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Master Thesis

Pricing at Everest SARL

A Case Study

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Abstract

Pricing directly influences a company's profitability, yet doesn't receive too much attention in most business education. It is a highly complex topic, where a decision can make or break a business. This Harvard-style case study presents the story of a small French software company in a pricing crisis. Heavy discounting caused the company to enter a crisis after scaling down its consulting activities. The case study aims to teach students how to identify pricing issues, analyze price data, and which pricing best practices to follow. The company's identity and data have been anonymized at the company's request.

Keywords: *pricing, pricing policy, discounting*

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1 Introduction

One of the most important decisions to make for any product is its price. It directly influences the amount of revenue a company can generate from its investments. Furthermore, after a price has been set it becomes increasingly difficult to substantially alter it. Existing customers will oftentimes desire price decreases, and will not be very accepting of increases. For new customers, any previously set price sets a reference level which again becomes hard to go up from.

In most business education programs pricing is not given a large amount of attention. This case was created to teach product management students about pricing decisions. It presents the story of Everest, a small French company which has given its customers large discounts and is now unable to afford developing its product further.

The case study is based on a true story, but has been altered in several ways to ensure anonymity of the original company. For companies with enterprise sales processes the pricing processes are not usually publically available. Furthermore, customer data is usually a company's most heavily guarded trade secret. Therefore anonymization was necessary.

The company's name, location, product, and prices have been altered. The competitor's names and prices have been altered. All customer names, quantities, and prices have been altered.

In the following chapter the case study is presented. Everest is a company transitioning from a consultancy-dominated business to a software product dominated company. The company discovers that it can't afford the discounts that were given to its customers anymore. As Everest's consultancy revenue declines, they will now need to charge prices that truly reflect the cost of development.

In the third chapter, an introduction to pricing theory intended for management information systems students is presented. The theory starts with a recap of high-school level economics, and then dives deeper into concepts that are relevant for pricing questions. This chapter is intended for distribution to students alongside the case study. Depending on the pre-existing knowledge of the students this may not be necessary.

The case was written using the methodology developed by Leenders, Mauffette-Leenders, and Erskine (2010) at the Richard Ivey School of Business. The final chapter presents a teaching guide written in accordance with their guidelines. It contains some information regarding the teaching objectives, and difficulty of the case. Furthermore, an analysis is included which can be used in in-class discussion after the students have made their own analyses.

2 Case

2.1 Introduction

On Thursday, June 6th, 2012, Bernard Martin¹ was in a teleconference with the company's shareholders. Mr. Martin was CEO of Everest SARL, a software company headquartered in Lyon, France.

The shareholders voiced their concerns about the company's disappointing sales results. Arnaud Dubois of PAI partners:

“Your VP of sales, Mr. Fournier, promised higher revenue this quarter. But the results are very disappointing.”

Mr. Martin was acutely aware that the situation was dire, the company's revenues weren't enough to support the costs of developing the product. And now, the shareholders have lost their confidence in the sales results. They had previously voiced their discontent with the company's results, and had now told the board in no uncertain terms that their jobs are on the line if the situation wasn't promptly resolved.

2.2 Everest SARL

Everest started out as a division of Élever Consultants SA, a large French consultancy firm which worked with engineering companies to optimize their processes. Élever found that better planning software would help their customers achieve better time-to-market. The tool that they created, Summit, was specialized for very large projects which oftentimes cross organizational boundaries.

Development on the software started in 1995 with the vision of creating project management software with a strong focus on collaborative planning. According to Élever's vision a project planning should be a living document, which reflects the reality of what is happening. Summit's designers believed that project management software should be used throughout the organization, and sometimes even beyond the organization. In that way all workers could see and update their own part of the project.

In the 90s project planning software was typically only used by the project manager. The manager would deliver printed out task lists to their employees. The employees would report their progress on paper, weekly. Everest's software aimed to speed up this employee feedback. Previously, slow reporting could lead to delayed interventions, which lead to costly delays in the project. By reducing the reporting lag, this time and money would not be lost.

Between 1995 and 2010 Élever found that many large industrial companies were very interested in Summit, and found many customers. However, Élever was acquired by another company which decided to focus completely on consultancy. Therefore in 2010, the software division was spun off into Everest SARL, and sold to the current shareholders. The division managers were given shares as a part of their severance package.

Everest SARL became a privately held company, its shareholders included ABP and PAI partners. ABP was a Dutch retirement fund, PAI partners was a large French private equity house which started as a part of BNP Paribas. The company's shareholders had been hands-on with their investment, as they all had a long term focus and aimed to improve their long-term return on Everest.

¹ All (company) names, dates, and financial data have been anonymized.

The remaining shares were owned by several smaller private investors, and its own management.

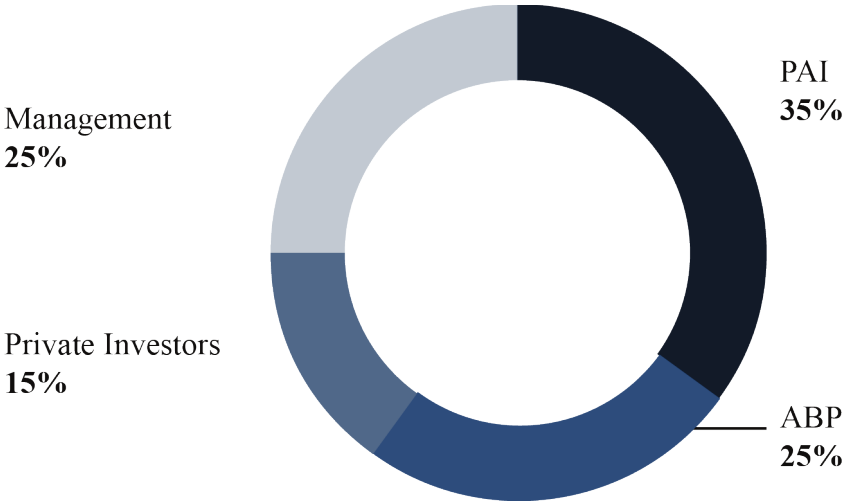


Figure 2.1: Ownership structure of Everest SARL

2.3 Everest’s Product

Everest’s main product was Summit, a tool for project management. The primary functionality allowed project managers to create and schedule tasks, create interdependencies between tasks, and track whether or not tasks are completed on schedule.

In addition to the core project management functionality, Everest also sold several add-on products which improved the software’s capabilities. Among them a resource planner, management dashboard, and a tool that gave individual employees a personalized view of a project.

- **Summit**
The core product, which empowered project managers to create and maintain a planning for complex projects. A key feature of Summit is its support for co-makership: the ability to connect project plans between multiple companies. The planning was updated in a bottom-up process, where the workers update their work estimates as the work progressed.
- **Ridgeline Management Dashboard**
For superior management insight, Ridgeline gave a real-time view on all projects within the firm and allowed the management to create a dashboard to keep track of critical projects. Furthermore, Ridgeline offered Microsoft Office integration. Project managers could create effective reports from Ridgeline and directly insert key statistics and charts into their Office documents.
- **Resource Planner**
When planning a complex project, it isn’t enough to plan out the various activities that need to be completed to achieve the end goal. A good project manager needs to keep track of resources they need to use, and need to ensure they are available when the project requires their usage. With Resource Planner the company could keep track of anticipated resource usage, and allocate them as necessary. These resources could be something as simple as a meeting room, or something as complex as steps in a production process, or the time of key specialists.

- **Sherpa personalized planning**

To increase employee productivity further, a personalized dashboard helped each employee focus on their work. Sherpa allowed each user to create custom views of the tasks they care about.

- **Summit Desktop**

As employees travel to faraway sites on industrial sites, and they may not have reliable internet access at the worksite, Summit desktop enabled them to keep working when the network didn't. Summit Desktop synchronized any changes with the server as soon as the client reconnected.

Everest's customers had repeatedly praised the software for its flexibility, it could be adapted and customized while they were using it. They mentioned that Summit succeeded in enabling collaboration between teams within their organization, and with their suppliers. The bottom-up architecture ensured that data always originated from a single source, which prevented inconsistencies between planning documents. The customers also praised Summit's ease-of-use as it ran in the browser.

Everest focused on industrial manufacturing companies, its software had been specifically designed to support complex co-makership engineering efforts. As in many cases a company would need to have subassemblies designed by a supplier, having the planning shared between the companies is a highly desired feature in this industry.

For example, if a company wanted to sell an industrial robot, the end product would contain drive motors, gearboxes, and electronic components. All of these components were made by suppliers to the company that built the robot, yet in many cases would need to be made to specifications that depended on the design of the robot. Machines were designed in an iterative process, and therefore the specifications would change as the design got closer to final production. Furthermore, even after a product was launched, a design would oftentimes be optimized to produce the same robot for less money. Having a planning tool which enabled the company that builds the robot to integrate with its suppliers could save a lot of effort in coordinating this process.

Everest was unique in the project management software industry with its strong sector focus, other companies didn't specifically design their product with an industry in mind.

2.3.1 Competitive Landscape

Everest faced competition from several other products. Firstly there were many companies which used basic spreadsheet tools for planning purposes: Microsoft Excel was cheap and almost all companies already had it installed. Google Docs is free to use, and allows users to work together on a project plan.

A step up from spreadsheets was PlanSolve: a planning software package made by a small company based in Denver, Colorado. It allowed users to create tasks, schedule tasks with dependencies, and create GANTT charts. PlanSolve was available both as a standalone product, and with a server product. Many companies used standalone PlanSolve for projects which would likely have benefited from the usage of networked planning software. However, PlanSolve Server was complex and expensive to install and maintain.

PlanSolve Server integrates closely with Microsoft SharePoint, it uses its shared calendars, its document sharing facilities, and Microsoft InfoPath to send forms to employees involved in the planning process.

Another product which was used oftentimes were RKB's project management tools. RKB's core product is ERP software. RKB offers project planning functionality as a plug-in for its ERP

software. Everest’s sales department heard from companies that use these tools that they get it as a low-priced add-on to their existing RKB installations. Employees tended to not to be very satisfied with the project planning plugin’s user experience, and management complained about the price of the ERP consultants needed to configure the software.

Everest’s direct competitors who made similar products were QPLAN and Ananke. QPLAN is a medium-sized business based in Sydney, Australia; its QPLAN Planner has very strong project lifecycle management features. The key complaint from QPLAN users is the weakness in collaboration features, it was designed for hierarchical organizations where planning is done in a top-down way.

Ananke is a software company from Lund, Sweden which was started by ex-Navision employees. Navision’s software was acquired by Microsoft, and made part of the Microsoft Dynamics suite. Ananke has always been tightly integrated with Microsoft Dynamics software, which is also its key selling point. However, similarly to QPLAN, its collaboration features weren’t as developed as Everest’s.

Furthermore, customers complained about the difficulty of installing the competitors’ software. Pierre Dupont, one of Everest’s sales managers: “PlanSolve Server is difficult to install, you need to combine it with SharePoint. One of our customers let us know how many servers he had to buy just to run SharePoint at his company. QPLAN and Ananke may offer some more functionality in project management. But they’re very complicated to install and customize for the customer. Our software is ready to run in two days, and you can adapt and customize it while you use it”.

Apart from those, there were several other small competitors, and many cloud competitors which were starting to grow.

Product	Price / Seat	Key Strength	Key Weakness
Summit	See section 2.3.4	Co-makership features	Lack of usage at worker level
MS Excel 2010	€ 135	Ubiquity	No planning functionality
PlanSolve	€ 1,249	Simple user interface	Standalone
PlanSolve Server	See section 2.4.2	Simple user interface	Needs SharePoint, aimed at SME’s
RKB Project Management	On request	Integration with RKB’s ERP software	User experience, configuration difficulties
QPLAN Planner	On request	Lifecycle management	Collaboration only using document stores
Ananke	On request	Integration with Microsoft Dynamics	Collaboration features underdeveloped

Table 2.1 Competitor Overview

Enterprise software pricing tended to be highly complex. Furthermore, as prices tended to be calculated individually for every client, prices for RKB, QPLAN, and Ananke were available only on request.

Alexandre Fournier, VP of Sales: “We know we are very good in comparison to the competition. Regarding the requirements from our customers: schedule management, resource management, and risk management. We think our software competes well with regard to both functionality, and prices”.

2.3.2 Product Bundling

To attempt to increase the average revenue from customers, Everest had bundled its software. Before 2011 the company sold its software components individually. A customer could buy a Summit license, and add-on other features as desired. The parts were individually priced, and discounts were given if customers order more features.

Now customers were offered ‘Total Summit’, which included Summit and all other features previously sold as add-ons.

By bundling the software, customers who wanted all features were getting a much better deal. However, as only very few customers bought all features, it should have resulted in the revenue generated from the majority of customers going up.

One of Everest’s sales executives mentioned that it takes a customer about three years to switch to new project management software. After choosing a new project management package, it took a long time to prepare for the migration. Importing the data into a new system without losses or downtime was not a simple process.

2.3.3 Licensing

Like most enterprise software, Summit was sold in the following manner: a customer buys a license for the software, and enters a contract where a percentage of the purchase price is paid annually for maintenance and support. In the case of Everest maintenance was 20% of the initial purchase price.

After the customer bought the software, it was installed on the customer’s servers. Everest had been working on a cloud product, but that was still to be released.

The customers were billed for the software per named user, which are also referred to as ‘seats’. Although the customer needed to buy the software for specific employees, the customer is allowed to change the name on their seats as employees leave and join the company. To prevent abuse, seats were only allowed to change names up to twice a year.

VP of Sales Alexandre Fournier: “Our customers often came to us, and they always asked for floating licenses. They know it from CAD software, which is priced at a different level. We’ve always told them, we could do this, but the prices would be totally different”.

2.3.4 Pricing

The list price for a named Total Summit user depended on the amount of seats purchased. Customers purchasing a large number of seats would receive a volume discount. After the initial purchase price, the maintenance fee was 20% of the initial purchase price per year as long as the customer used the product.

Seat Count		Price per Seat		Seat Count		Price per Seat	
10	€	1,200		700	€	740	
20	€	1,175		750	€	730	
30	€	1,125		800	€	720	
40	€	1,075		850	€	710	
50	€	1,025		900	€	700	
100	€	925		950	€	690	
150	€	900		1,000	€	680	
200	€	890		1,250	€	600	

250	€	880	1,500	€	575
300	€	870	2,000	€	500
350	€	860	2,500	€	450
400	€	850	3,000	€	425
450	€	840	4,000	€	375
500	€	830	5,000	€	325
550	€	820	10,000	€	275
600	€	810	25,000	€	225
650	€	750			

Table 2.2 Everest Total Summit Pricing

As installing the software was not a trivial process, and there were costs attached to the sales process, Everest would not sell a package of less than 10 licenses.

Everest offered training and consultancy for the implementation and usage of its software. These services represented about 40% of Everest's revenue.

2.4 Financial Situation

When Everest was part of Élever, it was subsidized by the consultancy arm of the company. After it spun off Everest still maintained several consultancy contracts, but those have ended in the meantime.

Previously, income from the consultancy division had been sufficient to subsidize the software development. Unfortunately, after the consultancy activity slowed, the company had been operating at a loss. A team of highly paid software developers was needed to develop complex software, and now the income was simply not enough to cover the bill.

In the profit-and-loss statement, the cost of development can be seen clearly. In-house employees added up to over four million euros per year. Another two million was spent on outsourcing (booked as material cost). A further three million euros were spent on other operating expenses, which included real estate costs, advertising, and travel expenses.

The total income, under three million euros, didn't come close to covering the expenses.

Item	Amount
Operating Income	€ 2,550,885
Change in Inventory	€ -13,530
Other operating income	€ 318,817
Material Cost	€ -1,864,404
Employee Costs	
- Wages	€ -3,886,306
- Social Security/Pensions	€ -552,602
Depreciation	€ -137,481
Other operating expenses	€ -3,221,673
Other interest	€ 61,228
Interest	€ -20,197
Operating Result	€ -6,765,262

Revenue Tax	€	109,316
Other Tax	€	-18,929
Total	€	-6,674,875

Table 2.3 Profit and Loss Statement for Everest SARL

The management had identified heavy discounting as one of the key issues. Very few customers paid list price, and most paid significantly less.

2.4.1 Customers

Although Everest had a reasonable amount of customers, almost none of them paid list price. Mr. Martin: “I would say that the biggest mistake that we made was to give big discounts on the licenses, and then charge 10-20% of the license price for maintenance. Therefore maintenance was extremely cheap, and we didn’t earn enough money to maintain our product”

Summit was made for industrial companies, and mostly medium to large companies were interested in planning software. All of these companies had purchasing departments that were very experienced. Many parts were needed for complex machinery, and when a company wanted to successfully sell their machines at a profit, they needed a purchasing department that could get good prices for the subassemblies that went into their machines.

Unfortunately for Everest this meant that all customers were very capable of driving the price down. Moreover, as maintenance prices were determined as a percentage of the price of the software, any discounts given would be applied to all future revenue. Another issue is that maintenance prices were only fixed for a single year at a time, and therefore the price would be renegotiated every year. Whenever the prices got renegotiated they would only be decreased further.

Even if a supplier already had the lowest price in the market, the price would still be negotiated down. The only benchmark used by a purchasing department was the price they were charged last year, they did not reference competitor pricing. Mr. Fournier: “New customers are much easier, existing customers are used to your model. They don’t want to pay more, they want it to become cheaper, and cheaper every year”.

A special case was MegaCorp, which was a very large industrial company (revenue larger than 10 billion euros per year). They were also one of Everest’s oldest customers. Back when Everest won MegaCorp, Everest was still a small company, and its sales force was very eager to sign this huge company. Therefore they had received very significant discounts. Furthermore, they were the only customer that has negotiated blanket licenses for several of its business units.

Item	Price	Quantity	Total
Maintenance			€ 247,410
• Summit – Business unit A		*	
• Summit – Business unit B		*	
• Summit Desktop		12	
• Resource Planner		36	
• Ridgeline		36	
New Licenses			€ 5,137.15
• Summit Desktop		30	

• Ridgeline	13	
• Sherpa	95	
Discount		€ -25,302
Total		€ 227,246

Table 2.4 MegaCorp 2012 invoice

In 2012, Everest signed two new customers. One of them, QTS Industriegetriebe, had ordered 10 licenses of Total Summit.

Item	Price	Quantity	Total
Total Summit New licenses	€ 1,200	10	€ 12,000
Total Summit 1 year maintenance	€ 240	10	€ 2,400
Discount	€ -120	10	€ -1,200
Total			€ 13,200

Table 2.5 QTS 2012 Invoice

They bought 10 licenses at list price, but negotiated 50% of the maintenance for the first year. No battle plan survives contact with the enemy, many of Everest's customers recognized they only needed part of the software. Therefore they had negotiated individual prices for only the components they needed.

For example, Kowalczyk Sp. z. o.o. decided they only needed Summit and Resource Planner.

Item	Price	Quantity	Total
Summit, Resource Planner 1 year maintenance	€ 196.50	52	€ 10,218
Total			€ 10,218

Table 2.6 Kowalczyk 2012 Invoice

2.4.2 Competitor Pricing

When deciding on your own pricing, it's a good idea to know about competitor prices. Unfortunately that is very hard when prices aren't generally published, and vary greatly from customer to customer.

Alexandre Fournier: "We tried to get competitor's prices, sometimes we got them from other customers. But in enterprise software sales it's difficult to compare prices. If the buyer does their job right, they won't reveal competitor's prices. However, from what we know our pricing is competitive"

The only competitor which had released their prices publically was PlanSolve. As PlanSolve mostly targets smaller companies, it had a simpler sales process. PlanSolve sold licenses for the software, and customers could separately purchase extra support.

To fully make use of PlanSolve's software, a customer would also need to install SharePoint. Microsoft's licensing model for SharePoint worked by having server licenses, client licenses, and client access licenses (CALs). A server license was needed for each operating system instance, which means for either every server or for every VM if you virtualize you servers.

Each client would need to buy a license for PlanSolve, which costs € 1,249 per license. A PlanSolve Server license cost € 4,999.

To use PlanSolve, you would also need to be running Microsoft SharePoint, and SQL Server. Furthermore, as a Windows-only product, PlanSolve Server also needs to run on Windows Server.

Product	CAL	CAL+ SA	Server
PlanSolve Server			€ 4,999.00
Windows Server 2012 Standard (per user)	€ 38.06	€ 57.01	€ 880.31
Sharepoint 2010 Standard User CAL*	€ 122.67	€ 183.70	€ 6,781.98
Sharepoint 2010 Enterprise User CAL*	€ 108.11	€ 162.15	
SQL Server 2012 Standard	€ 210.23	€ 315.41	€ 903.28
Total	€ 479.07	€ 718.27	
*a Sharepoint Standard CAL is required for an Enterprise CAL			

Table 2.7 PlanSolve and Microsoft Server Price Calculations

To conclude, all required CALs for a PlanSolve client added up to € 479.07 per user, in addition to the € 1,249 PlanSolve license. Moreover, the customer would need to run servers with the appropriate server software, which needed to be correctly licensed.

Oftentimes, customers got special discounts though. Alexandre Fournier: “Sometimes PlanSolve gave customers pretty good deals, they had a partnership with Microsoft to arrange a discount on the Microsoft software”. RKB went even further: “RKB’s project management plugin often costs nothing, they would only charge for the very expensive consultancy”.

2.4.3 Sales

Everest’s sales managers received a bonus based on their performance, as was common in the industry. The bonus was calculated at the end of the year. This resulted in several large sales being made in the last days of the year.

Pierre Dupont, one of the sales managers: “Sometimes we made some lucky punches in December, after Christmas. We raised our revenue at the end of the month, at the end of the year. Significantly”

Mr. Dupont also mentioned: “I consider pricing to be the second step in the sales process. First you have to win the customer over with your software, only afterwards do you discuss pricing. The pricing discussion is easy if the value of the software is big enough, but if your software is similar to the competition the discussion gets more difficult”.

2.5 Shareholder Doubts

In the beginning of 2012 the investors were already nervous about the financial situation of the company, and wanted a sales strategy. Alexandre Fournier had made some great promises in the New Year’s shareholder call, and the shareholders were pleased by the sales Mr. Fournier projected.

Unfortunately, by June it looks like none of Mr. Fournier’s plans have worked out as they were presented back in January. The shareholders’ fears are that business would continue as it

had been for the last years, which meant that the company might be out of money by the end of the year.

The shareholders had no more confidence in Mr. Fournier's plan, and now desired drastic turnaround measures.

As revenue fell short of what was needed, the shareholders had some key demands from the management. The pricing model would need to be updated, as the shareholders think there is a lot of room for improvement in that area. Furthermore, the shareholders have a strong desire for the company to move to recurrent pricing for two reasons: company valuation and industry trends.

2.5.1 Company Valuation

The investors have always made clear in the quarterly calls that the company's valuation is important to them. The investors invest money on behalf of large clients that expect a certain rate of return, and if the company's value rises, so does the value of the investors' portfolios.

A common way to determine the company's value was to take the company's revenue and apply a multiplier to that value. For example, if a company generated a 100,000 euro annual revenue, and the investor used a 3.5x multiplier, the company's value would be assessed to be 350,000 euros.

The revenue could easily be established from financial records. However, the multiplier was usually chosen based on a large amount of factors. Which factors were used depended on who was doing the valuation. The aim was always to assign a higher multiplier to higher quality revenue. Revenue quality could be determined by assessing the company's predictability, profitability, and diversity (Tjan, 2013).

Predictability resulted from the amount of repeat revenue a company had. Profitability was the company's margin. Diversity of revenue was achieved by having a large amount of customers who all represent small slices of the revenue. If 90% of a company's revenue came from a single customer, this may suddenly disappear if that customer were to switch to a new supplier.

As the recurring revenue model would increase the amount of repeat revenue, it would increase the predictability, and thereby the quality of the revenue. Everest's investors applied a 4-5x multiplier to recurring revenue, therefore they had asked Everest's management to focus on recurring revenue.

Mr. Martin: "In the classic model, our revenue is rated by one, but with recurring revenue there's a multiplier of about 4 or 5."

2.5.2 Preparing for the Future

The consumer software market had rapidly been moving into the cloud. Products like Gmail, Google Docs, and Flickr have proven that cloud-hosted software has big advantages for users.

Enterprise software hadn't moved into the cloud at the same pace. Switching software for any large company was a highly complex process, which involved both technical and managerial challenges. In addition many companies had reservations about using cloud providers. Some companies may have had legal restrictions about where their data could be hosted, and all companies had a desire to keep their data secure from breaches

Yet, despite the large challenges, more and more cloud suppliers started to sell software to enterprise customers. Salesforce, a company that made cloud-based customer-relationship management (CRM) software had grown to a \$2.27 billion revenue in 2012.

As the market acceptance of cloud-based enterprise software grew, Everest was working on creating a new cloud product. Cloud products were billed regularly rather than as a permanent license.

By switching to a recurring revenue for its customer-hosted solution, Everest would make it easier for customers to switch to a cloud-based solution at a later point in time.

2.6 New Prices

The shareholders ended their call with a threat that wasn't thinly veiled: if the revenue outlook wouldn't significantly improve by the next quarter, they would replace the entire board.

Bernard Martin immediately instructed his team to start work on a plan to increase revenues. It is his belief that a lot of revenue is currently not captured due to extraordinary discounts awarded to customers. After a quick discussion with the board it is agreed that pricing should be revised, and the sales team would need to be briefed on the revised pricing by the end of next week.

It had been a difficult day for Bernard Martin. As he was walking to his car, he was preoccupied with the many difficult decisions he now faced. During his drive home, his mind was racing: What should our new prices be? Should we change the bundling of the software? Should we come up with a new revenue model altogether? How will we convince customers to pay higher prices?

2.7 Appendix A - Customer List

In the customer list, the ‘revenue’ column represents the total revenue expected from that customer in the current year. The amount in the ‘seats’ column is the total amount of users at that customer for all Everest products. ARPU is “Average Revenue per User”, the total revenue divided by the total amount of seats. Maintenance is charged in the first year of usage, therefore the ‘maintenance’ column lists the total amount of products used in the current year (new and old). The ‘new’ column describes how many new licenses were bought in the current year.

Company Name	Revenue	Seats	ARPU	Maintenance	New
MegaCorp	€ 227,246	*	*	Custom	Custom
MultiCorp	€ 532,437	14,124	€ 38	14124 SU	15 SU
				11845 RL	7 RL
				1943 RP	
				94 SH	8 SH
				1345 D	6 D
Mercier Turbomachines SA	€ 110,525	724	€ 153	724 TS	14 TS
Guerand Industrielle	€ 68,271	534	€ 128	534 SU	
				461 RP	
LZW Maschinenbau GmbH	€ 54,643	1,321	€ 41	1321 SU	16 SU
				1321 RL	16 RL
Antoine Legrand	€ 55,379	368	€ 150	368 TS	
RWW Harbor Automation	€ 10,548	82	€ 129	82 SU	
				60 RL	
				82 RP	
				82 SH	
				7 D	
Hunfalvy és Társa Kft.	€ 50,844	292	€ 174	292 TS	
MilanRobotics SpA	€ 41,901	257	€ 163	257 SU	
				257 RP	
Arthur ROUX SARL	€ 30,304	183	€ 166	183 SU	
txr-schäfer	€ 47,405	273	€ 174	273 SU	
				6eRL	
Michaelbecker	€ 16,567	89	€ 186	89 TS	3 TS
Kowalczyk Sp. z. o.o.	€ 10,218	52	€ 196	52 SU	
				52 RP	
Jyskliv AB	€ 40,936	183	€ 224	183 TS	10 TS
Plabo SARL	€ 15,928	92	€ 173	92 TS	
BWMayer Hydraulik	€ 27,561	182	€ 151	182 TS	
Valbuena Marine Propulsion Lda.	€ 28,075	167	€ 168	167 TS	
TAKV SE	€ 33,485	28	€ 1,196	28 TS	28 TS
Clément Roulements	€ 38,805	201	€ 193	201 TS	3 TS
Vasseur Manufacturing	€ 36,752	322	€ 114	322 SU	
				172 RP	
				24 RL	
QTS Industriegetriebe	€ 13,200	10	€ 1,320	10 TS	10 TS

ROSYDTEK Pty. Ltd.	€	10,885	45	€ 242	45 TS	2 TS
Haas Industrial	€	10,345	52	€ 199	52 TS	
Prezlaser	€	6,670	30	€ 222	30 TS	
Ziegler-Winkler	€	5,309	23	€ 231	23 TS	
FlexPlastics	€	2,413	11	€ 219	10 TS	
Grupo Rodar S.L.	€	1,810	8	€ 226	8 TS	
ZST	€	2,722	12	€ 227	12 TS	
Peeters Maritieme Techniek	€	2,123	9	€ 236	9 TS	
W. Kühn	€	816	4	€ 204	4 TS	
Ménard Plastiques	€	715	3	€ 238	3 TS	
Rolf Schuster GmbH	€	915	4	€ 229	4 TS	
KLEK	€	779	4	€ 195	4 TS	

Table 2.8 Customer List

Product abbreviations:

Abbreviation	Product
TS	Total Summit
SU	Summit
RP	Resource Planner
RL	Ridgeline
SH	Sherpa
D	Summit Desktop

3 Pricing Concepts

Before getting into the details of how exactly modern enterprise software is priced, it's worth it to review basic economics to see how software fits in. This is followed by the elements that constitute a price. Then several methodologies for creating a sound pricing process will be reviewed. The concepts chapter concludes with considerations for the relationship with the customer.

The price of a good is determined by both the supply and demand of a good. If the good is in high demand but rare, the price will be high; whereas if there is a large supply of a good and low demand, the price will be low. In theory, the price of a good will reach equilibrium when the goods quantity supplied equals its quantity demanded. (Pindyck & Rubinfeld, 2013)

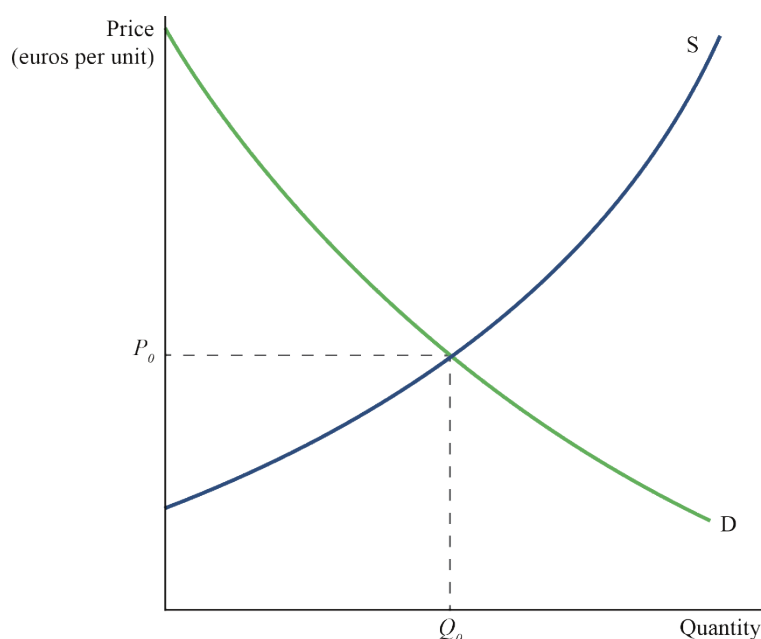


Figure 3.1: Supply and Demand. Adapted from Pindyck, R. & Rubinfeld, D. (2012). Microeconomics

The different points on the demand curve indicate the amounts of customers willing to buy a good at a certain price. The highest price that a customer is willing to pay for a good is referred to as that customer's reservation price. Therefore each point on the demand curve represents the total quantity of a good demanded by customers whose reservation prices are higher than the price at that point in the graph. For example, in the graph above, Q_0 is the total amount of the good demanded by customers whose reservation price is at or above P_0 .

The supply curve indicates the willingness of suppliers to sell the good at a certain price. As the price becomes higher, suppliers will put more effort into creating more of the product, leading to a higher supply.

An excellent case to illustrate the supply curve is oil. At low oil prices only oil that is easy to extract will be sold, and supply will be relatively low. For example, oil from Saudi Arabia is very easy to extract, and will cost a supplier under \$10 per barrel to produce. However, offshore oil from the United Kingdom is technically much more challenging to produce, it requires expensive drilling rigs instead of simple oil derricks. Therefore oil from the UK costs about \$45 per barrel to produce (Wall Street Journal, 2016). If the price of oil rises, production of oil in more expensive locations becomes profitable, this means that supply of oil becomes bigger when the price goes over one of these threshold values.

Supply and demand curves aren't fixed, they will change based on market trends. For example, if advances in oil extraction makes it cheaper to produce oil, the entire supply curve will shift to the right. This results in more supply at the same price, or a lower price if the demand were to remain equal. Similarly, more efficient usage of oil would move the entire demand curve to the left.

3.1.1 Price Discretion

Whereas in theory all firms in a market will end up at a single price, in practice the market is imperfect, which leaves firms the ability to price their product successfully within certain boundaries.

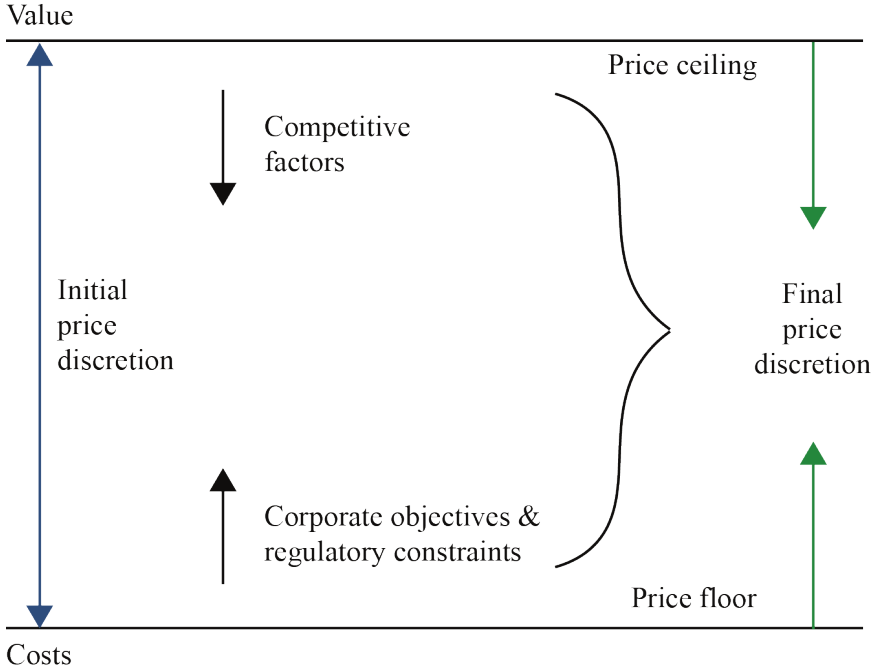


Figure 3.2: Price discretion. Adapted from Monroe (1990). Pricing: Making Profitable Decisions

A company cannot sustainably price its product lower than its costs to produce it, and no customer will buy a product for a price higher than the customer's perceived value of the product. (Monroe, 1990) These factors determine the price ceiling and price floor, which results in the initial price discretion. The price discretion is then further reduced by competitive pressure, and corporate and regulatory factors. The firm's final price decision needs to be made within the remaining final price discretion.

3.1.2 Consumer Surplus

When the market is in equilibrium and all goods are sold at the equilibrium price, the total generated revenue will equal:

$$R = P_0 * Q_0$$

This means that the revenue captured by the companies is equal to the area of the rectangular region enclosed by dashed lines in Figure 3.3. As all customers with a higher reservation price are only paying the equilibrium price, a lot of revenue isn't being realized. The entire shaded area between the demand curve and the dashed line is revenue that isn't captured in a market where all suppliers maintain the equilibrium price. (Pindyck & Rubinfeld, 2013)

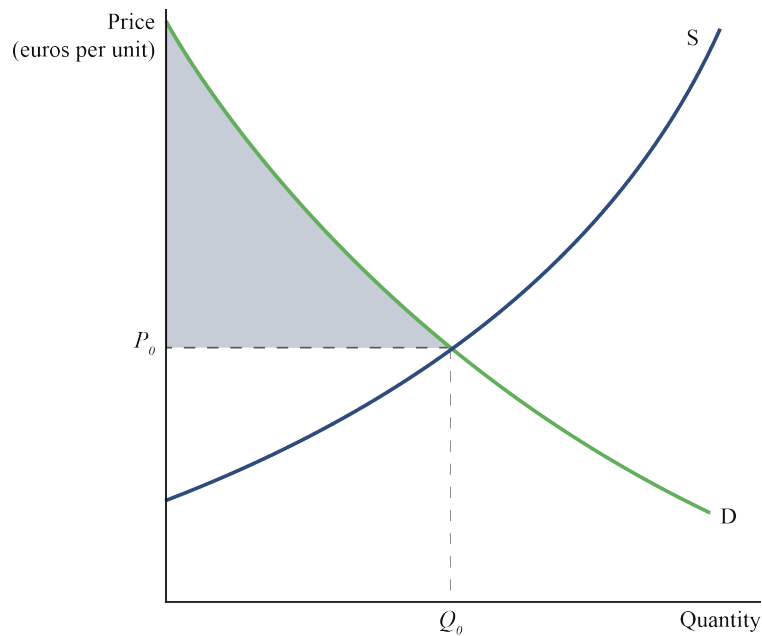


Figure 3.3: Consumer Surplus

In some markets, like the oil market, it is impossible for companies to charge different prices, as there is no way to differentiate their product and justify a higher price. However, there are many examples of markets where a fair portion of the consumer surplus is being captured.

If you've ever taken an airline flight, you have most likely noticed that almost nobody pays the same price for a seat on a flight. The airlines have very complex systems to attempt to make customers with higher reservation prices pay more for their flights. (van Ryzin & Talluri, 2005)

3.1.3 Revenue Management

The collection of strategies and tactics airlines use to price their seats and thereby manage demand for their flights is called revenue management or yield management. In the travel industry revenue management systems are an essential part of their operations. These systems are complex, mathematical computer systems and are oftentimes fully responsible for the profit margin of a modern airline (about 4% to 5% of revenues). (van Ryzin & Talluri, 2005)

Revenue management aims to address three categories of demand-management decisions: (van Ryzin & Talluri, 2005, p. 143)

- Structural decisions: Which selling format to use; which segmentation or differentiation mechanisms to use; which terms of trade to offer; bundling, etc.
- Price decisions: List prices, individual offer prices, pricing over time, etc.
- Quantity decisions: Whether to accept or reject an offer, how to allocate capacity, etc.

The quantity decisions don't apply to software, as making the next copy of a software product has a near zero cost, and therefore it makes sense to always accept every offer. However, both structural and price decisions are as essential to software as they are to airline seats.

For airlines, two key customer segments are leisure and business travelers. Leisure travelers tend to be more price conscious, and business travelers tend to be willing to pay more to get a flight that matches their schedule.

These two groups have very different reservation prices. If the airline were to sell all its tickets at the business traveler price, it would rapidly lose customers to low-cost carriers which undercut its prices. If the airline sells all its tickets at the leisure price, it is missing out on a large amount of revenue.

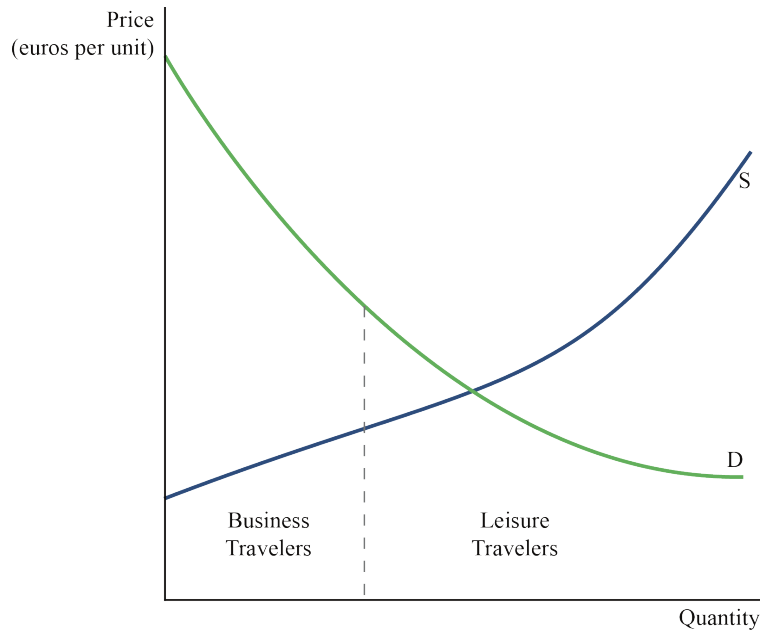


Figure 3.4: Simplified airline supply and demand

Let's consider a simplified example where the two market segments are perfectly separated and don't overlap at all. In other words, all business travelers are willing to pay more than all leisure travelers. Therefore if we were to charge a single price, we would charge the price at the intersection of the supply and demand curves, and our revenue would be equal to the area of the rectangle defined by the quantity and price at that position (See Figure 3.5).

If we could charge different prices to our business and leisure travelers, we could raise our business travel price to the lowest reservation price of the business travelers. As any point on the demand curve indicates the amount of product that would be sold at a given price, we can read that all business travelers would still buy if we were to raise the price to the point where the dashed line meets the supply curve.

In our simplified example all business travelers will buy tickets at the new price, it is under the maximum price they're willing to pay. The same amount of leisure travelers as before will also still buy seats. Therefore we managed to raise our revenue by the difference between the single rectangle on the left, and the sum of both rectangles on the right. An increase of about 28% in this example.

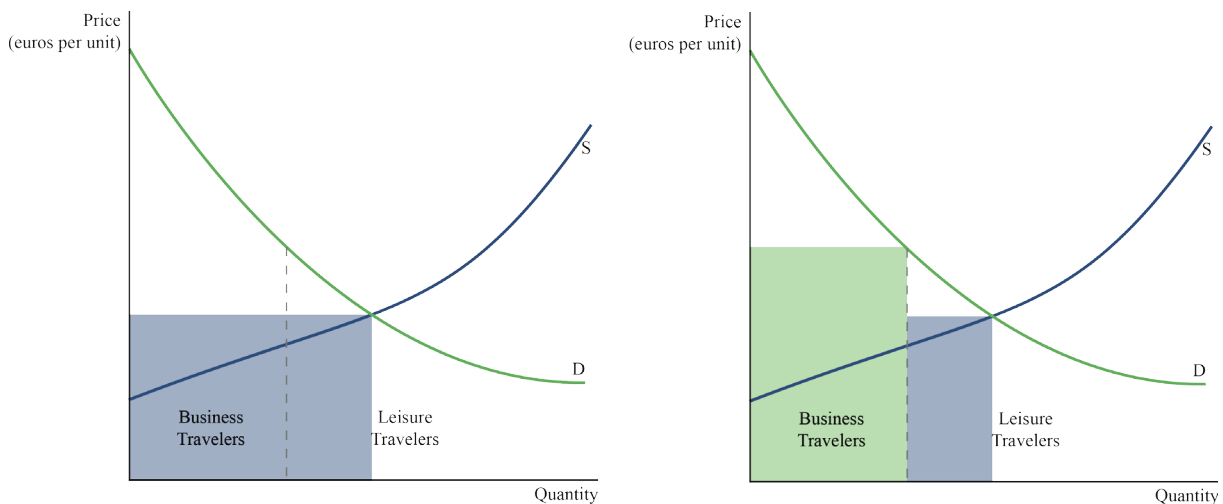


Figure 3.5: Airline price discrimination

Unfortunately there is no way to automatically detect whether a visitor to your website is a leisure or a business traveler. So in order to charge different prices to business and leisure travelers we will need to find a way to distinguish between the groups.

Airlines have solved this problem using fare classes. They offer not just “Economy” and “Business”, but they have many classes with different letters. For example, a “Y” ticket is a full-priced economy ticket, which allows the customer to make unrestricted changes and get the ticket fully refunded. Business travelers in many cases need to travel on short notice, and may not know how long their negotiations will take, so they desire this flexibility. Leisure travelers tend to make plans long in advance, and don’t usually change or cancel their plans. Therefore the airline creates a restricted economy ticket, which has an advance purchase restriction, and can’t be changed or refunded.

The general concept of charging different customers different prices for similar products is called price discrimination. There are several types of price discrimination. First-degree price discrimination is the practice of charging every customer their reservation price. Second-degree price discrimination is the practice of charging different prices depending on the quantity bought. Volume discounts are a type of second-degree price discrimination. Finally, there’s third-degree price discrimination, which refers to dividing customers in groups and charging those groups different prices. (Lehmann & Buxmann, 2009)

3.2 Pricing Elements

Determining pricing is a complex activity. A company’s pricing model will usually consist of not just a price level, but also one or more price metrics which determine the final price. An example of a price metric would be the volume for gasoline. The price is determined by applying the metric to the level.

For example, if gasoline costs \$2.50 per gallon, \$2.50 is the price level, and the price metric is “per gallon”. Therefore if you buy 3 gallons of gasoline, applying the level to the metric results in 3 times \$2.50, which results in the \$7.50 the customer pays.

An example of innovative usage of price metrics comes from the pharmaceutical industry. A pharma company realized that the customer value didn’t depend on the dosage, and changed its pricing metric from the milligrams of active ingredient, to the amount of days the customer is treated with the medicine, regardless of dosage.

In addition to the level and the metric, the pricing model should also define the payment’s timing and frequency. Is the payment a single upfront payment, or does the customer get charged in installments?

In some cases, the term ‘business model’ is used to refer to the pricing model. (Osterwalder, Pigneur, & Tucci, 2005)

3.2.1 Price level

The most recognizable part of the price is the price level, it is the actual dollar (or euro) amount that the customer needs to pay. The first consideration when setting price level is the company’s strategy. Porter (1980) defines three generic strategies:

1. Overall cost leadership
2. Differentiation
3. Focus

A company following a cost leadership strategy will use low prices to win a large volume of customers. In contrast, companies following either a differentiation or focus strategy will set

its price level higher. In order to justify the higher price level, a company following a differentiation strategy will need to have a unique industry-wide advantage. An example of a company which follows the differentiation strategy would be Caterpillar, which has a dealer network which gives it better coverage than the competition.

When following a focus strategy, the company commands a higher price by serving a particular customer (group) better than the competition. An example would be Open Skies, an airline which flies from New York to Paris and London, and only offers business class.

3.2.2 Dynamic Pricing Strategies

There are multiple strategies for changing the price level over time. The most relevant dynamic pricing strategies for the software industry are penetration, follow-the-free, and skimming. (Lehmann & Buxmann, 2009)

Penetration pricing involves pricing the product low to gain market share, before raising prices later. The follow-the-free strategy is a variant where customers are offered a free product, to entice them to upgrade to a paid product. This is especially effective in software, a dominant player can cause the market to standardize to their software.

An example of penetration pricing in software is Microsoft Windows, it used penetration pricing to become the dominant platform in the desktop computer market. (Nagle, Hogan, & Zale, 2011). The classic example of follow-the-free is Adobe, which made its PDF reader available for free, and thereby became the standard for portable documents.

A disadvantage of penetration pricing is that it reduces the reference price for customers, which could reduce future earning potential. (Kotler & Keller, 2012)

The opposite of penetration pricing is a skimming strategy. With a skimming strategy the price level is initially set high, and then lowered later on. This enables the company to sell to early adopters with high reservation prices before selling to mainstream customers at lowered prices. Skim pricing is also used for price signaling, where a company attempts to appear as higher quality because of a higher price. (Harmon, Demirkan, Hefley, & Auseklis, 2009)

Skimming is commonly used for new electronics. A new graphics card may be introduced at a very high price, and only enthusiasts will buy it. As production ramps up and the novelty wears off, the price is lowered to sell to mainstream customers.

3.2.3 Price Metrics in Software

Software price metrics (sometimes referred to as assessment base) can be classified in two main categories: usage-dependent, and usage-independent.

Usage dependent price metrics are those that depend on the actual run-time of the software, for instance transactions, memory requirements, or minutes of usage. An example of software that is billed per transaction is financial software used for processing payment cards. (Lehmann & Buxmann, 2009)

Usage independent metrics include user-based, and performance-based metrics.

Performance-based pricing was very common in earlier years, and is still used for some enterprise software. The software is priced based on the performance of the computers it runs on. IBM used licensing where the customer would pay based on the theoretical performance of the machine running the software, measured in MIPS (Million Instruction per Second). (Harmon, Demirkan, Hefley, & Auseklis, 2009). Another example is Microsoft server software, which is priced based on the amount of CPU sockets.

Performance based pricing made sense for mainframe software. Banks would buy a mainframe to do a specific task, and would only buy a more powerful mainframe if they needed more

capacity for that task. However, users perceive performance-based pricing as unfair, as they are penalized for having better equipment, whether or not they are actually using it. (Bontis & Chung, 2000)

More commonly used nowadays are user-based metrics. With user-based licensing the customer pays based on the number of people who are using the software. A key distinction is whether the customer pays per named-user or per concurrent-user. With named users all users who are given access to use the software, however infrequently, need to have their own individual license. A concurrent-user licensing scheme (also referred to as high water mark pricing) allows the customer to buy an allotment of licenses which can be dynamically distributed among the users. This means that you only need enough licenses to cover the highest amount of people that will be working with the software at a given point in time. A variation to the named user licenses is per-seat licensing where the license is tied to a workstation rather than a user. (Harmon, Demirkan, Hefley, & Auseklis, 2009)

Further usage-independent metrics are for example master data based, where the price depends on the amount of records of a key data type. For instance CRM software which is priced per lead, or GitHub enterprise which is priced per private repository.

Site licenses bill the customer based on the amount of locations where the software is used. Sometimes software is also billed on key performance indicators of the customer: produced amount, revenue, expenses, or budget. An example is the Unity game engine, which offers a free version for companies with a revenue of less than \$100,000. (Unity, 2016)

3.2.4 Payment Terms

An important consideration for the pricing model is the structure of the payment flow. The total amount could be charged in a single payment, or the customer could pay recurring payments.

A combination of a large payment and recurring lower payments is possible. A common structure combines a license purchase with a recurring maintenance purchase.

Considerations that need to be taken into account with recurring payments are frequency and duration. (Lehmann & Buxmann, 2009)

As Software-as-a-Service (SaaS) is gaining more popularity, so is the recurring payment model. (PriceWaterhouseCoopers, 2007)

3.2.5 SBIFT Model

Iveroth et al. (2013) propose a five-dimensional model to classify pricing models.

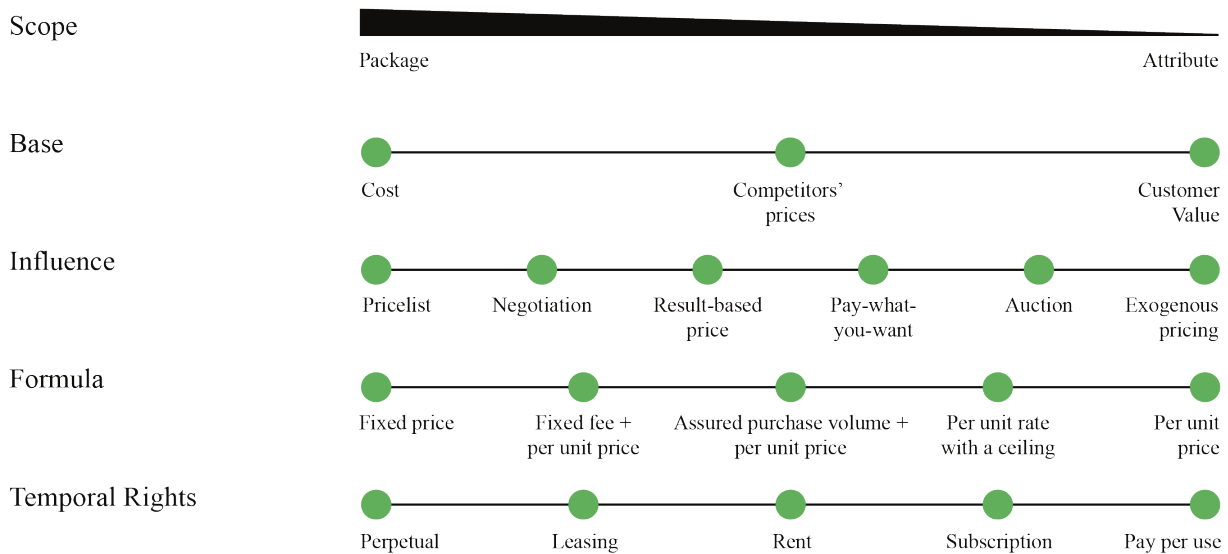


Figure 3.6: SBIFT Model, adapted from Iveroth et al. (2013). How to Differentiate by Price.

The scope dimension expresses the degree of bundling of the product. Some products are sold in a very granular way, where users can buy individual features. Other products are sold as large bundles, for example Microsoft Office.

The base dimension distinguishes the way the price was created. Prices can either be based on cost, competition, or value (see paragraph 3.2.6).

On the influence dimension various degrees of influence on individual prices are outlined. Sometimes a vendor can unilaterally decide its pricing, and the customer cannot bargain for a lower price. For example, when buying a cup of coffee at Starbucks. Negotiation is common for larger deals, especially if the vendor and customer are matched in their negotiating power.

Result-based pricing is a type of pricing where the product is delivered, and the payment is only made after the product has proven itself. An example is the software Bearing Point made for the State of Texas to enable citizen self-service for government services. The software would allow citizens to file their taxes (among other services) online, rather than drive to the local government office and stand in line. The citizens were charged a fee for using the service. Bearing Point wasn't paid for the initial development of the web site, but received 90% of the gross revenue. (Iveroth, et al., 2013)

Pay-what-you-want, auctions, and exogenous pricing are all uncommon for software products.

The formula dimension explores different ways to charge based on a price metric. Fixed price regardless of volume is seen for consumer software which allow install on all devices. Fixed price plus a per-unit fee is used for most Microsoft Server software packages: one needs to buy a client access licenses in addition to the server license (Software-Express, 2015). Assured purchase volume is oftentimes seen for SaaS software when customers can buy blocks of users, where for example the smallest possibility is a 10-user license. Ceilings are also seen when software is sold for a specific amount of users, but an unlimited option is available. Finally there's per-unit pricing. For example GitHub which is paid per private repository.

The final dimension describes for how long the user can use the offering.

3.2.6 Basic Pricing Strategies

There are three main ways to determine the price for a product:

1. Cost-plus pricing
2. Competition based pricing
3. Customer value based pricing

A “simple” way to determine prices is to take the costs of the good sold, and apply a markup to it. It seems fair, and therefore a ‘financially prudent’ way of determining a price. Yet “in theory, it is a simple guide to profitability; in practice it is a blueprint for mediocre financial performance”. (Nagle, Hogan, & Zale, 2011, p. 2)

Although it seems easy, there are serious challenges involved. Estimating the unit cost of a product is fairly hard when building physical products. In addition to the material costs, operating costs would need to be allocated to the unit cost. As the allocation depends on the volume, the price would need to increase to allocate the same cost over fewer units if sales go down. By raising the price in a weak market, volumes decline further, which starts a “death spiral”. For intellectual property based products like software this is even more pronounced, as software basically only has fixed costs, and very low direct variable costs.

Cost-plus pricing leads to overpricing in weak markets and underpricing in strong ones; exactly the opposite of a prudent strategy. (Nagle, Hogan, & Zale, 2011, p. 3)

When competition-based pricing is used, prices are aligned to the prices and the pricing behavior of competitors. The attractiveness of competition-based pricing depends, among other things, on the homogeneity of the products and the market structure. (Lehmann & Buxmann, 2009). In the software industry having a large market share is important, as that creates network effects and vendor lock-in effects. Therefore competitive pricing is important.

The last basis for price determination is customer-value based, where the price charged is derived from the value delivered to the customer. Most literature recognizes value based pricing as the best basis for price determination. (Hinterhuber, 2008; Simon, Butscher, & Sebastian, 2003; Ingenbleek, Debruyne, Frambach, & Verhallen, 2003; Nagle, Hogan, & Zale, 2011). Monroe (1990, p. 24) states that “the profit potential for having a value-oriented pricing strategy that works is far greater than with any other pricing approach”.

A good example of value-based pricing can be seen in the airline industry. Oftentimes a connecting flight (like Nuremberg to Rochester, NY via Munich and New York) will be cheaper than a direct flight (like Munich to New York), even if the direct flight is one of the segments of the connecting flight. The reason is that customers place a premium on direct flights, and therefore the customer value is higher.

As can be seen in Figure 3.2, the theoretical ceiling for a price is the perceived value to the customer. Therefore, to maximize profits, knowledge of this value is essential. Unfortunately this is highly complex, and many companies therefore don’t use value-based pricing. (Hinterhuber, 2008)

Ingenbleek et al. (2003) surveyed 77 Belgian businesses, and found that using value-based pricing generally improves new product success. However, in highly competitive environments value-based pricing had a negative effect on product success, and cost-based pricing had a positive effect.

3.2.7 Segmentation

As the revenue management example illustrated, it is highly profitable to segment customers by their price sensitivity. There are two main ways to segment customers: price-offer configuration and price fences. (Nagle, Hogan, & Zale, 2011)

Price-offer configurations capitalize on different customer groups valuing product features differently. The classic example is the ability to change or cancel flights, which is valued greatly by business customers, but not too important for private travelers.

By effectively bundling products into an offer, revenue can be raised. To illustrate this, let's organize a hypothetical series of concerts in Boston. The concert series will have both headline performances by very famous bands, and concerts by lesser-known more innovative musicians.

Most customers are very interested in the headline performers, and are willing to pay a large amount of money for these concerts (let's say \$60). However, mainstream customers are not usually as interested in the innovative performers, and would only attend the concerts if they were significantly cheaper (let's say \$25).

As there are several music schools in Boston, there is another customer segment though. These music aficionados are not as interested in the mainstream music they've already heard, and therefore more price sensitive to them. On the other side, they value the innovative music more. Let's say that they would be willing to pay \$40 for either type of concert.

By pricing the headline concerts at \$60, seats would be left empty as the aficionados would be priced out of the venue. Also, if the innovative concerts were priced at \$40, no mainstream customer would show for the performance.

As the preferences are reversed (headline performances are valued higher by the mainstream customers, and innovative concerts are valued higher by aficionados) a bundle could be profitable.

We could price the headline concerts at \$60, the innovative concerts at \$40, but also offer a bundle of a headline concert and an innovative concert together for \$80. This would be a good deal for both the mainstream customer (who would have paid \$85 for the combination), and the aficionados (who would have paid \$80).

In this way we can fill additional seats without lowering the prices for single concerts. To reach the same volume without bundling, we would need to reduce headline performance prices to \$40, and innovative performances to \$25. With the bundle we are charging \$15 more for the combination, and both customer segments choose to pay that additional \$15, but for different reasons.

If it isn't possible to segment customers by creating appropriate price-offer combinations, price fences need to be used. A price fence is a fixed criteria that a customer must meet to qualify for a lower price (Nagle, Hogan, & Zale, 2011).

An example of a price fence is student pricing at a movie theater: customers are offered a different price based on whether or not they are enrolled in a full-time study program.

There are several main categories of price fences:

- Buyer identification fences. When prices depend on the identity of the buyer, like student or senior discounts. Similarly, when software companies offer discounts for startups and open source projects.
- Purchase location fences. If a company has multiple locations, they oftentimes charge different amounts for the same product. For example, food at airports is often more expensive than in in-city locations of the same restaurant chain.
- Time of purchase fences. For some products, the demand changes greatly based on time-of-day. For instance, full-time workers can't go to the cinema during work hours, but more price-sensitive customers can.
- Purchase quantity fences. Volume discounts are very common for industrial parts. Step discounts are a type of volume discount where the discounted price only applies for

parts above a certain amount rather than the full order: the first 100 parts would be \$10, the 101st part in the same order \$8.

3.2.8 Discounts

An important consideration for prices are discounts. When different buyers are offered different prices, the highest possible price will be used as a list price. As psychologically it is easier to forgo a benefit than to incur a loss, discounts are used rather than surcharges. (Nagle, Hogan, & Zale, 2011)

In many companies discounts are offered by sales employees. As sales employees tend to be compensated by the volume they sell, they will be very willing to offer customers discounts just to close the sale. This reduces average prices. Stephenson, Cron & Frazier (1979) found a negative correlation between the sales forces' pricing authority and the profitability of the companies, in a survey of 108 wholesale sellers.

A concrete example comes from the automotive industry, where a company launched a new car at a price that was 3000 euros above the price of the previous model. The car was received very well, and the company's management was confident that the increased price would be sustainable.

Sales representatives were rewarded based on the volume they sold, and were under additional pressure at the end of the year to sell remaining stock. In order to sell more cars, significant cash discounts were offered. When the company analyzed its sales data, it found that its 3000 euro price premium had diminished to only 200 euro after discounting. (Hinterhuber, 2008)

This reduction in prices is referred to as either a 'profit leak' or a 'value leak'. Reducing value leakage is an important motivation for creating and maintaining a well-designed pricing policy. A pricing policy should outline specific conditions which need to be fulfilled for a customer to be eligible for a discount.

An important result of a good pricing policy is consistent pricing. As Nagle, Hogan & Zale (2011, p. 101) found, "a purchasing agent's worst nightmare is that someone discovers that a competitor is buying the same product from the same supplier for less than she was able to negotiate". This risk is mitigated when clear conditions are set for discounts.

For most effective pricing, a pricing process is created which creates a pricing policy, and adjusts it as market conditions require it. (Simon, Butscher, & Sebastian, 2003)

3.3 Creating a Pricing Policy

Although it is sometimes argued that software pricing is based on nothing: "Software pricing today makes no sense. Vendors make it all up." (Schneider, 2014) There are several ways to evaluate whether or not a pricing policy is appropriate.

There are some red flags which indicate that a pricing policy isn't working, and should be revisited: (Nagle, Hogan, & Zale, 2011, p. 166)

- Frequent deviations from agreed price schedules
- Frequent non-standard customer requests
- Large numbers of uncollected charges, and an increased number of write-offs
- Excessive unearned discounts
- Increased pricing errors
- Increased order processing and fulfillment errors

If these issues are found to be occurring, it may be advisable to create a new pricing policy.

There are several processes which can be followed.

3.3.1 Processes

Simon, Butscher & Sebastian (2003) present a four-stage pricing process:

1. Analysis
2. Decision
3. Implementation
4. Monitoring

Before any decision can be made, the current pricing, customer deals, and market situation need to be analyzed. Simon et al. (2003, p. 66) argue for strong data-driven analysis. There are several concerns when in this phase:

- Is the data available in the right format, quality, and quantity?
- Do the right people have access to this data and do decision makers have access to the right data?
- What data should we have that we don't and where can this data be obtained in the right format?
- Are clear goals and deliverables defined for the analysis (key indices, segmentation, level of aggregation and so on)?
- Do the right people get the results at the right time in the right format?

After the decisions are made, it is very important to consider internal consistency in the implementation phase. If a decision is made to focus on higher prices, it is important that this focus is reflected on all levels of the organization. It would lead to friction if, for example, the country managers have profit-based incentives, but the front line sales personnel's compensation is still based on revenue targets.

Finally, there is the monitoring phase. After implementation, the right systems and analytical tools should be put in place to detect variations from the pricing plan. If this is not done, the organization may fall back to discounting haphazardly. The monitoring system should include appropriate measures and sanctions to make sure that any mistakes are corrected, and future mistakes are prevented. (Simon, Butscher, & Sebastian, 2003)

Nagle et al. (2011) propose several steps to design a pricing process:

1. Define major pricing activities
2. Map current processes
3. Identify profit leaks
4. Redesign process

In many organizations, pricing power is distributed over the organization. The first step in improving the situation is to define the current situation. Major pricing activities include opportunity assessment, price setting, negotiation, and contracting. The objective in the first step of the process is to find the boundaries around the commercial system, ensuring that all activities that affect profitability are included.

The next step would be to map the process, and to create a visual representation. See Figure 3.7 for an example of a mapped decision-making process.

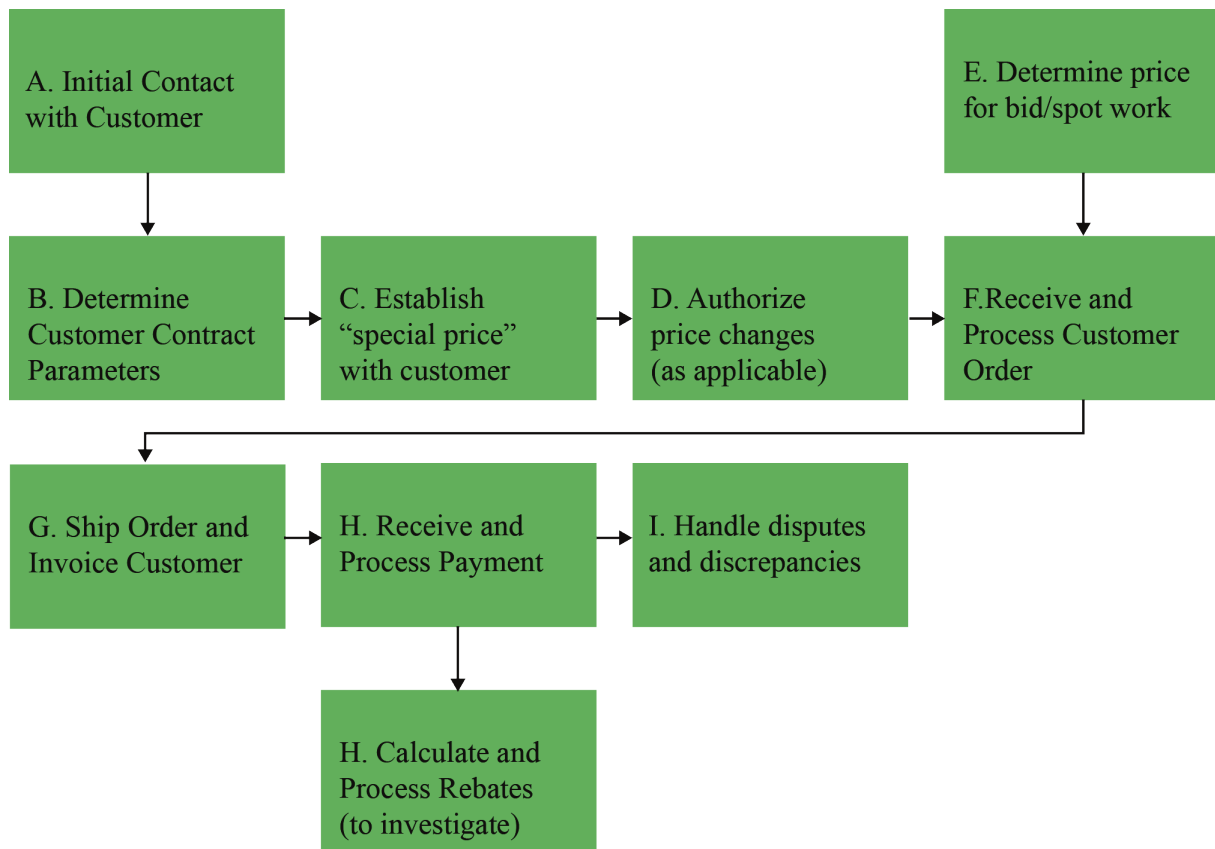


Figure 3.7: Decision-Making Process. Adapted from Nagle, T.T., Hogan, J.E., Zale, J. (2011) *The Strategy and Tactics of Pricing*.

After the process has been mapped, each step of the process can be scrutinized to find profit leaks.

When the leaks have been identified, a new process can be designed. An essential consideration in the design of the process are the decision rights assigned to the actors. It is oftentimes necessary in the implementation stage to award decision rights to new actors, and revoke decision rights from existing decision-makers.

The desired result of a clearly defined process, with appropriately allocated decision rights, are consistent and repeatable pricing decisions. To ensure they are also profitable, it is necessary that the decision-makers base their decisions on accurate and up-to-date information. Unfortunately, people are prone to make decisions based on anecdotal evidence. (Nagle, Hogan, & Zale, 2011)

Kotler & Keller (2012) outline a process for establishing an appropriate price level:

1. Select the pricing objective.
2. Determine demand
3. Estimate costs
4. Analyze competitor costs, prices, and offers
5. Select a pricing method
6. Select the final price

Kotler & Keller (2012) identify several possible objectives for pricing: survival, maximum current profit, maximum market share, maximum market skimming, and product-quality leadership, among others. As all further pricing decisions depend on the objective, it is essential for it to be established early on in the process.

The next steps in the process are to establish what prices should be maintained when using value-based, cost-based, and competition-based pricing. Afterwards, the method which best aligns with the objective is chosen.

There are some considerations left before choosing the final price: the impact of the new price on marketing activities, pricing policies of other products offered, and the impact the price will have on other parties like distributors.

If value-based pricing is chosen, Anderson, Wouters, and van Rossum (2010, p. 5) propose several considerations that should be given thought:

1. What is the market strategy for the segment? (What does the supplier want to accomplish? What would the supplier like to happen?)
2. What is the differential value that is transparent to target customers? (“Transparent” means that target customers easily understand how the supplier calculates the differential value between its offering and the next best alternative, and that the differential value can be verified with the customer’s own data.)
3. What is the price of the next best alternative offering?
4. What is the cost of the supplier’s market offering?
5. What pricing tactics will be used initially or eventually? (“Pricing tactics” are changes from the price that a supplier has set for its market offering – such as discounts – that motivate customers to take actions that benefit the supplier.)
6. What is the customer’s expectation of a “fair price”?

By answering these questions, the company will develop a better understanding of what value the customer experiences from using the product.

3.3.2 Practices

In addition to a solid pricing process, there are some practices which can be followed to improve a company’s pricing.

As discounts are frequently given in the sales process, they are at high risk of becoming value leaks if not adequately controlled. Hinterhuber (2008) proposes five practices to reduce discounts and improve profitability:

1. Level of authority for sales discounts. Discounting can be reined in simply by reducing the sales force’s authority to give discounts.
2. Sales force remuneration systems. The sales force can be motivated to keep prices high by basing their remuneration on the profit made by a sale rather than the revenue.
3. Fixed and variable remuneration systems. By varying the commission offered to sales staff, the sales executives can be incentivized to focus more or less on sales volume.
4. Sales force training and development. As the sales staff is crucial to the success of more effective pricing, they need to be trained to sell value to the customer. They should be trained to listen to customers to identify the customer’s subtle wishes.
5. Sales force monitoring. To ensure that the policy is actually followed, the deals made by the sales force should be analyzed. Sales person compensation should be adjusted if excessive discounting has occurred.

Simon et al. (2003) also emphasize that reconfiguring the selling process and guidelines, and increasing centralization improves the return on sales in the software industry.

Another practice that can be used to improve profitability is product line pricing, which may be combined with bundling. One of the simplest tricks in product line creation is selling a more

expensive version of the same product, its existence will raise the reference price, and therefore increase revenues. (Nagle, Hogan, & Zale, 2011)

An example is a bar offering two beers: a standard, and a premium beer. The standard beer costs \$1.80, and the premium beer costs \$2.50. It was found that 20% of customers bought the standard beer, and 80% the premium beer. To increase revenue, a third beer was added to the menu. The new beer costs \$3.40. After the beer's introduction, 10% of customers bought the new beer. However, the standard beer's share was reduced to 5%, with the remaining customers switching up to the premium beer. Raising the reference price made customers buy the more expensive beer. This effect is called anchoring. (Poundstone, 2010)

Understanding customers is a prerequisite for effective pricing. As Monroe (1990) identified the customer perceived value as the ceiling for product pricing, it is important to have ways to establish this perceived value.

Hinterhuber (2008) suggests several methods for analyzing customer value:

- Expert interviews. Within the selling organization, there are several key people (e.g. senior marketing employees, product managers, and key account managers) who have experience with customers, and their knowledge can be used as a basis for estimating a product's value to customers. These people can be asked to estimate the customer value of a new product.
- Focus groups. Small groups of customers can be asked to look at new product concepts, and asked their opinions.
- Conjoint analysis. A way to analyze how customers value specific features, conjoint analysis can be done. This is a process where customers are asked to choose between hypothetical products which have partial feature sets. After the customer has chosen between the alternatives, the choices can be statistically analyzed to determine the customers' valuation of the individual features. (Green & Srinivasan, 1990)
- Assessment of value in-use. A good way to understand how your product is delivering value to the customer is simply observing the customer actually using the product. This is very helpful for seeing which features are used often, and also helpful to discover missing features that can be developed in new versions.
- Importance rating. Customers can be asked to rank product features from least important to most important. With that data it becomes clear which features customers actually care about, and where customer requirements are "over-fulfilled".

After establishing what features customers value, it is another challenge to establish exactly how much money they would be willing to spend on the product. The customer's willingness to spend money on a product is oftentimes referred to as price sensitivity. It describes the influence the price has on a purchasing decision. A highly price sensitive customer will sooner decide to not buy a product as the price rises. Nagle et al. (2011) list several factors which influence price sensitivity:

- Size of expenditure. Customers give the pricing of expensive items more thought than the price of cheap items.
- Shared costs. Spending someone else's money is always easier than spending one's own money.
- Switching costs. An important aspect especially for software purchases. Switching to a new supplier oftentimes brings costs: data migration, employee training
- Perceived risk. When it is harder to compare vendors, customers tend to become less price sensitive.

- Importance of the end-benefit. Customers will be less price sensitive if the product in question is a small part of a bigger project which results in a large benefit.
- Price-quality perceptions. Customers tend to use price as an indicator for the quality of the product. If the price is high for price signaling, customers will be less price sensitive.
- Perceived fairness. Customers are highly sensitive to prices they consider unfair.
- Price framing. Psychologically it is much harder for people to incur a loss than to forgo a gain. This is why minimum balances are common for bank accounts: the opportunity cost of the return on investment on the amount is more acceptable to customers than an equivalent cash payment.

Anderson et al. (2010) also emphasize that managing the expectations of a customer about what a fair price is facilitates capturing value. A manager they interviewed stated: “You want the customer to absolutely feel good about the price”. (Anderson, Wouters, & van Rossum, 2010, p. 7). If a customer feels they are paying a fair price, they are less likely to shop around, and more likely to be comfortable paying a higher price than they would for competing products.

One of the key decisions in pricing is which price metric to choose. Oftentimes there are many options, and choosing the correct one isn't straightforward. Nagle et al. (2011) propose a list of criteria that can be used to evaluate a potential price metric, a price metric is good if it:

- Tracks with differences in value across segments. If your product is used by users in different segments, it is easiest to price differentiate by using a price metric which is significantly different for each segment.
- Tracks with differences in cost-to-serve. Not only will it make it easy to ensure good profit margins, it will also make it easier to convince customers that your pricing is fair.
- Is easy to measure and enforce. Customers will have a great incentive to lie about metrics if it will save them money.
- Facilitates favorable positioning versus competition
- Aligns with how buyers experience value in use.

This last point raises customer satisfaction by ensuring they receive value as they spend the money. A good example of a company which changed its pricing to align with the value experience is Netflix, back in the DVD days. Back then it was common for movie stores to charge for the amount of time a customer has a movie. Customers don't receive value by having the DVD laying around, they experience value by watching the movie. By changing the price metric to movies ‘out-at-a-time’, Netflix made its pricing align more closely with the benefit the customer was receiving.

An important factor in pricing is competitor activity. Competitor pricing has a strong influence on the success of your own pricing. In some markets it is relatively easy to keep track of competitor pricing. A common practice in retail is for managers to regularly visit competing stores, allowing them to keep track of competitor pricing and promotional activities.

Unfortunately, in many business-to-business markets prices aren't published on product shelves. For products with complex pricing it is often seen that prices are available only on request, as they have to be calculated individually for the customer's specific situation. Making it harder for the competition to analyze a company's pricing is a side effect of this practice.

There are a couple of ways for companies in B2B markets to get an insight into competitor pricing. The simplest way is to survey the salesforce on a regular basis, they sometimes hear things during negotiations with customers. The information a single salesperson has won't be

very reliable, but if all observations are combined, a rough image should take shape. (Nagle, Hogan, & Zale, 2011)

It should be kept in mind that salespeople will have a tendency to think their product is overpriced. This is due to purchasing agents, either intentionally or inadvertently, manipulating their view. If a purchasing agent chooses not to buy a product, oftentimes it is said the price was too high, even if other factors were also involved in the decision. When the product is chosen though, the price is “just right”, even if the product was heavily underpriced. No purchasing agent will ever admit to a salesperson that they would have paid more.

Sometimes purchasing agents will actively spread misinformation: they may falsely claim to have been offered a lower price by a competitor to get a bigger discount.

A way to get a better view into competitor pricing is to enlist the help of loyal customers. By having them inform you of competitor offers, you can ensure better value for them.

All other pricing practices will only deliver higher profitability if senior management supports them. A great way to undermine a new pricing policy is to, after pushing for price premiums, punish sales managers for failing to make volume quotas. (Hinterhuber, 2008)

3.3.3 The Role of Costs

Although cost-based pricing has been established as bad for profitability, there is a role for cost in the pricing process. After all, if a product were to be priced under its cost, the product would lose the company money.

However, which costs should be considered? There are cases where a price can raise profitability, even when they don't cover the full cost. A good example are cheaper flights on the weekend. If all flights were priced like the cheaper flights, the business wouldn't cover its costs. Nonetheless, they don't raise the cost by much: the planes are already bought, the gate space is leased. As long as the weekend flights bring in more money than the additional costs, they raise profitability.

Essentially, all activities where marginal revenue exceed marginal costs should be considered. This is complicated, as it is not usually easy to clearly classify costs as fixed and variable. For example, as an airline launches new routes, it will at some point need new planes, which are usually considered a fixed expense.

Therefore Nagle et al. (2011) argue that the only costs that should be taken into account for pricing are avoidable costs. It doesn't make sense to consider costs you can't avoid in new product pricing. This can be illustrated by considering a manufacturer of industrial cranes which has some specific equipment, a vertical turret lathe, which is necessary for building the cranes. To build a crane, this equipment is essential, but only necessary for a relatively short amount of time. Therefore the crane builder can sell milling work to other companies for very low prices. As long as the price of the milling work exceeds the additional cost of the employee working the machine, and the machine's depreciation and maintenance, it is additional profit.

3.4 The Relationship with Customers

As businesses would cease to exist without customer, it makes sense to consider their role in the pricing process. Let's first investigate what the buying process looks like from the customer's point of view.

Webster (1965) identifies four major stages in the buying process:

1. Problem Recognition
2. The Assignment of Buying Authority

3. The Search Process
4. The Choice Process

All purchasing processes start by recognizing a need, which can be rephrased as finding “dissatisfaction with the present level of goal attainment”. (Webster, 1965, p. 371). After a company identifies a problem, it needs to identify a person (or more people) to take care of the problem. Then a search process is started to create a list of alternatives, and finally a choice is made.

Verville & Halington (2003) identify six stages in the buying process for ERP software:

1. Planning
2. Information Search
3. Selection
4. Evaluation
5. Choice
6. Negotiation

There is some clear overlap between the stages identified by Webster, and those identified by Verville & Halington. Both clearly indicate that the process involves creating a list of alternatives, which are then evaluated to identify the best choice. Verville & Halington emphasize that the process is nonlinear, and may be iterative.

Verville & Halington’s planning stage starts by forming an acquisition stage. They split the choice process into selection, evaluation, and only then choice. Webster’s process doesn’t consider the negotiation stage.

In both processes, consideration is given to vendor qualification. For business customers buying complex products, it is important not only that the current product is good, but also that the selling party is qualified. Verville & Halington list the following criteria (among others) for evaluating vendors of ERP software:

- Ability to assist the organization with the implementation
- Association with third party vendors (ecosystem)
- Financial strength
- Market share
- Ability to meet future needs
- Longevity of the vendor

These factors are important, as switching to new business software tends to be a very complex, and therefore expensive, process. When switching is hard, it is valuable to ensure that the new vendor will be able to support your needs not only today, but also in the future.

Although Verville & Halington present a long list of criteria for selecting ERP software, there is one important omission: price. The cost of the solution is given very little attention in their analysis of the buying process. It isn’t even explicitly mentioned in their description of the negotiation stage.

In his book on the selection and procurement on IT solutions Tate (2015) starts his chapter on negotiation with a quote by Samuel Goldwyn: “We’re overpaying him, but he’s worth it”. And then continues: “By this stage of your project, you want to come to agreement with the preferred supplier. You want to buy, usually from your top scorer. This is not a commodity purchase. You have established the suitability of one or possibly two candidates. Do not buy on price now unless the candidates are truly interchangeable”. (Tate, 2015, p. 192)

This lack of emphasis on price makes sense, Nagle et al. (2011) explain that high switching costs lead to lowered price sensitivity.

Nooteboom (1998) echoes the sentiment: in a PwC study it was found that customers rank price as the 5th most important factor after quality, reliability, flexibility, and speed. Suppliers however indicated that in their experience price was the most important. Nooteboom theorizes that in many cases doubts about other aspects of a deal may lead to pricing complaints; it is easier to complain about the pricing than it is to discuss issues with a product or its vendor.

3.4.1 Psychological Factors in Pricing

One can easily see in every supermarket that psychology plays a role in pricing. Holdershaw, Gendall & Garland (1997) found that 60% of retail prices in New Zealand ended in the number 9. A further 30% of prices end in the number 5, and another 7% in the number 0. Only 3% of prices do not end in 5, 9, or 0.

Although one might think that B2B sales would be conducted fully rationally, and psychology shouldn't play a role, it should be remembered that business people are still people. There are a couple of psychological tactics that can be effectively used.

The Weber-Fechner law explains a psychophysical effect: humans perceive change relatively rather than absolutely. Humans can feel if something is twice as heavy as the thing before, but can't accurately feel absolute changes. This holds for all senses.

In pricing, the Weber-Fechner effect explains why a \$5 increase in the price of a cup of coffee would be experienced as much bigger than an equivalent \$5 increase in the price of a car. In other words, the relationship between a price and its response is logarithmic. (Monroe, 1973)

Nagle et al. (2011) posit that the Weber-Fechner effect also explains why a hotel offering free breakfast (a 100% discount) is experienced as a better deal than offering an equivalent dollar amount discount on the room price.

Reference pricing is a common technique to raise customer spending: simply by selling a more expensive product as well, people will be willing to pay more money.

Another important psychological factor is gain-loss framing. People put more importance on avoiding losses, than on capturing equal-sized gains. Psychologically it is preferable to not be eligible for a discount rather than to be charged a surcharge, even if the amount is equivalent.

Due to gain-loss framing, price differentiation is oftentimes done by having a high list price and giving discounts to customers based on eligibility. American colleges oftentimes charge a very high sticker price, but then provide scholarships based on certain factors to offset the price. Not receiving a scholarship is easier to accept for students than being forced to pay a premium because they are neither a star athlete nor a star scholar. (Nagle, Hogan, & Zale, 2011)

Taking this further is the practice of unbundling gains and bundling losses. For example, take a deluxe package on a car, which includes a satellite navigation system, park sensors, and heated seats for a single price. It unbundles the gains (the specific features), and bundles the loss (the price). If the customer objects to the price, you could take away specific features one by one, making them individual losses and therefore harder for the customer to give up.

3.4.2 Customer Classification

In most companies, there are customers which are very profitable, and customers which aren't very profitable.

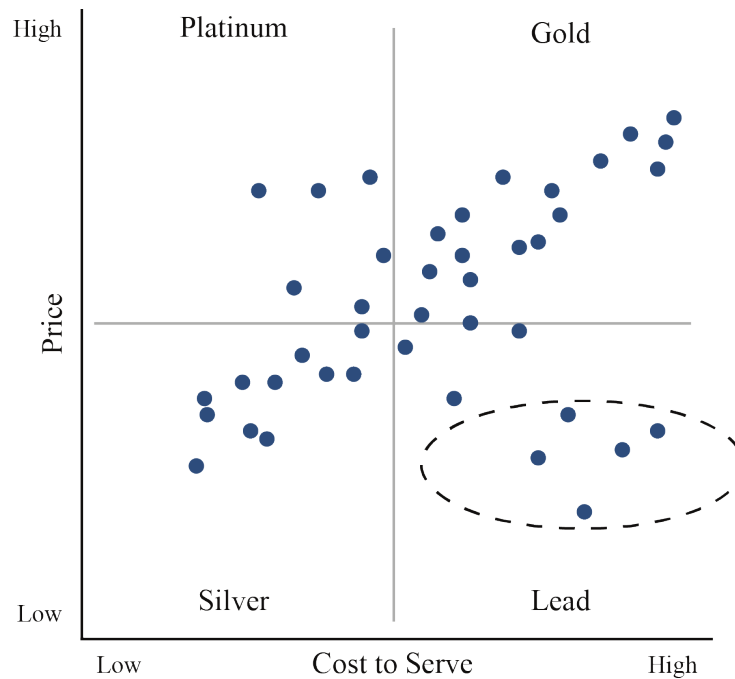


Figure 3.8: Customer Classification. Adapted from Nagle, T.T., Hogan, J.E., and Zale, J. (2011). *The Strategy and Tactics of Pricing*.

Outliers on both sides of this graph require attention. The customers in the top-left quadrant are great to have, they are very profitable. However, it is necessary to know why they are there, and to ensure that they are receiving value for their money. If not these customers are at a high risk of switching to a competitor.

The customers in the bottom-right quadrant present a more immediate problem. There are two solutions: either reduce the cost-to-serve, or raise the price. Although raising the price seems like a risk, in this case it is a risk the company should be very willing to take. Whether the customer pays more, or becomes the competitors' problem, it will raise the vendor's profitability. (Nagle, Hogan, & Zale, 2011)

When communicating new prices to customers, the most important consideration is to make sure that customers understand that the price increase is fair. Customers are much more likely to accept a new higher price if you explain why they received a price that was too low, how their cost-to-serve compares, and why you need to raise their price.

Nagle et al. (2011) mentions a well-known pharmaceutical company (who did not wish to be identified): the company carefully communicated to their customers that unlike the competition they hadn't raised their prices in a long time. By ensuring that their customers perceived the change as fair, they successfully raised their price by 40 percent.

Simon et al. (2003, p. 67) found an even more positive reaction to a price increase: "The market reaction was interesting. Many customers not only accepted higher prices but also expressed surprise that the company had taken so long to approach them on this matter. Only a small percentage of customers switched to the competition."

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