fastest growing market segments and is now the third largest component of the total CC industry (S. Saltan, 2021). The SaaS model has largely replaced the Application Service Providers (ASP) model, that in practical terms

means that vendors are not making any client-specific investments and that all services are standardized for customers (Goyal, 2013; Laping et al., n.d.; Mäkilä et al., 2010; Sääksjärvi et al., 2005; W. Sun et al., 2008).

As the focus transitions from product purchase to service delivery, customization emerges as a crucial characteristic influencing customers' attitudes towards vendors. This is primarily due to the significance customization can have on customers' perceived value as service delivery becomes a more prominent factor (Franke et al., 2009; Sääksjärvi et al., 2005). Therefore software vendors have to design appropriate pricing strategies for their SaaS offerings (Baur et al., 2014; Lehmann et al., 2012). Pricing is an essential element of the business model and product strategy (A. Saltan & Smolander, 2021a), but pricing strategies of vendors in the software industry have so far not been discussed comprehensively (Lehmann & Buxmann, 2009). According to Geisman (2008) and Jones (2008), there have been various pricing issues faced by SaaS vendors in the market like low sales cycles, low win rates, chaotic pricing, and difficulties to enter new markets.

Price Structure

SaaS pricing has undergone significant evolution, with various pricing strategies and structures being explored and debated within the industry. Cost-based software pricing strategy is historically the most popular method since its relies on more readily available information from the cost-accounting system (Bontis & Chung, 2000; Sundararajan, 2004). A cost based pricing path to profitability, which ignores the voice of the customer, can become a blueprint for mediocre market results, as stated by R. Harmon et al. (2005).

Choudhary (2007b) find that the SaaS subscription pricing structure leads to greater investment in product development under most conditions. This increased investment leads to higher software quality in equilibrium under SaaS, compared with perpetual licensing (Choudhary, 2007a). Several articles indicate that one of the most important benefits of adopting SaaS software is the availability of more flexible payment methods (Geisman, 2008; Kaplan, 2009; Mahowald, 2009; Merchant & Geisman, 2006; Pring et al., 2007; Rowell, 2004; Sääksjärvi et al., 2005). Another benefit of the subscription pricing structure over the traditional perpetual license is relieving customers of the need to evaluate whether the incremental benefits of each new update justify the transition from the previous version (Choudhary, 2007b; Godse & Mulik, 2009; Katzmarzik, 2011). Subscription pricing has

become the most common pricing structure within SaaS (Laatikainen & Ojala, 2014). However, there is no one universal pricing strategy for software providers (Bontis & Chung, 2000) and pricing strategies may consist of several elements (Lehmann & Buxmann, 2009).

In this paper, we are inspired by two parameters of Lehmann and Buxmann (2009)'s framework about "Parameters of pricing model for software products": 1) structure of payment flow and 2) assessment base, illustrated in figure 2.5. We find these two parameters similar to the concepts of metrics and fences outlined in The Strategic Pricing Pyramid (Nagle & Müller, 2018). The former is particularly well-suited for our study about InaaS - as it is a part of the SaaS paradigm. The payment structure flow has two options: a single payment for perpetual software use rights, akin to traditional SaaS licensing, and recurring payments at regular intervals. Two-part structures, combining both payment flows are also discussed in (Kittlaus & Clough, 2009). Assessment bases may be usage-dependent (e.g., transactions, memory) or usage-independent (e.g., named users, servers), as outlined in (Lehmann & Buxmann, 2009).
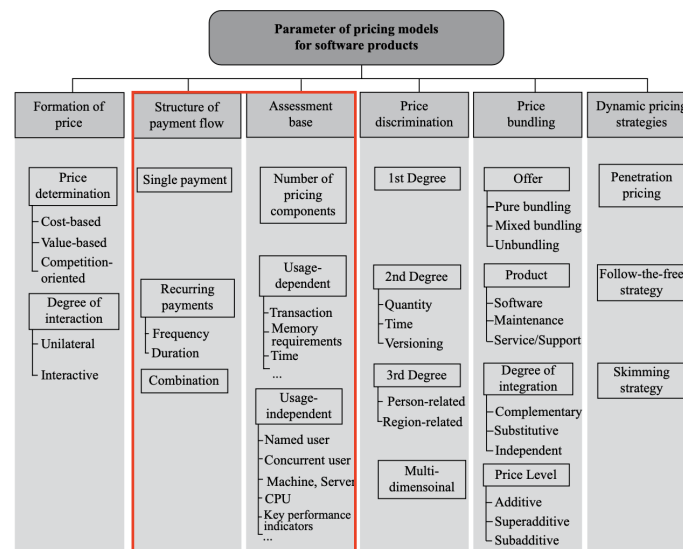
Figure 2.5: Parameter of Pricing Models for Software Products by Lehmann and Buxmann (2009)

Value Communication

According to Hinterhuber (2008) and Hinterhuber and Bertini (2011), the biggest obstacles in implementing value-based pricing are challenges with market segmentation, sales department management and value communication. While value communication is

identified as the second most challenging obstacles in general marketing, there are about 33 percentage studies within SaaS report communication as a challenge (A. Saltan & Smolander, 2021b). Whether provider companies struggle to communicate the value of the offering to customers, either buyers are reluctant to buy into the "sales pitch". This is where sellers have to be very creative in devising interesting and compelling ways for buyers to listen and display trust. Some of the best companies achieve this by mixing sophisticated software that can be customised to the conditions of each customer and generate actual value calculations, and with detailed case studies documenting success stories involving other customers in the same domain (Hinterhuber & Bertini, 2011).

Demonstrations (demo) is a highly used tool of value communication within SaaS for vendors to communicate the value of the service to their customers. C. Liu (2006) and Seethamraju (2015) highlight the importance of software demonstrations in the context of learning and assessment. Additionally, Elfatatry and Layzell (2002) delves into the negotiation perspectives of Saas, emphasizing the need for effective communication in the delivery of software services.

2.4.2 Data-as-a-Service

Data-as-aservice (DaaS) refers to the provisioning of timely, location-independent data access, typically via cloud platforms. DaaS providers offer refined and structured data sets that can be integrated into various applications, analytics tools, or business processes (Delen & Demirkan, 2013).

Existing pricing structures for DaaS are mainly cost-based. These are either only covering service pricing (e.g., pay-per-transactions) or data pricing (e.g., pay-per-the-quantity/quality of data) (S. Kumar & Goudar, 2012; Oliveira et al., 2015; Shen et al., 2016; Vu et al., 2012). Some newer studies presents several more complex frameworks of pricing, in order to maximum the profit level and enhance the scalability of DaaS. Chen et al. (2015) proposed a model called multi-user computation offloading for mobile edge computing. In 2017, Zhang et al. (2017) has provided a framework called as combinational auction-based service provider selection. Furthermore, Wang et al. (2019) have provided a profit maximization incentive mechanism (PMIM) model.

We initially identified a limited number of articles addressing value communication within

DaaS. A search on Google Scholar using the keywords "data as a service" and "value communication" yielded only 7 results, with only 2 articles incorporating both terms (table 2.1). We consider none of these articles as suitable contributions to our study, given the absence of peer review for a master's thesis and our access to alternative sources.

Paper	Selling the value of data with a customer-centric approach: case Vaisala	Visual Studio Team System: Better Software Developement for Agile Teams
Author	A. Laakkonen	J.W. Newkirk and W.W. Stott
Date	2023	2007
Topic Area	Marketing	Computer & technology
Article Type	Master's Thesis	Book
Topic Subject	Big data, Value creation, Marketing	Programming, Agile teams, Effectivity

Table 2.1: Simplified Systematic Literature Review of Value Communication in DaaS

2.4.3   Information-as-a-Service

Information in itself is a complex and multifaceted concept, with its subjective nature being a key point of discussion. Cole (1994) and Cottam et al. (2017) both argue that information is inherently subjective, with Cottam suggesting that this is particularly evident in organic systems. Branthwaite (1975) further explores this subjectivity, noting that it can lead to the undervaluation of information.

InaaS goes a step beyond providing raw data; it revolves around delivering processed, actionable information typically via cloud platforms. A more extensive definition by Wagner and Tacacs (2021) states that:

> *"Information-as-a-Service is a cloud service model that provides cloud customers with data in an enterprise-friendly or user-friendly format, which is a service representation using a standardized schema to generate and present information efficiently".*

(Wagner & Tacacs, 2021), p.134

There are four advantages to InaaS identified by Qiu and Gai (2017): 1) rapid acquisition of meaningful information from service providers, 2) better structure of the data collection, 3) effective way to collect relevant data and 4) automatically to generate easy-to-understand service presentation with relevant data. However, there are also some downsides of the

service consumed. For instance, increased dependency on vendor by using the external InaaS service, no developemnt of internal analytics competencies and the potential loss of sensible data (Wagner & Tacacs, 2021).

To effectively price InaaS, a fundamental understanding of information and its inherent characteristics is crucial. As outlined by Parasuraman et al. (1985), information exhibits low to very low level of perishability. This is attributed to the fact that information products are identical to their originals, and their value can become outdated. Therefore information should be distinguished conceptually and thus price and marketed differently from traditional goods and services (Freiden et al., 1998).

While the pricing strategy of InaaS hasn't been thoroughly explored by scholars over time, there are indeed some researchers who have delved into this subject. R. Harmon et al. (2009) stated that the value-based pricing strategy, as opposed to traditional cost-based pricing, is particularly relevant in the information technology services industry, where commoditization is creating new challenges for service providers (R. Harmon et al., 2009). The authors also state that pricing strategies for IT services have traditionally overemphasized cost-related criteria at the expense of the value of the service to the customer (R. Harmon et al., 2009).

Price Structure

Wagner and Tacacs (2021) has provided an analysis of existing InaaS solutions on the market, and it shows that there are different pricing structures available:

Deliverable-based pricing: One pricing structure is based on the deliverable which the InaaS provider is to send to the end customer. Such deliverables can be, for example, a data set, presentation, or a report.

User-based pricing: A widely adopted pricing structure is based on the number of users a customer may want to have. A monthly fee per user subscription is to be paid. For instance, Salesforce uses such a model for its Einstein Analytics solution, or Tableau Software. This model is evident in companies like Salesforce and Seattle-based Tableau Software.

Feature-based pricing: Another common pricing structure is based on the features the customer has access to. For example, Tableau offers a different set of features between

the Personal Edition and Professional Edition of its service "Tableau Desktop". Similarly, Oracle offers a Standard and an Enterprise Edition, whereby the latter is expanded by the number of features while offering all the features of the Standard Version as well.

While reviewing various pricing concepts, we encountered a lack of relevant literature specifically addressing value communication in InaaS. A specific search on Google Scholar using the keywords "information as a service" and "value communication" also produced no results. Consequently, we recognize a lack of knowledge in this particular field.

2.4.4   Analytics-as-a-Service

Analytics-as-a-Service (AaaS) refers to the provision of advanced analytics operations through cloud platforms. It allows businesses to glean meaningful insights without making substantial investments in their own analytics infrastructure, expertise, or software. Analytics facilitates realization of business objectives through reporting of data to analyze trends, creating predictive models to foresee future problems and opportunities and analyzing/optimizing business processes to enhance organizational performance (Lustig et al., 2010). Capgemini and SAS are two big players in the real world within AaaS (Wagner & Tacacs, 2021).

AaaS is a relatively new aspect from SaaS, therefore there are only a few literature about AaaS pricing. Naous et al. (2017) find pay-as-you-go pricing structure most common among AaaS users, and the way of communicating the services' value from vendors to customers are mainly through demos and trials. However, most literature suggest a value-based pricing strategy to AaaS (Baur et al., 2014), other suggest a data market model and Bayesian profit maximization mechanism for AaaS, considering the perishability of data and the unique characteristics of digital goods (Jiao et al., 2018). X. Sun et al. (2012) suggest a pricing prototype system to evaluate the feasibility of a cost-effective approach to delivering AaaS.

As highlighted in the previous paragraph, literature on AaaS is limited. Our search did not yield any relevant articles explaining value communication in AaaS. Even after using Google Scholar, we obtained only four results, with only two articles containing both terms (table 2.2). However, we deemed these articles irrelevant to our study as they focused on different topic areas.

Table 2.2: Simplified Systematic Literature Review of Value Communication in DaaS

Paper	Efficient, Dynamic Mechanisms for Ordering Data Accesses and Management Operations in the Could	Transformation of logistics and supply chain managment in context of developing additive manufacturing
Author	T Mahmood	E. Kuznetsova
Date	2017	2016
Topic Area	Computer Engineering	International Logistics And Supply Chain Management
Article Type	PhD dissertation	Master's Thesis
Topic Subject	Cloud storage Causality	3D printing, Addictive manufacturing, Logistics, Supply chain management Digitalization of logistics
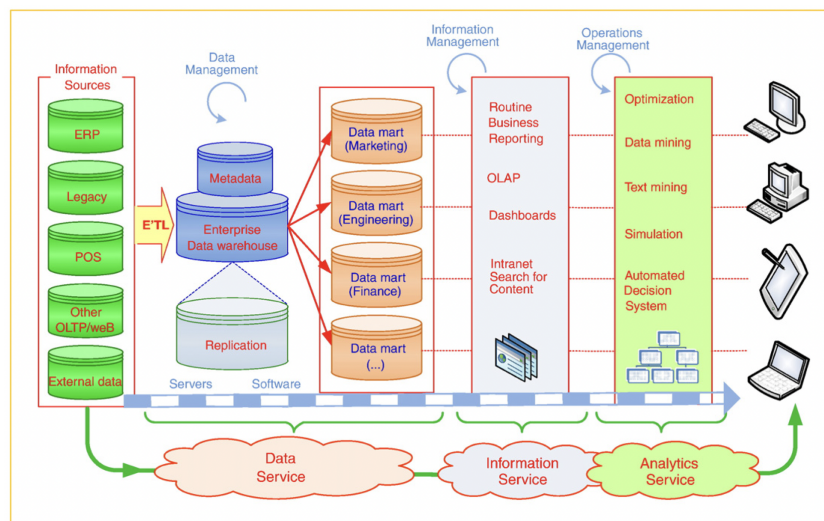
Figure 2.6: Transformation from DaaS to AaaS by Demirkan and Delen (2013)

Main differences between all three "as a services" are that DaaS offers centralized, cloud-based data storage and retrieval, ensuring that data is both secure and readily accessible. InaaS elevates this a step further, not just storing data but transforming it into actionable, insightful information. Lastly, AaaS provides advanced data analysis tools, enabling businesses to derive meaningful patterns, trends, and foresights from their data without heavy investments in analytical infrastructure. The transformation from DaaS to AaaS is illustrated in figure 2.6. The most frequently cited model that—amongst others—also distinguishes between data and information is the so-called DIKW pyramid, illustrated in figure 2.7, evolved by Rowley (2007) from (Ackoff, 1989). It puts data at the bottom, information at the next higher hierarchical level, to be followed by knowledge and wisdom.
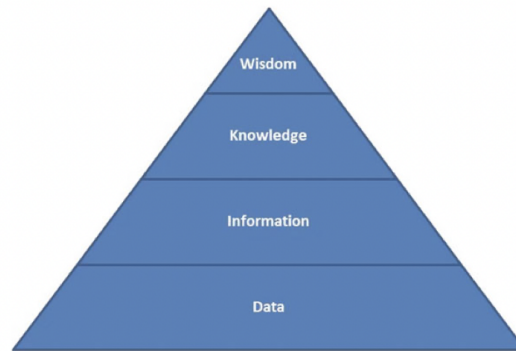
Figure 2.7: DIKW Pyramid evolved by Rowley (2007)

2.5   Research Gaps

The collected body of "white" and "grey" literature demonstrates that pricing within CC is a widely discussed topic among researchers and practitioners. However, a notable gap exists in terms of depth and quality due to varying reliability levels between theoretical literature ("white") and practitioners' literature ("grey"). This discrepancy poses challenges for researchers seeking comprehensive and consistently reliable information. As highlighted by Wagner and Tacacs (2021), this gap is acknowledged within the scholarly community. We propose that studies adopting a case study design could play a significant role in mitigating this gap. Such studies often involve a thorough examination of real-world situations, providing a more holistic and contextually rich exploration of topics.

While conducting a literature review on InaaS pricing, we encountered challenges in finding relevant literature specifically addressing InaaS pricing dynamics. Delen and Demirkan (2013) aimed to shed light on the distinctions between data, information, and analytic services in comparison to traditional data access, manipulation, and distribution frameworks. The study explored the primary reasons, costs, and benefits associated with implementing a service-oriented architecture for managing data, information, and analytics. However, limited attention has been directed towards investigating the characteristics of CC services under the SaaS paradigm, particularly with respect to pricing. Furthermore, as highlighted previously, we observed a substantial literature gap in the area of value communication for pricing, particularly concerning DaaS, InaaS, and AaaS.

3 Methodology

The methodology serves as the structural framework, ensuring that the study's inquiries are addressed systematically and the results gleaned are both robust and replicable. When researching pricing models and customer perceptions, particularly for InaaS and SaaS products, the choice of methodology is critical. It acts as the bridge between abstract research questions and tangible insights, guiding the exploration and ensuring the study's credibility.

This section delineates the research design, strategies, and methods employed in this study. It offers a rationale for the chosen approaches, ensuring they align with the study's objectives. As we study the complexities of customer perceptions, it's imperative to employ a methodology that is both rigorous and reflective of the real-world intricacies of the information service market.

We will begin by outlining the overall research design and case selection, highlighting its fit for our research question. Following this, the data collection methods, including the specifics of the interview process, sampling techniques, and the rationale behind them, will be discussed. The section will also detail the data analysis procedures, ensuring transparency in how the raw data transforms into the study's findings. Throughout, we emphasize not only the procedural aspects but also the ethical considerations and potential limitations inherent to the chosen methods.

3.1 Case Selection

In empirical research, particularly in a study focused on understanding pricing strategies for InaaS products, the method of case selection becomes important. The cases selected not only set the stage for the depth and breadth of insights derived but also impact the external validity and generalizability of the study's findings.

Our research question is centered around drawing out what parameters make up the customers preferences for InaaS pricing models, and how this affects what models are preferred. We have chosen the real estate market as the role of information is integral in this sector and InaaS products are frequently used. To extract the most comprehensive

set of themes about the studied subject, we have chosen multiple case firms. To ensure findings are not idiosyncratic to a particular case, an effort has been made to select representative cases, which to a large degree represent the broader population. The case companies have been purposefully selected to reveal key insights and nuanced examples and details, giving us a comprehensive foundation for understanding pricing dynamics. A heterogeneous sampling technique was deemed to be the best as the literature review has shown that pricing structures are quite heterogeneous in themselves (M. Saunders & Thonhill, 2019). We have prevented selection bias by selecting cases that offer a wide range of context and conditions, thus increasing the robustness of our research.

We have also made sure to chose cases that are accessible in terms of data availability, cooperation of interviewees, and feasibility of study execution. We are ensuring they are comparable in service offerings to help isolate and understand the impact of different approaches to pricing. The cases are different in maturity and size, and have chosen different approaches to pricing their products. We have selected diverse cases, so that broader inferences can be made, ensuring findings are not limited to the specific contexts. This will greatly improve the generalizability of our findings. The selected cases are one startup vendor, a spin-off vendor with significant backing from a corporate parent, and a large established software vendor.

Case Firm 1

Our first case firm is a property technology (proptech) startup that creates a InaaS platform for retail businesses and commercial property owners. Users can register for free and make use of elementary listing functionality, and they have the option to upgrade their payment plan to view summaries of the data that case firm 1 has acquired. The freemium approach is a part of the startup's holistic pricing model (table 3.1). Which from our literature is described as a hybrid pricing structure that combines free use of a basic version of the product in perpetuity, with premium upgrades that require a recurring payment (Anderson, 2009; Gu et al., 2018; Pauwels, 2008). Datta et al. (2015) suggest that consumers have a low relationship with the service in the beginning of the freemium period. Over time, they can become loyal customer for paid versions based on the service quality and perceptions. However, Datta et al. (2015) also quote that:

> *"free trial customers are doubtful but opportunistic"*.

The freemium alternative for case firm 1 is based on use thresholds; the customer may use the product until a specific usage threshold is reached, at which point the client has to pay for continued use (**31**; V. Kumar, 2014).

Table 3.1: Pricing Model for Case Firm 1

Pricing Structure:	Subscription
Assessment Base:	Unlimited use
Value Communication Method:	Freemium

Case Firm 2

The second case firm is a proptech startup specializing in an information platform for commercial real estate stakeholders. This startup emerged as a spin-off from a larger property company, established as a response to industry needs. The case firm 2 caters to a wide range of actors including investors, property owners, managers, brokers, banks, and lawyers. They gather, process, transform, and enrich data to empower their clients to make informed decisions.

With considerable backing from the company that case firm 2 spun out from, an expansive data access is utilized to enable considerable product development. The goal with the venture is to commercialize these product developments. Their pricing model consist of a yearly recurring subscription payment flow with a usage-independent assessment base based on number of seats (table 3.2). The contracts with customers have a twelve month duration period. This model is dominant in the software market, and from the theory we have gleaned that goal with this model is to lower the cost of ownership and grant users access to up-to-date software at a predictable cost without a large up-front investment (Ojala, 2012; Tcholtchev, 2020).

Table 3.2: Pricing Model for Case Firm 2

Pricing Structure:	Subscription
Assessment Base:	Seats
Value Communication Method:	Demo

Case Firm 3

Our third case firm is a well-established InaaS company. They offer a range of tools

and platforms designed to help property managers streamline and optimize property operations. This includes functionality for lease management, financial management, maintenance management, budgeting, project management, and reporting. Case firm 3 have a pay-as-you-go and subscription pricing structure, that include a usage-dependent assessment base with a single payment flow (table 3.3). While pay-per-use pricing structure has the ability to achieve social efficiency, it is not easily acceptable for users who want to control and predict their budgets (Li, 2011).

Table 3.3: Pricing Model for Case Firm 3

Pricing Structure:	Pay per use / Subscription
Assessment Base:	Reports Downloaded
Value Communication Method:	Social Proof

Given the significance of case selection in empirical research, particularly in a study aimed at understanding pricing strategies for InaaS products, our chosen companies serve as fitting representatives for multiple reasons.

Industry Relevance:

All of the case companies within the proptech sector, which is undergoing rapid technological transformations and paradigm shifts. All three cases operate in markets with asymmetric information dynamics, in line with the market dynamics we are interested in for our research.

Data Richness and Depth:

Case firm 1, being a startup, offers insights into the early stages of InaaS product development and the pricing challenges faced by emerging entities. Their collaboration with diverse data providers showcases the breadth of information they harness, making them a suitable case for examining diverse pricing strategies. Furthermore, case firm 2, with its expansive data access, offers a deeper look into more matured InaaS and DaaS product development and the associated pricing considerations. Finally, case firm 3 possesses some of the earliest InaaS offerings in the Norwegian real estate industry, providing the company with a substantial historical data repository collected from various contributors.

3.2   Reseach Design

In the following section, we will present our choices for our chosen methodological procedure (M. Saunders & Thonhill, 2019; Woodside, 2010).

Evaluating our research aim, we found it reasonable to conduct a mono method qualitative study of our chosen cases focusing on their prospective customers. Qualitative research can first and foremost be understood as an approach to study interviewees' opinions and the relationship between them (M. Saunders & Thonhill, 2019). How pricing structures are interpreted and which are preferred, cannot necessarily be understood purely from quantitative data and require us to go engage in dialog with our interviewees. The mono method is based on collecting data a single time, and the data collection is often done through semi-structured interviews (M. Saunders & Thonhill, 2019). We find in reasonable to collect data a single time as our study is cross-sectional due to the time limitations of our thesis.

3.2.1   Foundational Work

The foundational work for this research was structured in three main steps. First, a rigorous literature review was conducted to understand the prevailing perspectives on pricing concepts. We were critical in selecting trustworthy search engines, literature types and publication periods, in order to include the relevant literature for our research. Next, preliminary interviews were held with several case companies to gather hands-on insights of the industry. The preliminary interviews also contributed to provide a holistic understanding of the current challenge between pricing and customers' perceived value within InaaS for our researches. Finally, a comprehensive overview of pricing models was developed, based on both literature and insights from conversations with case company representatives. This ensured that the most pertinent pricing concepts were included in the scope of our study and that our interview matrix is positioned correctly, increasing the relevancy of insights to be collected.

3.2.2   Interviews

We have now established appropriate cases. Further, we have also achieved a fitting scope that focuses on pertinent issues of pricing, and a solid theoretical understanding of earlier work that effectively guides our inquiry in a suitable direction. Next, we select appropriate interview interviewees for data collection.

As this case study will have an exploratory approach, we will conduct semi-structured interviews which can provide a valuable background for understanding the context of our qualitative data (Blomkvist & Hallin, 2015; M. Saunders & Thonhill, 2019). Furthermore, since the thesis explores the perception behind certain pricing structures where the situation is not completely clear, semi-structured interviews are to prefer according to Easterby-Smith et al. (2012). These interviews will be allowed to evolve depending on the conversation, as the questions can vary to some degree from one interview to the next. This is an advantage as the theme, pricing, is a complex topic and demands a high degree of granularity. Semi-structured interviews are preferred as they open for individual opinions and gives an opportunity to go more in depth on our interviewees reflections without considerable constraints (Lampard & Pole, 2015).

M. Saunders and Thonhill (2019) recommend that researchers select between 5 to 25 interview objects for their primary data. For qualitative research, a smaller selection might give sufficient data due to the rich context each interviewee shares. For the purpose of this research, access to interview subjects was difficult. The real estate sector in Norway is quite small with a handful of prominent actors. We had an advantage in accessing prospective interviewees as the researchers had some insiders to the sector within our networks. These connections were easier to get access to and using the snowball selection method, we were able to find more interviewees. In addition to this, we were able to get several experts to participate in our study. They gave both valuable insights that became part of our data, and access to relevant interviewees through their extensive networks. With these efforts, we were able to get 9 relevant prospective customers that was willing to participate. Our interviewees have varied backgrounds in terms of age, academic field, and relevant positions within the companies. The number of interviewees for our study is somewhat limited and it can be argued that it would strengthen our study if we had more interviewees. However, it's noteworthy that we observed minimal divergence in opinions

during our last interviews. As such, we argue that our interview materials are sufficient for the scope of our study. In addition, we are also within the acceptable range recommended by M. Saunders and Thonhill (2019).

The interviewees were selected from a wide variety of prospective and existing customers. Pertinent individuals in the case companies were also interviewed to strengthen the primary data pool. An overview of conducted interviews can be found in table below. The broad scope of interviews gave a wide knowledge and understanding of the latest market trends and theories.

Overview of interviews is illustrated in table 3.4, and more detailed background information about every interviewees are attached as tables in appendix:

Table 3.4: Overview of Interviews

	Conducted
Experts:	3
Interviewees	9
Vendors:	3
Total Interviews:	15

The data collection methods that were employed in this study, along with the interview matrix, will be presented after we have presented our research strategy. This is because our strategy has greatly impacted our interview approach.

3.2.3   Research Strategy

We have considered our choice of research strategy, and has chosen to conduct a case study with an exploratory approach. We have chosen the exploratory approach because it is adaptable and flexible as we gain new insights. In line with Yin (2009), we argue that a case study is a good choice of methodology since the study investigates a phenomenon in a real-life context where data collection and analysis have been guided from prior development of theory. Case studies can be conducted either as "orthodox cases" or "emergent cases" (M. Saunders & Thonhill, 2019). Our research started with predefined topics and a highly structured approach to the formation of the research question and interview matrix. However, during the research, several opportunities for deeper understanding presented themselves. We were opportunistic and adaptive to change, if it warranted

better understanding of our research topic. In several cases, we adapted both our interview matrix under the condition that the benefits of doing so would outweigh the loss in validity and academic rigour. Our study was therefore of the type "emergent case", with a narrowing focus as the research progressed.

This case study follows a holistic case design, meaning we have limited this research to the context of our cases and included multiple customer relationships (interviewees). This resulted in qualitative data that gave us a broad understanding for the analysis. Qualitative data was collected in accordance with our research design to get an understanding of what preferences underlies successful pricing structures.

3.2.4   Interview Process

We chose to conduct our interviews face-to-face. Face-to-face interviews are more time-consuming, however they are advantageous when sensitive questions need to be asked. Telephone interviews are more cost-effective and is not contrained by geogrphical location, however it is more difficult to connect with the interviewee, which may inhibit the conversation (Collis & Hussey, 2014). Due to the sensitive nature of pricing in any business environment, we felt it was important for the validity of the study that interviews were conducted face-to-face.

Approximately one week before every interviews, we send out the attached interview guide in appendix to every interviewees. This approach is to get interviewees familiar with our intention and focus of this interview. At the same time, we also handed out the non-disclosure agreements (NDA) to every interviewee, in order to secure the information confidentiality for their benefits.

The interviews were for the most part held two-to-one, then recorded and transcribed as soon as possible to ensure that no information got lost. By interviewing together we were able to align the way questions were asked to ensure validity and ensure that the data is comparable and reliable. We asked our questions in a logical order. We started with general topics, and moved to more specific topics as the interview progressed. For the majority of questions open questions were used, which we sometimes followed up with probes.We used summary questions at the end of the interview to ensure that nothing had been misunderstood. When an interviewee mentioned something that diverged considerably

from previous interviewee, we made sure to try to understand that person's paradigm, and to draw out the reason behind that interviewees diverging views. A comprehensive descriptive table of interviews is attached in the appendix.

3.2.5   Interview Matrix

Presented below are examples of interview questions to be asked. These are developed prior to the interviews based on the preliminary research. As the interviews are conducted the interview guide is set to be adjusted and extended if necessary to reflect the topic more precisely consistent with the methodology of exploratory studies (M. Saunders & Thonhill, 2019). To foster open discussion and gather unbiased, rich data, we conducted face-to-face interviews in one-to-one or two-to-one settings. This approach allowed for exploration and clarification of understandings during the interviews (M. Saunders & Thonhill, 2019). Lastly, these interviews are conducted in Norwegian, which is the first language of all interview objects in order to create a safe atmosphere for interviewees to speak their opinion. All interviews are voice recorded, transcribed, and anonymized.

In this section we will show example of questions and themes included in the interview guide (3.5). The complete interview guide is attached in the appendix.

Table 3.5: Interview Matrix

Theme	Question
General about information need	How do you gather information?
InaaS	Are you familiar with the concept of InaaS? What is your overall expressions about InaaS?
Pricing structures	Which pricing structures are your familiar with in InaaS concept?
Preference	What makes a pricing structure attractive for you? Why do you have preference over some parameters of a pricing structure over others?
Cost-benefit	How do you measure the value of an InaaS product toward the price you pay?

3.2.6   Secondary Data

For this research we included publicly available information on case companies through websites, press reports and news articles from relevant journals. We also chose to include several articles, academic research papers and other documents relevant for pricing structures. This helps us get a thorough understanding of the proptech sector. The use of secondary data helps us develop the interview guide and lead to better understanding of context for the case study. Combining primary data with findings retrieved from secondary data collection and analysis may put the research into a broader context and strengthen the validity of our research

3.3   Data Analysis

In general, Miles and Huberman (1994) suggest that when analysing qualitative data, it is important to continuously identify similar patterns, themes, and phrases to help focus the research and the data collection further on. We will follow this advice during our interviews and keep notes of our preliminary interpretations.

The 15 interviews we have conducted will be audio recorded and transcribed as closely to the original wording as possible to limit the risk of adding our own interpretation. A transcription solution called JOJO by VG has been used to transcribe the interview recordings. This solution is based on the Whisper Large-Language-Model by OpenAI, and uses the latest Artificial Intelligence technique's to transfer data from audio to text format. This new advancement in transcription technology has enabled us to gather all the information from the interviews and has greatly impacted our efficiency.

The analysis of the data will be done using the thematic analysis approach. This prominent approach offers an orderly and logical way of searching for themes and patterns that occur in our collected data. We will conduct the analysis in line with the recommendations of M. Saunders and Thonhill (2019). Due to the importance of the analysis, we have devoted a chapter to show our methods and results. With this chapter, we give researchers a better understanding of our work, and thereby greatly improve our study's reliability; which is an important aspect of the quality of our research.

3.4   Quality of the Research

To maintain a high quality for our research, it will be important to ensure validity and reliability throughout our study. Validity means to make sure that the research is about the right thing, and reliability is about making sure that the research is conducted in the right way (Blomkvist & Hallin, 2015). Good validity and reliability makes the research more appealing and ensures that if someone where to replicate our research, they would get the same result (Collis & Hussey, 2014). Any case study that wants to ensure research of good quality will be dependent on validity, meaning that the measures used are appropriate. This ensures that we have a high degree of accuracy in our analysis of our collected results, and that our findings are generalizable (M. Saunders & Thonhill, 2019). M. Saunders and Thonhill (2019) differentiate between internal and external validity.

Internal validity refers to the extent our findings can be attributed to the intervention we are researching instead of flaws in our research design. Generally, internal validity does not pose a strong risk to qualitative research. This is due to the nature of the in-depth exploratory methods we employ in our data collection, which our proposed theoretical relationships will be substantiated with M. Saunders and Thonhill (2019). To ensure internal validity for our study, we have decided that it is important that we don't ask leading questions, and try to keep our interview guide somewhat similar during our data collection. Due to our emergent case approach, the interviews are developed to be more specific for our research direction, while still opening for new digressions, as argued for in our interview section.

Furthermore, we will strengthen our internal validity by asking our interviewees to explain their understanding of key terminology and concepts such as pricing structure, InaaS and perceived value to ensure that we have a solid shared interpretation of their views when analysing. We are however mindful of the fact that our subjective biases might influence the interpretation and that selecting different interviewees might have led to different insights. Our choice of an exploratory research approach, limits our thesis to qualitative data. Including quantitative data could allow for triangulation of findings which can strengthen the internal validity. We decided early one that it would not be feasible to collect quantitative data, and while our interpretations risk being judgemental, this risk is accounted for by a rigorous approach to thematic analysis and the fact that

we as researchers don't have any preconceived notions of what the findings can end up as.

External validity refers to the degree to which the study's findings can be generalized to other relevant contexts. We understand this to mean that findings from our research setting can suggest generalizations for other settings, given that the characteristics of the research are similar M. Saunders and Thonhill (2019). One of our main objectives have been to ensure that our study's findings are generalizable to similar contexts and a section of our discussion is devoted to argue for the generalizability of pricing research across different as-a-service domains. We have followed a clear and structured method which similar studies can apply on similar companies in a similar context, and thus, Gibbert et al. (2008) argue that research with our characteristics makes a thesis generalizable to a other circumstances.

We understand reliability as the absence of random error that hinders other researchers from arriving at the same conclusion as us, should they decide to replicate our study. It was therefore important for us to be transparent in how we have structured our research by sharing our full interview matrix and writing a thorough literature review and methodology section. Our literature review consists of literature mostly from highly esteemed journals, and interviews were conducted with individuals with specific knowledge of considering and evaluation the pricing structures of InaaS vendors, which according to Gibbert et al. (2008), ensures reliability. Since our research paradigm has been interpretivist, the reliability of findings have been considered high if they have been verified by multiple interviewees. This consideration can be questioned since interviewees could have been chosen to get similar answers. This was not the case in this study, since interviewees have self-selected and a combination of network-based, snowball and opportunistic selection approaches have been used. Our interviewees are also from different market segments and positions making them heterogeneous. We are also aware that the reliability of our findings can be weakened if the interviewees share false statements or are not sharing certain information due to the sensitive nature of the topic. Therefore, we as researchers have been careful, and made sure the confidentiality of their contributions is kept intact. We have communicated this effort to establish higher trust in our interviewees.

Another important aspect of reliability is consistency (M. Saunders & Thonhill, 2019). To ensure consistency we keep the interviews in line with our interview matrix, although

consistent replication of semi-structured interviews can be difficult due to the uniqueness of interviewees responses. In an effort to reduce the chance for researcher bias, we will ask open questions and go over the transcribed interview individually as well as together to ensure the same interpretation and avoid unconsciously confirming our personal beliefs. We limit the chance for interviewee errors and bias by making sure the interviewees get to choose a convenient time for the interview and making sure we put aside enough time to limit stress. We also conduct the interviews in their offices to ensure anonymity.

3.5   Ethical Considerations

In the course of this research, a meticulous approach was adopted to uphold the highest standards of ethical integrity. This was vital not only for the credibility of the research but also to ensure the rights, dignity, and well being of all interviewees involved. The key ethical guidelines followed include:

All interviewees involved in the research, especially those interviewed, were provided with a clear understanding of the research's objectives, processes, and potential implications. Prior to the interview sessions, each interviewee was given an informed consent form that detailed the purpose of the research, their role, and the nature of their involvement. Only those who voluntarily agreed and signed the form were included in the study.

Protecting the identity of the interviewees was a primary concern. All data gathered, including interview recordings and transcriptions, was stored securely and will be deleted after the project. In the presentation of findings, real names and specific identifiers were omitted or pseudonyms were used to ensure interviewees' confidentiality. This was done to encourage honest feedback without fear of potential reprisals or negative consequences.

4 Thematic Analysis

As we discussed in our methodology section, thematic analysis offers an orderly and logical way of searching for themes and patterns that occur in our collected data. In the following section, our thematic analysis will be presented. A key part of our research is the identification of certain parameters that affect the perceived value of customers. The presented work in this section covers how these parameters where identified.

Data Familiarization

Transcriptions of interviews were initially generated with the use of the JOJO software. We have delved into the interview recordings and manually checked the generated transcripts for accuracy. The software transcriptions aren't completely accurate, and the process of going over each transcript manually, while laborious, has made us familiar with our data. This familiarization is in line with recommendations of M. Saunders and Thonhill (2019). It has also led to discussions of intangible and abstract concepts that needed closer interpretation, for example when interviewees made statements that could be understood differently, based on tone of voice. This initial phase was done closely following our interviews so that our recollection of the context, body language and overall feel during the conversation was as accurate as possible.

A thorough familiarization with the data proved helpful when we moved on to the next phase of generating codes.

Code Generation

Coding can be understood as a method for categorizing data with similar meaning(M. Saunders & Thonhill, 2019). Our interview data can be broken into extracts that represent a meaningful word or short sentence. These extracts are referred to as codes, and are helpful when we will conduct further analysis on our data. Our codes have somewhat different lengths - ranging from a single word to full sentences. In addition we have sampled out direct quotes that will be referred to for enhancing certain findings later on.

Our process for coding our data was manual. We went trough each transcript and extracted codes that we found were important for our research. We collected our codes in a software

called Miro, which functions as a digital whiteboard. The process of gathering the codes in this way made the data more manageable, and helped us when generating an initial structure for our codes. The manual process to categorize data is illustrated in figure 4.1.

Figure 4.1: Generated Codes

Codebook Development

Our initial codebook is developed in coherence with the structure of the interview guide and with the relevant literature presented. As we familiarized ourselves with the data and developed codes, several initial themes emerged that made the analysis of codes more organized. These initial themes were formed in part by the structure of the interviews themselves, and in accordance with the relevant literature we use to guide our exploration.

Our initial codebook has the following structure:

Table 4.1: Key Factors in InaaS Evaluation

1 Information Need
2 Familiarity with InaaS
2.1 Perception of Value Communication
2.2 Perception of Pricing Structure
3 Perceived Value
4 Preferences within Pricing Structure
5 Preferences within Value Communication
6 Other

Our codes have been categorized in Miro in accordance with the codebook. The codebook improved the interpretability of our data, and as we transcribed and coded more interviews, some patterns started to emerge.

Searching for Themes

The objective of our study is to identify which parameters form the preferences of InaaS Customers towards pricing. Further, we want to understand how aligning pricing structures with these preferences can impact perceived value. As we have structured our interview data for interpretation, it became apparent that themes 3,4 and 5 were the most relevant parts of our data and deserved closer analysis.

To extract the relevant interpretations that can help to answer our interview questions, we started looking for important patterns and relationships of our data, inline with the suggested method of M. Saunders and Thonhill (2019) when searching for themes.

We started our search for themes by looking for recurring statements that seemed to support each other. To enrich our initial search, we tested integrated a novel approach using Large Language Models (LLMs) for thematic analysis. Informing our approach were recommendations drawn from recent studies utilizing Large Language Models (LLMs) for this purpose. This integration aims to enhance the efficiency, depth, and rigor of our qualitative analysis, drawing on the strengths of both human insights and AI capabilities. The methodology is informed by findings from four key studies: "LLM-in-the-loop: Leveraging Large Language Model for Thematic Analysis" (Study 1), "Can Large Language Models perform an inductive Thematic Analysis of semi-structured interviews?" (Study 2), "Redefining Qualitative Analysis in the AI Era: Utilizing ChatGPT for Efficient Thematic Analysis" (Study 3), and "Using Large Language Models to Support Thematic Analysis in Empirical Legal Studies" (Study 4).

The output form the AI-enhanced thematic analysis was quite interesting, but we have been vary of it's quality. Since we are quite inexperienced as researchers, we have to be careful in letting these outputs influence our analysis. We have to be mindful of model hallucinations, which can lead us to wrong interpretations. However, the benefits of the outputs were obvious during our ideation. Building upon AI outputs, and combining our ideas with certain outputs, we were able to identify underlying parameters that seemed to

be integral to understanding the preferences of our study interviewees.

With this search, a more refined set of themes started to emerge. We began categorizing our data in Miro to reflect our more nuanced interpretations of the underlying preferences for both pricing structure and value communication. In figure 4.2, we have the refined codebook with our final themes.
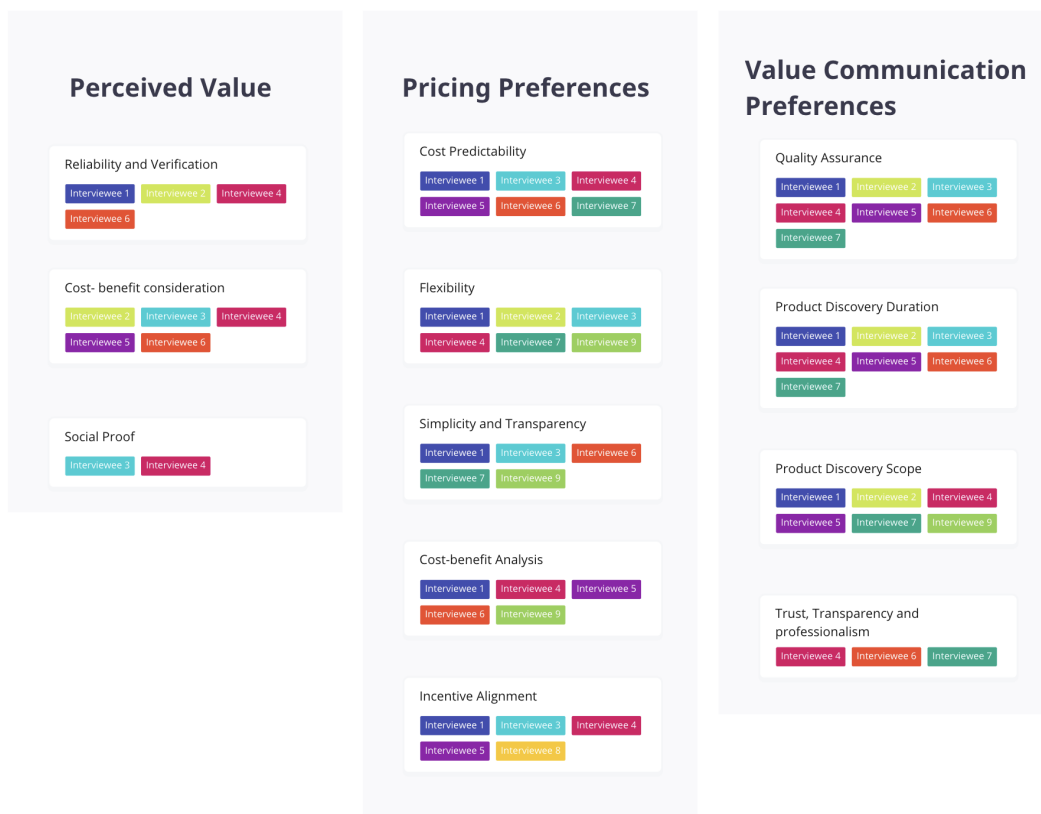
Figure 4.2: Key Themes

Some themes have been grouped together due to the similarities between them. Simplicity and transparency are closely related as they were often talked about simultaneously during our interviews. And a transparent model is often understood as one that is simple to understand. In a similar fashion, we have decided to group trust, transparency and professionalism because they seem to have similar characteristics, and all relate to the relationship between customers and vendors.

5 Findings

In this section, we present the results derived from the extensive interviews conducted with the study interviewees. From our interviews we have been able to build a comprehensive data set on preferences for different pricing structures for InaaS products. The presentation of our findings will follow the themes that emerged from the refinement of our codebook.

The first phase of our interview delves into the information needs of potential customers of InaaS products. Through thematic analysis of our interview data, several key themes have been identified, shedding light on the varied requirements and expectations of users. These themes are pivotal in influencing the pricing structures of InaaS offerings, particularly in relation to minimizing potential misalignment with the uncovered expectations.

5.1 Diverse Information Needs

Traditionally, the real estate industry in Norway has relied on realtors to gain valuable insights, including information on hidden syndicates and customer preferences. This perspective is explicitly endorsed by interviewees 1, 2, 6, 8 and 9, as well as all three of our experts. Interviewee 2 elaborated on the significance of realtors, emphasizing their expansive networks and close communication with customers. This intimate connection allows realtors to access details about customer preferences and facilitates the identification of hidden syndicates, offering a unique competitive edge.

A prominent theme emerging from the interviews is the demand for more information to enrich the understanding of the continually emergent market and supplement their own analysis. This need is especially pronounced in sectors that rely on data-intensive operations. Interviewee 3 underscored the importance of external data in enhancing their analytics and visualization capabilities. This sentiment was echoed by interviewee 6, who stated:

> *"Such services will contribute to making us better and enhancing our arguments, that we are more confident that we are making the right decision."*

Interviewee 6 also emphasized that:

> *"We will probably never purchase software that concludes something, but it*

should provide us with insights."

The recurring mention of enriching internal data pool underscores a market segment that highly values the depth and specificity of information.

Another significant theme is the emphasis on efficiency in data sourcing amongst both small and big firms. Interviewees 1, 4, 7 and 8 underscored the significance of consolidating information in a single location, streamlining access to diverse data sources to save time. Interviewee 7 emphasized the necessity of simplifying extensive data to enhance its practicality and increase the frequency of its utilization. Additionally, interviewee 5 highlighted the importance of this, particularly for smaller firms where efficiency is a necessity. These responses underscore a distinct demand for InaaS products capable of improving the existing efficiency and accessibility of data. This requirement aligns with the overarching goal of fostering streamlined processes and informed decision-making across varied organizational scales, reinforcing the crucial role of InaaS solutions in enhancing overall operational effectiveness.

The synthesis of these findings is the diverse range of information needs among potential InaaS customers. It becomes evident that a one-size-fits-all approach to service delivery is unlikely to be effective. Instead, vendors need to be flexible and adaptable, and be able to cater to specialized analytical needs, market insights needs, needs for exclusive information, and value-added interpretation services. This nuanced understanding of customer needs seem to suggest that value creation isn't uniform across the market.

In addition to starting our interviews with the subject of information, we asked how familiar our interviewees were with the concept of buying InaaS. We also asked them about their interpretation of the term InaaS. All interviewees demonstrated a solid comprehension of the notion of obtaining information through a service; however, a minority were either unfamiliar with the term InaaS or expressed disagreement with the terminology. Both interviewees 1 and 4 acknowledged the distinct role of InaaS in fulfilling specific needs, underscoring its importance. Furthermore, interviewee 5 exhibited familiarity with the concept, mentioning the utilization of various external data and information providers. These observations indicate a clear grasp of the functionality and relevance of InaaS in their operational context, and confirmed that the interviewees were knowledgeable about the topic of our research.

5.2   Perceived Value in InaaS

The subject of perceived value, and how perceived value is formed, is detrimental to our study. In our interviews we have probed the interviewees about what makes them perceive certain offerings as valuable. Three key themes emerged from the interview data: 1) Cost-benefit analysis, 2) Reliability and Verification of Data, and 3) Social proof. These themes provide insights into the factors that influence how potential InaaS customers perceive the value of these services, factors that should be considered when formulating a pricing model.

Cost-benefit Analysis

A key factor for perceived value that emerged from our interviews was the degree to which is was possible to predict that the benefits of the service would outweigh the costs. Interviewee 2 shared about their ability to predict the cost-benefit relationship by pointing out the challenges in establishing a clear, measurable link between the use of InaaS services and tangible results.

> *"It is very diffuse, or impossible, to establish a connection between the use of a system and the results."*

Others corroborated the diffuse or seemingly impossible correlation between the use of InaaS systems and observable results. This theme reflects the complexities involved in assessing the tangible outcomes of InaaS.

Both interviewees 3 and 8 provided insights into how decisions regarding InaaS adoption are often influenced by perceived rather than calculated value.

> *"Yes, there has been more focus on perceived value than calculated value."*

(Interviewee 3)

> *"No, not in such detail. It's more about the perceived value in a way."*

(Interviewee 8)

Interviewee 3 further elaborated that subjective assessments of value can significantly influence decisions to adopt InaaS solutions. This theme underscores the subjective nature of value assessment in the context of InaaS.

Interviewee 5's willingness to commit to service contracts based on his subjective opinion of expected value underscored the subjectivity of the perveived value for InaaS products. This finding suggests that InaaS providers should focus on clearly articulating the expected value and potential outcomes of their services to encourage commitment from potential customers.

Interviewee 4 discussed the lack of detailed cost-benefit analysis in their organization, indicating a reliance on usage metrics like logins and output for assessing InaaS value. This theme suggests an alternative, more observable metric-based approach to predicting the future benefit of InaaS services. Interviewee 5 suggesedt another approach to predicting future benefit based on prior experience. The interviewee states that he benchmarks the price against prior offers.

> *"The judgment of whether a service is good or not is quickly made based on experience. If the service has value, it gets adopted."*

Reliability and Verification of Data

A significant theme that emerged from the interviews is the centrality of data reliability and verifiability. Interviewee 1 emphasised that the trustworthiness of data underscored the foundational role of data integrity in the perceived value of InaaS. Interviewee 1 shared:

> *"For it to be useful, it has to be good enough for us to trust it."*

Interviewee 4 had similar views as interviewee 1 and stated:

> *"They have data that we don't have ourselves, so we need to know that we can trust that the data is correct and that there's nothing wrong with it."*

The verifiability of data is also mentioned as an important factor that contributes to the perceived value. This finding is explicitly conveyed by interviewee 6:

> *"We can't blindly trust the data presented."*

The interviewee elaborated further that verifiable data, is less uncertain which greatly impacts perceived value. This theme points to the crucial role of data integrity in shaping the perception of InaaS value among users.

Social Proof

Social proof and customers' perceived value intertwine seamlessly in consumer behavior and impacts potential customers. Social proof, evident through positive feedback, recommendations, and testimonials from other consumers, profoundly influences how potential customers perceive the value of a product or service. Witnessing others' positive experiences not only builds trust but also enhances their perception of the product's value. Interviewees 3 and 4 confirmed the aspect, interviewee 4 further emphasised the statement by:

> *"At least it's a good starting point that someone else believes it has value."*

The findings related to perceived value reveal that the perceived value of InaaS is influenced by a variety of factors, including the reliability of data, the challenges in quantifying value, subjective decision-making processes, the use of simple metrics, and the expected benefits. The findings suggest that it is challenging to form an accurate perception of value for InaaS services. These challenges seem to be related to the subjective nature of information, which indicates that the price structure and especially the value communication for these services has a central role in encouraging a high perceived value.

5.3   Pricing Structure

In this study, we explored the perspectives of various professionals on the pricing structures of InaaS products. Our thematic analysis provide critical insights into the preferences and experiences related to InaaS pricing models. These insights are instrumental in understanding how pricing structures can be optimized to cater to the diverse needs of InaaS customers.

A significant theme that emerged from the interviews was experience with subscription-based pricing models. Interviewee 2 for instance, discussed their organization's experience with an non-gated subscription pricing model offering unlimited user access with a 12-month contract duration. Conversely, interviewee 3's experiences highlighted a tiered approach to subscription models. They described a structure involving a flat fee for a package with a set number of licenses and additional costs for extra licenses. This approach seems to cater to varying scales of organizational needs, allowing customization based on

the size and usage requirements of different clients. These perceptions are indicative of a broader trend where almost all interviewees mostly think of subscription pricing structures as the norm.

In addition to the established norm of subscription based pricing structures, our interviewees where aware of other pricing models and shared their varied experience with us. Interviewee 1 shared an experience with a pay-per-use model and we asked her about her perception of this model:

> *"That model is a very simple and straight forward model to deal with. I think it is fair to pay for each report that we request from the platform."*

Interviewee 3 shared a positive view of more usage based models as an alternative to subscription models:

> *"It could indeed have been a possibility to determine the cost based on how much it was actually used."*

However, they also noted the potential downside of this model, as it might deter users from freely exploring datasets, as there would be an increasing cost associated. Additionally, they had felt adequately satisfied with a vendor that offered a two-part pricing structure consisting of a flat base subscription rate in addition to a per seat cost driver.

The interviews also shed light on some innovative pricing arrangements within the InaaS sector. Interviewee 3 mentioned data exchange deals leading to discounted or zero-cost services. This emerging trend, where data itself becomes a form of currency, represents a novel approach in pricing models, potentially aligning the interests of InaaS providers and clients more closely.

Furthermore, interviewee 3 mentioned a model where the payment flow and contract duration would be determined by project length to align with the needs of project based operating models that are prevalent in the real estate industry. This novel approach had been discussed due to prior experiences of misalignment with legacy SaaS pricing models. It was specifically shared that multi-year subscription agreements might have good alignment with an ongoing project at the time of the agreements signing. However, there might be other needs that are neglected as the firm moves on to other projects with different characteristics.

The findings highlight a clear trend towards subscription-based pricing structures, with a preference for predictability and scalability. The data also reveals a willingness among InaaS consumers to engage with innovative pricing structures, such as data exchange arrangements and pilot programs, which offer mutual benefits to both providers and clients. The varied perceptions also suggest that multiple pricing structures can have good alignment and that a subscription structure is not always the best option.

5.3.1   Parameters in Pricing Structure

In this section, we have organized interviewees' preferences for pricing structures into six parameters. These parameters aim to contribute to establishing a comprehensive overview of factors influencing the customers', product discovery, perceived value and purchasing decisions.

Cost Predictability

Many interviewees prefer pricing structures that offer predictability in costs, enabling them to budget and plan finances more effectively. This could lead to a preference for flat-rate or fixed-cost pricing models. Lets take interviewee 5 as an example. He values predictability in pricing, as indicated by his statement that he believes a preferred pricing structure mainly is about predictability. This highlights a preference for pricing structures that are stable and predictable over time. This preference was shared by interviewee 4:

> "It's a bit difficult to say what the best model is. The most important thing, I believe for us as a company, is to have control over our costs, and in this sense subscription solutions are preferred, because it's very predictable, you know what your budget is, and what the cost will be."

Interviewee 7 represents a larger firm and shared his view on predictability in pricing structures.

> "We prefer to know what we are paying, that now one has to carefully monitor every agreement all the time, for unpredictable cost jumps and such. We want to be assured that this won't happen."

Interviewee 4 elaborated further on the topic with a more nuanced view dependant on whether a service was used regularly or not:

> *"So, regarding these solutions that we use a lot, I think a subscription is the best solution, because it's predictable, and you know what the cost is, and it avoids the stress of suddenly incurring a lot of costs if you use it often and order reports all the time, while for solutions that are used infrequently, it's probably optimal to pay per use."*

The interviewees expressed a clear preference for pricing structures that provide cost predictability, allowing for effective budgeting and financial planning. Subscription based pricing has been mentioned as advantageous for larger firms that underscore the significance of knowing the costs upfront to avoid unforeseen expenses and the need for constant monitoring. In addition, the subscription pricing model is also preferred for regular use due to their predictability. However, pay-as-you-go model might be optimal for solutions used infrequently.

Another theme related to predictability is a preference for packages related to seat based fencing. Interviewee 1 shared if the use of a service increases, an enterprise solution with fixed terms for a pricing bundle will be more relevant. In a large organization, there is employee turnover and promotions and other dynamics that lead to fluctuations in the number of seats needed for a given service. Some leeway in the number of seats is therefore preferred. Interviewee 3 gave us further insight on this:

> *"Then it might be that we just agree on a package price, and that's for up to x number of licenses, so that's great."*

Pricing a bundle of seats such that some fluctuation in seat allocation doesn't affect the price of the product adds some additional valued predictability in what the cost will be.

Simplicity and Transparency

The ease of understanding a pricing model can be a crucial factor in the success of a given pricing structure. In fact, the initial response to our question of underlying preferences was mostly the importance of a simple structure. Almost every interviewees stated that they were put off by pricing models they couldn't immediately understand. Complex pricing structures are therefore often less attractive compared to straightforward, transparent models. Both interviewees 3 and 8 favored simplicity in pricing structures and put it like this:

"For my own sake, I prefer to keep pricing as simple as possible"

<div align="right">(Interviewee 3)</div>

"It's all about simplicity. Simple, clear."

<div align="right">(Interviewee 8)</div>

The transparency of a pricing model is closely tied to to the ease of which is can be understood. Interviewee 3 prefers straightforward bundle deals over complex models as he elaborates, when asked about transparent pricing models:

"Some solutions, which I have encountered a few times, where you sign up for a service, and want to extract data in Excel, for example, and then I call them and ask how do you do that? They answer it costs an additional 10,000 a year for this feature. I would say that is a negative customer experience."

Interviewee 9 similarly prefers a simple pricing structure with a simple flat rate, or at least a structure that he feels is budgetary justifiable. Furthermore, interviewee 1 appreciated the straightforwardness of the pay-as-you-go model, as these models provide a direct and transparent way of understanding costs on a per use basis.

The majority of interviewees underscored the importance of a straightforward and transparent pricing model, expressing a preference for simplicity. The consensus is that complex pricing structures are less attractive, causing interviewees to be put off if they cannot immediately comprehend the model. The sentiment is echoed by several interviewees who specifically highlight the negative customer experience associated with intricate pricing models, emphasizing the need for transparency. This suggests that pricing structures should be easy for customers to comprehended.

Flexibility Flexibility is a strong preference that has been highlighted by the majority of interviewees. Some interviewees prioritize flexibility, opting for pricing models that allow them to scale up or down based on usage or changing needs (e.g., pay-per-use or tiered pricing models). This statement is confirmed by interviewee 1 who stated:

"I believe they benefit from having as much flexibility as possible."

Additionally, interviewee 3 also highlighted the importance of flexibility in adjusting the number of licenses as per actual needs, underscoring a preference for adaptable pricing

arrangements.

Furthermore, interviewee 4 and 8 also expressed a positive view of flexibility within subscription models, suggesting that having various options within a subscription format would be beneficial as well. Building on this, interviewee 7 expressed:

> *"Can also agree on tired-based pricing since there are many services now that overlap, so you don't have to pay for something you already have."*

A key preference for interviewees 4, 6, 7 was the flexibility to pay for specific services as needed in order to save costs. Interviewee 4 cited the example of Benchmark Alliance in the hotel sector, where they can order reports as required, finding this model particularly useful for services used intermittently.

> *"For solutions that are less frequent, the optimal approach is likely to pay on-demand."*

Interviewee 9 had a similar preference, and stated that a pricing model where the cost would decrease with infrequent use would be favored. He suggested a low base fee with a usage based component that would increase with increased use.

Interviewees 6 and 7 suggested a tiered-based pricing model and a pay-as-you-go pricing model to emphasis their focus on cost saving:

> *"Would rather choose only the functionalities that are useful for the company, instead of opting for a simple pricing model to adhere to, which might have become more expensive."*

> (Interviewee 6)

> *"Flexibility, for example, in a package price based on the number of users, so that one can avoid some administrative work if there are suddenly a few extra users."*

> (Interviewee 7)

Interviewee 2 shed light on another positive effect of high flexibility in pricing models, emphasizing the importance of reducing entry barriers:

> *"High flexibility reduces entry barriers."*

The interviewee indicated a priority for pricing structures that are adaptable and accommodating to different user needs. The interviewee also explicitly suggested a disliking towards pricing models that include automatic subscription renewals. Stating that the act of having to renew manually - in combination with a one month cancellation policy - gives maximum optionally.

Interviewee 4 talked about how needs often are different for different projects and that acquisition and use of InaaS software was dependent on project needs. The interviewee expressed a preference for pricing structures that were flexible such that the solution could be adapted to the needs of different projects, otherwise different projects might need to acquire similar software separately to achieve the desired fit.

The majority of interviewees emphasize the importance of flexibility in pricing structures, preferring options that allow scaleability based on usage or changing requirements, such as pay-per-use or tiered pricing. A common preference is the ability to pay for specific services as needed, offering cost savings, especially for services used intermittently. Moreover, reducing entry barriers is an additional consideration supporting the desire for adaptable and accommodating pricing structures that align with diverse user requirements and project needs. This parameter is at odds with the parameter of simplicity as more flexible pricing structures have higher complexity. This finding suggests that trade-offs between these parameters are present which complicates the formulation of a pricing structure with high alignment.

Commitment duration

The required length of commitment (e.g., month-to-month versus annual contracts) can influence users' preference towards pricing structures, especially for customers that are hesitant to make long-term commitments due to uncertainty of the products' value and their frequency of use. A central theme in our interviews emerged as we probed further about the topic of commitment duration. Most of our interviewees had the view that yearly commitments where quite normal and they mostly expressed that this was an acceptable and fair level of commitment for both parties.

Interviewee 4 expressed explicitly a preference for pricing models with shorter binding periods, especially for newer companies:

"We prefer to avoid long-term commitments."

This preference is motivated by the desire to avoid long-term commitments with untested services. The interviewee proposed their hesitancy to commit for newly developed services, and are wary that prospective benefits might not materialize. Despite their inclination towards short-term commitments, the interviewee acknowledges the commonality of annual subscription models in the industry and seems to accept them as a standard practice.

Interviewee 6 viewed lock-in contracts negatively, preferring arrangements that do not bind the customer for extended periods:

"No, we do not want binding periods. I see it as a negative aspect."

There is a clear preference for flexible, month-to-month contracts that can be terminated as needed. Interviewee 6 continued:

"It is important for us to have a month-to-month agreement that can be cancelled."

The interviewee also expressed that low commitment keeps vendors on their toes, giving him additional assurance that they are working hard to retain him as a customer.

Interviewee 1 gave a prominent insight on the theme on commitment duration in our interview:

"The willingness to commit is dependant on how integrated the solution is in our daily operations"

It appears that the generally acknowledged commitment duration has some exceptions. Interviewee 7 shared that they are more willing to commit for longer multi-year periods in situations where they have participated in the development of the solution through either pilots or research projects.

Interviewee 1 saw large potential benefits from having project-length determining the duration of a commitment to a InaaS solution. This stems from the earlier finding that needs are often project specific and project managers are often tasked with acquiring tools for specific projects multiple times a year. A typical one year lock-in is therefore prohibitive as most projects last less than a year, meaning the software might not be needed after the end of the project duration.

In the findings on commitment duration, the majority of interviewees consider yearly commitments as acceptable and fair. However, there was a noticeable preference for shorter binding periods, especially for new or untested services. The willingness to commit seem to be dependent on how integrated the solution is into daily operations. Additionally, there were exceptions to the generally acknowledged commitment duration, with some interviewees indicating a higher willingness to commit for longer periods when they were actively involved in the development of the solution. This suggests that different customer segments have different tolerance for commitment, and that early adopters are especially tolerant due to their contributions.

Value Assurance

The perceived value is closely tied to considerations of future costs and benefits. This consideration can significantly impact pricing structure preferences. In the current business climate, we have found that our interviewees are cost focused as explained by interviewee 1:

> "We try to think that we have to justify each license we take out for such products."

For our research, we found a central theme in our interviews to be that these calculations are difficult to estimate for InaaS products. Interviewee 1 shared that it can be difficult to measure the economic impact a solution actually contributes to the total value of a project.

> "It is very difficult to measure the value that the solution contributes to increasing the overall project value."

Interviewee 3 shared the same belief and emphasises:

> "However, pricing, in general, is a challenging evaluation. It is very difficult to assign an economic value to the amount of time we will save on that specific task."

Interviewee 8 believed that it is easier to justify consumption under a tiered pricing structure, even though this leads to a more intricate assessment base, involving a variety of product features. The added complexity of this model can lead to confusion, compared

to simpler pricing models with higher overall costs. The interviewee states:

> "So it will feel right. If you can build some modules or choose specific features.
> It can quickly become confusing.."

However, from a cost-benefit standpoint, the interviewee argued it becomes easier to evaluate the cost of each product feature against the potential benefits.

Interviewee 5 mentioned evaluating the value of subscription services based on usage frequency, indicating a practical approach to determining the cost-effectiveness of subscriptions, rather than concrete cost-benefit calculations.

> "It could have been an option to control it based on how much it is actually
> used. It can be the number of hours of up-time for the software, the number of
> gigabytes downloaded in terms of data sets, and so on."

Interviewee 8 hold a similar perspective and requests regular updates from vendors regarding their frequency of use, enhancing the interviewee's comprehension of the cost-benefit relationship.

Interviewees exhibited a focus on costs when considering perceived value in relation to benefits. Justifying each license for such products is a common practice. However, challenges arise in estimating the economic impact of InaaS solutions on overall project value. Within this context, tiered-based pricing is seen as a means to justify consumption, even with the potential for higher complexity. Additionally, usage frequency is suggested as a method for evaluating benefits, favoring a more pragmatic approach over precise cost-benefit calculations.

Alignment of incentives

Throughout our interviews, many interviewees have conveyed their preference for aligning incentives between customers and vendors, emphasising that vendors should structure their pricing in a manner that encourages frequent product use. As this will ensure a mutually advantageous relationship for both parties. Interviewee 8 expressed this view explicitly:

> "And a kind of solution where the supplier has an incentive to get us to use
> the services as effectively as possible. Get the most out of it. Then the vendor

earns more. The more we use it, and the better we manage to utilize it, the
more the vendor earns. Not the other way around."

He prefers a situation where the assessment base is tied to usage metrics, such that higher usage will drive revenue for the vendor. He argues that this incentivises the vendor to ensure customers are actually using the product and receiving value. Interviewee 4 is also a fitting example of someone that prefers that the incentives of the vendor is tied to frequent use of their service, stating that infrequent use should lead to infrequent cost. In contrast, interviewee 5 conveyed his reason for disliking usage-based pricing by stating:

"I dislike usage-based pricing because humans can make mistakes, and it affects
the psychology."

The interviewee 5 argued that a potential negative consequence of having a usage dependant assessment base is that it inhibits exploration. Sometimes, his team of analysts are exploring different ways of analysing data and often errors in the analysis leads to amendments to the analysis and some trial and error can be necessary. Obviously, this dynamic will be affected if there is a cost associated with trial and error. It would greatly affect the way his analysts approach the use of the product. This finding hints at how complex it can be for vendors to effectively align their incentives with the good outcomes for their customers.

When vendors do not share the same incentives as their customers, the customers' perceived value may be affected negatively. This statement is emphasised by interviewee 3:

"For example, a service where we have 20 licenses in a standard package, it
turns out that we may actually only need 10. So, the perceived value quickly
feels a bit off. But for their part, it doesn't really matter to them, and there's
no additional cost for them either, whether it's 10 or 20 licenses. So, we just
have a dialogue about it and find a solution."

Reiterating what interviewee 6 proposed in Commitment Duration about short commitments. The interviewee favors a scenario in which the vendor is motivated to consistently improve their product and feels obligated to consistently validate their promises through timely delivery of value.

"I think it's good that service providers are a bit under pressure; they need to

evolve and stand by what they deliver. (...) I believe that as a customer, you
have some power there, that you're not tied up for too long. Personally, I feel
much more confident that they have to work to keep me as a customer."

Interviewees consistently advocate for aligning incentives between customers and vendors, emphasizing that pricing models should encourage frequent product use for mutual benefit. The idea of vendors being incentivized to maximize service utilization is favored. Disapproval of usage-based pricing is noted for its potential errors and psychological impact. The preference for vendor incentives tied to frequent use is highlighted, while misaligned incentives are recognized as potentially affecting perceived value.

5.4   Value Communication

In this study, we examined the general familiarity with InaaS among real estate professionals and their experiences with the communication of its value. The thematic analysis, based on our conducted interviews uncovers a spectrum of understanding and varied experiences with value communication in InaaS.

Interviewees shared diverse experiences regarding the communication of InaaS value. Interviewee 2 expressed concerns about overlapping services in the InaaS domain and articulated a preference for minimal service subscriptions, as evidenced by their remark.

"We would prefer to have as few services as possible to pay for."

This perspective highlights the need for InaaS providers to communicate their unique value propositions more distinctly to prevent perceptions of redundancy and overlap with existing solutions.

On the other hand, interviewee 6's comments reflected a cautious yet appreciative approach towards InaaS.

"We are very fond of gaining insights that we can use for analysis, but in
our world, we are also afraid of getting an AI tool that in a way becomes the
absolute answer"

This statement suggests that InaaS providers should frame their services as supportive tools rather than definitive solutions.

Through our interviews, it became evident that real estate professionals usually get to know InaaS proptech companies by meeting them at events, personal pitching sessions, and through word-of-mouth. Interviewee 1 mentioned that they've set up a proptech laboratory initiated by employees. This effort is designed to consistently gain new insights and better understand proptechs for internal data enhancement. Building upon this, interviewee 2 emphasized the significance of employee engagement as a means to get awareness, and gain better understanding of InaaS proptechs. Highly engaged employees for InaaS proptechs take on more responsibility to acquire fresh insights, and lead their company in testing these technologies.

Another prevalent form of discovery is through word-of-mouth. This approach to gaining insight through connections is underscored by interviewee 6.

> " (...) It often happens that people reach out, or it can be through customers who tip us off about something they've picked up (...)"

Interviewees also discussed various methods employed by InaaS vendors to convey the value of their services. Three commonly mentioned alternatives are trials, demos, and freemium models. Interviewee 9 shared their experience of utilizing a real case for evaluating the service, and providing feedback for service improvement over an extended period, referring to it as a pilot project. Furthermore, interviewee 3 conveyed their involvement in a research project with an InaaS proptech vendor, contributing continuous feedback to shape the service. Interviewee 3 also specified that the commitment duration in the research project spanned several years.

5.4.1   Parameters in Value Communication

In this section, we have organized interviewees' preferences for value communication into four parameters that may influence the perceived value for customers. These are: 1) Trust, Transparency and Professionalism, 2) Quality assurance, 3) Duration of Value Communication and 4) Scope of Value Communication. These parameters form an important part of our understanding of how vendors can configure their pricing models to increase perceived value.

Trust, Transparency and Professionalism

Transparency and professionalism are identified as two parameters to enhance trust between vendors and customers. Interviewee 6 highlighted a disliking towards vendors that hold off on sharing details about pricing structures and price levels. The interviewee also emphasized the importance of transparency, especially regarding pricing levels for expensive licenses:

> *"Important with transparency for their price level."*

Although vendors want to anchor value through value communication, the interviewee wants some indications of pricing structure and price level to check for misalignment in perceived value. This is in order to avoid unnecessary time investments in value discovery in the event the price level is far outside relevant budgets. This emphasis on transparency in pricing not only ensures a clearer understanding of the offered value but also fosters a sense of trust and reliability in the vendor-customer relationship.

Another frequently cited factor that contributes to trust is the perception of professionalism. The essence of professionalism lies in creating an environment where actions and services provided are not only perceived as serious but also make logical sense. Clarity in communication, adherence to ethical standards, and a commitment to delivering meaningful and accurate information contribute to the perception of professionalism. Interviewee 4 underscored this crucial aspect, emphasizing it with the statement:

> *"The most important thing is that it feels serious and makes sense."*

Interviewees appreciated when providers are upfront about the strengths and weaknesses of their data. Interviewee 7 highlighted this aspect, emphasizing the importance for providers to be clear about any limitations in order to enhance trust.

> *"Trust is built on the belief that one trusts the data to be good enough, but it is not always the case. Then one must be clear about its weaknesses (...) Very often, we have to process what we get a bit. That's fair, but it's important to be clear about the weaknesses as much as possible.*

These findings suggest a crucial role for transparency and professionalism in building trust between vendors and customers. Transparent communication, especially in pricing structures, is seen as essential for understanding value alignment and establishing a reliable view of costs. Professionalism further contributes to fostering trust in the vendor-customer

relationship. Interviewees value clear communication about data strengths and weaknesses, enhancing trust through awareness of potential limitations. This suggests that trust is an important parameter for establishing a high perception of value towards a service, as truthful and professional communications lead to less trepidation about promised benefits.

Quality Assurance

As discussed in the preceding paragraph, interviewees consistently stressed the importance of data quality. Trust in an InaaS product heavily relies on the confidence that the data provided will satisfy their criteria about real-time, accurate, and reliable data. Another central theme in our data was the preference for value communication that enabled the customers to be assured of the quality and correctness of the information. Interviewee 4, for instance, highlighted the need for trustworthy information - that the data they receive is correct and can be used confidently:

> *"(...) That one can trust the information, that it is correct and makes sense."*

Interviewee 4 built upon this, stating that previous experiences and knowledge will contribute in the quality assurance of information:

> *"Well, of course, there are some things that are difficult to check, but usually, it's when you've been using various tools for a long time, and you use many different platforms, and you might be familiar with some lease agreements, and you may know how the turnover of some stores, then you might be able to see if something seems very strange."*

Additionally, interviewee 2 prefers real-time data in order to avoid confusion when evaluating data quality:

> *"But at the same time, it might have become a bit confusing, perhaps with old data. It would probably have been easier to see the value if the figures were more up-to-date."*

Interviewees consistently highlighted the paramount importance of data quality for establishing a high perceived value for InaaS products. The assurance of value is intricately tied to users' confidence in the accuracy, reliability, and real-time attributes of the provided data. The consistent emphasis from interviewees on data quality underscores

the importance of value communications that allows the customer to be assured of the value of the information. This finding suggest that demos might be less attractive with these customers as demos seldom gives good assurances in regards to this.

Duration of Value Communication

We also inquired with all interviewees regarding their preferred methods for assessing the quality of the data. The majority of responses align with the previously mentioned methods outlined in sub-section "Perspectives" under section "Value Communication", there are trials, demos, freemium and various types of projects.

Among these options, the majority of our responses suggest a preference for a trial period ranging from one to three months. This duration allows for the assessment of data quality through real-case usage, concurrently offering key stakeholders involved with InaaS in the firm the chance to familiarise themselves with the service and assess its intuitiveness and user-friendliness. These aspects have been explicitly expressed by interviewee 3.

> *"And a demo trial period must probably come with it anyway, for me to test it out and see how I perceive it."*

This viewpoint is corroborated by interviewees 6 and 7, who emphasized the critical role of trials in both independently testing the service and effectively showcasing it to the entire company:

> *"Trials are crucial for both testing the service independently and showcasing it to the rest of the company."*

(Interviewee 6)

> *"It might be best to get a user case to test on."*

(Interviewee 7)

Interviewees consistently highlighted the critical role of trials in evaluating InaaS. This approach, rooted in real-case usage, allows for a comprehensive assessment of data quality. These findings also indicate that the short duration of value communication tools such as demos are problematic as they don't allow for a comprehensive evaluation of services.

Scope of Value Communication

Most of our interviewees have voiced a strong preference toward testing the service with the broadest possible scope of data, regardless of the chosen testing option. This sentiment is echoed by interviewees 5 and 7, who asserts:

> *"Glimpses of the service is not enough for us. We need to try the thing."*

> (Interviewee 5)

> *"A demo is not enough, because a presentation always looks good."*

> (Interviewee 7)

Emphasizing the importance of data scope, interviewee 4 outlines certain drawbacks associated with the freemium model:

"A demo, I find, can be more challenging to grasp the true feel of what it is. When you've subscribed, questions tend to arise that you haven't tested yet. Because there's often a kind of glossy image of the platform shown, and then questions you hadn't thought of don't come up. That's why a trial is definitely what we prefer."

The interviewee 4 further expressed:

> *"This freemium variant can be a bit annoying, I think. So, you only get a bit,*
> *and every time you click on something, it says, 'To view this, you need to have*
> *a paid subscription,' I think that can be a bit frustrating."*

However, interviewee 1 did not share the same preference as the majority of interviewees. The interviewee placed a higher value on the user-friendliness of the service's functionalities, stating:

> *"I don't necessarily need the entire data set in the demo user. It's more just*
> *to see."*

The majority of interviewees advocated for a comprehensive scope in the evaluation phase. They view presentations and demos negatively as they hinder a hands on experience with the service. A central theme is also that limitations in what is available during a trial or demo negatively affects their evaluation, suggesting a lower perceived value.

6 Discussion

After presenting our findings, it is logical to revisit our research questions. The following discussion will be focused around these, and we will discuss whether our findings can help us answer them.

How can InaaS vendors configure price to maximize customers' perceived value in markets with asymmetric information dynamics?

To answer our research question, we have delineated two sub questions that has guided our inquiry:

1. What parameters could form customers' perceived value?

2. How does these parameters affect customers' perceived value?

Our study has investigated the intricate dynamics of pricing structures in InaaS and their implications on customers considerations of services. Anchored in a comprehensive thematic analysis, our research questions has allowed us to explore the preferences and perceptions of prospective InaaS customers. Through this inquiry, we have identified key parameters that forms customers preferences for pricing structures and value communication in table 6.1. In answering our first sub question we have delved deeper into what makes a pricing model attractive. We suggest in total ten parameters that contribute to the formation of preferences towards pricing.

Table 6.1: Key Factors in InaaS Evaluation

Parameters of pricing
1 Cost Predictability
2 Simplicity and Transparency
3 Flexibility
4 Commitment Duration
5 Value Assurance
6 Incentive Alignment
Parameters of Value Communication
1 Trust, Transparency and Professionalism
2 Quality Assurance
3 Duration of Value Communication
4 Scope of Value Communication

Our findings reveal a nuanced picture of what factors forms a customers preference

towards pricing models, each having a different influence on how different pricing models are received and, crucially, their impact on the perceived fit of these services. The nuanced understanding of these preferences provides a foundation for developing pricing models that resonate with customer expectations.

In addition to identifying what underlying parameters form preferences, our research objective has been to explore how these preferences impact perceived value. We find it fitting to discuss how our findings can help researchers understand this important relationship.

6.0.1 Perceived Value of Customers

To answer our second sub-question, we will discuss how our parameters affect customers perceived value in the context of pricing. During our literature review, we reviewed the work by R. Harmon et al. (2009), that consists four factors that have been found affect customers' perceived value. These are 1) economic value, 2) performance value, 3) supplier value and 4) buyer situation (R. Harmon et al., 2009).

Our findings are mostly consistent with the work of R. Harmon et al. (2009), while we found a few additional factors that also could contribute to influence the perception of customers within pricing structures and value communication. Table 6.2 shows the categorization of our identified parameters through the interviews in relation to the four factors of (R. Harmon et al., 2009).

Our findings within "Value Assurance", "Commitment Duration" and "Quality Assurance" can be understood through the concept of performance value, where understanding the perceived benefits to be received of a service is clearly an important aspect of forming a high perceived value. Pricing models that introduce frictions to the customers understanding of future performance value, such as purely demo based value communication, run the risk of hindering the formation of a high perceived value.

We identified that parameters in findings like "Cost and Predictability," "Simplicity and Transparency," and "Trust, Transparency, and Professionalism" are interconnected with perceptions concerning the credibility of the provider and the trust in the business relationship. These align with the concept of "supplier value" proposed by R. Harmon et al. (2009), which also articulates the importance of credibility and trust in customer-vendor

relationships.

Moreover, we suggest that preferences for pricing structures within InaaS are closely related to parameters that strengthen customers' trust in vendors, ensuring there is a mutual understanding of the quality of the service delivery. Additionally, we also believe that "Alignment of Incentives" fosters trust between customers and vendors as they share common goals, and working towards a shared objective benefits both parties. Vendors providing highly flexible pricing structures can enhance the perceived value for customers by fostering a dynamic relationship where service usage and costs can adapt to the evolving needs of the customer.

Similarly, we posit that a flexible pricing model can influence the perceived economic value for customers, as it allows for greater value extraction and recognition. The ability to tailor the pricing structures to better align with customer needs and situations seems like an obvious way to increase the perceived economic value.

Table 6.2: Categorize our findings into the framework of R. Harmon et al., 2009

Factors/Preferences	Pricing structures	Value Communication
Performance Value	Value Assurance Commitment Duration	Quality Assurance
Supplier Value	Cost Predictability Simplicity and Transparency	Trust, Transparency and Professionalism
The Buyer Situation	Social Proof Scope	
Hybrid factors:		
Supplier Value & Economic Value	Flexibility	
Performance Value & Supplier Value	Alignment of Incentives	

However, there are other parameters in our findings that fall outside of the four factors identified by R. Harmon et al. (2009) , that could influence customers perceived value in a value-based pricing approach. We found that "Social Proof" is suggesting that customers perceive greater value when they observe positive experiences from others. We believe this finding has high alignment with variable "social influence" in another identified factor called the buyer's situation that could influence any pricing approaches by R. Harmon et al. (2009).

Moreover, we find the "availability" variable within the buyer's situation category suitable to characterize our observations related to the "Scope", that describes the accessibility of objective information about the service for assessing performance and potential misalignment in perceived value. Our study has proposed demo, trials and pilot projects as three tools within value communication for customers to individually assess the latter. While demos are prevalent tools for communicating value in SaaS, within InaaS, trials and pilot projects emerge as the preferred methods for customers to evaluate the product's performance value and identify potential disparities in perceived value. These approaches align well with customer preferences and effectively meet their expectations, highlighting the significant influence of InaaS-specific characteristics on customers' understanding of future functional value.

In the preceding sections we have answered our second sub questions, suggesting ten parameters that form preference development and discussed how these affect perceptions of value. Understanding how preferences for pricing structure and value communication impacts the perceived value of these services is imperative to forming theory for how InaaS companies should price their products. While our aim isn't to form a theoretical framework for how perceived value is affected, we suggest several factors that can contribute to new theory development.

6.1   Operationalization

As we described in our research gap, Wagner and Tacacs (2021) state that there is a considerable gap between the grey and white literature within the field of pricing. They find that much of the potential value of pricing research is most likely lost when practitioners fail to operationalize research findings. We agree in their assessment that researchers should conduct their research in such a manner that the academic discussion informs practitioners actions.

It is imperative to contextualize our findings within a broader context of InaaS pricing strategies. The significance of customer preferences in shaping effective pricing models cannot be overstated. As the InaaS market continues to mature, understanding these preferences becomes central to developing pricing strategies that not only align with customer expectations but also mitigate potential misalignment - a key determinant of

customer satisfaction and long-term engagement.

In the following section, we have included a comparative discussion that delves into the intricacies of the pricing structures adopted by the three case companies in our study. With this discussion, we want to bridge the gap between empirical insights and strategic implications. Discussing each pricing configuration in light of our theoretical findings, we will have a solid foundation for answering our main research question:

How can InaaS vendors configure price to maximize customers' perceived value in markets with asymmetric information dynamics?

We will answer this question after discussing how our case companies' pricing models align with or diverge from the customer preferences we have identified. In this way, we enrich our discussion by providing an empirical grounding to our theoretical exploration.

6.1.1 Yearly Enterprise License Model

In the context of our research, the adoption of a yearly enterprise license model by the first case company - characterized by its annual commitment and fixed pricing - warrants discussion from multiple perspectives.

The yearly enterprise license model aligns closely with the preferences of several interview interviewees who emphasized the importance of predictability and long-term cost stability in their pricing structures. This alignment is rooted in the inherent simplicity and ease of budgeting offered by this model. This feature is highly valued in enterprise contexts where long-term financial planning and budget consistency are paramount. By offering a clear, fixed cost for one year, this model caters well to customers who prioritize stable financial commitments over the flexibility of changing service terms on short notice. Moreover, the discovery regarding simplicity seems to align with Nagle and Muller (2018)'s assertion that customers often use imperfect but convenient decision rules, in order to save time and mental energy.

The yearly model might be misaligned with the preferences of interviewees who emphasized flexibility and short-term commitments. In environments where enterprise needs are rapidly evolving – either due to changing market conditions, technological advancements, or internal strategic shifts – the rigidity of an annual commitment can become a limitation.

This is particularly relevant in the SaaS domain, where the pace of change is often rapid, and the ability to adapt quickly can be crucial. For customers who value the ability to scale services up or down, or shift to different solutions as their needs evolve, the yearly enterprise license model might not be the most conducive option.

We have observed some friction with customers that have project-based needs spanning less than a year. While they seem to resonate with the idea of committing to the full project duration, they don't want to commit to a solution for longer than the project duration. The customer has to be confident that the solution is sufficiently covering the needs of multiple projects so that the same solution can be used on several projects throughout the one year commitment period. The discussion about this project-based focus in customer segments have spurred the idea of a project-based pricing structure where a price is set per project. This would mean the cost of the solution would be dependent on the number of projects, making this a pay-as-you-go offer. This is discussed further in the practical implications.

Furthermore, a critical assessment of this model from a scalability perspective reveals potential pitfalls. While it offers cost predictability – an attribute that can be highly advantageous for stable, predictable enterprise operations – it may pose challenges for businesses with fluctuating needs or those on a growth trajectory. In such cases, the fixed nature of the yearly model might lead to higher lack-of-fit costs. These costs could manifest as either missed opportunities (when the enterprise cannot scale up services as needed within the confines of the fixed license) or as inefficiencies (when the enterprise is locked into a level of service that exceeds its current needs).

6.1.2   Freemium with Subscription Upsell Model

In the landscape of InaaS pricing strategies, the adoption of a freemium model with subscription upsell by the second case company presents a particularly intriguing case for discussion. This model's alignment with customer preferences for trial-based product evaluation and its potential implications for lack-of-fit costs warrant a deeper exploration.

The freemium model, characterized by offering a basic version of the service at no cost with the option to upgrade to more feature-rich paid versions, resonates with the preferences of many customers for trial-based evaluations. This preference was notably

echoed in our thematic findings, where interviewees underscored the value of being able to test and experience a product firsthand before committing financially. The freemium model caters to this need by allowing customers an opportunity to interact with the product, understand its functionalities, and gauge its fit for their specific requirements without upfront investment. Such an approach aligns with the contemporary shift in customer behavior in the SaaS market, where the emphasis is increasingly on experiential understanding rather than purely sales-driven persuasion.

This model holds the potential to reduce potential misalignment significantly with customers that prefer an evaluation with a broader scope. By enabling customers to make more informed decisions about the product's suitability for their needs, the freemium model can help ensure that the investment in the SaaS product is more closely aligned with its value and utility. When customers have the opportunity to explore the basic functionalities of the product at no cost, they are better positioned to determine whether an upgrade to a paid version is justified, thus potentially reducing the instances of mismatch between customer expectations and product offerings.

However, the effectiveness of the freemium model is heavily contingent on how well the free version of the product represents the capabilities of the full, paid version. If the freemium version only offers a limited or skewed view of the product's functionalities, it risks creating misinformed perceptions about the product's value. For instance, if key features that significantly contribute to the product's utility are only available in the paid version and not evident in the freemium version, customers may underestimate the product's full potential. This misalignment can lead to increased misalignment, as customers either forego upgrading due to a lack of perceived value or upgrade but find the product does not meet their expectations based on their limited freemium experience.

The second case company's freemium model emerges as a double-edged sword in vendors pricing consideration. While it aligns with modern customer preferences for experiential evaluation and holds the promise of reducing lack-of-fit costs, its success in achieving these objectives hinges critically on the fidelity with which the freemium version represents the full product.

6.1.3   Monthly Subscription and Pay-as-you-go

Our third case company is well established and owned by the large software vendor, which offers a complete portfolio of products. The case firm also has several products, some of which stem from recent acquisitions. This allows for a rich discussion as these products have different legacy pricing structures.

The first product has adopted a monthly subscription plan. The study of this pricing structure offers a unique perspective on InaaS pricing strategies, particularly in terms of aligning with customer preferences for flexibility and adaptability. This model, characterized by its month-to-month payment structure, caters to a specific segment of the enterprise market that values the ability to dynamically adjust their service usage and investment.

The monthly subscription model emerges as a particularly suitable option for customers who prioritize flexibility in their engagements with SaaS products. This preference was evident in our thematic findings, where several interviewees expressed a desire for pricing structures that allow them to scale up or down based on changing requirements. In rapidly evolving business environments, where technological needs can shift unexpectedly, the monthly model offers a significant advantage by not locking customers into long-term commitments. This flexibility can be instrumental in achieving good alignment, as it allows enterprises to continuously align their SaaS usage with their current operational needs, ensuring that they are neither overpaying for unused services nor under-resourced by a fixed service package. The model is better positioned to fit with the needs of the project-based segment that has been described earlier. The monthly contract terms allows for termination of the solution at the last month of the project, minimising unnecessarily costs when the need - and potential fit reduces drastically.

For some enterprises, especially larger organizations with extensive planning and budgeting processes, the predictability afforded by longer-term contracts can be a significant draw. These organizations may view the month-to-month nature of this model as introducing an element of uncertainty, requiring continuous evaluation and decision-making regarding the service's continuation. This can be seen as a drawback, potentially adding administrative overhead and detracting from the sense of security that comes with longer-term, predictable

SaaS arrangements. The largest customers also want to lock in vendors in Service-Level-Agreements to insure stable service over longer time frames.

The second legacy pricing model is a pay-as-you-go model that charges a fee per report that is generated.

The pricing structure aligns well with customers that have variable usage patterns as the price of the service is directly tied to the use. A large proportion of our interviewees favour flexibility in pricing, especially those that have intermittent need for a particular service.

Another prevalent advantage of this revenue structure is the ease to which customers can link cost to value. Having predictable unit cost makes it easier to understand the value generated from the service. This stems from the fact that most customers have an idea of what the contribution will be for a single report.

The pay-per-use model does not have the best alignment with the preferences of customers that value the simplicity of the subscription model. The pay-per-use model, while flexible and transparent, is unpredictable by nature. Customers might struggle to get a grasp of what the actual cost is going to be at the and of a given contract period. It might require complex data analysis and usage analytics to model what the total service cost will be. This complexity makes it harder to compare cost with other services, and might make it more difficult for prospective customers to get internal buy-in from decision makers. Internal stakeholders such as finance departments may become detractors of this structure due to the unpredictable cost patterns this structure can produce. This would happen because the unpredictability makes it more difficult to model costs and allocate budget for the service.

6.1.4   Answering our Reseach Question

After having discussed the pricing models of our case companies, we have been able to consider our findings in a broader context and provided an empirical grounding that helps us answer our main research question. A consistent theme across all the discussed pricing models is the evident effort to strike a balance between flexibility and predictability – two key aspects frequently highlighted parameters. This balancing act is a central challenge for InaaS providers, as it requires a nuanced understanding of customer needs and the

market dynamics. In addition we find several parameters that should be paid special attention to specifically for InaaS, such as the significant role that value assurance has in shaping perceived value for InaaS products.

In our opinion, any vendor that wants to maximize the perceived value of their InaaS offering has to understand how pricing can be a crucial facilitator. From our discussion we can conclude that the subscription pricing model should be considered by every InaaS vendor that is in the process of formulating their pricing. In addition, the trial approach to value communication is highly relevant for any vendor to consider, while the demo approach should be employed with caution.

Our cases have different approaches to pricing and our interviewees have differing preferences for what facilitates high perceived value. An example of this is difference in customer size. How well a pricing structure aligns with an organization's strategic objectives and operational needs can influence preference. For instance, a startup might prefer a low-cost, flexible model, while a large corporation might opt for a more comprehensive, fixed-rate package.

Different customers also has different needs based on their operational context. For instance, most interviewees categorized as realtors show a preference for InaaS products that offer reliable information to enhance their efficiency rather than exclusive high-value insights, which may be considered overlapping with services commonly provided by themselves. While building owners view exclusive high value information as a source of competitive advantage. Due to the subjective nature of information, we see a higher disparity in needs compared to more standardized product groups within SaaS. We strongly suggest that vendors actively engages in conversations with customers to understand how they can align their pricing to foster higher perceived value.

To answer our main research question, we conclude the following. As researchers, we are not able to suggest specific pricing models or combinations of structures and value communication tools that will maximize perceived value of customers. We believe that the subjectivity of information leads to different perceptions of the information's value. This difference is in our view mostly driven by differences in context. Due to the strong influence that context has on what the optimal model is, no single conclusion can be drawn as to what will maximize results. We can only suggest which factors should be

considered and give suggestions as to how this consideration should be made. It is the prerogative of the vendor to identify the exact implications each parameters has on their selection of pricing configuration.

A well known critique given to theory development in emerging fields of research is whether the field hasn't been researched because it is uninteresting or irrelevant Norbeck (1979). Some emerging research fields such as the use of AI in pharmaceutical engineering is unquestionably interesting. Can the same be said for our research? In the objective of our research section, we stated that this research paper should discuss whether pricing for delineations of SaaS - such as InaaS - deserves specific scientific study. We have studied our cases comprehensively, which places us in a position to discuss how applicable related works on pricing are for InaaS.

Since this study focuses on pricing within InaaS, a natural question arises as to how this relates to the SaaS pricing paradigm. It is pertinent that our study is done in congruence with pricing research in related fields, and not in total isolation. Answering this question will form the basis for the theoretical implications of our study, and help guide future research efforts. We argue this is an important aspect of exploratory research.

6.2   Pricing structures - Customization

In the past, the SaaS sector predominantly prioritized cost considerations, primarily relying on usage-based pricing for SaaS offerings. With the passage of time, the adoption of subscription pricing models has brought substantial benefits to the SaaS industry, leading to a growing prevalence of subscription-based pricing. On the other hand, DaaS and AaaS in the market today predominantly continue to rely on usage-based pricing models.

Upon closely examining the feedback from our interviews, it's clear that interviewees have diverse preferences when it comes to pricing. According to our interviewees, these preferences are influenced by factors such as usage frequency and existing data resources. These insights underscore the importance of adopting a customized approach to pricing, tailored to meet the specific needs of individual interviewees. We argue a high degree of customization correlates with increased flexibility, and vice versa, because it enables businesses to make dynamic adjustments according to the unique demands of their customer

base. Our findings align with earlier studies, that customization has the potential to enhance the perceived value for customers. This, in turn, is an essential factor that can significantly influence their decision-making processes, positively impacting their willingness to pay and overall attitude toward the service.

In literature review section, Wagner and Tacacs (2021) mentioned three existing prising structures within InaaS in current market, there are deliverable-based pricing (usage-based pricing), user-based pricing (seat-based pricing) and features-based pricing. Our findings emphasize the significance of customizing pricing structures based on customer preferences. This highlights the absence of a one-size-fits-all pricing structure, pointing to the need to identify customers' specific needs and tailor the pricing accordingly in order to increase vendors' revenue and establish long-term vendor-customer relationship. However, this action could be time-consuming and costly for vendors.

While existing studies has often been portrayed SaaS as a standardized product, characterized by low levels of customization. However, noticeable research gap emerges when we consider the degrees of customization inherent in DaaS, InaaS, and AaaS, the "as a services" under the SaaS paradigm. Our findings suggest that InaaS exhibits a higher degree of customization than SaaS, driven by the subjective nature of information and individual customer value perceptions collected from our interviews. This suggested differentiation is illustrated in figure 6.1. We recommend future research to distinguish between InaaS and SaaS based on their unique characteristics of subjectivity, advocating for differentiated pricing strategies to reflect their distinct features.
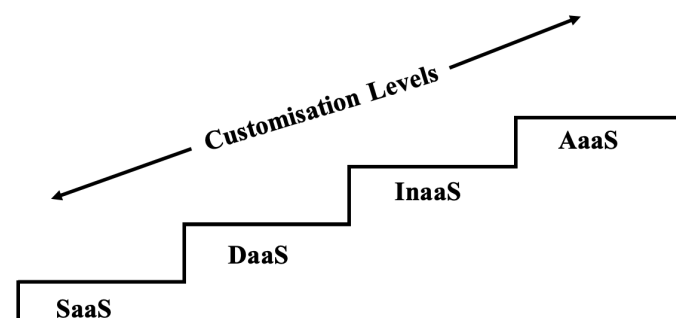
Figure 6.1: Customisation Levels of SaaS Paradigm

6.2.1 Value Communication - Quality Assurance

The current literature provides insights into trials and demos as significant tools for value communication. While demos are commonly employed in SaaS, both trials and demos are acknowledged in the realm of AaaS. Earlier work that specifically discusses value communication tools within DaaS and InaaS are difficult to find.

According to our interviewees, many share the belief that InaaS cannot be easily distinguished or evaluated without accessing all available information provided by the services due to its subjectivity and the uncertainty surrounding its value. In simpler terms, the interviewees express the need to review all information before continuing their decision-making journey. Considering the subjective nature of information, our previous acknowledgment of its higher customization level compared to SaaS and the interviewees' belief upon accessing all available information in InaaS, the favored method for communicating the value of InaaS is through trials rather than demos. Particularly, the emphasis on quality assurance of information outputs prompts many customers in this space to call for a different standard in value communication within InaaS.

The argument above is the clearest indication we have found that a divergence from SaaS pricing conventions exists within InaaS markets. This divergence in value communication could pose problems for vendors as they prefer demos, as the time to monetization is typically shorter. Trials also entail giving the information upfront, which effectively means the customer gets the information they needed for their analysis without having to pay for it. In some cases, demos can still be preferred for this reason. For customers who already have a profound understanding and confidence in specific InaaS offerings, demos can serve as an effective tool for communicating value.

During our interviews, we also delved into the freemium pricing model. The interviewees' attitudes towards freemium closely align with their sentiments about demos. The interviewees emphasized the importance of having access to all information, indicating that this response is an outcome of the distinct customization level of InaaS compared to SaaS.

Our interviews reveal diverse pricing preferences influenced by factors like usage frequency and existing data resources, emphasizing the need for a customized approach. High

customization correlates with increased flexibility, positively impacting perceived value and willingness to pay. The absence of a one-size-fits-all pricing model in InaaS highlights the need for tailored approaches, although implementation may be time-consuming and costly. Notably, InaaS exhibits higher customization, suggesting a research gap in understanding degrees of customization in various "as-a-service" models under the SaaS paradigm.

Regarding value communication tools, a preference for trials over demos is observed in InaaS, reflecting the subjective nature of information. Challenges arise as vendors favor demos for quicker monetization, while customers lean towards trials for comprehensive evaluation. Interviewees' views on the freemium pricing model align with their sentiments about demos, highlighting the significance of comprehensive information access in InaaS due to its distinct customization level compared to SaaS.

6.3   Theoretical Implications

Most of the extant literature we have reviewed are research on pricing within the context of SaaS. InaaS is simply a delineation of the broader ecosystem of software provided as a service. A critical consideration that must be made is whether or not delineations of SaaS - such as InaaS - should be treated as separate fields of research. If it could be argued that our understanding of SaaS pricing is applicable to other delineations of as-a-service models, then research could be focused on broader settings. There would be less need for context specific case-studies.

Our exploratory work gives us reason to believe that important differences in pricing characteristics have been unearthed that warrants more attention. We suggest that one key implication of our study is that we have identified a divergence in model characteristics between SaaS and InaaS. Giving us reason to believe that our understanding of SaaS pricing is less applicable to InaaS in certain areas. However, as our discussion showed, many aspects of pricing dynamics are similar, such as the clear preference for pricing structures that are easy to understand.

Furthermore, our findings diverge from the established pricing structures within InaaS outlined in Chapter 2. The existing pricing models discussed in InaaS include deliverable-based pricing, seat-based pricing, and feature-based pricing. Additionally, pricing

structures within DaaS and AaaS predominantly adhere to usage-based models, akin to InaaS. These models in light of our findings are appreciated among interviewees with a low frequency of use and uncertainty surrounding the perceived value of the product. Notably, a subscription-based pricing structure emerged as the preferred choice for a majority of our interviewees.

6.4   Practical Implications

Our study is in our opinion more practically relevant to practitioners than most researches. We argue that the results of our research offer some pertinent implications for practitioners currently working with price setting of InaaS products.

Some discrepancies become evident when considering the diverse needs of the enterprise market. The yearly enterprise license model, while offering predictability and ease of budgeting, may fall short in providing the adaptability required by enterprises operating in dynamic and rapidly evolving markets. On the other hand, the monthly subscription model, celebrated for its flexibility and adaptability, might pose challenges in terms of cost predictability and long-term budgeting. Larger enterprises, or those with more stable and predictable operational models, might find the constant reevaluation required by a monthly model cumbersome and potentially disruptive to their financial planning processes.

These findings suggest that no single pricing model can universally maximise perceived value of enterprise customers in the InaaS sector. Instead, the effectiveness of a pricing strategy in addressing these alignment issues is contingent upon how well it aligns with the specific needs and preferences of different customer segments. For InaaS providers, this necessitates a careful consideration of their target market and a strategic approach to pricing that can accommodate a range of customer needs – from those seeking stability and predictability to those requiring flexibility and adaptability. At the same time, we believe vendors have to consider the balance between satisfying customers and achieving desirable profitability.

During our study of InaaS pricing structures, several novel approaches to pricing has been brought up by vendors, experts and customers. Some approaches has been mentioned as a theoretical curiosity and some has been mentioned under the veil of NDA. While there are some novel pricing innovations we are prohibited from discussing, there are two novel

approaches that warrant further attention.

Firstly, the concept of introducing knowledge-sharing as an element of the pricing structure has become an intriguing topic that we believe deserves more attention. This innovative approach, wherein customers contribute data as part of their subscription cost, can provide superior alignment with a focus on reducing costs. The idea aligns intriguingly well with cost-focused customers who view their data as an asset. However, the effectiveness of this model in improving alignment depends on several factors. As an example, the perceived value of the data being exchanged plays a crucial role. If the data shared is of high relevance and utility to the InaaS provider, the customer might gain significant cost benefits.

Secondly, the project-based pricing model is a compelling concept, particularly for customers with project-specific needs. This pricing approach, characterized by tailoring costs according to the scope and duration of individual projects, represents a potentially significant shift from more traditional subscription or usage-based models. Project-based pricing directly addresses a key preference identified in our study; the need for pricing structures that align with specific time frames and project scopes. Many customers in the InaaS domain engage with services on a project-by-project basis. This model offers a solution that closely aligns with project specific needs, potentially reducing the mismatch associated with longer-term commitments.

Innovations in pricing such as these show promising attempts at configuring price based on a deeper understanding of the customers contexts. The ultimate practical implication of our study is that vendors have a basis for initiating similar efforts.

7   Conclusion

In the final chapter of our master's thesis, we look back at our research question and summarize the main findings and purpose of our research. The central objective of this thesis is to examine how InaaS vendors can configure price to maximize customers' perceived value in markets with asymmetric information dynamics. We aimed to explore what parameters form customers' perceived value, and how does these parameters affect customers' perceived value.

By conducting nine semi-structured interviews with real estate professionals, primarily realtors and land developers, we have classified the gathered insights into ten parameters, which are further categorized within pricing structures and value communication. Parameters under pricing structures are 1) cost predictability, 2) simplicity and transparency, 3) flexibility, 4) commitment duration, 5) value assurance and 6) incentive alignment. Additionally, there are 1) trust, transparency and professionalism, 2) quality assurance, 3) duration of value communication and 4) scope of value communication, that are parameters related to value communication which could affect customers' perceived value.

Our findings reveal the variability in customer preferences, that no single pricing model emerged as a "one-size-fits-all". However, there is a clear inclination toward subscription-based pricing models, reflecting a desire for predictability and scalability in the market. Interviewees express a preference for straightforward and transparent pricing structures, emphasizing the negative impact of complex models on the customer experience. Flexibility in pricing structures, allowing scalability based on usage or changing requirements, is also highlighted, with an emphasis on adaptable and accommodating structures. Preferences for commitment durations vary, generally accepting yearly commitments but notably favoring shorter durations, especially for untested services. The consistent theme of aligning incentives between customers and vendors underscores the importance of pricing models encouraging frequent product use for mutual benefit. Transparent communication, professionalism, and data quality play pivotal roles in building trust between vendors and customers. Trials are deemed essential for evaluating InaaS, with interviewees advocating for comprehensive data testing over brief demos. We found the need for a personalized

approach to pricing is emphasized, recognizing the diverse information needs among potential customers. Furthermore, we shared our insights into the influence of parameters on customers' perceived value, aligning them with the three real pricing structures offered by our case firms to illustrate the practical relevance of our findings.

We also contextualized the findings by comparing them with existing literature. We found the fours factors that influence customers' perceived value by R. Harmon et al. (2009) especially relevant, which neatly encompass the majority of the identified parameters. However, two parameters cut across multiple factors, making categorization more complex. Moreover, we explored the unique features of InaaS in contrast to other cloud computing services to evaluate the applicability of our study in a broader context. We present our insights into the distinctive characteristics of InaaS, emphasizing its uniqueness and the importance of not categorizing it solely as a SaaS product due to differences in customization levels.

7.1   Limitations of the Study

Our study is affected by several limitation in availability of existing white literature and process of data collection. These limitation may affect and constraint our ability of capturing in-depth understanding of presented themes.

7.1.1   Limitations of Literature

While this study has contributed to exploring aspects of pricing InaaS within the real estate industry, it is essential to acknowledge limitations related to the existing literature.

Firstly, the literature on pricing InaaS is limited and deficient. To address this gap, we have incorporated a few number articles classified as "grey literature". These articles refers to published materials that have not undergone peer review, and their reliability is therefore uncertain. This aspect may potentially impact the robustness of the study, as the reliability of such sources cannot be estimated in the same manner as peer-reviewed literature.

Secondly, there is a lack of literature specifically within DaaS and AaaS. This restricts our ability to conduct a comprehensive comparison of all three services under the SaaS

paradigm. The absence of comparable literature within these areas makes it challenging to discuss and analyze similarities and differences comprehensively. Consequently, it limits our capacity to draw parallel insights from our study to others. Therefore, readers should be aware of the limitations associated with the limited availability of literature within DaaS and AaaS in the context of the study's broader framework.

7.1.2 Limitations of Data Collection

The study faces several limitations that should be acknowledged. Firstly, the interviews consists only on a subset of actors within the real estate industry, potentially introducing bias into the understanding of the topics discussed in this paper. The perspectives gathered may not fully represent the diverse range of experiences and opinions within the broader real estate community in Norway.

Secondly, the study's relatively short duration, spanning only four months, imposes constraints on data collection. This limitation restricts the ability to compare results across different markets or company situations comprehensively. A more extended study duration might provide a more nuanced and comprehensive view of the dynamics within the InaaS sector.

Thirdly, the study engaged with only one representative from each company. This approach, while offering valuable insights, introduces a potential bias and limits the depth of understanding. Different individuals within the same company may hold varied perspectives, and a more extensive sampling approach could offer a more holistic view of the organizational stance on the topics explored.

Another limitation of our study is the inherit subjectivity of our interviewees answers. We have asked interviewees about their subjective views of different pricing models they have had prior experience with, and we have asked them about what what they think is important when evaluating a pricing structure. Our conclusions are limited by the fact that there often is a disparity between what people say they will do and what they end up doing. People are not always right when predicting future behaviour. If we were able to actually follow interviewees through their buying journeys and observe their actual choices, we could be surer that the conclusions we draw from our findings could actually be used to predict future behaviour.

7.2   Suggestions for Further Research

While the current study provides a comprehensive understanding of customer perceptions towards different pricing structures in InaaS products and the efficacy of interview-based feedback in shaping pricing models, several areas remain ripe for exploration. We will in this section suggest some further research topics that could build upon our study.

Further research avenues should encompass an extension of research methods and scope, addressing the current gap in literature with rigorous, large-scale, empirical, behavioral, and longitudinal case studies. The application of these approaches to different facets of InaaS pricing can provide a comprehensive understanding of how pricing strategies should be designed, implemented, and evolved, assessing causal relationships among various influencing factors and mechanisms.

Another crucial area for exploration is the varying degrees of influence that different parameters, such as flexibility, simplicity, transparency, and value assurance, exert on customers' perceived value within InaaS in the real estate industry. Understanding the nuanced impact of these parameters can refine our comprehension of customer preferences and contribute to more tailored pricing strategies.

Balancing profitability for InaaS providers with perceived value for customers is a significant aspect that warrants further investigation. Research in this realm can uncover optimal pricing models and strategies that align the interests of both parties, exploring the dynamics of pricing structures and value communication while ensuring sustained profitability and customer-centricity.

The impact of customer education and awareness programs on augmenting comprehension and acceptance of InaaS offerings within the real estate market is another area for exploration. Delving into how these initiatives contribute to optimizing the utilization of InaaS and enhancing customer value perception is essential for both vendors and customers.

Finally, assessing the applicability of the study in other markets with asymmetric information dynamics would contribute to understanding the broader implications of InaaS pricing strategies beyond the real estate industry. This exploration can uncover insights into the generalizability of the findings and the adaptability of InaaS pricing

approaches in diverse business landscapes.

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Appendices

A Interview Subjects

This appendix provides descriptive statistics about the companies and interviewees that participated in the research. To maintain confidentiality, companies are anonymized. Each interviewee are given an alias, e.g., Interviewee 1, Interviewee 2, etc.

A.1 Descriptive Table of Interviewees & Experts

Table A.1: Descriptive Table of Interviewees

Interviewees	Approx. Years of Experience	Company Segment	Years Since Est.	Approx.Number of Employees
Interviewee 1	2	Land developer	25	200
Interviewee 2	3	Land developer	150	550
Interviewee 3	2	Realtors	120	220
Interviewee 4	10	Realtors	30	40
Interviewee 5	4	Realtors	50	19000
Interviewee 6	15	Land Manager	60	160
Interviewee 7	7	Realtors	30	40
Interviewee 8	15	Realtors	30	30
Interviewee 9	25	Land developer	30	45

Table A.2: Descriptive Table of Experts

Experts	Title	Approx. Years of Industry Experience
Expert 1	Professor	5
Expert 2	Investor	30
Expert 3	Network Builder	15

A.2   Descriptive Table of Interviews

Table A.3: Descriptive Table of Interviews

	Interview Date	Location	Duration
Interviewee 1	19.10.2023	Oslo	1t 8 minutes
Interviewee 2	19.10.2023	Oslo	1t 18 minutes
Interviewee 3	27.10.2023	Oslo	1t 13 minutes
Interviewee 4	30.10.2023	Online	58 minutes
Interviewee 5	27.10.2023	Oslo	47 minutes
Interviewee 6	27.10.2023	Oslo	1t 5 minutes
Interviewee 7	13.11.2023	Online	41 minutes
Interviewee 8	14.11.2023	Oslo	52 minutes
Interviewee 9	24.11.2023	Online	45 minues

B   Interview Matrix

The interview guide has been developed in accordance with the research methods laid out in Chapter 3 and is as follows.

B.1   General Questions

1. Are you familiar with Information-as-a-Service (InaaS)?

2. What do you think about an increased use of InaaS (external information source) instead of employing own research team (internal information source)?

3. What do you think are advantages and disadvantages of this trend?
- Are you acquainted with any InaaS proptech companies?

4. How did you become aware of such concepts?
- What is your experience or impression of such companies?

B.2   Bakground of Decision-Making Process

1. How often do you consider purchasing new InaaS? What factors are you looking for when choosing such services?

2. How can vendors do to let you know the value of their offerings? "Demo", "trials"?

3. How much time in a value communication tool is needed to assess the potential value/ROI of a service?

B.3   Parameters About Pricing and Pricing Schemes

1. What pricing structures are you familiar with?

2. Is there any pricing structure you prefer over others?
- Why or why not?

3. Is commitment duration an important factor in choosing vendors?

4. Can a lower total price lead to a longer commitment period?

5. How do you evaluate the value of recently implemented software/InaaS?

6. How do you assess the relationship between price and value when evaluating InaaS?

- What are your thoughts on the current relationship between value and price?

7. What kind of transparency do you expect regarding pricing from InaaS?

8. What type of information helps you understand the cost structure better?

9. What do you think about price differentiation based on user groups or customer segments?

- Do you believe prices should be adjusted based on customer size, industry, or specific needs?

10. What are your concerns when the price is lower than expected or when there are significant discounts?

- What emotions do you experience when InaaS vendors offer special deals, discounts, or promotions?

- Does this impact your decision to purchase the service?

11. How does trust in InaaS affect your willingness to pay the price they ask for?

- What can the vendors do to build and maintain this trust?