Creating Competitive Advantage by Rethinking B2B Software Pricing

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“Innovation in pricing may be a company’s most powerful—and, in many cases, least explored—source of competitive advantage”

(Hinterhuber & Liozu 2014, p.1)

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Abstract

The choice of pricing model for software products is a complex procedure due to the different characteristics compared to physical products. This thesis investigates and compares software pricing models in a B2B setting, and describes how KAM plays a role in executing a pricing model. The research has been conducted as an opportunist case study on Adebro, a technology company in the B2B sector. The thesis have come to the following conclusions, with data from interviews and literature:

- Perpetual license is, and will continue to be, an attractive pricing model for Adebro. However, a subscription-based usage independent pricing model is also attractive for the future.

- Implications of switching pricing model would be largest when changing between a perpetual and subscription model, where revenue will have the most visual impact.

- The most important task for KAM is to communicate the change to current and new customers. KAM and the pricing model must also be structured to support each other to be successful.

The thesis contributes to science by providing research on pricing models for manufacturing related software. However, studies concerning the weighting of importance for different pricing parameters would be of interest for the future.

**Key Words:** Pricing Models, Pricing, Software, Key Account Management, Perpetual license, Subscription, SaaS, CAM, GD&T, SPC, Metrology
Sammanfattning


- Perpetual-licenser är, och kommer fortsätta att vara, en attraktiv prismodell för Adebro. Dock är prenumerationsbaserade prismodeller, med pris oberoende av användande, attraktiva för framtiden.
- De största effekterna från ett prismodellsbyte kommer när man byter mellan perpetual-licenser och prenumerationslicenser, däremot blir mest synligt på aktionerna.
- Den viktigaste uppgiften för KAM är att kommunicera prismodellen till kunderna. KAM och prismodellen måste också vara strukturerade på ett sådant sätt att de stödjer varandra för att nå högst potential.

Uppsatserna bidrar till vetenskapen genom att bistå med forskning om prismodeller för tillverkningsrelaterade mjukvaror. Framöver vore det intressant att se vidare forskning som utreder vikten av de olika parametrarna av en prismodell.

Nyckelord: Prismodeller, Prissättning, Mjukvara, Key Account Management, Perpetual-licens, Prenumeration, SaaS, CAM, GD&T, SPC, Mätteknik
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Declaration

'We declare that all material in this thesis is entirely our own work and has not been previously submitted to this or any other institution. All material in this thesis that is not our own work has been acknowledged and we have stored all material used in this research, including research data, preliminary analysis, notes, interviews, and drafts, and can produce them on request.'

Carl Adelstrand
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June 02, 2016
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Abbreviations

ARR Annualised Recurring Revenue.
ASP Application Service Provider.
CAD Computer-Aided Design.
CAE Computer-Aided Engineering.
CAM Computer-Aided Manufacturing.
CAPEX Capital Expenditure.
CMM Coordinate Measuring Machine.
CRM Customer Relationship Management.
GD&T Geometry, Dimension, & Tolerance.
IPP Initial Purchase Price.
KAM Key Account Management.
KPC Key Purchasing Criteria.
KPI Key Performance Indicator.
OEM Original Equipment Manufacturer.
OPEX Operating Expenditure.
PLM Product Lifecycle Management.
SaaS Software-as-a-Service.
SMA Software Maintenance Agreement.
SPC Statistical Process Control.
**Glossary**

**Customer** The company that utilises the software. This includes the buyer and the product owner.

**Metrology** The science of measurement, determined both empirically and theoretically in all areas of science and technology, and at any level of uncertainty.

**Price Getting** Also known as price realisation. Involves the capabilities and processes that ensure that the price the company gets is as close as possible to the list price.

**Price Setting** Also known as price orientation. Involves the methods that companies use to set their list price.

**Pricing Model** The aspects of pricing related to the agreement between the buyer and the vendor.

**Pricing Strategy** The strategy connected to all activities concerning pricing.

**Product Owner** The department that takes ownership of, and using, the software in their operations.

**Vendor** A supplier/seller/distributor of software.
1 Introduction

This chapter introduces the research, where it presents the background and the research problem. It then follows with the purpose and the aim, the research questions, the delimitations of the research as well as what the contribution to science is. It ends with the disposition of the thesis.

1.1 Background

"Innovation in pricing may be a company’s most powerful—and, in many cases, least explored—source of competitive advantage”

(Hinterhuber & Liozu 2014, p.1)

The choice of pricing model for software products is a complex procedure due to different characteristics compared to physical products. It becomes even more complex with the development of IT-technology, since it generates new possibilities of both payment as well as delivery of the software and thus, new pricing models are developed continuously (Harmon et al. 2009, Cusumano 2008, Bontis & Chung 2000, Choi et al. 1997).

This thesis investigates and compares software pricing models and describes how Key Account Management (KAM) plays a role in executing a pricing model. It focuses on pricing models and KAM of the software products offered by Adebro, a technology company in the Business-to-Business (B2B) sector.

Adebro is a company that offers a comprehensive range of products and services, both hardware and software, for various industrial applications. Adebro is a developer of Geometry, Dimension, & Tolerance (GD&T), Computer-Aided Manufacturing (CAM), Statistical Process Control (SPC), and visualisation software and has a large product portfolio of both in-house developed and acquired software packages. The software packages can be customised to meet customer demand and deliver intelligent and efficient data collection as well as analysis, management and presentation of collected data. The GD&T software packages interacts with Coordinate Measuring Machines (CMMs), and also interface with vision machines,
portable measuring arms, laser-trackers as well as equipment bought in from other manufacturers.

Adebro is looking to integrate quality control into the manufacturing process by centralising collected data from metrology applications to provide insights, analytics and intelligent management systems to increase productivity. This has lead to a strategic shift towards a more software oriented business. That is one of the reasons why Adebro has, during the last couple of years, acquired several software companies to strengthen their software portfolio.

1.2 Problem Formulation

It has been, and still is, an undergoing change in the market for enterprise software where established vendors are embracing services due to declining product revenues. This will have major implications for both users and developers of software products or services (Cusumano 2008).

"In general, since 2000 or so, we’ve seen many enterprises and individual customers rebel against paying a lot of money for standardized or commodity-type software products”

(Cusumano 2008, p.20)

Although Cusumano (2008) proposed this in 2008, the change is still undergoing where players in the software market are changing their pricing models towards subscription based pricing models (Miller 2016). The transition to subscription may generate new possibilities to increase revenue, something that Adobe, a software company that made the transition to subscription in 2013, can verify. However, this is something a lot of companies struggle with (Miller 2016).

Adebro has built a software portfolio mainly from acquiring software companies where all had its own strategy regarding pricing models. The acquired companies have been kept fairly independent and not forced into a predetermined set of operations. Thus, Adebro is selling software with inherited pricing models and have not yet revised these models and aligned them to the overall strategy.
The strategic decision of integrating metrology applications into manufacturing processes have led to new stakeholders in the customers’ organisations. Traditionally, the quality department has been viewed as the main product owner for metrology applications, but when the metrology applications are integrated into the manufacturing process the production department takes ownership of using and ordering these solutions. The change in main product owner is shown in Figure 1 and may imply a possible shift in customer requirements in terms of preferred pricing models.

Figure 1: Evolutionary Steps of Who the Owner is

Thus, due to a changing way of selling software, Adebro’s acquisitions, and a possible shift in customer requirements, this thesis deals with software pricing models and how a technology company can create competitive advantage by rethinking its pricing models. This includes an analysis of which models are most suitable in a B2B aspect for Adebro, taking in consideration trends of the market, customer preferences, internal capabilities and implications of switching pricing model. The thesis also explores how KAM can support execution of a new pricing model since the KAM organisation is the part of the company that practically works with the pricing model.

1.3 Purpose and Aim

The purpose of this thesis is to investigate and compare software pricing models in a B2B setting and describe how KAM plays a role in executing a pricing model. The aim of the study is to identify possibilities to gain competitive advantage through a certain choice of pricing model.
1.4 Research Questions

To be able to fulfil the purpose and the aim of the study, the research theme is defined as follows:

*How should Adebro structure its pricing model/s for the software packages?*

The research theme has been divided into three parts with separate research questions:

- What software pricing models are attractive for Adebro in terms of market trends, customer preferences, and internal capabilities?
- What are the implications of switching pricing model?
- What role plays Key Account Management (KAM) in regards to implementation and execution of software pricing models?

1.5 Delimitations

This study purely focuses on pricing models related to the B2B software industry, and therefore we are not going to investigate pricing models that neither cannot be fitted into a software environment nor in a B2B setting. Since this study is conducted in collaboration with Adebro, results have been derived in reference to Adebro’s offerings and markets. However, the research have mainly focused on the markets in developed countries.

The study focuses on manufacturing related software: CAM, SPC, and GD&T software but the market research and the literature review have considered other software markets like Computer-Aided Design (CAD), Computer-Aided Engineering (CAE), and Product Lifecycle Management (PLM) for inspiration and trend analysis.

The study has been conducted under the confidential policy of the case company, Adebro, as well as a request from some of the interviewees, and therefore neither Adebro’s real name nor the real names of the interviewees have been presented and real numbers have been altered in the thesis.
1.6 Contribution to Science

Past studies conducted on pricing have often been related to general pricing, where specific theory about pricing software packages has only been a minor part. The literature has often been more focused on covering a holistic approach to software pricing models. There is a lack of research focusing on a specific product or company and investigating what pricing model is best applied onto that setting. Therefore, this thesis contributes to the area of research on how to best apply a certain pricing model onto a technology company. This have generated an outside-in perspective rather than an inside-out perspective.

From a theoretical perspective, this study contributes with knowledge to the pricing literature by providing research on pricing strategies in the context of specific software packages in a hardware focused industry. By adding the aspect of how to align KAM in such an environment, the study also contributes to the KAM area of research.

From a managerial perspective, the results will provide insights into how a technology company that sells software can structure their software pricing models for the future to generate competitive advantage.

1.7 Disposition

The thesis is structured as follows:

**Introduction:** This chapter introduces the research, where it presents the background and the research problem. It then follows with the purpose and the aim, the research questions, the delimitations of the research as well as what the contribution to science is. It ends with the disposition of the thesis.

**Literature review:** This chapter presents a review of existing theoretical frames, which is divided into three sections: General Pricing, Software Pricing and Key Account Management.

**Method:** This chapter presents the chosen case study methodology and includes a description of the research approach and the research process. Moreover, the chapter presents the chosen methods for data collection and analysis. It ends
with a reflection on the quality of the research design, as well as the ethics of methods used.

**Findings:** This chapter presents the empirical findings together with an analysis of the collected data to fulfil the purpose of the study. Findings are presented in the order of the research questions.

**Discussion:** This chapter discusses how the empirical findings relates to the revised literature. It highlights and discusses major similarities and discrepancies between the empirical findings and the literature.

**Conclusion:** This chapter concludes the research by answering the research questions and discusses how the research contributes to knowledge. Furthermore, it discusses the limitations of the research together with recommendations regarding future research to expand the field of knowledge.
2 Literature Review

This chapter presents a review of existing theoretical frames, which is divided into three sections: General Pricing, Software Pricing and Key Account Management.

2.1 General Pricing

This section presents an introduction to pricing. It also discusses different roads towards pricing excellence as well as the importance of continuously evaluating the pricing strategy.

2.1.1 Introduction to General Pricing

Pricing is one of the P’s in the four P marketing mix that was invented by McCarthy (1960). However, it was Kotler that made the four P’s a known concept worldwide a few years later. The four P’s are: Product, Price, Promotion, and Place, and represents the marketing factors a company need to consider to be a successful player in the market (Kotler 2015).

The price can be determined by taking into account the three C’s of pricing, which are: Cost, Customers, and Competition (Mohr et al. 2010). These are the three most fundamental factors that the price is dependent on. The three C’s of pricing can then be formed into cost-, competition-, and value-based pricing. Cost-based pricing takes the cost of developing the product and then setting a mark-up, competition-based pricing sets the price according to competitors, and value-based pricing sets the price according to the perceived value of the product for the customer (Mohr et al. 2010).

It is important to align a buyer’s value realisation with the vendor’s business objectives. Therefore, the pricing process must consider both sides of the market transaction, which indicates a more collaborative customer relationship (Bontis & Chung 2000). In general, vendors that do not treat their customers as partners in value creation have higher risk of seeing competitors steal market shares and profits (Bertini & Gourville 2012). Thus, it is important to have a flexible and value-based pricing since it enables the vendors to respond to their customers’ needs and to
share value with them. Bontis & Chung (2000) although argues that as Internet and web-based software continue to grow, new types of pricing models will, and have, emerged and these new pricing models must also align the vendor’s and the buyer’s value realisation to be a sustainable model. However, one must look beyond the market conditions and also take the product design into consideration (Choi et al. 1997).

2.1.2 Roads Towards Pricing Excellence

Hinterhuber & Liozu (2012) have developed a pricing capability grid based on two dimensions. The first dimension is price setting, where a company can decide and set its prices from three starting points, cost-, competition-, and value-based pricing. This is in line with the three C’s of pricing of Mohr et al. (2010). The second dimension concerns how well a company can realise its prices, which is called price getting. In price getting, Hinterhuber & Liozu (2012) explain that a company can be positioned in one of three relative positions which are: weak, medium, or strong. Combining these two dimensions gives a grid with nine pricing zones where most companies end up in five of them. This can be seen in Figure 2.

![Figure 2: The Pricing Capability Grid (Hinterhuber & Liozu 2012)](image)

The White Flag Zone companies do not often have any strategy regarding to pricing at all. Sales personnel therefore set the price according to what they feel, which often results in frequent use of discounting (Hinterhuber & Liozu 2012).
The Value Surrender Zone companies have list prices that reflect the customer value well. This is however not realised since sales personnel are encouraged to negotiate heavily, with no general guidelines for discounting, which results in partly lost value during the negotiations (Hinterhuber & Liozu 2012).

The Zone of Good Intentions companies often have obsolete processes of setting and working with the price. This is intended to limit the sales personnel’s altering of the price and maximise value realisation from the past. These processes may have been set according to past customer preferences or manufacturing processes, and were inherited when the company moved to a new phase (Hinterhuber & Liozu 2012).

The Price Capture Zone companies have developed processes that minimise the deviation from list prices. However, the list prices are not set fully according to their customer’s value perception, and thus some of the value is lost (Hinterhuber & Liozu 2012).

The Pricing Power Zone often incorporates value-based pricing since companies here have high pricing power. They have specific roles associated with pricing, e.g. chief pricing officer or head of revenue management. This role is responsible for that the organisational setting is in line with price setting and price getting. The price getting routine is often driven by the CEO, to ensure the employees that the price is in line with the company’s vision and embrace organisational involvement (Hinterhuber & Liozu 2012).

Similar to the the pricing capability grid that Hinterhuber & Liozu (2012) developed, Hunt & Saunders (2013) developed the five levels of world-class pricing, which is a roadmap that helps companies to benchmark where they are on the journey towards pricing excellence. Each level in the model is distinct and has separate issues which evolves in the different levels (Hunt & Saunders 2013). This model is more linear compared to the pricing capability grid by Hinterhuber & Liozu (2012) and a company ought to progress from one level to another without skipping a level. It is important to go through all the different levels in the journey towards excellence in pricing because that is the way a company builds solid strategies, structures, and processes that will last in the long run (Hunt & Saunders 2013).
**Figure 3: Five Levels of World-Class Pricing (Hunt & Saunders 2013)**

**Level 1 - Ad Hoc** companies are characterised by ineffective baseline processes where pricing is undisciplined and often reactive. Typically companies in this level are using cost-based pricing that does not reflect customer values (Hunt & Saunders 2013).

**Level 2 - Controlled** companies are controlling their pricing processes by controlling the discounting. A structure regarding pricing exists together with rules on how to deal with customers, but the rules do not always make sense for the customer. Level 2 companies do say no to deals rather than adjusting discounts frequently (Hunt & Saunders 2013).

**Level 3 - Value-Based** companies have switched from an inside-out perspective to an outside-in perspective and are in the whole more customer centric. Decisions are made with the customers’ value in mind and prices are value-based. Furthermore, customers are segmented according to their need rather than classification, such as size or region (Hunt & Saunders 2013).

**Level 4 - Optimised** companies have a higher degree of precision around pricing and decisions are based on better customer data. Companies use tools such as choice-base conjoint analysis, pricing software, and multivariate regression models in order to optimise the outcome (Hunt & Saunders 2013).

**Level 5 - Mastered** companies have an intense commitment to value, and passion about pricing. They have integrated business systems and enjoy significant financial returns from rethinking pricing. Furthermore, Key Performance Indicators (KPIs) connected to pricing improvements and margins are frequently used to evaluate sales personnel (Hunt & Saunders 2013).
2.1.3 Evaluate and Rethink the Pricing Strategy

Hinterhuber & Liozu (2014) estimate that only five percent of the leading companies in U.S., Europe, and Asia have embraced the opportunity to evaluate or rethink their pricing and thus, a lot of companies are missing out on a powerful source of competitive advantage. This is due to the fact that most companies look at pricing as a zero sum game or a win-lose relationship, where one party gains what the other party loses (Hinterhuber & Liozu 2014).

Evaluating the pricing strategy can give companies great opportunities to differentiate themselves from competitors, and there are especially two areas of importance when rethinking the pricing strategy (Hinterhuber & Liozu 2012). The first area to consider is changing the fundamental way of setting the price. The second area concerns price getting, the process of making list prices profitable. This may require adding information systems, incentive schemes, controlling tools as well as a sales force and a KAM-organisation that have confidence in the new pricing model. Quantifiable results will come quickly after adding or improving any of these areas according to Hinterhuber & Liozu (2012).

When changing the fundamental way of setting the price, it is important to always keep the pricing strategy aligned, or in the best case ahead of, with how the market is developing. A switch from cost-based to value-based can therefore be of relevance when a product becomes of greater importance to the customer than it was before. It is then not longer primarily about covering the cost associated with the production, but instead taking the customers’ value perception into account and ensuring that both parties are satisfied (Harmon et al. 2009).

Hinterhuber & Liozu (2012) argue that companies without rethinking of pricing often practice cost-based or competition-based pricing together with heavy use of discounts. Furthermore, these types of companies do not often have a specific team that works with pricing. Therefore, Hinterhuber & Liozu (2014) proposed a roadmap for innovation in pricing that exemplifies initiatives a company can take in the field of pricing strategy, pricing tactics, and in the pricing organisation. This roadmap is presented in Figure 4.
Figure 4: A Roadmap for Innovation in Pricing (Hinterhuber & Liozu 2014)

Hunt & Saunders (2013) argue that a company should focus on four core processes regarding pricing in order to innovate and move upwards in the five levels of world-class pricing, illustrated earlier in Figure 3. The first process to address is to develop a sound pricing strategy. This must be the first stage in the journey since all other decisions should be aligned with the strategy. Next process to consider is setting customer net prices. This includes pricing guidelines and rules that impose the strategy and ensure fairness. Thirdly, a company that both has a strategy and customer net prices should consider the process of executing the pricing strategy. This process concerns keeping the front line in the company updated with sufficient resources and tools in order to ensure a smooth and efficient work flow. Finally, there is the process of managing performance, where KPIs are developed and managed to ensure that the company stays on course with the strategy (Hunt & Saunders 2013).

Furthermore, when a company is changing its pricing model or pricing strategy, it must also incorporate it into the company’s culture to be sustained. CEO involvement is therefore critical to ensure that all employees understand the importance of the change (Hinterhuber & Liozu 2012, Hunt & Saunders 2013). The CEO should adopt a personal touch to the price change by personalising the story of why the new pricing model is necessary, as well as engaging others in the process of change,
to get a full perspective from the whole organisation of what may be the next best practice (Aiken & Keller 2007, Hunt & Saunders 2013). Furthermore, involving the entire organisation is far more complex than just changing list prices. New pricing approaches often require new organisational structures, new capabilities, new tools, and new processes. Moreover, it also requires different priorities, goals, and incentive systems, which all is especially connected to the KAM organisation (Hinterhuber & Liozu 2014).

2.2 Software Pricing

This section presents a review of the existing body of knowledge regarding software pricing. It discusses theories about the development of pricing models as well as the complexity in pricing software.

2.2.1 Introduction to Software Pricing

As mentioned by Choi et al. (1997), it is not only the market dimensions one need to consider when setting the price, but also the product design. Therefore, pricing software comes with additional issues in comparison to pricing commodities or physical products due to its product design. The product design of software is different from physical products with fundamental characteristics as indestructibility, transmutability and reproducibility. Thus, all these need to be taken into account when setting the price for digital products (Choi et al. 1997).

The lack of costs associated with the physical characteristics of the products, e.g. the cost of the medium the software is delivered on, makes it difficult to use well known cost-based concepts of margins and mark-ups in order to price software (Bontis & Chung 2000). This is further emphasised by Harmon et al. (2009), who argue that the software industry is maturing and is now generating higher value for the customers, and thus is shifting towards value-based pricing. Moreover, since the introduction of Software-as-a-Service (SaaS), companies’ cost structures have changed and value-based pricing has become important to justify the gap between the price and the marginal cost for adding a new customer (Baur et al. 2014).
Development of software is expensive, but on the other hand, variable costs of sale is almost negligible. The total product cost is often fixed and therefore it becomes crucial to reach a certain amount of minimum revenue in order to reach break-even point. Furthermore, this makes software special since any additional revenue beyond the break-even point is almost purely profit (Kittlaus & Clough 2009). This has lead to problems with having a reliable measure to value software (Bontis & Chung 2000). However, Buxmann & Lehmann (2009) discuss that in the case of support and service offering, significant high variable cost incur. This is particular important to take into account in the case of SaaS solutions, where the offering also includes the hosting and support services beside the software, and in the case of complex products that require more service (Buxmann & Lehmann 2009). In general, companies that develop software require relatively little capital and investments which implies that the market entry barriers are low (Kittlaus & Clough 2009). This might differ depending on the type of software that is developed and sold.

"Somewhere in this world, new software companies are founded daily – and die daily"

(Kittlaus & Clough 2009, p.22)

This results in high innovation and adoption speed which further lower the technical entry barriers and imply a very competitive market dynamic (Kittlaus & Clough 2009). However, the law of increasing returns are strong in the software market due to network effects, increased switching costs for users, and increasing trust in the market leaders (Kittlaus & Clough 2009). Kittlaus & Clough (2009) argue that, because of the law of increasing returns, market leadership becomes a very important competitive advantage. That is why software companies should have market leadership as a short term goal instead of goals like revenue or profitability (Kittlaus & Clough 2009).

Buxmann & Lehmann (2009) argue that there are six parameters, summarised in Figure 5, to focus on regarding pricing of software products: *Formation of Price, Structure of Payment Flow, Assessment Base, Price Discrimination, Price
Bundling, and Dynamic Pricing Strategy. The most specific parameter for software developers is the design of the assessment base, since prices can either be decided dependent on the usage of the software, or independent of usage (Buxmann & Lehmann 2009).

### The Six Parameters of Software Pricing

<table>
<thead>
<tr>
<th>Formation of price</th>
<th>Structure of payment flow</th>
<th>Assessment base</th>
<th>Price discrimination</th>
<th>Price bundling</th>
<th>Dynamic pricing strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price determination • Cost based • Value based • Competition oriented Degree of interaction • Unilateral • Interactive</td>
<td>Single payment • Recurring payments • Frequency • Duration • Combination</td>
<td>Number of pricing components • Usage-dependent • Transaction • Memory requirements • Time • ...</td>
<td>1st degree • 2nd degree • Quantity • Time • Versioning 3rd degree • Person-related • Region-related Multidimensional</td>
<td>Offer • Pure bundling • Mixed • Unbundling Product • Software • Maintenance • Service Degree of integration • Complementary • Substitutive • Independent Price level • Additive • Super additive • Sub additive</td>
<td>Penetration pricing • Follow-the-free Strategy • Skimming strategy</td>
</tr>
</tbody>
</table>

Figure 5: The Six Parameters of Software Pricing (Buxmann & Lehmann 2009)

Similar to the six parameters of software pricing, Cöster et al. (2013) have developed a model that involves only five dimensions that a company can differentiate their pricing model on, the model is called the SBIFT model. SBIFT is an acronym of the dimensions they argue a company can differentiate themselves on: Scope, Base, Influence, Formula, and Temporal rights. Each dimension has different approaches that can be fitted to a company’s pricing model, and the SBIFT model is illustrated in Figure 6.

Although the SBIFT model consists of five dimensions, it only covers four of the six parameters that are mentioned by Buxmann & Lehmann (2009). The parameters that are not covered in the SBIFT are price discrimination and dynamic pricing strategies. This could originate from the fact that the SBIFT model is not intended to be an all inclusive model, while the six parameters of software pricing tries to capture the full spectrum of different possibilities. The SBIFT model intends to be more of an analytical tool that can help companies map themselves compared to
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floating licenses (Bontis & Chung 2000). Since then, prices have been going down on processing power, storage capacity, and bandwidth and these have almost turned into commodities. This have nurtured the trend towards cloud computing where capacity considerations no longer are constraints (Kittlaus & Clough 2009).

The six parameters illustrated in Figure 5, as well as the SBIFT model illustrated in Figure 6, can be combined to form different pricing models. These have all different attributes and are suitable for different kind of businesses. Some of the most common pricing models are described in this section.

**Concurrent licenses** or floating licenses, enable the enterprise to buy a certain amount of licenses that they can allocate to the users that will work with the software. It is thus only a predetermined number of software copies that can be run at the same time (Christiano 1997). This pricing model is commonly used in large enterprises, since the license type provides flexibility to the company. The model enables a company to maximise the usage while minimising the number of licenses, e.g. if 20 employees are going to work with the software, but only 10 at the same time, the company only needs to buy 10 licenses (Ferrante 2006). Sultan (2006) further emphasises that flexibility is achieved since the company simply can buy additional licenses as the software becomes more widely used in the company. The company can also be given the option to buy a site license or a corporate license. The site license allows the company to install the software package on the computers at a specific site or plant, and the corporate license allows the company to use the software throughout all its users (Rustad 2010).

Sultan (2006) mentions three main benefits with concurrent licenses: Users have access to a shared resource, administrators can control how many, and where the licenses will be used throughout the company, and vendors can control who uses the licensed application. However, one of the disadvantages with concurrent licenses is the constant communication with the server to check the amount of licenses being used (Ferrante 2006).

**Freemium** was first introduced by Fred Wilson, a venture capitalist, in 2006 and has since then become the dominant business model amongst Internet start-ups and smartphone app developers. The Freemium model combines free and premium
services, where the premium service often is a subscription-based fee for added features. Freemium is the best suitable model for companies who want to reach a big user-base, which is a big source of competitive advantage. Free features will serve as a marketing tool, and will thus attract new customers with very little marketing cost (Kumar 2014, Kittlaus & Clough 2009).

Pujol (2010) states that Freemium can be differentiated by four strategies: volume, time, feature, or distribution. Volume differentiation relies on sample distribution, where the quantity of the product is limited. A more recent type of differentiation have arisen along with the digitisation, which is the time-limited product. Time differentiation can either be availability for a limited time-period, availability for a certain immature product, such as a beta version, or that free users will get access to the product after a certain time period, which can be used in time-critical data such as news. Feature differentiation is when the functionality of the product is changed between the free and the premium model. The free version has limited functionality while the premium includes more advanced functionality, a model frequently used by apps today. Another way of differentiating the Freemium model is through the distribution. It is the end-users choice on how to use the product that will determine if it is free or costs money. Think-cell is a company that uses this model for its software today, where non-profit organisations can use the software for free, but if it is used for commercial use, the organisation must enter into a different license agreement (Think-cell 8 February 2016).

The kind of differentiations that is included in Freemium is however subjective, and Kumar (2014) argues that Freemium is only differentiated by functionality, and does not include time-limited trials, which is often used as a sales tool.

Despite the Freemium model’s success, it has also lead to the failure of many start-ups who were unsuccessful in converting the free users to be premium, and therefore unable to generate revenue (Kumar 2014).

Pay Per Use or pay per transaction is based on the assumption that customers who use the software more should also pay more and thus enables a match between cost and usage. However, measuring usage of software accurately is hard and does not allow for stable and reasonable cost estimates (Bontis & Chung 2000). This
pricing model gets support from Jiang et al. (2007), who emphasise that value is not created by owning the software, value is created when using it. The model was one of the first to be adopted but the full release model soon became used more frequently. A reason for this was issues regarding how to measure usage, since it can be measured e.g. in terms of data usage, number of users, and time (Bontis & Chung 2000).

Research conducted by Jiang et al. (2007) point to that in a market with a heterogeneous customer base and when there are strong network effects, pay per use is more profitable than full release licensing. Furthermore, Jiang et al. (2007) argue that a pay per use architecture is an effective protection against the risk of piracy.

Successfully measuring usage makes it possible for a software supplier to more efficiently realise second degree price discrimination amongst their customers and reach out to the whole spectrum of potential buyers, both light and heavy users (Bontis & Chung 2000, Jiang et al. 2007, Zhang & Seidmann 2002).

Another advantage with pay per use licensing is that it is easier for a vendor to collect usage information to help the development of the software and identify which features are used the most and the least. A vendor can capitalise on this in a number of ways e.g. offer individually structured promotions on existing products and as well on new products and features (Jiang et al. 2007).

**Perpetual License** is the most traditional way of pricing software and also known as a full release. The pricing strategy is structured with a one-time payment per client and license. This model includes a buyout of all the functionality in a software from the time of activating the license and forward. Full release gives revenue a large upside potential while costs are capped for the supplier due to the fact that the development costs are already payed for and there is no limit on how many licenses one can sell (Bontis & Chung 2000). In this way, one can view a full release model as buying any type of commodity or physical product. However this has some disadvantages due to the fact that software products do not have the same product design and characteristics as physical products (Choi et al. 1997). Jiang et al. (2007) argue that full release models often come with increased risk.
for piracy. Furthermore, full release licenses do often work fine when the customer base is homogeneous and the usage level, user experience, and value created by the software are roughly the same. But when the customer base is heterogeneous, full release licenses become sub-optimal because vendors often choose to target the heavy users and set the price accordingly, which leads to the value for light users not being aligned with the price. This is a sign that the pricing model fails to align both sides in the market transaction, which is very important according to Bontis & Chung (2000) in order to develop a good pricing model. A sub-optimal pricing model may also increase piracy levels since light users are not willing to purchase the software and instead are downloading piracy versions (Jiang et al. 2007).

However, companies that use the full release licensing model are often combining the software license with a service and maintenance contract. This could be done by paying a fixed fee for a number of years or an ongoing subscription. This comes with the advantage that the company first gets a single payment up front and later annual payments, often of a fixed percentage of the license price, for service and maintenance, which ensures future cash flow (Buxmann & Lehmann 2009).

Software-as-a-Service (SaaS) is a model that started to appear during the late 1990s with the emergence of Customer Relationship Management (CRM) and Application Service Providers (ASPs) (Cusumano 2008, Greschler & Mangan 2002, Kenney 2007). SaaS is defined in several different ways, but the The Economist (20 Apr 2006) summarises it in an easy and understandable definition.

"The delivery of software as an Internet-based service via a web browser, rather than as a product that must be purchased, installed and maintained"

(The Economist 20 Apr 2006)

Thus, SaaS is a pay-as-you-go pricing model that distributes the software through Internet and is purchased on a subscription basis. The big difference compared to the pay per use model is that it is the provider of SaaS that is responsible for everything associated with the software, i.e. training, support, infrastructure, and security risks (Sysmans 2006). This is further emphasised by Lasher (2008), who
says that all the end-user has to focus on is that the vendor gets paid and that its users have web access. Therefore, the costs associated with providing SaaS can be said to be proportional to the usage of the software, since more service will be needed (Sysmans 2006).

If a customer is ready for SaaS or not, is dependent on the organisation’s functional requirements. Lasher (2008) argues that SaaS can be a compelling option if the need is process standardisation, data centralisation, or business intelligence. However, the model is better suited for small and medium sized businesses, since the SaaS support often is a contact center with undifferentiated service to the entire customer base. This typical support model of SaaS does not provide any tools for monitoring or tuning performance, which could also be a problem for larger enterprises (Lasher 2008).

There are a lot of advantages with SaaS for the customer, and it may differ depending on the industry. There are although some benefits that are mutual for every industry: global access, significant cost reductions, and simplified operations (St.Clair 2008). Furthermore, Duhon (2007) mentions five general cost benefits: Low up-front capital investment required, no need to add server, quick roll-out and ROI, eliminated maintenance costs, and updates can occur without disrupting the organisation. However, Lasher (2008) argues that SaaS may not offer cost benefits for organisations that will have the software over several years. The annual SaaS subscription fee will then be higher than the maintenance fees for on-premise software. Thus, Lasher (2008) argues that SaaS may only profitable as a short-term solution, for less than 5-7 years.

Another advantage with SaaS is that SaaS licensing models lead to higher investments in product development, and quicker time-to-market for the software. This is beneficial for both the vendor and the customer since it will lead to better product quality and make the software more competitive in the market (Vidyanand 2007).

Unbundled pricing is a pricing model where the distributor sells a base software with the option to add further components or features. This gives the buyer flexibility and can thus choose to pay only for the functionality needed. The pricing
model developed in order to meet demand from customers that required the specific flexibility from the model. The *pay for only what you need* aspect makes it easier to align cost and value but one still has to align price and value for the up-front purchase that is needed. Unbundled pricing is often a part of many other pricing models. Sometimes it is used together with a perpetual license and sometimes it can be combined with a subscription or SaaS model (Bontis & Chung 2000).

### 2.2.3 Business Implications When Switching

It is important to realise that a switch of pricing model also comes with business implications. The business implications will be most visible when a company is switching from up-front payment models to subscription-based models. Gruman et al. (2012) mention four major business implications when a company is switching: *Revenue, cash available, sales, and valuation.*

**Revenue** will have the most visible impact for companies that are switching from up-front payment models to a subscription-based model with periodic payments. The revenue will at first drop and will then recover over time as the user base grows. The periodic payments will however ensure constant in-flow of cash, which will enhance predictions of future revenue. The periodic payments will also reduce revenue variations due to economic cycles and budget constraints. It is not only the annual revenue, but also the amount of *cash available* that will be impacted in the short-term. With up-front payment models, companies have more cash available at hand directly, which can be used to invest into other parts of the organisation and build the business further. With a switch to a periodic payment model, it is therefore instead crucial to build up a revenue reserve over time which can be used for investments, since the cash available will be lower. Vendors that change to a periodic model may therefore need to explore alternative financing options before its cash flow turns positive again (Gruman et al. 2012). However, Vidyanand (2007) has a more long-term view and argues that with a subscription-based model the company instead gets incentive to invest more into product development, since present and future versions do not compete against each other. Thus, the company can release new updates when they are ready, instead of waiting for the next ver-
sion, which makes the investments made into product quality directly visible for the customers. Hence, Vidyanand (2007) argues that the quality delivered to the customers will be higher with a subscription model.

It is not only the financial part of a business, but also the sales, otherwise known as KAM in some organisations, that is impacted by a switch in pricing model. KAM may need to change its sales strategy, as well as its incentives and commission structure. A standard commission arrangement for a salesperson is a fixed base salary together with a commission that is a percentage of sales or gross profit. Thus, a new pricing model that affects the up-front cost for the customer will change the commission paid to the sales force. Therefore it is important to align the commission structure to the pricing model so that sales personnel have incentives to sell. At the same time, communication with the customer will increase along with the frequency of payments, and it may therefore be of more importance to establish a well functioning KAM organisation when payments happens more often (Gruman et al. 2012).

Gruman et al. (2012) further emphasise that a switch in pricing model also may affect the valuation of public listed companies. These companies may experience a decline in stock price if they switch to a model with more periodic payments, e.g. a subscription based model. The stock price will most likely recover when the company can prove the steady income that comes with subscriptions, and the stock price will probably also then be less volatile due to a similar income across the years (Gruman et al. 2012).

2.3 Key Account Management

This section presents a review of the existing body of knowledge regarding KAM. As mentioned previously, Hinterhuber & Liozu (2014) emphasise that a new pricing model comes with new requirements on the organisation, and especially in KAM. Therefore this section intends to break down concepts, key success factors, as well as the effectiveness of a customer relationship.
2.3.1 Introduction to Key Account Management

KAM is the relational strategy adopted by a company with its key accounts. The definition of a key account is widely spread and the term is ill-defined (Gosselin & Heene 2000). Furthermore, there exist a lot of substitutes for the term key account which are used by different researchers as well as practitioners. Terms used instead of key account are e.g. Important Account, Large, Big or Major Account, National Account, Key Client, International Account, Global Key Account, Worldwide Account, Multinational Account, Global Strategic Account, and, Strategic Account (Gosselin & Heene 2000). The use of certain terms have changed over time where the terms National Account or Major Account were frequently used in the 80’s. Globalisation have been a major factor driving key account terms to include global or strategic (Gosselin & Heene 2000). Despite an ill-defined term, there is a growing consensus regarding the definition of key account (McDonald et al. 1997, Montgomery et al. 1998, Pardo 1997). Millman & Wilson (1995) define a key account as following:

"a customer in a business-to-business market identified by a selling company as of strategic importance”

(Millman & Wilson 1995, p.9)

McDonald et al. (1997) give three factors that make an account a key account, from both the customer perspective and the vendor perspective. These factors are shown in Table 1.

<table>
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<tr>
<th>Vendor perspective</th>
<th>Customer perspective</th>
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<td>Volume related factors</td>
<td>Ease of doing business</td>
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<tr>
<td>Potential for profits</td>
<td>Quality (product/service)</td>
</tr>
<tr>
<td>Intangible attractiveness factors</td>
<td>Quality (people factors)</td>
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Table 1: Selection Parameters of a Key Account (McDonald et al. 1997).

A key account has to contribute with a significant amount of Volume for the vendor. One does often use the Pareto 80/20 rule to identify accounts with good volume related factors. Furthermore, it is not only existing volumes but also potential volume from the account. Volume related factors are used frequently because
it is easy to measure but one must not forget about profits. Potential for profits is more difficult to measure, but when a system for measuring profitability and potential profits from accounts are in place it should be used with same weighting as volume. Last for vendors there is the intangible attractiveness factors which include status, relationships, potential for collaboration, and credibility. From the buying organisation’s perspective, a key supplier is a supplier that is easy to do business with. Here, factors that ease integration play a big role. Quality for both products/services and people are the next two factors for buyers. To be able to offer an attractive product or service is in many cases a prerequisite for any buyer-seller relationship to exist and develop. Quality in people is considering the personality and commitment from the selling company. Honesty and integrity are often viewed as valuable traits or behaviours (McDonald et al. 1997).

Theories regarding management of key accounts, called KAM, developed from the first buyer-seller relationship research that was conducted in the 70’s (Abratt & Kelly 2002). The field of relationship and relationship marketing has evolved over time and according to Reid & Plank (2000) there is no real consensus or definition of the terms, but most people seems to view it as: developing long-term relationships with customers. Platzer (1984) found a number of conditions in the business environment that acted as drivers for companies to change the sales approach on a few, but large, customers who accounted for a large portion of the revenues. Increased pressure from the buying organisations regarding service level, reduced costs, better communication, together with a wider geographic spread of more sophisticated buyers were main drivers for some companies to assign one responsible salesperson, a key account manager, to manage a small number of large key customers (Bragg 1982, Maher 1984, Shapiro & Wyman 1981, Shapiro & Moriarty 1984a, Shapiro & Posner 1976). This improved service and responsiveness and was later seen as one of the Key Purchasing Criteria (KPC) for buyers (Weilbaker & Weeks 1997). Wengler et al. (2006), on the other hand, argue that factors of competition intensity and coordination intensity are the main drivers for KAM implementation.

A well functioned relationship with a customer aims to give a competitive advantage (Tzempelikos & Gounaris 2015). KAM is seen as especially important in a
B2B environment since the customers are fewer and more powerful, and the buyer-seller relationship is more complex and interdependent compared to the Business-to-Consumer (B2C) environment (Heide & John 1992). Relationships, in general, evolve over time mainly due to two salient features: first, a shift from a transactional relationship to a more collaborative one driven by increasing involvement and complexity, and secondly, growing trust and commitment (McDonald et al. 1997).

Napolitano (1997) argues that introducing and operating effective KAM programs comes with a number of advantages summarised in Table 2.

<table>
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<tr>
<th>Vendor benefits</th>
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<td>Protect existing volume base</td>
<td>Better service</td>
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<tr>
<td>Realise incremental volume</td>
<td>Faster communication</td>
</tr>
<tr>
<td>Increase account penetration</td>
<td>Better/faster decisions</td>
</tr>
<tr>
<td>Increase market penetration</td>
<td>Easy access to supplier</td>
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<tr>
<td>Gain operational efficiencies</td>
<td>Better supplier knowledge</td>
</tr>
<tr>
<td>Gain competitive advantage</td>
<td>Greater trust</td>
</tr>
<tr>
<td>Product development ideas</td>
<td>Continuity</td>
</tr>
<tr>
<td>Greater customer loyalty</td>
<td>Greater security</td>
</tr>
<tr>
<td>Cost savings</td>
<td>Cost savings</td>
</tr>
</tbody>
</table>

Table 2: Benefits of KAM for Vendors and Customers (Napolitano 1997).

2.3.2 Key Success Factors Regarding KAM

Tzempelikos & Gounaris (2015) came to the conclusion that effective KAM not only contributes to sales and profits, but is also beneficial to the company from higher levels of cooperation. There are six parts that contributes to KAM success: account planning and selection, top management involvement, KAM spirit, use of teams, KAM activities and KAM evaluation, where the two most powerful drivers are top management involvement and KAM activities (Tzempelikos & Gounaris 2015). Creating a company culture regarding the KAM can create a KAM spirit which is helpful when the customer-relationship progresses into a deeper collaboration, where several people from each side is communicating with each other (Woodburn & McDonald 2011). However, Tzempelikos & Gounaris (2015) argue that although
A good relationship is important, the crucial characteristic of a successful KAM is the handling of eventual conflicts.

Napolitano (1997) argues that top management involvement is the most critical indicator of success, where a key account manager should report directly to the highest level in a selling organisation. Furthermore, Napolitano (1997) suggests that account planning and selection are important in order to increase the probability of a successful relationship. This is in line with the findings from Tzempelikos & Gounaris (2015) that KAM programs that succeed do often prioritise their accounts and assess the fit between the need of the key account and the supplier’s core strengths. Napolitano (1997) emphasises that not all large-volume customers are suitable as partners and therefore a company should conduct a thorough evaluation of their large-volume accounts before they are appointed as key accounts. Another key success factor is the selection of a key account manager with right qualifications. A good key account manager should accordingly have enough conceptual and analytical skills to understand and relate to the key customers’ main issues, profit and productivity goals, and be able to provide solutions to the customers that satisfy their needs. But the most important skills a key account manager should posses are high-level selling skills and relationship skills (Napolitano 1997).

Senqupta et al. (1997) give another view of success in KAM programs. According to their research, the performance of a key account manager could be seen as inversely proportional to the number of accounts they manage. Therefore it is important to not assign too many accounts to a successful key account manager. Furthermore, accessible technology and compensation structure for employees in the selling organisation also affects KAM effectiveness (Senqupta et al. 1997).

Abratt & Kelly (2002) found that vendors and buyers have the same perception on what factors are most important to ensure a qualitative and successful KAM program. Abratt & Kelly (2002) argues that both buyers and suppliers sees the following as key success factors regarding KAM programs: A suitable key account manager that has the ability to identify problems and provide solutions to the key accounts, correctly identified key accounts from a strategic perspective rather than only size and volume, knowledge and understanding of the customers’ business,
and finally a culture of customer commitment and satisfaction where the involved individuals understand what key account customers expect and why a relationship exists in its current form.

### 2.3.3 Key Account Relational Development Model

KAM is a strategic initiative with long-term benefits that evolve together with the customer relationship. McDonald et al. (1997) mention that it can take up to 10 years from account identification until the relationship has reached full potential. Selling companies with a rigorous KAM history show that KAM activities are executed and planned in line with the overall marketing strategy and that the strategic outlook is a minimum of three to five years (McDonald et al. 1997). Millman & Wilson (1994) argue that there exist different maturities of KAM which match the journey from a transactional relationship to the collaborative relationship. This model is called the relational development model, visualised in Figure 7, and explained further below.

![Figure 7: The Relational Development Model (Millman & Wilson 1994).](image)

**Pre-Kam** is the stage before any business with a certain customer have occurred. A potential key account is identified and the selling company is trying to win business and analyse the customer in order to decide how attractive the account is and how important it could be from a strategic point of view (Millman & Wilson 1994).

**Early-KAM** is a phase where the selling company starts to be more concerned
with identifying possible ways for account penetration. The selling company needs to deliver bespoke solutions and understanding of the customers business and market becomes more important. At the same time, the buying company is in this phase still testing other selling companies and expects demonstrations of value for money. For the selling company, it is important to focus on the product, service and intangibles in order to win more business, because the product/service offering is still the main reason for the relationship to exist (Millman & Wilson 1994).

When the relationship reaches the **Mid-KAM** stage, the selling company has established credibility with the buying company. Communication and interactions between the two parties increase and become more important. Selling companies in this stage are often a buyer’s preferred supplier but the buyer will still test other suppliers and still feels a need for other sources of supply.

**Partnership-KAM** is a stage in the relationship development that implies that the selling company is viewed as a strategic external resource for the buying company. The relationship has come so far that both parties are sharing sensitive information and are trying to solve problems that occur together. Partnership-KAM includes a stable pricing that allow both the seller and buyer to make a profit. Key customers often beta-test the selling companies’ products and are involved in the product development process. This is often exchanged for access to the best products and materials for the buyer and high continuity in supply (Millman & Wilson 1994).

Few relationships reach the **Synergistic-KAM** stage, which is a stage where selling and buying companies act together to create value in the marketplace, which could be done through quasi-integration. Even if the relationship has reached this far, the selling company does not have automatic right to the account but the exit barriers are greater than at earlier stages. There is a high level of integration and interfaces exist at almost all levels in the organisations and information flows are streamlined. Research and development are driven together and there may exist joint business plans and joint strategies. By using joint board meetings, top management on both sides will be committed to the relationship. There is high level of process customisation in order to meet the buyers’ demand, e.g. billing is
often bespoke to the buying company (Millman & Wilson 1994).

Moreover, Millman & Wilson (1994) argue that there exists a sixth stage in the relationship model that is called Uncoupling-KAM. This phase is not occurring as linear as the others because breakdowns in the relationship can occur at any stage for a number of reasons. It is important to give attention to this stage and create contingency plans before major breakdowns occur. Most breakdowns do occur because of trust issues where it has been showed that buyers often feel vulnerable and integrity amongst their suppliers is of great importance (McDonald et al. 1997).

2.4 Summary of Literature Review

The literature review presents an overview of general pricing, software pricing as well as KAM with literature mainly from recent years, but reaching all the way back to 1960 to capture basic concepts. The literature states that companies must take into consideration both product design and market conditions when determining the pricing strategies, which is especially important for software since the development of software is expensive where its upsides are from low variable cost of production. The literature also argues that a dramatic shift has started in the market for enterprise-software, due to declining product revenues, which will affect both users and developers of software. It also mentions that there are a lot of factors that impact which pricing models to use, as well as a lot of different factors that contributes to success in KAM.

By reviewing literature in the field of general pricing one can conclude that alignment of both the vendor’s and the buyer’s business objectives gives certain advantages in pricing. By considering both sides of the market transaction and building a more collaborative relationship, a buyer and a vendor can both share the increased value. Furthermore, it is more than just marketing factors to take into account when determining the pricing, the product design is important as well. However, to achieve pricing excellence, a company needs to go through a development of its current pricing. Thus, to rethink ones pricing strategies and pricing models could be a powerful source of competitive advantage.

The many software pricing models described in the literature review have a lot of
similarities, but all models have their own specific characteristics. This comes down to deciding on how to align the six parameters described by Buxmann & Lehmann (2009) and illustrated in Figure 5. Another model that the literature presents is the SBIFT model by Cöster et al. (2013), that takes five parameters into account.

The SBIFT model and the six parameters of pricing are very similar in content. The SBIFT model is more of a tool for evaluating current pricing models and comparing them to competitors while the six parameters of pricing can be used as an analytical tool to design a pricing model. From our perspective, both models are not fully completed and a combination of them, although not the same combination that Laatikainen et al. (2013) present in their article due to their constraint to the cloud services industry, could be useful when analysing companies’ pricing models.

SaaS-like models, that have an IT-architecture that forces the customer to connect to a main server, come with the benefit that they could potentially reduce piracy levels. Furthermore, a fixed price in a market with a heterogeneous customer base may increase piracy since some users are not willing to purchase the software. Hence, what the literature is lacking, is an investigation of how many of the piracy-users that will transfer to paid users if a company is about to introduce a pricing model which requires connection to a main server or if the company is able to align the pricing model to their entire customer base.

Previous research conducted in the field of key success factors for KAM program have shown consistency in terms of identifying what factors are important to achieve an effective KAM. Involvement of top level management, understanding of customers’ business, good communication, compensation structures and good key account managers are all mentioned as key success factors in previous literature. Furthermore, we can conclude that buyers and sellers seem to have the same perception of what factors to be considered as key success factors.

There are differences in maturity between customer-supplier relationships and the literature seems to agree that a more collaborative relationship is better. However, it may not be entirely true since some companies may be better off with a more transactional relationship if it is more aligned to their strategy. Here there could be a possible gap in the existing body of knowledge.
Although both pricing models and KAM are factors for business excellence for companies, we have not identified earlier research that explored this relation in a software B2B context. This is a literature gap that can potentially be covered somewhat by this thesis.
3 Method

This chapter presents the chosen case study methodology and includes a description of the research approach and the research process. Moreover, the chapter presents the chosen methods for data collection and analysis. It ends with a reflection on the quality of the research design, as well as the ethics of methods used.

3.1 Research Approach

The purpose of this thesis is to investigate and compare software pricing models in a B2B setting and describe how KAM plays a role in executing a pricing model. An exploratory research approach has been used in accordance with Voss (2002) to cope with the various paths that the research could have taken. Furthermore, a literature review has been conducted to enhance the understanding of the empirical findings that have been derived concerning the identified problem.

The research has been conducted with an interpretivist paradigm as a case study, where a single phenomenon in a specific context and natural setting has been explored. The interpretivist paradigm has been adopted since the study assumes that social reality is highly subjective. Moreover, a case study is suitable when control of behavioural events is not required (Yin 2009). Since it has not been required in this thesis, a case study is suitable. The case study has been formed as an opportunistic case study which, according to Otley & Berry (1994), is a good choice when you have specific access to internal work flow and personnel. Although this approach gives a limited view of the full landscape, the approach solved a problem for Adebro and contributed to research in the area of software pricing and KAM. The choice of the case company was therefore of natural selection due to the access to Adebro’s internal channels.

A challenge of the research approach was to combine theoretical and empirical information to enhance one another. The selected information was merged together by continuously analysing it and putting it into context. By continuously testing theories, and applying them to the case, Jorgensen (1992) suggests that problem areas can be found and remedies can be identified.
3.2 Research Process

The idea of the research originated from Adebro, who saw a need of revising its pricing models. Adebro wanted to get a better understanding of the latest pricing model trends and how KAM could be used to support the implementation and execution of pricing models.

After getting deeper knowledge of the subject, by reviewing some of the latest literature and discussing the topic together with the supervisors at KTH and Adebro, a reasonable problematisation and research questions were established, which later were revised throughout the research. The data collection began once a satisfying research theme was achieved. It consisted of an extensive literature review and interviews to increase knowledge in the fields of General Pricing, Software Pricing and Key Account Management. The collected data was then revised and analysed on a rolling basis to only include relevant parts, which enhanced a continuous reflective learning from the thesis. When the data collection and data analysis were finalised, the research process ended with a discussion and conclusion. The research process is visualised in Figure 8.

![Figure 8: Overview of the Research Process](image)

3.2.1 Literature Review

To be able to justify and analyse software pricing concepts, a literature review was conducted to review the existing body of knowledge and to gain information concerning the software pricing area of research together with the KAM area of research. The literature review identifies what pricing models are available today and in which settings they are most suitable, as well as key success factors regarding KAM. The literature review was later used in the investigation process as a frame of reference, which is advised by Collis & Hussey (2014).
The literature review has been based on an analysis of a broad range of literature, which was narrowed down to the most suitable literature only from well cited authors in renowned journals. This procedure ensures higher validity and reliability according to Collis & Hussey (2014).

3.2.2 Case Study

As mentioned, the research has been conducted as an opportunistic case study with an exploratory approach.

"A case study is a methodology that is used to explore a single phenomenon (the case) in a natural setting using a variety of methods to obtain in-depth knowledge"

(Collis & Hussey 2014, p.68)

The choice of methodology fits the main purpose of the study and has provided a good toolbox to fulfil the aim of the research. According to Yin (2009), a case study is a good choice of methodology since the study investigates and analyses a phenomenon in a real-life context where data collection and analysis have been guided from prior development of theoretical propositions. Furthermore, the research depends on multiple sources of evidence where data have been converged by triangulation. The data consists of literature, interviews and internal data collected from Adebro. The type of data that have been used in the research are, according to Yin (2009), another sign that a case study is well suited as a methodology. Furthermore, models found in the literature will be used to analyse Adebro’s current pricing situation.

**Case selection:** Adebro is a technology company within the B2B sector that offers a comprehensive range of products and services, both hardware and software, for various industrial applications. Adebro’s main markets: North America, Western Europe, and China, contribute to over 80% of their world wide sales. Adebro has a large network of distribution partners and employs over 5,000 people world wide. The main industry vertical is automotive but a significant part of the business is also done in aerospace, heavy machinery, electronics, and the precision industry.
The software division was selected as the case to study since the purpose is to investigate and compare software pricing models in a B2B setting and describe how KAM plays a role in executing a pricing model.

Furthermore, the empirical outcome of the study will be used by Adebro and therefore it made sense to directly study the topic from Adebro’s point of view.

According to Collis & Hussey (2014), exploratory case studies are not attempting to find statistical generalisations and therefore it was not crucial to find a representative case for a larger population. However, because the outcome of the case study depends on insights from the market study, final results are generalisable in certain set of circumstances.

**Pre-study:** The pre-study gave a familiarity of the context which, according to Bonoma (1985), can be helpful throughout the research. The pre-study was done to get an orientation of the landscape and identify what the business implications are if a company switches pricing model. Furthermore, the pre-study addresses the rationale behind the change.

The pre-study focused on two companies that have changed their pricing model. One company is Autodesk, a CAD/CAM company that transitioned to a subscription-based pricing model in 2016. The other company is Aras, a provider of PLM software that transitioned to a freemium pricing model in 2007.

Findings from the pre-study are presented in the findings to RQ2.

**Data collection:** Different data collection methods were combined, using archive searching and interviews, which is advised by Eisenhardt (1989) to get a full understanding of the problem. This resulted in mainly qualitative, and some quantitative, data that gave us a broad understanding for the analysis. Qualitative data was collected to get an understanding of how companies are utilising pricing models today, and quantitative data was collected to be able to test and verify different outcomes when switching pricing models.

**Data analysis:** The collected data was revised on a rolling basis, which is advised by Collis & Hussey (2014) to ensure that only relevant data is kept. This was done by keeping track of the collected data in an organised way using data displays and summarising the important parts.
The data analysis was conducted in accordance to the advice of Miles & Huberman (1994), where the data was reduced, displayed and then conclusions were drawn together with a verification of the validity. There was a lot of data collected, which needed to be reduced as a first step. The reduction of data was done in accordance with the advice of Collis & Hussey (2014) through a continuous data reduction where irrelevant data was discarded and interesting data was collected and combined. We displayed the data in a visually attractive way since it according to Miles & Huberman (1994) eases the drawing of conclusions and also makes the work process easier to follow. This was done through data displays that mainly were formed as matrices. The matrix data display is useful when comparing qualitative data, which made it easier to recognise patterns in the collected data. The third step in the data analysis was to draw conclusions from the data displays. In general, Miles & 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.

The procedure in which we collected the data and then analysed it is seen in Figure 9.

![Figure 9: Overlapping Stages in Qualitative Data Analysis (Collis & Hussey 2014)](image)

### 3.2.3 Interviews

An extensive part of the collection of data was to conduct interviews with buyers, vendors, and industry experts. The interviews were semi-structured since it is a good method to collect qualitative data according to Blomkvist & Hallin (2015).
Furthermore, since the thesis explores the logic behind certain pricing model decisions where the situation is not completely clear, semi-structured interviews are to prefer according to Easterby-Smith et al. (2012). Interviews were conducted face-to-face and by telephone, depending on the interviewee. Face-to-face interviews are often time-consuming, however there is an advantage when sensitive questions need to be asked. Telephone interviews are cost-effective with fewer constraints on geographical location, however you do not get to know the interviewee on the same level, which may inhibit the interviewee (Collis & Hussey 2014).

The interviewees were selected from different parts of Adebro’s organisation, as well as key buyers, vendors, and industry experts. An overview of conducted interviews can be found in Table 3. The interviews covered, when possible, at least two persons with a similar position, to increase the validity and reliability. Before conducting the interviews, a brief research on each interviewee was done, to get an understanding of that person’s situation. This enabled a discussion of themes on a deeper level with more relevant follow-up questions, which generated more valid and reliable answers. The broad scope of interviews gave a wide knowledge and understanding of the latest trends and theories. Interviews stopped being conducted according to the principle of convergence, i.e. when no new information was gathered and thus, the interviews have been saturated (Sorqvist 2000). The list of interviewees can be found in appendix A and the interview guide that we followed can be found in appendix B.

<table>
<thead>
<tr>
<th>Conducted</th>
<th>Adebro Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buyer:</td>
<td>8</td>
</tr>
<tr>
<td>Expert:</td>
<td>12</td>
</tr>
<tr>
<td>Vendor:</td>
<td>15</td>
</tr>
<tr>
<td>Total Interviews:</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 3: Overview of Interviews

The interviews were mainly held one-to-one, and recorded and transcribed if found necessary to ensure that no information got lost. However, in the beginning, interviews were held by both of us in order to align interview technique and the way questions were asked to ensure validity and make the data comparable and reliable.
Questions were presented in a logical order and moved from general to specific topics. The types of questions used were mainly open questions followed up with probes, but sometimes also closed and comparison questions were used. However, summary questions were used at the end of the interview to get the full picture and ensure that nothing had been misunderstood. When an interviewee mentioned something that was very different from the previous interviews, i.e. an anomaly, the interview shifted focus to try and understand that person’s paradigm, and to investigate the reason behind that anomaly.

3.3 Quality of the Research Design

To maintain a high quality of research, it is important to ensure validity and reliability throughout the study. Validity is to make sure that the research is about the right thing, and reliability is to make sure that the research is conducted in the right way (Blomkvist & Hallin 2015). Good validity and reliability makes the research appealing and ensures that if the research would be replicated, then the results would be the same (Collis & Hussey 2014).

To ensure validity and reliability of the study, the four dimensions of validity and reliability presented by Gibbert et al. (2008) were adapted. The four dimensions are: internal validity, construct validity, external validity and reliability.

**Internal validity** tests the causal relationship between the variables and the results. Triangulation of data and theories throughout the data gathering was used which, according to Easterby-Smith et al. (2012), minimises the causal relationship. However, the choice of having an exploratory research approach, limits the thesis to be based on mainly qualitative information instead of quantitative. The interpretation of the findings then risks being judgemental, and not purely data based as it would have been in the case of quantitative data. Therefore, there is a risk that even triangulated data are affected and the internal validity is thus lowered.

**Construct validity** tests how much of the initial problem the study actually investigates. Interviews could potentially be a problem, since they may be misleading. It was therefore important that the initial research path was maintained during the interviews to ensure that they did not become misleading, which they
might become if the research path is deviated according to Gibbert et al. (2008).

**External validity**, which may be referred to as generalisability, is how much the study can be replicated in other markets and contexts. Since the case study investigates a particular subject in a particular environment, it lowers the generalisability. However, a clear and structured method was followed, which other studies can adapt on similar companies in a similar context, and thus, Gibbert et al. (2008) argue that this approach makes a thesis generalisable in a certain set of circumstances.

**Reliability** refers to the absence of random error, which makes it easier for other authors to come to the same conclusion as this thesis. It was therefore important to achieve transparency and replication. A high transparency throughout the study was maintained by keeping track of the work through journals and spreadsheets, which were gathered into a database. According to Yin (2009), a database can then later be used to facilitate retrieval for new investigators, which makes the transparency higher. The literature review consists of literature from high-ranked journals, and interviews were conducted with individuals with specific knowledge of the problem, which according to Gibbert et al. (2008), ensures reliability. Since the thesis has been conducted under an interpretivist paradigm, the reliability of findings have been considered high if they could be verified from multiple sources. However, this statement can be questioned since interviewees could have been chosen to get similar answers. This was not the case in this study, where interviewees were chosen from different industries and positions. Moreover, the reliability of findings could further be questioned since findings are based on the assumption that interviewees are always telling the truth and are consistent in their answers in this, and other, research. Finally, it is in general difficult to separate people from the context in interviewees. Therefore, interviewees have been seen as individuals with personal opinions during, and after, interviews.

### 3.4 Ethics of Methods Used

The research has been conducted in collaboration with Adebro, who has shared a lot of valuable and sensitive information. Therefore, respecting confidentiality and
anonymity has been important. Sensitive information that could not be published has been altered, but been kept relatively the same in the research to maintain the validity.

Since the main parts of the thesis are based on interviews, Bell & Bryman (2007) argue that there may be a risk of falsely reporting data as a result of misunderstandings. To avoid this, vague information was actively clarified and answers from the interviews have been repeated to ensure that no data is falsely reported.

Furthermore, personal opinions have not been included, and individuals have not been exposed without their consent. Moreover, all interviewees have been informed about the purpose of the research in order to avoid a situation where the interviewees felt forced to answer or have been tricked into giving away information.

Affiliation is another principle of ethic that have been handled. By this, Bell & Bryman (2007) mean that a researcher needs to declare the personal or professional affiliation that may influence the study. This includes conflicts of interest and sponsorship that influenced the research since the thesis has been conducted in collaboration with Adebro.

As support for the ethical decision, open discussions have been held with both the supervisor from Adebro and the academic supervisor. Furthermore, the general guidelines from KTH regarding research ethics have been the basis of ethical decisions. This includes a sustainability discussion as well as no tolerance for plagiarism and research misconduct.
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4 Findings

This chapter presents the empirical findings together with an analysis of the collected data to fulfil the purpose of the study. Findings are presented in the order of the research questions.

4.1 RQ1: What software pricing models are attractive for Adebro in terms of market trends, customer preferences, and internal capabilities?

4.1.1 Market Trends

Most interviewed experts and vendors are unanimous concerning that hardware itself is becoming a commodity with decreasing prices and pressured margins. This statement gets support by data from the Bureau of Economic Analysis, presented in Figure 10, that shows chain-type price index development from year 2000 to 2014 for computer systems design and related service (software) and computer and electronic products (hardware) in the US. It is a clear trend that prices of hardware are dropping significantly compared to software which implies that software will play a bigger part in the hardware-software relationship.

Interviews suggest that, as the CAM and GD&T markets are fragmented, competition is strong. This puts pressure on vendors and price becomes a strong competitive factor since communicating the value of a specific software is rather difficult. However, as the SPC market is more consolidated, vendors are not forced on the same way to compete with price.

The pricing model that is most commonly used to price industrial technology software, including CAD/CAM, SPC, and GD&T, today is a perpetual license followed by a Software Maintenance Agreement (SMA) with yearly payments. These yearly agreements include all updates related to the software at a cost of around 10-20% of the Initial Purchase Price (IPP) of the perpetual licence. Each of the interviewed vendors have had a perpetual model since the foundation of its company, since it traditionally was the best way to sell software. However, with new digital
Figure 10: Price Development of Software and Hardware from 2000 to 2014 (US Commerce Department Bureau of Economic Analysis 2016)

possibilities of releasing updates more frequently, most of the vendors answered something similar to Vendor A.

"We have always sold our products as a perpetual license with a maintenance fee of 15% of the IPP. However, as we are developing a new product, we are looking towards subscription"

Vendor A

Thus, there is a trend amongst vendors towards a future of subscription-based models, however it has not fully been realised yet. This is further highlighted by the expert interviews, where most experts said that subscription and a focus on recurring revenue is the next step for vendors.

"There is an undergoing change towards subscription and recurring revenues. This comes from the introduction of SaaS, which in general is the same as subscription. However, perpetual licenses will always have a place"

Expert B

However, a subscription based model with recurring payments do not actually differ that much from a perpetual license in combination with an SMA. The only
real difference for the customer is the issue regarding ownership and the up-front cost which will be higher for a perpetual license while the recurring fee is higher for a subscription compared to the maintenance fee. The choice between these two models is dependent on the customer preference and which model aligns best with how the customer generates value from the product, and therefore the models will not replace each other fully.

A market example of the trend towards subscription based models is a player in the CAD/CAM market, Autodesk, that recently switched their pricing model for all their products towards a complete cloud-based subscription model, which could be viewed as a SaaS. Furthermore, Dassault Systèmes, another player in the market, has launched a fully browser-based CAD product as well. This is not as clear in the other two markets, SPC and GD&T, where market players still are offering perpetual license as their main pricing model. This is due to different product characteristics and consumer behaviours, GD&T software for stationary CMMs are often sold in combination with the hardware and thus, pure software pricing models do not apply since it is not sold as a software product.

As we can see from the competitors recent pricing model change, they are not only changing towards subscription, but also into cloud-based and SaaS-like models. This is further accentuated by Expert E.

"There are a few different trends out in the market today, where the most obvious one is the move towards cloud-based solutions"

Expert E

However, a move towards cloud-based solutions is more a question of ownership rather than pricing model, but cloud-based solutions are often associated with subscription-based pricing models. Furthermore, companies may have their internal cloud and thus using cloud-solutions already today. The question is then regarding data security laws and if companies are comfortable with trusting an external party with business critical data or not.

To conclude, we can see that although experts state that it is a common trend towards subscription in general, the interviewees have been clear about the lack of
a common best practice in the software industry and said something in line with Expert B.

"There is no best practice in the software industry"

Expert B

### 4.1.2 Customer Preference

Most of the interviewees mentioned that the pricing model must not only be aligned with customer preferences, but also aligned with how the customer’s business is formed. The pricing model should be based on how the customer generates value from the software itself. If a software product or solution increases productivity and save costs associated with individuals, then the pricing model should be user based or seat based. On the other hand, if the software offers overall efficiency, then either a monthly or a transactional model independent on number of users would work. Therefore, it is important to understand the customer. Customers will be different from each other and that is one reason why one model will not replace another. Most of the experts that have been interviewed said something in line with Expert D.

"SaaS will not replace on premise software, it is just another flavour in your bucket"

Expert D

Adebro serves both global Original Equipment Manufacturers (OEMs) and local subcontractors, which means that the customer base can be quite heterogeneous in terms of size and purchasing power. This is especially clear for customers that are buying the CAM software offerings.

"Our customers range from OEMs, like Boeing and Airbus, to smaller subcontractors in your neighbourhood"

Vendor E

When it comes to the structure of the pricing model, buyers of software prefer simple models where they understand what they are paying for and why they are
being billed a certain amount. Larger companies expressed that they preferred partnerships with their suppliers and that they expect transparency in the pricing methodology.

The interviews also point out that customers, who are buying CAM software, are more likely to have project based operations. A subscription-based model will then be favourable since it makes it easier to sign up to a number of licenses depending on their need. These subscriptions can later be cancelled when the project is over. This makes it easier for customers to allocate costs between projects and also easier to budget upcoming costs depending on the need of software.

"Our customers are mainly working in projects, and when we asked them about their preferences regarding pricing models they said that a subscription would be beneficial for them"

Vendor G

For customers buying GD&T or SPC software it is a bit different. Most of the GD&T software are sold together with stationary hardware as mentioned before. In these cases, the customer is mainly buying the hardware, but needs a software on the side. The cost of software is then only a minor part of the entire cost and thus, the entire deal is often classified as a Capital Expenditure (CAPEX). The SPC software offered by Adebro are mainly bought by customers because they need it and there is a lack of better products in the market, emphasised by Vendor B, an SPC-vendor.

"The main purchasing reason for the customers is that they really need it to ensure quality and we are the best in the market"

Vendor B

Buyers have during interviews stated that pay for usage is a preference and thus, a perpetual license can be considered obsolete. Nonetheless, some of the interviewees mentioned that usage dependent models sound like the optimal choice in theory. However, having a usage dependent price, will most likely decrease the overall usage of the product and it could also lead to unexpected temporary cost
peaks if one is not aware of the fact that extra usage will cost. A subscription with a usage independent price could therefore be a good compromise.

"I don’t prefer complex models like the ones that counts number of CPUs or memory used, no one understand those kind of models”

Buyer A

Findings from interviews with buyers of software suggest that price is one of the most important KPC. When buyers were asked how a vendor can generate more value to a customer, almost all buyers mentioned a decrease in price. This may imply that customers are struggling to understand why software is expensive and what value it can create. Furthermore, findings from interviews with vendors point to that software, especially concerning GD&T and SPC software, are mainly viewed as an extra cost in the customer’s organisation. Simplicity, flexibility, user interface, time to market, and potential to save costs were further mentioned as KPC by the buyers.

When buying software with a perpetual license, companies often see this as a capital investment much like any other product they buy, and therefore the cost will be classified as a CAPEX. The buying company needs to have enough money up-front to be able to purchase the perpetual license, but can depreciate the cost over time. On the other hand, when buying software with a subscription based model, the payment will often instead be classified as an Operating Expenditure (OPEX). If a company prefer CAPEX or OPEX could change over time and it is tightly linked to the business cycle and the current state of the business as Buyer B explains.

"CAPEX/OPEX investment choices depend on the state of the business. Sometimes it is better with CAPEX and sometimes with OPEX”

Buyer B

Buyer B further explains that the choice of pricing model can simplify the corporate budgeting for a customer. A subscription with a fixed price simplifies budgeting since they will know the costs for the software. Furthermore, interviews with buyers
highlighted that customers sometimes prefer to pay a premium to get a recurring fixed price and keep away from temporary cost peaks due to increased usage of the software. This speaks against pay per use models where the price depends on e.g. memory used or data traffic. Furthermore, buying licenses through a subscription is simple according to buyers and thus, they can focus more on their core business instead of managing licenses. One buyer stated that a reasonable annual subscription price could be 25-35% of the IPP for a perpetual license.

The buyer’s willingness to pay a premium to get a recurring fixed price was also to secure themselves from unpredictable new costly versions, not included in the SMA. Some customers expressed that they felt that SMAs not often contributes with any real value. It is only minor updates and patches that are delivered and the cost for an SMA can thus be quite high. Whenever there is a larger upgrade they have to make a new up-front investment and therefore they are not feeling that an SMA contribute to any real value. Buyers at larger companies expressed that an SMA only creates value the first two or three years. After that, it is common for larger companies to have organised their own internal service team.

The vendors’ perception of how customers view cloud-based services differ from the experts’ view.Whilst the experts were convinced that SaaS and cloud solutions are what to be preferred now, the industrial technology software vendors are not fully devoted to that. They believe that customers want security and certainty of functionality at all time and therefore want to have the software on their own machine instead of in the cloud. This is more in line with what the interviewed buyers said, which was something similar to Buyer B.

"Cloud solutions are not interesting right now because of security issues. It may however be relevant in the future”

Buyer B

The main reason for this is issues regarding data security and data security laws, according to interviews. One of the interviewed buyers from a heavy equipment manufacturer explained that when they are about to transfer data from countries in EU to North America, they need to ensure that the data is protected. EU has
strong privacy laws that forbid movement of citizens’ data outside the EU. To get
around this, companies have to set up so called safe harbour agreements which
ensure that data is transferred to a location with adequate privacy protection. This
is often a time consuming, complex, and costly process for companies (The Guardian
2015).

Another reason for this reluctance to the cloud, according to the vendors, is that
most of the decision-makers are from the pre-digital generation. They are not used
to, or comfortable with, storing sensitive information at a third party server. For
most of their business life, software have been installed locally on the computer and
that have given some comfort. However, the vendors are foreseeing that with the
new digital generation, companies will not be as reluctant to having the software in
the cloud, since their new personnel are used to handling software in that way. New
technology will also enable an even more stable Internet environment, which will
ensure constant connectivity. This generation shift is, according to some vendors,
happening right now since companies have realised that it is harder to attract good
employees if they are stuck in old ways of working with IT.

"Young talents don’t want to go out to a job and go back in time tech-
nology wise and that is why the changes are happening right now. Com-
panies must adapt, otherwise they will lose good future employees”

Vendor H

Buyers of software expressed their concern regarding difficulties of comparing
software. This is mainly due to different features, abilities, GUI, complex pricing
models, and previous user experience. Comparing software was mentioned to be
much more difficult than comparing hardware specifications.

Finally, most buyers found it hard to pinpoint which pricing model is a prefer-
ence, since it is changing along with the business cycle and personal preferences of
the product owner.

"It is hard to say what pricing model we prefer, it is changing all the
time depending on the software and the situation”

Buyer H
This is further emphasised by Expert L, who worked with software pricing for over 20 years in multiple industries.

"We have found no reason why someone prefers a certain model. It doesn’t correlate with size, industry, ownership, it doesn’t correlate with anything"

Expert L

4.1.3 Internal Capabilities and Structure of Software Offering

Adebro looks to provide insights, analytics, and intelligent management systems to enhance productivity, and the main competitive advantage for Adebro is that they can provide fully integrated and complete solutions by themselves. Therefore, the goal is to be able to connect all software products to each other, which will come with some limitations regarding how to work with licensing. It would be favourable to have similar pricing models and licensing structures across the software offerings, but it may be tough to do so. Software products are today sold from the subsidiaries via Adebro’s sales channels, external resellers, and via direct sales. Thus, having one model in Adebro’s sales channel while a subsidiary supply Adebro with another model is therefore not beneficial since it will increase complexity.

"Selling a package of different software where each one have a different pricing model is very complicated for the customer. I can’t see how it would work with different models internally and externally"

Buyer A

Analysing Adebro with the pricing capability grid, visualised earlier in Figure 2, we conclude that Adebro would be placed in the "Zone of Good Intentions" since interviews with internal personnel at Adebro and Adebro’s subsidiaries show that Adebro mostly is using competition based pricing. Furthermore, Adebro is using discounts frequently in the sales process, so Adebro is placed as a medium company in terms of price getting. To be able to move to the "Pricing Power Zone", Adebro has to work mainly with price getting but also move to a more value based pricing.
Analysing customer preferences and choosing a pricing model that is more aligned to the customers’ business and value creation will most likely result in a more value centric price and pricing model.

A move to a more value centric pricing may imply that Adebro could transition from being a "Level 2" company to a "Level 3" company in terms of the five levels of word class pricing by Hunt & Saunders (2013). Adebro is currently positioned as a "Level 2" company since pricing processes are controlled by controlling the discounting. In a "Level 3" company, decisions are made with the customers’ value in mind and prices are value-based.

Price setting of Adebro’s software offerings are today different depending on the product, since all subsidiaries were completely independent companies before Adebro acquired them. CAM software have been priced according to the competition-based, which also is the case of the GD&T offerings, except that GD&T offerings have been somewhat influenced by the created value since customers are very dependent on the software. The SPC offering is however different with a value-based formation of price, due to the lack of competition in the market. Vendor E emphasises that individual software licenses are lacking a break even point since the marginal cost of producing a license is almost negligible. This could be a further explanation why software vendors find it very tempting to reduce prices to win business.

"We are selling our CAM products at a price that is lower than the actual value it delivers to customers due to the competitors low price"

Vendor E

The structure of payment is the same across the different software offerings, where the customers are paying a single up-front payment for a perpetual license, together with an optional recurring fee for an SMA after a year. However, the assessment base, the license type, and what the final price depends on differ for SPC where the offline connected SPC version sometimes is offered with a usage independent concurrent license, and the online version, i.e. connected to the manufacturing process, must be available at all times and is sold as a regular usage independent perpetual license. Otherwise, CAM and GD&T products are priced based on the
number of components, or features, included in the product, and often sold as a usage independent perpetual site license.

Price discrimination is mostly the same across the products, where the customers are getting a higher discount if they buy a higher quantity of the product. However, the CAM software are also offered with discount depending on the geographic region. All offerings are sold as a bundled package with software together with an SMA. However, GD&T software are mainly bundled together with hardware, a physical CMM, and is therefore not mainly sold as a software itself, but can also be sold as retrofit. This bundling sets a limitation on what pricing models that can be used for the software, since it depends on how the hardware is sold.

"The CMM vendors finds it hard to change pricing model for their software, since it is not sold as a stand alone software product"

Expert F

Both the CAM and GD&T market are fairly fragmented while the SPC market is consolidated and often industry specific. Adebro are a top player in all of the three markets. A comparison of the parameters of pricing for Adebro’s software offerings is visualised in Table 4.

<table>
<thead>
<tr>
<th>CAM</th>
<th>GD&amp;T</th>
<th>SPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formation of Price:</td>
<td>Competition-based</td>
<td>Competition-&amp; Value-based</td>
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<tr>
<td>Payment Flow:</td>
<td>Single + optional recurring</td>
<td>Single + optional recurring</td>
</tr>
<tr>
<td>Assessment Base:</td>
<td>Usage independent components</td>
<td>Usage independent components</td>
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<tr>
<td>Price Discrim.:</td>
<td>2nd/3rd degree</td>
<td>2nd degree</td>
</tr>
<tr>
<td>Bundling:</td>
<td>SW+SMA</td>
<td>SW+SMA, HW+SW</td>
</tr>
<tr>
<td>Product Maturity:</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Distribution:</td>
<td>Own &amp; reseller</td>
<td>Own &amp; reseller</td>
</tr>
<tr>
<td>Market Conditions:</td>
<td>Top player in fragmented market not related to PLM</td>
<td>Top player in fragmented market</td>
</tr>
</tbody>
</table>

Table 4: Parameters of Adebro’s Software Offering
4.2 RQ2: What are the implications of switching pricing model?

4.2.1 Customer Implications

Implications of switching pricing models will directly affect revenue and the customers, and indirectly affect business operations, including staff and distribution channels. The implications for the customer will mainly depend on what type of pricing model the vendor switches to. However, customers will always have the option to either accept the new pricing model, or renegotiate with other software suppliers. Thus, a new pricing model that is not a fit to the customer, may imply that the customer could change software provider. Switching to a new software supplier must however generate substantial advantage for the customer, since they have invested a lot of time and money in the current software.

"If we would change software supplier, the money we put into training and support for our current software would be lost. Thus, the alternative cost is huge!"

Buyer E

What type of pricing model a vendor chooses will also impact on how often the customer will receive major updates. Certain pricing models, e.g. subscription, generally releases major updates more frequently compared to an SMA agreement. Thus, the time-to-market will differ, and therefore indirectly the quality of the software for the customer.

"We don’t feel that we are getting any new value from the SMA after 2-3 years. Major updates are instead released as new licenses"

Buyer B

Additionally, a pricing model where the customer never really own the software, will enable more focus for the customer on its core business, instead of managing the licenses.
"Our core business is not to own and develop software. We are a manufacturer and just want our core operation to run smoothly"

 Buyer F

A new pricing model may also impact the customers’ financials. The financial structure will mainly depend on how the license is paid for, if it is usage dependent or independent, and if there will be up-front or recurring payment. Whether one model for the customer is more financially attractive than the other, depends on what time span the customer will use the product. Furthermore, as mentioned in RQ1, the pricing model of the software can also determine what type of investment the customer categorises the software, either as CAPEX or OPEX. Thus, the choice of pricing model will have an impact on the accounting side of the buying company, and therefore the pricing model should be aligned with the characteristics of the customers’ business and their preferences regarding corporate budgeting.

"It is important to take the customers’ corporate budgeting into account when deciding a pricing model"

 Expert B

However, even if the choice of pricing model affects the customers’ corporate budgeting, interviews suggest that it is not a good idea to base the choice of pricing model on whether the customer has OPEX or CAPEX as a preference at that, specific, point in time since that could easily change within the business cycle.

4.2.2 Business Implications

A new pricing model may lead to new internal positions in the company, hence it will impact current staff where some personnel may need to switch to new positions. If the company would have a transition period where it operates two different models, it will most likely require more internal work and increased complexity.

"If a company would operate two different pricing models at the same time, it would double the work and significantly increase costs"

 Vendor G
However, other interviews mentioned that the increased cost and workload in operating multiple pricing models is dependent on how the internal business systems are structured. If the internal business systems are rebuilt at an additional cost to handle multiple pricing models, then the workload of handling multiple pricing models could be minimised. The increased cost in operating multiple pricing model may also be compensated by winning more business, since the customer is given flexibility in choosing what pricing model fits their business cycle at that moment. Thus, operating multiple pricing models may generate a competitive advantage.

"Once the business systems is in place, then it does not matter if you are operating 1, 2 or 5 pricing models"

Vendor L

"It is a complex world out there and very hard to predict what type of pricing model the customers want. Therefore, they should be given a choice between different pricing models"

Expert L

One major implication of switching pricing model would be that some customers may leave. The interviews therefore argued that it is important to set a price that the customers think is fair. The pricing process may however be hard, since there may be a lack of competition with the same pricing model to price accordingly. A new pricing model may therefore implicate that the company need to form a dialogue with its customers to see what value they are experiencing.

The software industry is highly exposed to piracy today, and the loss of sales due to piracy is hard to estimate, but many interviewees agreed that it was a high and significant figure. Depending on the IT architecture of the new pricing model, there may be possibilities to decrease piracy, and thus increase revenue and total addressable market.

"Currently, we estimate that there are over 1 million piracy copies out there. We intend to decrease that by switching pricing model”

Vendor G
It is not only the business itself that will be impacted, but also everyone in the company’s network, including its distribution channels. In the case of selling through resellers, it may prove hard to change pricing model since the new pricing model must make sense to the reseller as well. If the resellers do not approve the new pricing model, and decide to sell a competitors product instead, the company may not only lose sales but also its support team, since regional resellers often also operate as the support team today. This was emphasised during the interviews where many said something in line with Expert F.

"Resellers don’t often have any connection to the product itself, if the reseller will make more money selling another product, they will"

Expert F

The resellers must not only approve the new pricing model, but they must also be prepared for a new proposed allocation of the revenue that comes from the sales, between the company and its resellers since the new pricing model may lead to some financial impact. Thus, the company must also make the resellers understand that the financial impact will be similar for them as for the company.

4.2.3 Profitability and Financial Implications

The interviewees were convinced that a new pricing model will, depending on the model, impact the company’s profitability. The pricing model change that will have the most direct impact is the change from perpetual to subscription. This mean that the vendor will receive monthly payments instead of a lump sum of the IPP. Thus, the accumulated revenue generated from subscription-based models will take a few years before it becomes larger than the accumulated revenue from perpetual licenses.

"If the payment structure is changed, it will affect both the buyer’s and the vendor’s financials”

Expert G

Some of the interviewees said that the change in revenue may have an impact on the shareholders, since the drop in revenue could be seen as a weakness the share
price may drop. It is therefore important that the company’s higher management are on board and communicate the change well, and all the benefits that comes with it, to the shareholders. This will show the shareholders that the management, who often also are shareholders or at least holders of stock options, believe in the change. This gives more credibility and by communicating an optimistic future to the market, a drop in stock price could be avoided according to the interviewees. However, it is of great importance to get buy in from the internal shareholders and/or holders of stock options in the first place. This might sometimes be hard if these individuals are planning on doing an exit in the short term. A new model may risk the value of their stocks and options and they could therefore be reluctant to the change.

"It is crucial that a good story on why, and how, the transition into the new model is done is communicated to the stock market"

Expert B

To see what the impact on the profitability is for companies that are switching to a subscription model, we have done a projection of annual and accumulated revenue, illustrated in Figure 11, using the assumptions in Table C.1 in Appendix C, which have been derived from interviews.

We can see from the projection that both the accumulated and the annual revenue will be lower during the first years after the change. The recovery period, i.e. until the annual and accumulated revenue will be back to normal, is dependent on how quick the company can build a subscription base. An analysis also shows that a company with larger user base will have more to gain from switching to subscription under the assumption that they are able to convert old customers to subscription customers. Thus, it is not only the financial impact that needs to be considered for a company that is switching, but also the customer relationship, since the subscription base will be crucial for the profitability.

However, by also modelling a case where Adebro is running a subscription-based model and a perpetual model simultaneously, see Figure 12, one can see that this option limits the short-term revenue drop. As presented above, running two parallel
pricing models may generate extra work and increase costs associated with setting up a business system that can handle two models at the same time. Running two models will also lower the payback time to four years and the time until annual revenue is normalised to only two years.

Figure 11: Financial Projection of a Transition to Subscription. Current Customers Stay with Perpetual License.

Figure 12: Financial Projection of Running Two Pricing Models simultaneously.
4.2.4 Autodesk’s Transition to Subscription

Autodesk is a company that makes 3D design software for a various number of industries. Main focus has been on CAD software but Autodesk has strengthened its presence in the CAM market by acquiring DELCAM in 2014, making Autodesk a competitor to Adeblo.

On February 4, 2015, Autodesk announced that all of its software offerings will only be available by desktop subscription after 2016. This transition is supposed to provide their customers with a simpler product management and roll-out experience. Furthermore, it intends to make it easier for Autodesk to introduce new tools and technology into the work flow. This will also lower the up-front cost for the customers as they get an opportunity to pay as you go (Autodesk, Inc. 2015b).

Autodesk is giving customers that purchased a perpetual license before January 31, 2016 or July 31, 2016, dependent on the product, the option to continue their full usage right. Customers that are on an SMA, will still receive updates and upgrades during their renewal period, however no major updates will be released after 2018 (Autodesk, Inc. 2016).

Switching to only subscription will lower revenue that comes from the up-front investment the customer makes. This will affect revenue negatively in the short-term, followed by an increase from an expected CAGR of 20% in the number of subscriptions. On the other hand, the transition to subscription will increase Annualised Recurring Revenue (ARR) directly. Furthermore, Autodesk expects their traditional financial metrics to be normalised by the year of 2020 (Autodesk, Inc. 2015c). See Autodesk’s own projection of revenue and EBIT for the upcoming years in Figure 13. This projection does not however compare what the revenue would have been if they kept their old model.

Autodesk has added new metrics that better reflect the new business model in order to support the transition to subscription. Mainly it is new metrics concerning billings and subscriptions that have been added to the executive officers’ cash incentive programs (Autodesk, Inc. 2015a).

Autodesk has experienced a number of years with rather flat revenue develop-
ment and slightly decreasing bottom line and are now in a transition period. This transition period is expected to result in two years of negative EBIT before the subscription user base is large enough to boost top line and bottom line once again (Jinks 2016). These circumstances created a good opportunity for hedge funds to take a stake in Autodesk. In November, 2015, two activist hedge funds, Eminence Capital and Sachem Head Capital Management, revealed a combined 11.5% stake in Autodesk (Volkman 2016). Situations like this often end with internal conflicts amongst shareholders since the aim of an activist hedge fund often is to go in and make major changes to the organisation. However, Autodesk’s board have communicated that they have come to an agreement with the two funds. Autodesk will add three new board members, one of which is the founder of Sachem Head, in exchange for a promise that the two hedge funds will cooperate with the board (de la Merced 2016). This means that they should not provoke, disparage, or push for change for a limited period of time. This agreement ends in September, 2016 (Jinks 2016). The share price have after this been more volatile, see Autodesk’s share price development in Figure 14.

Morgan Stanley and Royal Bank of Canada have a positive view of the long-run outcome of the pricing model transition. Once the transition is fully complete, the
new model will bring more predictability, an expanded addressable market, higher margins, and higher cash flow (Weiss et al. 2016, Hedberg et al. 2016).

An increased focus on ARR could potentially fuel optimism and decrease the risk of investors only looking at the short-term revenue decline that will come (Weiss et al. 2016, Hedberg et al. 2016). This emphasises the importance of introducing new metrics to support the new pricing model.

The outcome of this transition is however dependent on the adoption rate and how well the customers will embrace the new pricing model.

4.2.5 Aras’ Transition to Freemium

Aras is a global company that makes PLM software. It was founded in 2000, and sold software with a perpetual license until the beginning of 2007, when it switched to a freemium pricing model with open-source software. This pricing model enables customers to download the software for free, with the option of adding updates, support, and training for a subscription fee (Aras Corp. 2007).

Thus, the switch to a freemium model removed all up-front payment for the customers and they can utilise, as well as customise, their software forever with no obligation to buy anything. Furthermore, it is not only updates, support and training that is included in the subscription, but also additional functionality of the software. The subscription is paid annually in advance, where the price is dependent
on the planned number of named users, and the standard term of commitment is two years (Aras Corp. 2007).

The reason behind the change was that Aras recognised a customer need to simplify enterprise software complexity. The freemium model lowers the entry barrier for customers, since they can try the software before deciding to further invest into it.

The new pricing model proved successful already after one year. During the financial crisis in '08, IT executives were forced to reduce spending, and as a result, technology purchases were being postponed. This resulted in companies looking for new PLM software and deciding to try Aras, then later on deciding to invest further into it. The impact that the financial crisis had on downloads of the product is visualised in Figure 15, which clearly shows an increase after the financial crisis. Today, between 5-10% of downloads are converted into bought support (Aras Corp. 2011, 2009).

The change Aras did, put Aras in a position where it could challenge the three largest PLM providers, Dassault Systèmes, Siemens, and Autodesk, for a contract with Airbus for over 30,000 users in 2015. Airbus evaluated PLM platforms for the ability to enable simple and agile delivery of a solution, and Aras ended up as the most attractive PLM provider (Aras Corp. 2015). According to Aras Corp. (2015),

Figure 15: Aras’ Relative Number of Downloads per Month (Aras Corporation 2010)
coverage of expected scope, open architecture, included services and upgrades, simple integration, and low total cost of ownership were the main reasons for Airbus to choose Aras as PLM provider. Thus, it was mainly Aras’ new pricing model that enabled a win of this contract.

The Vice President of Engineering Solutions at Airbus mentioned that the unique SaaS subscription business model that Aras offer is very compelling since it eliminates up-front license costs and also includes system upgrades with customisations (Aras Corp. 2015).

4.3 RQ3: What role plays KAM in regards to implementation and execution of software pricing models?

4.3.1 Connection to the Pricing Model

KAM plays a big role for companies in selling the software and keeping up with customer relations. It is the KAM organisation that is the company’s contact with the customer, and it is therefore important to have the KAM aligned with the pricing model since it is the customer that will be most affected by the pricing model. KAM is thus an important factor for a company when switching pricing model.

"KAM is the most crucial factor when it comes to changing a pricing model"

Expert B

The role of KAM in the pricing model is proportional to the need of customer interaction with that pricing model. Therefore, a switch to a pricing model that needs more interaction with the customer will also increase the importance of the KAM organisation. The KAM organisation will thus need to move to a more collaborative relationship since customer interaction will happen more frequently. This is in line with what Adebro strives for today, where Adebro wants to move from a transactional way of selling to a more collaborative one.
We can also see that the key success factors are similar for both a successful KAM and a successful pricing model, where top management involvement and understanding of the customers’ business are crucial factors for success. KAM and the pricing model must therefore, both be aligned with each other to ensure success, especially since KAM is the function that executes the pricing model in practice and receives customer opinions.

Furthermore, during the transition period when a vendor is about to switch pricing model, KAM plays a big role. Interviewed buyers emphasised that KAM should be present and act as a coach for the customer during the transition period and explain pricing methodologies in a pedagogical way. Buyers stated the importance for KAM to get the buyer to understand what they are paying for and why they are billed a certain amount. Furthermore, the integration and transition could potentially cause problem for the customer and therefore it is even more important to have a KAM organisation that fully understands the customer and can be there as support.

To conclude, KAM comes down to be the customers main channel to interact with the vendor. The role of KAM can therefore simply be stated as Vendor F said.

"The KAM organisation is the carrier of the message and receiver of the feedback"

Vendor F

4.3.2 Initiatives to Support a New Pricing Model

The interviewed experts and vendors agreed that there are several factors the KAM organisation need to consider when a pricing model is changed. They need to completely understand the new model and all its characteristics, to be able to answer all questions that the customers may have regarding it.

"It is important for the KAM organisation to understand how they are selling, otherwise the customer won’t understand it”

Expert E
To be able to justify the change to its customers, it is important that the KAM organisation know the story behind the change of the pricing model. With this knowledge, KAM can communicate the upcoming change to its customers before the change is realised. This ensures that the current customers do not get confused when the change is implemented. Early communication will help the customers to prepare for the change since it may have both organisational and financial impact. The impact is however dependent on the structure of the change, whether the customers are forced to the new model or if they have the option to stay with the old one. This was also emphasised by several interviewed buyers.

"KAM’s main responsibility during a change is to be open and keep a dialogue with us. They should explain how the pricing works and find solutions on how we can work together”

Buyer F

Policies must be created to handle current customers, to keep the relationship at a good level and not make the customers feel as if they have been forced into a model that they have not chosen. The KAM organisation must therefore have the option of enabling discounts to the current customers that are willing to switch during the first period of the change. Buyer G expressed that many vendors shifting over to subscription from a perpetual license set the subscription fee way too high. Instead, Buyer G would like to see arrangements where subscription fees are set relatively low and then ramped up according to an agreement and actual value created after the transition is completed.

"Current customers may be offered a discount to move over to the new pricing model, since it simplifies operations to only have one pricing model”

Vendor G

The past selling arguments that the KAM organisation had, such as SMA included in the first year, may with a new pricing model be obsolete, and their way of selling the software will be different. Thus, they need to adapt their selling strategy
to the new pricing model, to ensure that it is in line with what the customers are requiring from the KAM. This also includes how often the KAM interacts with the customer.

"When changing pricing model, KAM must reconsider their fundamental way of selling"

Vendor A

When changing their fundamental way of selling, the KAM organisation must also be prepared to be measured in other ways. When selling perpetual licenses, KAM success is often measured on the revenue generated from each sale. With a new type of pricing model, this indicator will be different since the revenue generated will not be the same. The interviewees proposed that with a subscription model it can be good to measure the KAM on the number of sales instead of the generated revenue. For this new measurement system to work, it is important that the budget is aligned to that. Hence, it will also be important to change the internal budgeting of the company.

When a new pricing model is introduced to the KAM organisation, they must also want to and learn how to sell the new pricing model. Some pricing models require more collaboration with the customer and thus, the transactional habits of the KAM organisation must change. To get the KAM and sales people to want to sell a new pricing model, the incentives must be changed to favour that new model. This is because sales people often try to maximise their own income and thus, selling a model that generates better benefits for them is a preference. This was emphasised by some of the vendors, who mentioned something in line with Vendor H.

"It is easy to get sales people to sell other pricing models, just change their compensation plans"

Vendor H

Furthermore, some pricing models can have characteristics that the users are not so familiar with today, e.g. solutions in the cloud. One of the interviewed
vendors mentioned that it is important to educate the customers on the part of the pricing model that they are not familiar with. The customer may not have thought that the characteristic was possible in a B2B setting, but they are already using it themselves in a B2C setting.

"It is all about educating the customers. They may be reluctant of putting things in the cloud, but most of them are already using cloud solutions when doing online personal banking"

Vendor H

The initiatives that KAM needs to consider when switching pricing model, according to interviews, are summarised in Table 5.

<table>
<thead>
<tr>
<th>KAM Initiatives</th>
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<tbody>
<tr>
<td>• Understand how the new model affects the customer</td>
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<tr>
<td>• Be present and explain pricing methodologies</td>
</tr>
<tr>
<td>• Understand the reason behind the change</td>
</tr>
<tr>
<td>• Communicate a heads-up to current customers</td>
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<tr>
<td>• Create separate ways to deal with current and new customers</td>
</tr>
<tr>
<td>• Reconsider their fundamental way of selling</td>
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<tr>
<td>• Introduce new incentive schemes</td>
</tr>
<tr>
<td>• Educate the customer</td>
</tr>
</tbody>
</table>

Table 5: Initiatives for KAM when Switching Pricing Model
5 Discussion

This chapter discusses how the empirical findings relates to the revised literature. It highlights and discusses major similarities and discrepancies between the empirical findings and the literature.

5.1 Value-Based Price Setting

Our findings point to the conclusion of a widely spread use of competition-based price setting in Adebro's organisation. Especially for GD&T and CAM software, prices have been pushed down by the competitors, since price is still one of the most important KPC for the buyer. Furthermore, Kittlaus & Clough (2009) emphasise that the software market in general is highly competitive with high innovation and adoption speed, which lowers entry barriers. This has led to much of the business being won by having the best price. However, for the SPC software offered by Adebro, our findings point to a more value-based price setting since there is a lack of competitors that can push down the prices. Thus, price itself, and competition-based pricing, can generate a lot of value for the customers. Therefore, competition-based pricing might be considered as value-based pricing in the end. But on the other hand, generating as much value as possible is not the goal with value-based pricing. The goal is to set the price according to what the value is, according to the customer.

Empirical findings suggest that it is easier to be value-based in the pricing process when there is a lack of competition. This is especially clear in the B2B software market for two reasons. First, since the marginal cost of selling an extra license of a software is almost negligible, it becomes easy and tempting for a competitor to lower the price in order to win business (Cusumano 2008, Choi et al. 1997, Bontis & Chung 2000, Baur et al. 2014). This phenomenon is not as clear for physical products, since they have a clear break even point, which individual software licences do not have. Second, findings from interviews suggest that it is more difficult to compare two software products than comparing two physical products. A physical product may have specifications and characteristics that make it easier for a cus-
customer to accept a higher price. For software on the other hand, there are a lot of intangible aspects to consider e.g. personal opinions and personal preferences from the user and previous experience. This makes it difficult to compare the specification of two software products and thus, price often becomes the parameter that one compares.

Previous researchers in the field are arguing that value-based price setting is the best one to favour (Hinterhuber & Liozu 2012, Hunt & Saunders 2013, Bertini & Gourville 2012). Value-based pricing is a must for being able to reach the best position in the pricing capability grid by Hinterhuber & Liozu (2012), and the top level in the five levels of word class pricing by Hunt & Saunders (2013). However, this statement can be questioned when price becomes one of the levers that creates the most value for the customers. We question if it is possible to be completely value-based in a fragmented software market where individual software packages are difficult to compare.

5.2 Formulation of the Pricing Model

Empirical findings suggest that product design and understanding the customer are important factors when it comes to designing the pricing model. This support the literature mentioned by Choi et al. (1997), which states that it is not only the market dimensions one needs to consider when setting the price, but also the product design. It also strengthens the research from Bontis & Chung (2000), which states that it is important to consider both sides of the market transaction.

Furthermore, these theories are extended by the empirical findings since they point to the fact that the bundling of the product also is important. From the findings, we argue that in the case when software is sold in combination with stationary hardware, it limits what type of pricing models one can choose from.

The literature suggests several different ways to determine what type of pricing model to use. The six parameters of pricing by Buxmann & Lehmann (2009), the SBIFT model by Cöster et al. (2013), as well as the combined model by Laatikainen et al. (2013), have all at least five different parameters that need to be taken into account when setting a pricing model. The different parameters can then be used
to form lots of different pricing models. However, all interviews came down to a discussion regarding the parameter of payment structure, if it should be a subscription or a perpetual model. Thus, the models from Buxmann & Lehmann (2009) and Cöster et al. (2013) may be too holistic, since they try to cover software pricing models in every spectrum of the software industry. Furthermore, when Laatikainen et al. (2013) merged the two models together to specify a model fitted into a cloud solutions environment, they managed to complicate the pricing process. Additionally, in the literature, there is no discussion regarding the weighting of the different pricing parameters compared to each other. Thus, there exist a risk that companies using the mentioned models are focusing too little on the structure of the payment flow, which the empirical findings suggest is the most important parameter for the customer.

### 5.2.1 Structure of Payment Flow

There seems to be some misconceptions concerning the financial implications when switching the pricing model and then further invest into the business. The literature from Gruman et al. (2012) states that subscription-based payment models will decrease investment into the business, since it will decrease the cash available to the company compared to a up-front payment model. However, the research of Vidyanand (2007) states that recurring revenue from a subscription model will increase incentives to invest further into the business. The decreased availability of cash in a subscription model that Gruman et al. (2012) mention, contradicts the financial projections from the findings, where a subscription-based model actually will generate more cash available in the long term. One can therefore argue that Gruman et al. (2012) only think of the short-term implications, and not the implications that come in the long-term.

Although the literature of Gruman et al. (2012) and Vidyanand (2007) are inconsistent in what type of pricing model generates the most investment into the business, they both agree that the quality for the customer will be better with their respective choice of pricing model. However, this conflicts with the interviews, who all were convinced that the choice of pricing model will in no way affect the quality
of the product. One could thus question if the interviewees only thinks of the direct implications from the choice of pricing model, and not the indirect implications that come with it, e.g. investments into product development.

The literature also discusses that in the case of periodic payment models, vendors will be ensured a constant in-flow of cash and thus reduced variations due to buyer’s economic cycles and budget constraints. This statement was refined and further strengthened from the findings, where we found that the buyers are striving for constant payment as well. By knowing that there will be no unpredictable costs in the future, they can plan their budgeting accordingly. Since both buyers and vendors favour periodic payment models, we argue that it is the transition period itself that prevents a widespread usage of periodic payment models in the B2B industry, and thus slows down the adoption rate.

5.2.2 Price Calculation

Literature from Jiang et al. (2007), states that with a heterogeneous customer base, simple models, such as perpetual licenses, often become sub-optimal. Hence, complex models, such as pay per use are, according to the literature, a preference to capture all possible buyers since the cost for the customer will be more aligned with the value created in the customer’s organisation. The empirical findings however suggest that buyers of software prefer simple models, where the total price of the software easily is calculated. Since simple models are a preference by the buyers, the idea by Jiang et al. (2007) to be able to capture all possible buyers with a complex model is therefore difficult to accomplish in reality. This contradiction between theory and reality was further emphasised from the interviewed vendors, who stated that usage dependent models sound good in theory. However, usage dependent models may decrease the usage of the product in reality, hence, it will not generate as much value as it possible could, since value is created by actually using the software. Furthermore, limited software usage might decrease the user skills and hence it inhibits the productivity gains that the software can deliver.
5.2.3 Ownership

Empirical findings suggest that delivery of software over the cloud is not a question of pricing model but instead a question regarding ownership of the software. Literature on the other hand often includes delivery over the cloud in different pricing models, especially when talking about SaaS models (Sysmans 2006, Lasher 2008).

Furthermore, the term cloud-based services are often used only when software are delivered over an external cloud. However, companies may already have an internal cloud. Thus, the cloud becomes more a decision regarding if a company wants to run the software on their own machines, in their internal cloud, or having the software delivered from an external part. Having an external cloud raises questions regarding security, and empirical findings point to that customers are in general reluctant to put business critical data in an external cloud. Literature on SaaS does however not cover these issues that are originating from the customers’ perception of data security.

The security uncertainty for the customer also affects the creation of feedback loops, where the vendor can get an insight in what type of features the customers are using most frequently. The interviewed experts were all convinced that feedback loops are something that is being developed and gains popularity now, since the feature is beneficial for both the vendor and the customer. However, the view of both the interviewed vendors and interviewed buyers contradicted the experts’ view, since they experience that the connection today is not secure enough to enable an open channel between the customer and the vendor. This contradiction could originate from the fact that the view from the experts could be more in line with what is happening on the B2C market today, where feedback loops are relatively common (Preissl et al. 2013). This differentiating view was accentuated by one of the interviewed vendors, who mentioned that the security issue can be removed by educating the customers about their daily private usage of cloud services.

The question of ownership regarding the software also includes the risk of piracy. The interviewed vendors often mentioned loss of sales due to piracy, and that revenue is lost because of it. Thus, piracy is also an important factor to think of when
determining the pricing model. This is further emphasised by Jiang et al. (2007), who argue that a sub-optimal pricing model may increase piracy levels since the pricing model does not attract all customers. Piracy is more common with full release models, since the software is fully owned by the buyer and it does not have an extensive license check as to if it is an authentic version (Jiang et al. 2007). To conclude, it is important to take possible lost revenue into account when determining the pricing model. If piracy is a major issue for the business, a pricing model that is not a full release may be the preference.

5.3 Investor Relations

In terms of how the investors will react to a change of pricing model, the literature mentions that the choice of pricing model may have an impact on the stock price, and that the impact will be most visible when the financials change. This was further emphasised by the empirical findings, where the interviews concluded that a sudden change in revenue, depending on if it is a drop or an increase, can either be seen as positive or negative for the investors. However, the interviews accentuated the importance of communicating the change and that sometimes it can be the story itself that is the deciding factor for the investors whether or not the change is positive. From the pre-study of Autodesk, we could see the importance of a good story. They announced their planned change well, over a year ahead, which made the investors feel prepared and informed.

However, the pre-study showed that since there was a short term drop in the stock price, two activist hedge funds saw an opportunity to take a stake in Autodesk. A lower short term stock price could be beneficial in terms of a good opportunity for increased buybacks but at the same time it could attract other investors that want to push for their opinions and thus, potentially create issues in the board and management of the company. Moreover, findings suggest that there might be difficult to get internal buy in when management have stock options and the stock price is expected to fall in the short term. The literature study has not dealt with questions regarding financial management and dividend policies. However, this potential threat has not been mentioned as an implication in the revised literature.
5.4 The Role of KAM

Findings from interviews suggest that KAM has a very prominent role in terms of implementation and execution of pricing models or pricing strategy in general. However, even if we argue that KAM’s role is of great importance for a successful transition, there is a lack of previous research on this topic. We have however found a lot of similarities between key success factors for both KAM and pricing models.

Empirical findings suggest that top management involvement is crucial in order to, not only be able to start a pricing model transition, but also to succeed with the transition. If top management are involved and are promoting the story behind the change, then it may become easier to communicate the story to the shareholders in a convincing and authentic way. Findings further suggest that top management involvement is also crucial for the KAM organisation. This is in line with, and supports the theories concerning key success factors for both pricing models and KAM, presented by Abratt & Kelly (2002), Hinterhuber & Liozu (2012), Hunt & Saunders (2013) and Napolitano (1997).

Moreover, understanding the customers’ business has, from the interviews, been pointed out as one of the most important key success factors for both pricing models and KAM. Abratt & Kelly (2002) argue that vendors and buyers have the same perception of key success factors for KAM. We can conclude that our findings strengthen this proposition by Abratt & Kelly (2002).

The similarities of key success factors for both KAM and pricing models are clear, but the relationship is still vague. However, in order to succeed with a pricing model, one needs to have a KAM or a sales team that are on board and can communicate and work with this model. Otherwise the risk for failure is increased. If there is no pricing model that is aligned with the customers’ business, or there is a model that the customer will not accept, then KAM will find it difficult to move forward and do a good job. Therefore, we argue that KAM and pricing model must support each other and work together to be successful.
5.5 Sustainability

Software pricing and KAM connected to software have no direct affect on the environment since the product itself is intangible. However, sustainability is much more than just the environment. Social and economic sustainability are also important to consider.

From an economic point of view, subscription-based pricing models may be more sustainable for vendors in the future due to lower uncertainties and more constant cash flows. This will reduce complexity in the process of planning the business, and the waste due to this complexity.

Socially, a flourishing business will most likely nurture the community it serves. It will offer job opportunities, contribute with tax, and create demand that feeds other suppliers. In this way, certain pricing models may be more socially sustainable since they are more profitable and secure in the long run.

Finally, the choice of pricing model can be one of the factors for a company to survive and flourish during certain macroeconomic conditions. This statement is supported by our analysis of Aras’ transition to freemium.
6 Conclusion

This chapter concludes the research by answering the research questions and discusses how the research contributes to knowledge. Furthermore, it discusses the limitations of the research together with recommendations regarding future research to expand the field of knowledge.

6.1 Connection to Research Questions

The purpose of the thesis has been to investigate and compare software pricing models in a B2B setting and describe how KAM plays a role in executing a pricing model. This purpose has been fulfilled by interviewing in total 35 different buyers, vendors, and experts. The research theme was divided into three research questions RQ1, RQ2, and RQ3. The answers to these research questions together answer the overall research theme — How should Adebro structure its pricing model/s for the software packages?

6.1.1 RQ1: What software pricing models are attractive for Adebro in terms of internal capabilities, market trends, and customer preferences?

Perpetual license is, and will continue to be, an attractive pricing model for Adebro’s current offerings, due to its simplicity, current IT architecture, and sales strategy. However, a subscription-based usage independent pricing model is also attractive, and will become even more attractive over time, due to its flexibility and low up-front cost for the customer.

For GD&T software, the perpetual model will continue to be the most attractive one since the product is not sold as a software itself. The SPC offering has today such prominent market position that a pricing model change could be done easier since customers are limited in regards to substitutes. Therefore, subscription will be more attractive to Adebro’s SPC offering since it generates more recurring revenue. Furthermore, CAM customers are more keen to be project driven and thus, a flexible model like a subscription-based one, will create extra value for the customers.
6.1.2 RQ2: What are the implications of switching pricing model?

The largest implications for Adebro would occur if they change to subscription-based pricing models. Depending on how the transition is handled, the implications will vary, but we can see that revenue would take a big hit during the transition period. The short-term revenue drop may impact investors, which could lead to a drop in share price, which will most likely be recovered by the increased recurring revenue over the upcoming years. However, running a subscription-based model and a perpetual model simultaneously may lower the short-term revenue drop significantly. This may on the other hand generate extra work and increased costs associated with setting up a business system that can handle two pricing models.

Moreover, to support the new model, there will be a need for new financial metrics and sales incentives in the organisation. Furthermore, the distribution network must be prepared for the change since they will be affected to the same degree as Adebro.

6.1.3 RQ3: What role plays KAM in regards to implementation and execution of software pricing models?

KAM plays a big role in implementing and executing software pricing models since the KAM organisation is responsible for the customer interaction. Understanding of the customers’ business is a key success factor for both KAM and pricing models and thus, they should be structured to support each other.

To support a new pricing model, KAM needs to consider several factors to prepare both the customer, as well as internally, for the change. Two crucial factors are that the KAM needs to understand that they may be measured in different ways, as well as they need to communicate a heads-up of the change to current customers. Thus, KAM and pricing models must exist to support each other in a more of a symbiotic relationship.
6.1.4 How should Adebro structure its pricing model/s for the software packages?

Subscription will be requested more often from the customers and Adebro should therefore start using a subscription-based pricing model for the software offerings. However, since perpetual licenses still will be attractive for some customers, Adebro should offer that model as well. Thus, by operating these two pricing models simultaneously it may generate a competitive advantage since customers are given a choice to decide what pricing model that fits them. Moreover, it is important for Adebro to communicate to its customers what the pricing model looks like, what choice customers have, and how the pricing methodology works. In this process, KAM has a significant role to play.

6.2 Contribution to Science

The thesis contributes both theoretically and managerially to the science by providing research on software pricing models for manufacturing related software.

From a theoretical perspective, we argue that the current market landscape of manufacturing related software is moving towards subscription-based models, however, perpetual licenses will not disappear and will continue to play an important role for several players in the market. To add to the theory, we have found that the parameters in the models presented by Buxmann & Lehmann (2009), Cöster et al. (2013), and Laatikainen et al. (2013) have different weighting of importance when talking to the customers, who mostly focus on the structure of payment flow.

Furthermore, we have contributed with theoretical knowledge on how to price software that are bundled with hardware, where we have come to the conclusion that differentiated pricing models for the hardware and software is not preferable. We have also added new theoretical insights on how KAM is aligned to the pricing model, where we have seen that neither KAM nor pricing model can be successful without each other, which especially is important when implementing a new pricing model.

From a managerial perspective, we have found that there is a certain set of
initiatives that KAM can take to support a new pricing model. These initiatives widen the research of Napolitano (1997), who highlighted the advantages of an implemented KAM program. The findings of the study also contribute to the managerial perspective by narrowing down the number of pricing models that are a fit to metrology related software, where we have seen that complex models should not be used too extensively.

Lastly, we have also contributed to science by highlighting that the academic paradigms differ from the business paradigm regarding the cloud technology in the B2B software industry, in which academia believes the transition to cloud-based services is happening quicker than business is allowing it to. This discrepancy can be explained by the delimitation of only looking into the B2B industry, and that most academics may be influenced by the B2C industry.

6.3 Limitations and Further Research

The aim of the research has been to identify possibilities to gain competitive advantage through the choice of pricing model. By interviewing buyers, vendors, and experts we have managed to identify possibilities for Adebro to improve its pricing and thus, gain competitive advantage in the long run. However, findings presented are limited due the chosen approach and methodology with a case study. Findings presented in this study are only generalisable in a certain set of circumstances and for companies operating in a similar environment with similar operations as Adebro, therefore the external validity is considered to be rather low in the end.

Since interviews have been semi-structured it has been difficult to get exact and comparable findings from all interviewees. Some interviewees had more knowledge and experience concerning software pricing which have led to that the dept of discussion been far greater in some interviews. During some of the interviews, we felt that interviewees had different time-horizons in their answers. One group, a group of more operational interviewees, had a more short-term perspective and talked more about direct consequences. The other group, mainly consistent of experts and strategic personnel, were more long-term and discussed indirect consequences. It has been difficult to get all interviewees to reach the same depth without steering
and forcing them to talk about an idea or a subject. This could potentially explain the discrepancies in answers between experts and buyers/vendors. We could have been more keen to present needed information before the interview and further, been more clear on what level of discussion we looked for, which could have minimised the discrepancies.

We have achieved a good spread between interviewed buyers, vendors, and experts. However, we found it more difficult to reach out to current customers in order to get their view of the current situation. We managed to reach some customers but the study as a whole would benefit from more interviews with current customers. On the other hand, we have interviewed both product owners and buyers and thus, got great insight into how customers are thinking of sourcing SPC, GD&T, and CAM software.

Our study has almost purely been based on qualitative data and thus, one can question the reliability of the study. A good complement to our case study would be to expand our questions and form a survey to be sent out to buyers, vendors, and experts, which would generate more quantitative data. Also, in this study, all interviewees have been from either Europe or North America and hence, the study misses perspectives from the Asian markets. Further research on the Asian market would therefore be of great interest to complement this study, due to the current growth rate in the Asian manufacturing industry and a wide spread problem with piracy (BSA - The Software Alliance 2014).

To conclude, our findings point to a lack of research regarding how each of the parameters in the six parameters of pricing by Buxmann & Lehmann (2009) should be weighted. As mentioned, most interviewees came down to discussing the structure of payment flow and thus, it could be of great interest to conduct further research to identify the weighting between the parameters that are of more importance for the customer.

Findings point to the fact that customers are reluctant to adopt external cloud-based solutions. However, findings also suggest that there is a generational shift going on, where managers and executives from the pre-digital generation are retiring and the digital generation are beginning to take their place. Hence, customers will
most likely become more keen to adopt external cloud services in the near future. Further research could therefore be done by mapping the generational shift and investigate how it affects the speed of adoption for external cloud-based services in the B2B market.

6.4 Final Words

This research has been both an interesting journey and a learning experience for us. We have increased our knowledge, not only in the field of software pricing and KAM, but also in self-development and people management due to the interaction with interviewees in the field. We also hope that our thesis will encourage other researchers and students to pursue further research in the field of software pricing and KAM.

To conclude, the choice of pricing model for software products is a complex procedure. However, it mostly comes down to how the pricing model is communicated to the customers, and not what the literature and many companies mainly focus on — how the pricing model is set up.

Finally, we would like to end by stating that rethinking ones pricing models is, and will continue to be, a powerful source of competitive advantage for companies.
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## A Appendix - Overview of Interviewees

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<th>Position</th>
<th>Company</th>
<th>Country</th>
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<td>Buyer A</td>
<td>2016-03-17 Chief Information Officer</td>
<td>Adebro</td>
<td>CH</td>
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<tr>
<td>Buyer B</td>
<td>2016-04-14 VP Engineering Solutions</td>
<td>Aircraft Manufacturer</td>
<td>FR</td>
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<td>Buyer C</td>
<td>2016-04-18 Global Lead Buyer Software</td>
<td>IT Company</td>
<td>FR</td>
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<td>Buyer D</td>
<td>2016-04-25 Simulation Engineer</td>
<td>Adebro parent Company</td>
<td>CH</td>
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<td>Buyer E</td>
<td>2016-04-25 Lead Buyer IT Software</td>
<td>Industrial Company</td>
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<td>2016-04-26 Senior Project IT Buyer</td>
<td>Heavy Equipment Manufacturer</td>
<td>SE</td>
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<td>Buyer H</td>
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<td>Truck Manufacturer</td>
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<td>Expert A</td>
<td>2016-03-09 SAP Consultant</td>
<td>IT Consultancy</td>
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<td>Expert B</td>
<td>2016-03-09 Founder and President</td>
<td>Software Pricing Consultancy</td>
<td>US</td>
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<tr>
<td>Expert C</td>
<td>2016-03-10 Director of Product Management</td>
<td>IT Company</td>
<td>US</td>
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<td>Expert D</td>
<td>2016-03-11 Managing Director</td>
<td>Software Licence Management</td>
<td>NL</td>
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<td>Expert E</td>
<td>2016-03-15 University Professor</td>
<td>University</td>
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<td>Expert G</td>
<td>2016-03-18 Pricing Researcher</td>
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<td>Expert I</td>
<td>2016-04-01 Chief Executive Officer</td>
<td>Adebro Software Subsidiary</td>
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<td>Expert K</td>
<td>2016-04-14 Chief Strategy Officer</td>
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<td>Expert L</td>
<td>2016-05-04 Partner</td>
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Table A.1: Summary of Interviewees and Their Positions (1/2)
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<td>Application Manager</td>
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<td>Head of Software R&amp;D</td>
<td>Adebro GD&amp;T Subsidiary</td>
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<td>Adebro CAM Subsidiary</td>
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<td>President &amp; CEO</td>
<td>Adebro GD&amp;T Subsidiary</td>
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<td>2016-04-13</td>
<td>Chief Financial Officer</td>
<td>Adebro CAE Subsidiary</td>
<td>CA</td>
</tr>
<tr>
<td>2016-05-04</td>
<td>Marketing Director</td>
<td>PLM Software Company</td>
<td>US</td>
</tr>
<tr>
<td>2016-05-04</td>
<td>Regional Director of Sales</td>
<td>Adebro CAM Subsidiary</td>
<td>UK</td>
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<tr>
<td>2016-05-06</td>
<td>Chief Executive Officer</td>
<td>CAM Reseller</td>
<td>SE</td>
</tr>
<tr>
<td>2016-05-09</td>
<td>Director</td>
<td>CAM Reseller</td>
<td>CZ</td>
</tr>
<tr>
<td>2016-05-13</td>
<td>Strategic Sales</td>
<td>CAD/PLM company</td>
<td>SE</td>
</tr>
</tbody>
</table>

Table A.2: Summary of Interviewees and Their Positions (2/2)
B Appendix - Interview Guide

B.1 Experts

Introduction
- Brief background concerning project and key terms
- Tell me more about you and your position?
  - Role today/previous? Expert areas?

Products
- Tell me more about the software that you are specialised in?
  - Characteristics?
  - Learning curve for the user?
  - Switching cost?
  - What are the KPC?

Pricing models and strategies
- How have pricing of software developed?
  - What are the trends?
  - What is best practice today?
- How does the choice of pricing model affect quality?
- How to incorporate SMA in pricing models?

Change management
- What is the impact on current business if the pricing model is changed?
  - What role plays KAM in the execution?
  - What are the problem areas that may occur?
- What is the impact on customer relations if the model is changed?
  - How sensitive is the customer? When do they "leave"?

Future value proposition
- How can software suppliers create value for a buyer in the future?
  - e.g. cloud-based, feedback loops, add-ons, modularity
B.2 Vendors

Introduction
- Brief background concerning project and key terms
- Tell me more about you and your position?
  - Role today/previous? Expert areas?

Products
- Tell me more about the software that you sell?
  - Characteristics? Price points?
  - Learning curve for the user? Switching cost?
  - What are the KPC?
  - Biggest customers?

Pricing models and strategies
- Status quo - Which models are used today?
  - Why are they used? History?
  - How is the price determined?
  - Structure of payment flow? Assessment base?
  - Price discrimination? Bundling?
- What do you think about your pricing model and other models?
  - Which models do you prefer?

Change management
- What is the impact on current business if the pricing model is changed?
  - What role plays KAM in the execution?
  - What are the problem areas that may occur?
- What is the impact on customer relations if the model is changed?
  - How sensitive is the customer? When do they "leave"?

KAM/sales
- How do you work with KAM/sales today?
  - How is the customer relationship?
  - Have the KAM/sales changed over time?
- How is KAM/sales measured today?
  - What are the KPIs? Scorecards?
- How much freedom do the KAM/sales have?
- KAM/sales role in implementing and execution of pricing models?
B.3 Buyers

Introduction
- Brief background concerning project and key terms
- Tell me more about you and your position?
  - Role today/previous? Expert areas?

Sourcing
- Status quo - How is the sourcing process today?
  - Which products/software do you buy today?
- How often do you change product/software supplier?
  - What is the switching cost?
- Which are the most important KPC?
- What is an optimal buyer-seller relationship?
  - Where are you today?

Pricing models
- Which pricing model do you prefer?
  - Are you buying software with different models?
- How are the current SMA structured?
  - How would you like it to be?
- How are you affected if a vendor change pricing model?
  - How would you react?
- How does the choice of pricing model affect quality?

Future value proposition
- How can software suppliers create value for a buyer in the future?
  - e.g. cloud-based, feedback loops, add-ons, modularity
Financial projections have been made with three cases:

- **Case 1**: Switch from perpetual license to subscription, all customers are forced to switch model.
- **Case 2**: Switch from perpetual license to subscription, current customers stays with perpetual license model.
- **Case 3**: Run subscription and perpetual simultaneously with increasing share of sales from subscription every year.
- **Case 4**: Introduction of a new product.

### C.1 Assumptions

<table>
<thead>
<tr>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>Users year zero:</strong> 6,500</td>
</tr>
<tr>
<td><strong>New seats year zero:</strong> 500</td>
</tr>
<tr>
<td><strong>Initial purchase price:</strong> €3,500 Up front cost for a perpetual license.</td>
</tr>
<tr>
<td><strong>Subscription fee:</strong> €1,000 Annual cost for a subscription.</td>
</tr>
<tr>
<td><strong>Sales growth:</strong> 7% Growth in sales of licenses per year.</td>
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<tr>
<td><strong>SMA cost:</strong> €500 Annual SMA cost.</td>
</tr>
<tr>
<td><strong>Service factor:</strong> 75% Part of customer base that have an SMA.</td>
</tr>
<tr>
<td><strong>Leaving customer:</strong> 50% Part of customer base that will leave if they are forced to subscription (Case 1).</td>
</tr>
<tr>
<td><strong>Conversion rate:</strong> 5% % of current customer base converted to subscription each year (Case 2 &amp; 3).</td>
</tr>
<tr>
<td><strong>Drop off rate sub:</strong> 5% Customers leaving subscription per year.</td>
</tr>
<tr>
<td><strong>Drop off rate perp:</strong> 2.5% Customers leaving perpetual per year.</td>
</tr>
</tbody>
</table>

Table C.1: Assumptions for Financial Projections

### C.2 Payback and CAGR

<table>
<thead>
<tr>
<th>Revenue</th>
<th>CAGR</th>
<th>Payback</th>
<th>Normalised</th>
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</thead>
<tbody>
<tr>
<td>perp.</td>
<td>sub.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case 1</td>
<td>6.5%</td>
<td>7.6%</td>
<td>8 yr.</td>
</tr>
<tr>
<td>Case 2</td>
<td>6.5%</td>
<td>8.7%</td>
<td>6 yr.</td>
</tr>
<tr>
<td>Case 3</td>
<td>6.5%</td>
<td>8.2%</td>
<td>4 yr.</td>
</tr>
<tr>
<td>Case 4</td>
<td>7.8%</td>
<td>10.9%</td>
<td>12 yr.</td>
</tr>
</tbody>
</table>

Table C.2: Performance Indicators per Case
C.3 Plots

Figure C.1: Financial Projection Case 1: Forcing all Customers to Subscription.

Figure C.2: Financial Projection Case 2: Current Customers Stay with Perpetual.
Figure C.3: Financial Projection Case 3: Run subscription and perpetual simultaneously with increasing share of sales from subscription every year.

Figure C.4: Financial Projection Case 4: Introducing a New Product.