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A job costing tool for construction company X

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This thesis is a product-oriented work commissioned by a small company operating in the glass construction industry in the Helsinki area. The outcome of this thesis is a job costing tool and instructions on how to use it. This tool helps the case company in cost estimation and pricing decisions.

The theory cover from a managerial accounting point of view, job costing for a service company, job costing record and pricing strategy. After an overview of literature, a job costing record tool and a user's guide is designed for the company according to the company's financial information. The tool is tested with the case company's past projects after which the tool is presented to the company and feedback on the project and its outcome is received from the commissioning company.

The method used in this thesis is qualitative. The information is gathered by interviewing the company managers and by studying the case company's financial information and estimations for future operations.

Keywords
Job costing, job cost record, service pricing, managerial accounting

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1 Introduction

This thesis is a product-based study commissioned by a small sized enterprise operating in the glass construction industry in the Helsinki area. The idea for the thesis began to evolve in spring 2014 when the author started the accounting specialization studies. At that time also the need for a more sophisticated cost calculation procedures and harmonized pricing policy started to emerge in the case company. After discussing with the company management and the thesis instructor it was decided to create a job costing tool for the commissioning company to improve the cost calculation processes and to create more harmonized pricing procedures.

1.1 Thesis topic, objectives and tasks

The project objective (PO) of this thesis is to provide the case company a job costing tool which the company can use for many purposes. The most important objective is for the company to be able to follow up their profits. In this thesis the author will create a job costing record for the company according to job costing theory. The job costing tool will enable the company to follow up on the costs occurred in each job they perform. This job costing tool will give the case company an asset in the competition, as the company can manage their operations better and estimate the profits better in advance. Another aim of this thesis is to give the case company insight to pricing strategies which they can implement in the future.

This thesis is a product based study. The product is an Excel-based job costing tool which will help the company to price their products and services right. This thesis is a qualitative study. The theory of job costing as well as interviews of the manager of the case company will be used as qualitative material (PT1). The author will design the job costing tool according to the commissioning company's wishes. All required elements will be added to the excel based job costing tool (PT2). The tool will be tested with past projects to see if it is working correctly (PT3). Also a user's manual will be created to help implement the new tool with the employees. Feedback will be collected from the commissioning company (PT4). The project tasks can be seen in table 1.

Table 1. Overlay matrix for product-oriented thesis

Project Objective	Project tasks	Theoretical Framework	Gantt Chart Items	Output
Create a job costing tool	PT1 Literature	Cost accounting Job costing theory Pricing	2.1 3.1 3.2 3.3	Good theory base
	PT2 Collecting the financial data and designing the job costing tool and user's manual	Financial calculations Overheads allocation	4.1 4.2 4.3	All elements taken into account
	PT3 Testing the job costing tool		5.1 5.2	User-friendly tool
	PT4 Presenting the tool and receiving feedback			

The theory presented in this thesis is based on managerial accounting. The theory of job costing as well as suitable pricing strategy for the case company will be presented in the theory part. As a result, a job costing tool will be created and it will have an effect on the company's future pricing decisions. The theoretical frame can be seen illustrated in figure 1.

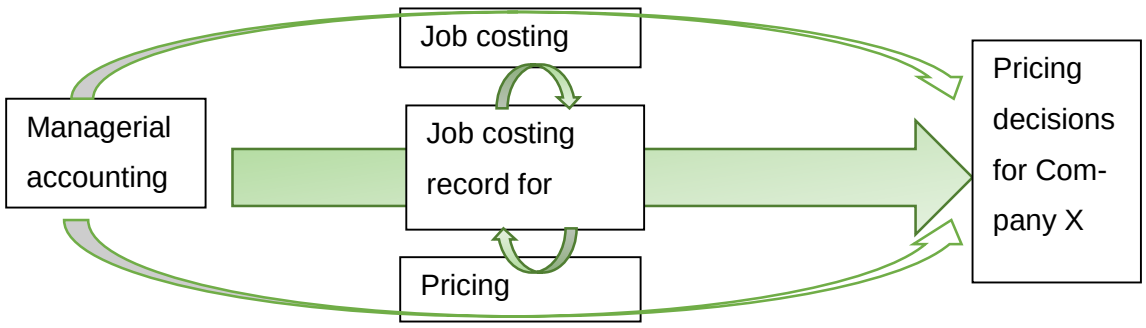

Figure 1. Theoretical frame

1.2 International aspect and risks

The case company is operating in the Helsinki area. The job costing tool is created in English, and it could be used in any company operating in similar business. In case the case company is hoping to use the results of this thesis in their future international operations, pricing has to be amended to the price level of the international operations and also the costs caused by foreign operations need to be taken into consideration. Also careful

market and competitor analysis should be done before starting to use the tool in foreign markets.

Sometimes the problem with managerial accounting theses is that there is not enough information available. The reason can be that the information is missing or hard to get, or the company wants to keep it as classified from outsiders. As the author of this thesis is a shareholder in the case company, no such risks are at sight. The company is enthusiastic about the project and supports the author in all possible ways. The company name will be kept a secret, but the author is able to publish all figures. The job costing tool will be designed for the case company's benefit and the topic is supporting the author's specialization studies so this study can be seen as a win-win situation.

1.3 Demarcation

This thesis focuses on a job costing as a part of a company's pricing policy. The case company's product and service range is quite wide and projects are unique and tailored to match the customers' needs. The projects of the company consist of many products and the installation work. Creating tools for all of the company's products and services would be too wide of a study, so this thesis will focus only on the services the commissioning company sells. The job costing tool will be created for services such as installation or maintenance work. Also the pricing of those services will be covered. Demarcation can be seen in table 2.

The results of this thesis might be used in other companies who have similar product and service base. The results of this thesis might not be valid with companies operating solely with products or services or with companies who provide projects which are very similar to each other.

Table 2. Demarcation table for product-oriented thesis

Case company	Construction company X
Focus area	Managerial accounting, service pricing
Location	Helsinki area, Finland
Industry	Construction service
Research method	Qualitative
Stakeholders	Company management, shareholders

1.4 Key concepts

Service company is a business which sells intangible services instead of traditional, tangible products. Usually a service company does not have inventory, or the company might have a small amount of supplies inventory which is typically used for internal operations. Salary and social contributions expenses create usually the biggest share of a service company's costs. (Braun & Tietz 2013, 48.)

Job costing is a costing method used by companies producing customised products or services. Job costing is used when the product or service changes with each order in terms of hours needed to complete the job, materials needed or the level of expertise needed. With job costing it is possible to calculate the cost of the job for different orders. Service companies often consider work performed for a client as a separate job. (Braun & Tietz 2013, 105.)

Direct and indirect costs are different types of costs related to cost objects. A cost object can be any activity performed by a company for which the company want's cost calculations. *Direct cost* is a cost that can be traced to the job object. *Indirect cost* is a cost related to the cost object but cannot be traced to it. A service company usually traces direct costs and allocates indirect costs of serving a client to each job. Biggest direct cost for a service company is direct labor cost. Indirect costs consist of general operating costs of serving all the customers. (Braun & Tietz 2013, 53, 141-142)

Cost allocation is needed in job costing process because not all costs can be traced to a specific job. Cost allocation is used to allocate indirect costs to a certain job. Service companies use *predetermined indirect cost allocation rate* to allocate indirect costs to jobs. When calculating a cost for the job for a client, in addition to working hours plenty of indirect costs need to be taken into consideration. These costs are called operating expenses, and from company's annual operating expenses can be counted the indirect cost allocation rate which then can be added to specific jobs. (Braun & Tietz 2013, 54, 142.)

A Job cost record is an electronic form or a hard copy designed for keeping track of the cost associated with each job. It is used to accumulate the direct materials, direct labor and indirect costs to each individual job. (Braun & Tietz 2013, 110.)

Cost-plus pricing is a pricing decision in which an appropriate mark-up is added to the estimated costs. The mark-up should cover all of the costs and create also profit. (Drury 2008, 251.)

1.5 Construction industry in Finland

The case company operates in the construction industry, in the house-building and renovation building industry. The Confederation of Finnish Industries EK publishes economic surveys of Finnish economy monthly. The survey is based on the current situation of the companies and forecasts are based on forecasts collected from the companies. The most recent survey from February 2015 indicates that the current economic situation in all industries is weaker than usual and also the forecasts for 2015 are careful. This economic situation strongly effects on construction industry. In construction industry, the amount of orders has decreased as well as sales prices and expenses. Profitability has decreased and insufficient demand seems to be the reason for decreased production. (EK 2015, 2, 6-7.)

Official Statistics of Finland (2015, 1) publishes an index of monthly development in construction companies' turnover. The index is collected using data from companies which provide comparable turnover data. In 2015 turnover of construction companies increased by 1,8 % from previous year, sales volume increased by 1,1%. In figure 2 can be seen that especially construction of buildings has recovered from last year's situation, and also in specialized construction activities there is a significant positive change.

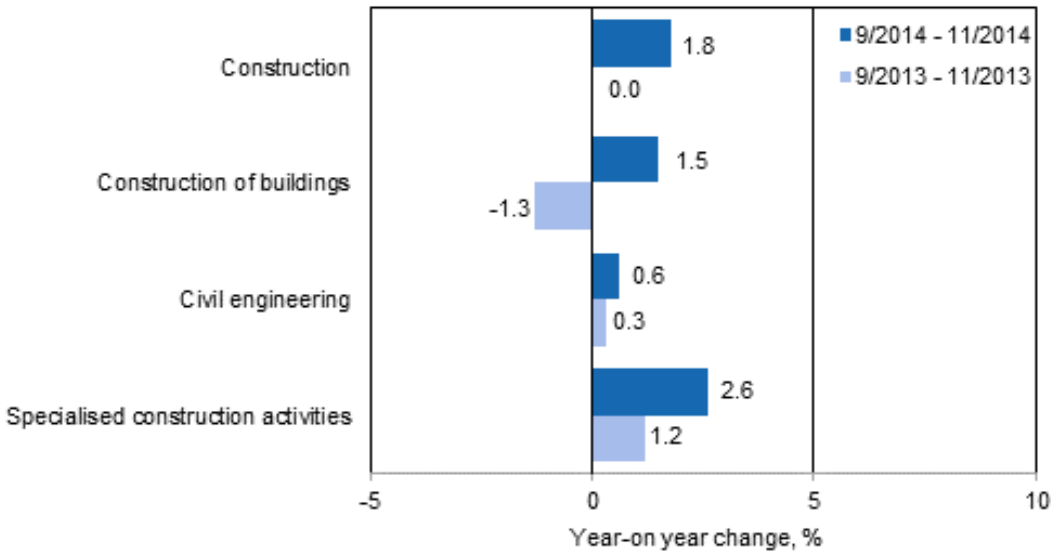

Figure 2. Three months' year-on-year change in turnover on construction (Official Statistics of Finland 2015.)

Figure 3 shows the trends in turnover in construction industry in different business areas. The yellow line is indicating the trend in house-building industry, and it follows the

changes in the overall construction trends. The trend is showing positive change, but after 2012 the growth has been slow.

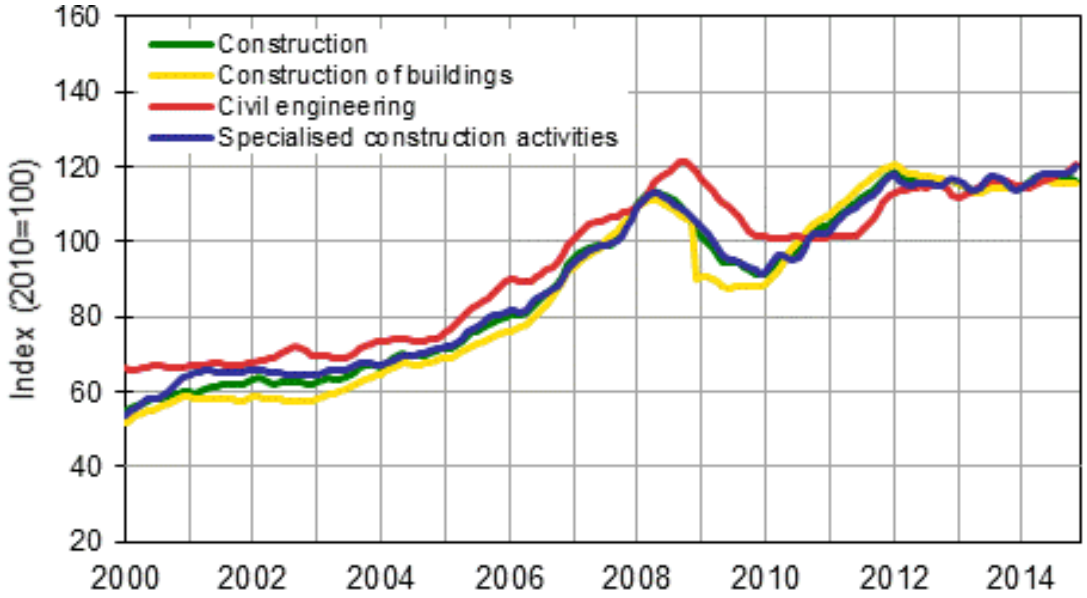

Figure 3. Trends in turnover of construction by industry (Official Statistics of Finland 2015.)

There is special information collected also from renovating building companies. In these amounts is showing both the renovation contracted by house owners and condominiums as well as renovation of public service buildings. Biggest purchase orders were made in public sector to the renovation projects of educational buildings. (Official Statistics of Finland 2014.)

Although the indexes and forecasts do seem careful, there are also positive forecasts of the industry. Business Wire (2013.) expects Finnish construction sector to grow in next years due to rising income level and demand from retail and tourism industries. The report also highlights Finland's strategic geographical location and relative economic stability when compared to other EU countries. Finnish emphasis on education can be seen also in renovating business statistics, as in Finland the educational buildings are being renovated. (Business Wire 2013.)

1.6 Case company X

Case company X is operating in the glass construction industry mainly in the greater Helsinki area. The company was founded in 2013 and it is a family owned business. The company employs three persons full-time at the moment. There are also seasonal workers hired for the peak seasons in spring and autumn times. The organization is structured

so that the CEO is responsible for sales, project management and managerial issues, one employee is responsible of the installation work and supervision of the construction site workers and the third employee is glass installing worker. The CEO is the supervisor of all of the employees. The organization chart is shown in figure 3. (Huikko 2014)

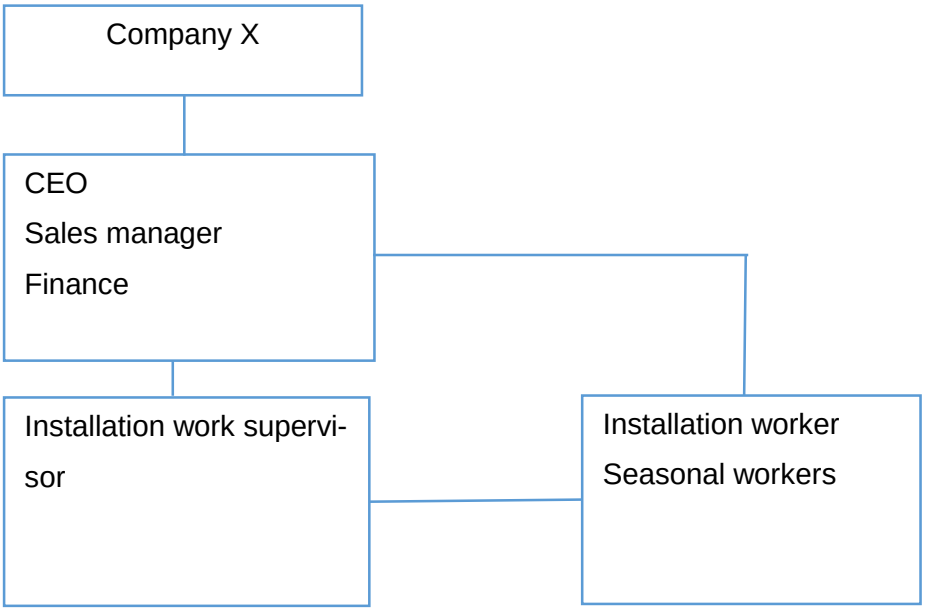

Figure 3. Organization chart of the case company (Huikko 2014)

Glass business requires a lot of expertise and experience because of the nature of glass as a raw material. Glass is heavy and fragile material and transportation and installation need to be done minding these factors. Glass needs to be finished before tempering, so no additional drilling or cutting can be done afterwards. That is why the sales processes of glass products needs to be done by professionals. The industry is going through a change driven by e-commerce and the case company is currently looking for opportunities to benefit from the change and to stand out from the competitors. (Huikko 2014.)

The company's core products are finished glass elements and installation of them. Also aluminium and steel is often used in glass construction sites. Balcony glazings, glass roofs, glass walls, kitchen and bathroom glasses and glass doors and installation of them are the most typical products the case company sells. There are elements of a service company and a merchandizing company in case company's operations. The operations can be divided into categories according to figure 4.

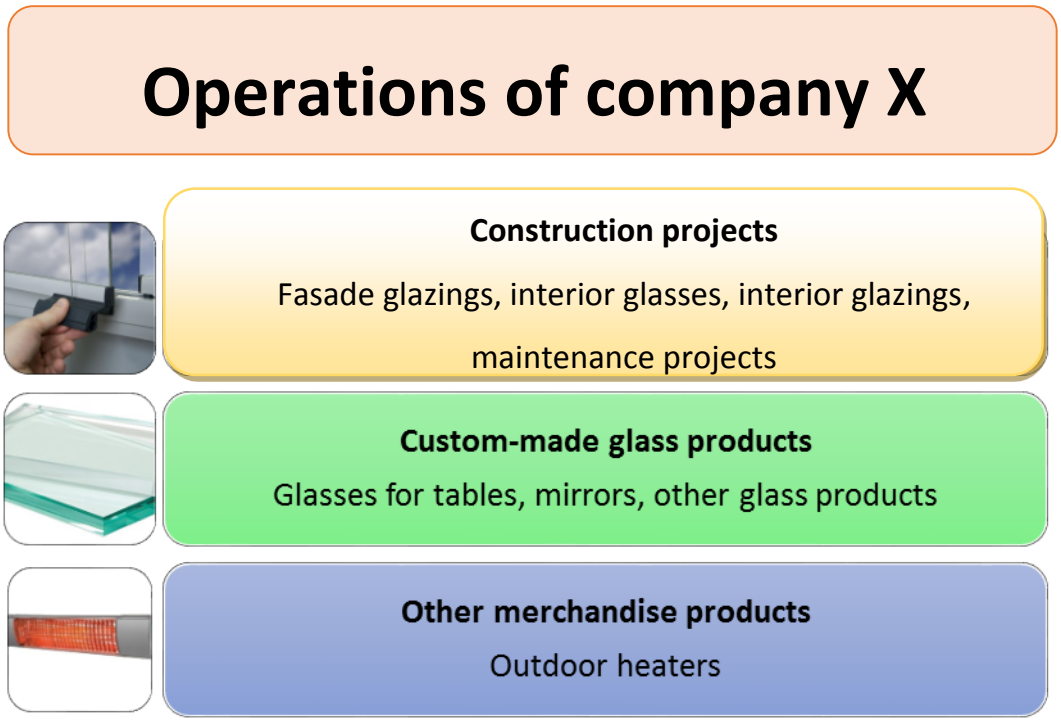

Figure 4. Operations of the case company (Huikko 2014)

The majority of the revenue stream, approximately 60% is created by selling both the goods and the installation work of them. This type of jobs can be called also construction projects, see figure 4. This category can be defined as service even though there are also goods involved. Installing glass elements usually requires also other materials to be used, such as aluminium or steel, and these goods are always part of the project. For this segment it is typical to make a tender of a project, and the tender consits of many small elements, both goods and services. The reason why a tender is made, is because these projects are designed individually for each customers. The customer might have needs and desires to carry out the project, for example schedule, budget, sustainability, land of origin and so forward. From the contractor's point of view all these affect on which kind of products and services are offered in the tender. And naturally different kinds of products and services are priced according to the purchase price or difficulty of fulfilling the service. (Huikko 2014.)

Typical projects for the case company are for example terrace glazings, balcony glazings, glass roofs, green rooms and fasades, and also maintenance work projects for existing glass elements. This is the category this thesis focuses on. Because the pricing of goods in the company is still developing, this thesis focuses solely on selling the service work. The target is to define an hourly wage the company should bill the customers when performing jobs. All goods belonging to the project can be added to this price according to existing price calculation models. This will be taken into account when creating the job

costing tool, so that the company is able to calculate the total cost for the service, including work and materials. (Huikko 2014)

Custom made glass products are the second category of company's operations in figure 4. These products do not require installing work carried out by the case company. In this category, the case company operates as a merchandize company with service elements. Custom made glass products are mainly manufactured according to customer orders because of the special feature of the product. The customer cannot usually buy these glass products without consultation, that is why the service element is mentioned. Usually the purhcasing process involves consultation and classification of needs before finding the right product. The most popular product in this category is hardened glass, which has to be processed to the exact size and shape and cannot be modified or worked afterwards. The case company orders most of the custom made glass products from suppliers in Estonia. Typical products are hardened glass, laminated glass, float glass and glass elements for windows.

The third category visualized in figure 4 are merchandize products. The case company sells and delivers goods that can be directly purhcased without customization or installing. Examples of merchandize products are outdoor heaters, spare parts for balcony glazings such as gaskets and decoration glass items. Often these items are sold as part of a project, but sometimes there are individual customers who purchase solely products.

Currently the case company uses a pricing strategy based on purchase costs of the goods added with multiplier depending on the product and competition. For service work they have an hourly wage they bill the customers. There are two price categories, lower price for regular customers and higher price for private consumers. Some of the sales also happen based on estimated purchase prices. This is because some of the suppliers do not give price lists for their products, but base the prices on bids. That might mean that for a bigger order the price is lower than for a smaller order. In this case the customer will get the offer before the company knows the actual cost for the good. This kind of pricing method requires a lot of knowledge and expertise from the salesman. As the company wishes to grow, it is important that all the employees are able to do cost and pricing calculations. This is why it is crucial to create the job costing tool which can be used not only to define costs but also the selling price. Company wishes to be able to use cost plus pricing. This pricing method is usually suitable for companies with unique products. It might be, that also market prices has to be taken into consideration, especially when dealing with highly competed products.

2 Job costing and service pricing

This chapter discusses the literature (PT1) and the task is to get familiar with the theory of job costing and service pricing issues. The jobs of the case company are different from each other since the project are unique and tailored to match each customer's needs. Each customer is considered as an individual job and the cost is calculated for each of them separately. Job costing is used by both manufacturing and service companies, only the procedure is slightly different. (Braun & Tietz 2013, 104-105.)

2.1 Cost objects

Defining cost objects is the starting point of all of the company's pricing decisions. A cost object is an activity for which the management desires a measurement of cost. A cost objects can be for example a product, a part of a product, a year-long project or a meeting with clients. Costs are divided in two categories; direct costs and indirect costs. *A Direct cost* can be traced to the exact cost object when an *indirect cost* is related to the cost object but cannot be specifically traced to it. If the company management wants to know the total cost of a specific cost object, all the direct and indirect costs need to be assigned to the cost object. (Braun & Tietz 2013, 53-54; Drury 2008, 28-29.)

Traditionally in manufacturing companies, manufacturing costs are divided in direct materials, direct labor and manufacturing overhead. In the case company this kind of division will not work. Direct materials, direct labor and operating expenses are used instead. In this case all indirect costs occurred by business activities are considered as operating expenses and are added to job costing calculations. Direct materials are the primary raw materials which are a tangible part of the finished service. Direct labor is the wage of the employee who works directly with the job to carry out the service. Instead of manufacturing overhead, in this case operating expenses are used. Operating expenses consist of indirect materials, indirect labor and other indirect overhead costs. (Braun & Tietz 2013, 56-58.)

2.2 Overheads allocation

The company has to make a decision which way they want to allocate overhead costs to jobs. The allocation of manufacturing overhead costs is done in four steps before the financial year starts. Same method can be used for non-manufacturing companies as well.

- Estimation of the total manufacturing overhead costs for next year.

- Selection of the allocation base and estimation of the total amount used during the year.
- Calculation of the predetermined manufacturing overhead rate.
- Allocation of the manufacturing overhead to each job.

The allocation base is chosen to best fit the company's purposes. Allocation base is the primary factor that causes a cost, and it should be the cost driver of the manufacturing overhead costs. A cost driver can be direct labor cost or direct labor hour, which are often easy to gather from the labor time records. Allocation base can also be machine hours, especially if the production in highly automated. (Braun & Tietz 2013, 114-115.)

Calculation of the predetermined manufacturing overhead rate in step 3 is calculated by dividing total estimated costs with total estimated amount of the allocation base. The same principle applies when counting predetermined overhead rate for service companies.

$$\text{Predetermined overhead rate} = \frac{\text{Total estimated overhead costs}}{\text{Total estimated amount of the allocation base}}$$

In step four the overhead is allocated to a job by multiplying predetermine overhead rate by actual amount of the allocation base used by the job. (Braun & Tietz 2013, 116.)

2.3 Job cost record

A job cost record is a tool to calculate the job costs of each job. A job cost record will be used to collect all the direct materials, direct labor and manufacturing overhead allocated to job. Every job has its own job cost record. In figure 5 is illustrated an example of a job cost record.

Job Cost Record

Job Number: _____
Customer: _____
Job Describtion: _____
Date Started: _____ **Date Completed:** _____

Manufacturing cost information:			**Cost Summary**
Direct Materials			
Direct Labor			
Overheads			
Total Job Cost			
Number of Units			
Cost per Unit			
Shipping Information:			
Date	**Quantity shipped**	**Units Remaining**	**Cost Balance**

Figure 5 Job cost record example (Braun & Tietz 2013, 110.)

According to IFRS principles only inventoriable product costs can be treated as assets. That is the reason why a typical job cost record does not include operating expenses. In addition to direct materials, direct labor and manufacturing overhead, it is important for companies to take into account also operating expenses when setting sales prices. If managers want to calculate the total cost of the product across the entire value chain, they can add non-manufacturing costs to the inventoriable job costs. This kind of calculations are to be used only internally. In the case company, the job costing tool will be used only internally for cost and price calculations, the operating expenses will also be part of the job costing tool. (Braun & Tietz 2013, 121.)

2.4 Service pricing

Service pricing can sometimes be challenging due to difficulties in calculating the financial costs of services. When compared to manufacturing businesses, the unit costs are usually easier to calculate. A company must price the services high enough to cover all of the costs and to create a profit on top of it all. When talking about pricing, there are a few terms that should be clear. A profit margin is the percentage of the price that is profit. *Profit margin* is calculated by dividing the job cost with the desired margin percentage. *A mark-up* is the percentage added to the costs that is profit. It is calculated by multiplying the job cost with the desired margin percentage. A profit margin is lower than a mark-up percentage. The purpose of pricing and choosing pricing strategies is to meet the company's objectives. Pricing objectives are usually related to revenue and profits, but it can also be related to building demand or developing a user base. Pricing strategy is based on three elements; costs, competition and value to customer. (Lovelock, Wirtz & Chew 2009, 137-138.)

2.5 Pricing strategies

Competition-based pricing is a strategy many construction service providers use. If the competition is tough, it is possible for the seller to use lower profit margin to get the sale and conversely to use lower margin if the competition is low. *Competitive bidding* is the most common way of determining prices in construction business. The buyer might have many competing bids from service providers. Then the buyer either chooses one of them or continues negotiating the price with some of the suppliers. This strategy is very competition sensitive and suppliers need to adapt to the competitor's prices. From buyer's point of view it is sometimes hard to distinguish what are the differences in the offers. The buyer needs to be aware what are the costs in case of changes, there might be significant differences in the price at the end of the project depending on supplier and how they have estimated the working hours in the original bid. The major disadvantage of this strategy is that it is hard to develop long-term relations between buyer and seller. (Heizer & Render 2008, 448; Lovelock, Wirtz & Chew 2009, 146.)

Service companies use *cost-based pricing* even though it might be difficult to find out the costs of an intangible service. This strategy uses the total costs of providing a service as a basis and adds a percentage above the cost to set the price. When calculating the total costs for a job it is important to count in all fixed, variable and semi-variable costs to define the break-even point. Some service companies use activity-based costing, where the allocation of overheads is more accurate. From the company's point of view, competition

and cost based pricing can be used simultaneously. (Lovelock, Wirtz & Chew 2009, 137-139; Braun & Tietz 2013, 468-469.)

Value-based pricing begins with the company determining how much value the service will generate to its customer. In this pricing strategy, the price is set on the range which is determined by what customers are willing to pay for the service. Sometimes the problem with value-based pricing is that perceptions of value are subjective. The company and the customer might have a different opinion on what the service should cost. The company can then educate the customer of what is included in the service, and also make sure that the customer does not have to spend too much time or other resources to buy the service. (Lovelock, Wirtz & Chew 2009, 140-145.)

2.6 Job cost information in service pricing

Job cost information can be used for making business decisions. Job cost information can be used to control costs. With the use of a job cost record, it is possible to study the costs traced to a certain job, and then think of ways to reduce these costs in similar jobs in the future. Also the direct labor costs can be studied and find out ways to improve efficiency, for example to see if less skilled individuals could be used for completing the job. With job cost information managers can find ways to deal with pricing pressure. Prices can be revised, and if the sale is significant, it is possible to reduce the selling price or give discounts still knowing how much is the profit margin. (Braun & Tietz 2013, 118-119.)

In the case company, there are two sales prices for service work. Price A is offered for regular customers, who are usually construction companies ordering subcontracting services. These customers are very price sensitive, and the price A is corresponding to competing companies' service price level. Price B is offered to new customers and usually to private consumers. Price A is currently 40€ and price B 45€ excluding VAT. The current service price is an estimation of company's costs and desired profit. Sales people determine the price for the jobs including materials based on the purchasing prices of the materials added with a multiplier of 1,2-2,0, and an estimate of the working hours spent on the job. That is the target price for the product, which often needs to be revised due to competition, as in construction business the competitive bidding is the pricing model customers prefer. (Huikko 2014.)

3 Financial information of the case

To begin the design work of a job costing tool (PT2), all relevant financial information needs to be gathered. As the author is a shareholder of the case company, access to company's financial information is easy. Financial information used in this thesis is based on the income statements from year 2013. In this case, it was decided to use financial information from June to November 2013. This decision was because the case company expanded their operations in the beginning of June 2013 when also sales and salaries increased significantly. The first financial year of the company was extended and lasted from September 2013 to December 2014 but that period did not seem reasonable to use in these calculations due to changed cost elements.

To begin with cost issues, the direct and indirect costs need to be defined. Selection of allocation base is made and cost allocation and overhead rate need to be defined. Direct labor hour was selected as an allocation base. Both types of costs are divided by direct labor hours, and that rate is used when creating the actual job costing tool. This thesis focuses on services the company offers. The target is to find and calculate relevant costs for service work on hourly basis. The case company usually sells service work in a form of maintenance or installation work. For example company could install new balcony glazings to customer's balcony, or the customer could order a maintenance service for old balcony glazings.

3.1 Direct costs

Direct costs include direct labor costs. The time used for driving to and from the site is also considered as direct labor cost and is billed from the customer. Small equipment and tools used in construction or maintenance services are left out of the calculations of direct costs, since the value of them is not significant. Equipment and tools purchases are included in the indirect cost calculations.

There are alternative ways how the direct labor hours can be calculated. In this thesis it was decided to calculate an hourly cost for each of the company's employees. Another option would be to use averages, but since using averages is always estimating, the individual method was decided to be used. The company employs 3 full-time and 1 to 2 part-time installers who perform direct labor hours in jobs. According to income statements and company's salary information, the monthly salary expenses vary between 7000€ and 12000€ excluding social costs.

According to income statement 7-11/2014 and employee's individual salary information is calculated table 3 of individual salary expenses. Employees 1-3 are on monthly salary and employee 4 is on hourly salary. Employee 4 worked only worked in one month in the time period of 7-11/2014. The average social cost percentage was calculated by dividing the social costs by salary costs of the 4 employees. (Income statement 7-11/2014)

12769 / 43719 = 29%

This decision to use averages was made because the composition of social costs is similar with all the employees. There also were some irregularities on the monthly employer side costs paid during this period. The social costs include unemployment, accident and group life insurance contributions. (Account number 5940 was ignored from this calculation, since it does not affect the salary expenses in year 2015.) Social costs paid in addition of salaries total 29% on top of the salary expenses.

Table 3. Direct labor calculations (Based on 7-11/2014 income statement and salary statistics of the case company)

Employee	Monthly salary €	Of monthly total salary	Social costs (29% of salary) €	Salary expense total €	Working hours	Hourly cost €
Employee 1	2980	34 %	864	3844	180	21
Employee 2	1985	24 %	576	2560	180	14
Employee 3	1985	24 %	576	2560	180	14
Employee 4	1390	18 %	403	1793	160	11
Total	8339	100 %	2418	10757	700	15

The average cost for a working hour in the case company is 15€. However, the cost of different employees varies. Employee 1 costs 21€/hour, employees 2-3 14€/hour and employee 4 11€/hour.

3.2 Indirect costs

Indirect costs in this case are all the other costs except direct materials and direct labor. In other words, all the operating expenses are summed up. For example rent, indirect labor (office work), insurances and tools fall into this category. The amounts are estimated monthly averages. Estimations are based on 7-11/14 income statements, and also future plans for year 2015 are taken into consideration. The table of indirect costs can be found from appendix 2.

Direct labor hours were decided to be used as a cost allocation base. Total estimated indirect costs for one month in 2015 equal 8164 €. Hourly rate for indirect costs is calculated by dividing the total indirect labor with total working hours in a month. Indirect cost allocation percentage is calculated by dividing total overheads by total direct labor costs multiplied with the number 100.

Indirect cost allocation rate: Indirect costs / working hours = 8164€ / 700h = 11,66€/h

Indirect cost allocation % : Indirect costs / direct costs = 8164/10757 = 76%

Indirect costs create 76% of the company's direct costs. For example if a company's employee performs 100 hours of direct work, the amount of indirect work will be 76 hours. Totally company should charge at least for 176 hours to cover all costs to reach the break-even point.

4 Designing the job costing tool and the user's manual

Now when all the data for the tool is collected, the design work of the excel-based job cost record can begin (PT2). The company's wish was that the tool would be easy to use. The company also wished that the job cost record would include place for products with different profit margins. They also wish that the job cost record would include value added tax and without value added tax amounts. They suggested that the product list could in the future be created to another spreadsheet page which could be integrated with this job costing tool. All the cells where the user can input numbers are highlighted with grey tones. The summary is highlighted with orange tones. The job cost record can be found from appendix 4.

4.1 Job costing tool

The job cost record begins with job number, customer information, job description, starting and completing date. First place to input data is "Direct materials" purchase price. There are currently 4 rows for direct materials. The user adds the direct materials purchase price and desired profit margin. The tool will calculate the total purchase price, average profit margin and suggested selling price for the direct materials including profit margin. Look at figure 6 to see the job and customer information of the job cost record.

	B	C	D	E	F	G
1						
2						
3		Job Cost Record				
4						
5		Job Number:				
6		Customer:				
7		Job Describtion:				
8		Date Started:			Date Completed:	
9						
10		Service cost information:				Cost Summary
11		Direct Materials	purchase price	margin	sell price	
12		Product 1			=D12/(1-E12)	
13		Product 2			=D13/(1-E13)	
14		Product 3			=D14/(1-E14)	
15		Product 4			=D15/(1-E15)	
16		*Materials total*	=SUMMA(D12:D15)	=KESKIARVO(E12:E15)	=SUMMA(F12:F15)	

Figure 6. Job, customer and direct material information

Second place to input data is the direct labor hours, where one would type the amount of the direct labor hours used for the job by a certain employee. The calculations are based on the individual cost levels of each employee defined in chapter 3.1. It is important to input all of the employees working hours used in the job and specifically to the individual

row of each employee. The company should write the names of the employees into the Excel file to prevent mistakes. Tool will calculate the total direct labor hours to “Direct labor total” cost summary. See figure 7 for direct labor calculations.

Job cost record will calculate the amount of indirect costs based on the indirect cost allocation percentage which is currently 76% according to calculations in chapter 3.2 and total job cost according to the direct labor hours inputted. If the indirect cost allocating percentage changes, the company should update the percentage to the job costing tool, but it is not necessary, if no changes in the indirect costs appear. The totals for indirect costs and service costs are shown on the cost summary. Total service costs are excluding all material costs and profit at this point. For glass installing services, the company wishes to create a profit of 30% on top of all costs. To “Desired profit margin” needs to be inputted the desired profit. See picture 7 for indirect cost calculations.

	E	C	D	E	F	G
17		**Direct Labor hours**				
18						
19		**Employee 1**				=D19*21
20		**Employee 2**				=E20*14
21		**Employee 3**				=D21*14
22		**Employee 4**				=D22*11
23		***Direct labor total***				=SUMMA(F19:F22)
24		***Indirect costs total***	76 %			=D24*F23
25		***Service costs total***				=F23+F24
26		**Desired profit margin**				=D31

Figure 7. Cost calculations, service costs total and desired profit margin

After the profit margin is added begins the “Cost and price summary”. There are two sides to this summary, the left side is showing the amounts with no value-added tax and the right side amounts where the value-added tax is added. This approach was chosen because the case company has also customers who the company invoices with 0% VAT because of reverse tax in construction services. Also for internal purposes it is often convenient to see both of the prices. The first row on the left is “Job cost” which shows the expenses occurred to the company of the job. Second row is “Selling price” which is the job cost added with the desired profit. Third row “Materials included” adds the “Materials total” to “Selling price”. Materials are added only at this point, because for the goods there are many profit margins, which will not be mixed up with the service profit margins. The last two rows; “Selling price” and “Materials included” can be used for customer pricing. See figure 8 for the cost and price summary calculations.

	B	C	D	E	F	G
16		*Materials total*	=SUMMA(D12:D15)	=KESKIARVO(E12:E15	=SUMMA(F12:F15)	
25		*Service costs total*				=F23+F24
26		Desired profit margin				=D31
27		*COST AND PRICE SUMMARY*				
28		*Excluding VAT*		*Including VAT 24%*		
29		Job cost	=G25	Job cost		=G25*1,24
30		Selling price	=G25/(1-G26)	Selling price		=G29/(1-G26)
31		Materials included	=D30+F16	Materials included		=G30+(F16*1,24)

Figure 8. Cost and price summary calculations

4.2 User's manual

It is important to create also a user's manual for the job cost tool users in the company. With poor instructions it is likely that the potential advantages of the tool will not be fully used, and it is even possible that the tool could be used in the wrong way which would lead to wrong pricing decision. This chapter will present the user's manual for the job costing tool.

	Job Cost Record			
Job Number:				
Customer:				
Job Describtion:				
Date Started:			**Date Completed:**	

Figure 9. Basic information

Type here the number of the job, customer's name, job description, starting date and once the job is done, the completing date. (Figure 9.)

Service cost information:				**Cost Summary**
Direct Materials	**purchase price**	**margin**	**sell price**	
Product 1	**10**	**15 %**	**12**	
Product 2	**20**	**20 %**	**25**	
Product 3	**30**	**25 %**	**40**	
Product 4	**40**	**30 %**	**57**	
Materials total	**100**	**23 %**	**134**	

Figure 10. Direct materials

Input here the purchase price of direct materials 1-4. Input the desired profit margin for the products. In sell price column you will see the selling price for the products including desired profit. In materials total row, you will see the total purchase price and selling price of the products, as well as the average margin percentage. (Figure 10.)

Direct Labor hours				
Employee 1	1			21
Employee 2	2			28
Employee 3	3			42
Employee 4	4			44
Direct labor total				135
Indirect costs total	76 %			103
Service costs total				238
Desired profit margin	30 %			30 %

Figure 11. Direct and indirect costs, profit margin

Input here the direct labor hours used to complete the job. Allocate the direct labor hours to the employee who performed the job. The job costing tool will calculate the cost for the direct labor hours to the cost summary on the right hand to each employee's row according to hours spent. Direct labor total will be calculated to cost summary. According to calculations, the current indirect cost allocation percentage is 76. If it changes, please input the new percentage to indirect costs total. In the cost summary, the tool will calculate the indirect costs based on the direct labor hours spent for the job. Service costs total are the direct and indirect costs added together. Now input the desired profit margin for service. It will also be displayed in the cost summary. (Figure 11.)

COST AND PRICE SUMMARY			
Excluding VAT		*Including VAT 24%*	
Job cost	238	Job cost	295
Selling price	339	Selling price	339
Materials included	473	Materials included	473

Figure 12. Cost and price summary

After inputting direct materials, direct labor hours and desired profit margin, the cost and price results can be seen in the cost and price summary. On the left side are the amounts excluding VAT, on the right side including VAT. Job cost is the cost of the service. Selling price is the service cost added with the desired profit. Materials included adds the selling price of the materials to the selling price. This price can be used for customer sales, remember to check if the customer wants the offer with or without VAT. (Figure 12.)

5 Testing the job costing tool

The next step is to test the job costing tool with actual company projects to see if it is working properly. Feedback from the commissioning company will also be collected. It was decided to use past company projects for testing. Since past projects are already invoiced and paid, testing will also let us know how much the profit margin of the project was.

First let's have a look at a maintenance service project. The project was a maintenance work ordered by a housing condominium consisting of 59 apartments. Existing balcony glazings were reglued to the aluminium profiles to ensure the safety of the elements. All broken parts were replaced with new ones at the same time. Project consisted mostly of installation work, and there were also some maintenance parts and materials such as glue and silicone which were sold with purchase cost-plus pricing varying between 20-50%. The invoice used for the testing was one part of a project which was carried out in a three months' time period. There were no materials included in this invoice. The amount of the invoice was 4680€. Invoice consists of installation work 112,5 hours 4500€ (á 40€/hour) and 9 times of driving to and back the maintenance location 180€ (á 20€). Installation work was performed by four of company's employees. The hours billed from customer also include the driving time, but the meaning of this driving fee is to cover the costs of long distance transfers. The job cost record for project 1 can be seen in figure 13.

Job Cost Record					
Job Number:	**Test 1**				
Customer:					
Job Describtion:	**Maintenance work**				
Date Started:			**Date Completed:**		
Service cost information:					**Cost Summary**
Direct Materials	**purchase price**		**margin**	**sell price**	
Product 1				**0**	
Product 2				**0**	
Product 3				**0**	
Product 4				**0**	
Materials total	**0**			**0**	
Direct Labor hours					
Employee 1	**20**				**420**
Employee 2	**18,5**				**259**
Employee 3	**37**				**518**
Employee 4	**37**				**407**
Direct labor total					**1604**
Indirect costs total	**76 %**				**1219**
Service costs total					**2823**
Desired profit margin	**30 %**				**30 %**
COST AND PRICE SUMMARY					
Excluding VAT			***Including VAT 24%***		
Job cost	**2823**		**Job cost**		**3501**
Selling price	**4033**		**Selling price**		**5001**
Materials included	**4033**		**Materials included**		**5001**

Figure 13. Job costing record for project 1

According to calculations, the cost of this job to the company was 2823€. Company charged 4680€ which creates the company 1105€ profit. If company wanted to have a profit of 30%, should the price have been 4033€. The profit margin for project 1 was (1 – (cost/selling)) x 100 = 40%.

Second project was selling and installing balcony glass curtains. There were both goods and service in this case, so it was decided to test also the direct materials calculations with this projects. The project consisted of 2 hours of sales and measurement service, 2 hours of installation service, 0,5 hours of picking up the goods from supplier's warehouse. Total direct working hours were 4,5. Employee to perform the job was Employee 1. See figure 14 for job cost record for the project number 2.

Job Cost Record

Job Number:	**Test 2**		
Customer:			
Job Describtion:	**Balcony curtains**		
Date Started:		**Date Completed:**	

Service cost information:				**Cost Summary**
Direct Materials	**purchase price**	**margin**	**sell price**	
Product 1	**218**	**20 %**	**273**	
Product 2	**5**	**20 %**	**6**	
Product 3			**0**	
Product 4			**0**	
Materials total	**223**	**20 %**	**279**	
Direct Labor hours				
Employee 1	**4,5**			**95**
Employee 2				**0**
Employee 3				**0**
Employee 4				**0**
Direct labor total				**95**
Indirect costs total	**76 %**			**72**
Service costs total				**166**
Desired profit margin	**30 %**			**30 %**

COST AND PRICE SUMMARY			
Excluding VAT		***Including VAT 24%***	
Job cost	**166**	**Job cost**	**206**
Selling price	**238**	**Selling price**	**295**
Materials included	**516**	**Materials included**	**640**

Figure 14. Job costing record for project 2

The prices for goods were taken from the supplier's price lists and added with a profit of 20%. The purchase price for materials was 223€. To reach 30% profit for the service, the company should have sold this job for 573€ instead of 500€ which was now the sales price including the VAT. Profit for the project 2 was (1 – (cost/selling)) x 100 = 22 %. This kind of price reductions are sometimes important to closing the deal but should be always considered from the profitability point of view.

Project 3 was a sauna glass project. The customer ordered the design, measuring and transport of the materials to the site and did the installation work by himself. In this project

there were 4 hours of direct labor, which consisted of office work done by employee 2. Office work in this case was considered as direct labor, since it could be traced to this specific job. It was decided to use the job costing tool by adding 30% profit to all of the materials also to see if the whole project reached the target profit. Job cost record to be filled. See figure 15 for job cost record for project 3.

Job Cost Record

Job Number:	**Test 3**		
Customer:			
Job Describtion:	**Sauna**		
Date Started:		**Date Completed:**	

Service cost information:				**Cost Summary**
Direct Materials	**purchase price**	**margin**	**sell price**	
Product 1	**102**	**30 %**	**146**	
Product 2	**437**	**30 %**	**624**	
Product 3	**98**	**30 %**	**140**	
Product 4			**0**	
Materials total	**637**	**30 %**	**910**	
Direct Labor hours				
Employee 1				**0**
Employee 2	**4**			**56**
Employee 3				**0**
Employee 4				**0**
Direct labor total				**56**
Indirect costs total	**76 %**			**43**
Service costs total				**99**
Desired profit margin	**30 %**			**30 %**

COST AND PRICE SUMMARY			
Excluding VAT		***Including VAT 24%***	
Job cost	**99**	**Job cost**	**122**
Selling price	**141**	**Selling price**	**175**
Materials included	**1051**	**Materials included**	**1303**

Figure 15. Job costing record for project 3

Sales price for project 3 was 1104€ excluding VAT. Purchase price for the direct materials in project 3 were 673€ excluding VAT. Profit margin for the whole project including goods and services was (1 – (cost/selling)) x 100 = 33%. Selling price for 30% service profit would have been 1106€.

6 Results, conclusions and feedback

As the job costing tool is created for the company the thesis writer is a shareholder in, the results of the thesis will be implemented in company operations as soon as they are ready. Feedback from other sales people and company management was collected throughout the project.

6.1 Main results and feedback

The main results of the job costing tool and pricing will be gone through in this chapter. First thing which was studied were the costs of the business operations. To find out costs, the company income statements and salary information was studied (PT2). Direct costs in this case were only the direct labor hours and labor side costs. An hourly cost was calculated individually for each employee. The hourly cost varied between 11 and 21 euros. For indirect cost estimations, previous year's income statement and future plans were used. Calculations showed that the indirect cost allocation percentage for the case company was 76%. Direct labor hour was chosen for the allocation base for the indirect costs. In other words, for every hour of direct labor, 76% of indirect costs need to be added to cover the costs.

Designing and creating the job costing tool was project task 2. It included also creating user's manual. The excel tool was based on the theoretical information learned about job costing tools, and it was amended to match the case company's needs. For example operational expenses were added to the tool even though in theory books they were not part of job costing records. The case company does not apply IFRS standards, and the job costing tool was designed from the viewpoint of the company.

The price categories for services were A 40€ and B 45€. When compared to cost calculations added with 30% profit margin, we can see that the average selling price for company's services is 38€, so with 40/45€ the company will get more profit than the desired 30%. If all of the company's employees work regularly on direct jobs, the average price level should provide the company more than desired profit. On the other hand, for example employee 1 performs the job, the hourly target selling price should be 53€. It has to be taken into account that if the employee 1 begins to work more on direct jobs than other employees, the target profit will not be reached.

Once the calculations and design of the tool were ready, the tool was tested with past projects (PT3), to see how the tool worked with company's previous sales. The profit margin

was also calculated from past projects. Profit margins of past projects varied between 22-40%. It affected on the calculations and the profit margin if there was direct materials included in the sales.

Project task 4 was to present the tool to company and receive feedback. As the company was very much involved in the project the whole time, no big surprises came up when the final work was presented. The tool was found very helpful and especially the cost calculations were something the company would not have done without the help of the thesis. The company sales people have used previously some excel based product price lists which included profit margins. The tool is easy to use and easy to expand with the use of Excel. The good thing about this new job costing tool is that there the goods and the services can be priced separately, and sales people are more aware of how much profit is included in the sales. Previously the company had made some sales with a too low profit margin, and the staff was extremely thankful for the help with the cost calculations. The amount of indirect costs came as a little surprise to the company, they did not expect so much indirect expenses that created costs which should be added to the price calculations. Especially the indirect work done in the office that cannot be invoiced in jobs creates a significant cost for the company. Knowledge of the quite significant indirect cost rate increased awareness of the cost structure, and will have an effect on the purchases and indirect costs in the future. The company feels the only way to keep the prices competitive is to lower the operational expenses.

The company will use this tool from now on. They are planning on creating a separate product list that could be attached to this tool. At the moment the supplier base is quite wide, and the goods are priced depending on many things, for example quantity or delivery term. The pricing process for goods and services still needs to be developed further.

6.2 Conclusions and suggestions

It is important for the company to remember that if there are changes in direct or indirect costs, the calculations should be revised. For that reason, the calculation sheets will be added to the job cost tool, so in the future it is easier to update calculations and link the job costing tool cells to the calculation cells. The tool is relatively easy to use and the company is able to update it as needed.

The company priced their services by using two price groups for two groups of customers. The price levels were based on the management estimations of the costs added with a target profit. Also competition was taken into consideration. The price level for service

work was estimated carefully. If the company continues to charge 40/45€ per service hour performed, it should generate profit more than 30%. The situation changes when a project contains both goods and services. There the sales price is based on estimated direct labor hours and sometimes even estimated direct materials purchase prices, and this is the point where the sales person needs to be careful. If the company offers a job to a customer as a lump sum and then is forced to lower the price due competition, it is very hard to follow up on the profit level.

After testing the tool with past projects, it was clear that the pricing of goods and services in the company is not very harmonized. Sales done by different sales people differed quite a lot, and the profits of the goods were scattered. Even for the same product the company had charged different prices from customers. It was also found out that some of the suppliers do not provide a price list, but base their prices on bids. In that case the sales people need to offer a price for the customer before they know for sure what the purchasing price will be for the goods. Suggestion to this would be to establish a price list with target profit percentages. By that way, if the price is changed due competition, the seller can still see what is the profit margin for each product. Also it is extremely important to improve the supplier relationships so that they would be able to give a full price list for their products.

The case company started to use the job costing tool and it has helped to make more precise sales offers. Knowing the cost structure is vital for a successful company, because without that knowledge it is very hard to estimate the profits. Suggestion to the case company is to continue creating tools for the managerial accounting calculations which would improve their profitability,

7 Personal learning and evaluation

This thesis project was very interesting to do. I did not struggle much with it, and doing the project felt good most of the time. The fact that the benefits of this thesis help my own company and me and my colleagues daily work made the thesis process pleasant. The cost calculations were not very challenging to do, but on the other hand the challenge came from working life – how to create a tool that would best benefit the company. There were many items in the tool that I considered first alone and then with my colleagues, to make the decision of which way they should be estimated or placed in the tool. I would say that the practical hands-on viewpoint was very strongly affecting the result of the thesis.

Cost calculations had been a topic in specialization courses in my studies. The theory was quite familiar to me. I did not feel I was a very strong user of Excel, and this thesis challenged me to create spreadsheets which were not just for my personal use, but that others could also use them efficiently. I tried to keep the Excel tool as simple as possible, because I felt that the more complicated it is, the higher is the risk for mistakes done by the user. Overall, I was satisfied with the result and glad that the company people also liked the way I designed it.

The thesis project lasted for six months. I was working intensively with the thesis when I did not have courses, and less intensively while the courses were running. This choice was not maybe the best one, since the thesis included a lot of calculations, and it was quite difficult to come back to them after a for example two months break. If I could go back in time, I would plan my schedule so that all the calculations would be done in a shorter time frame.

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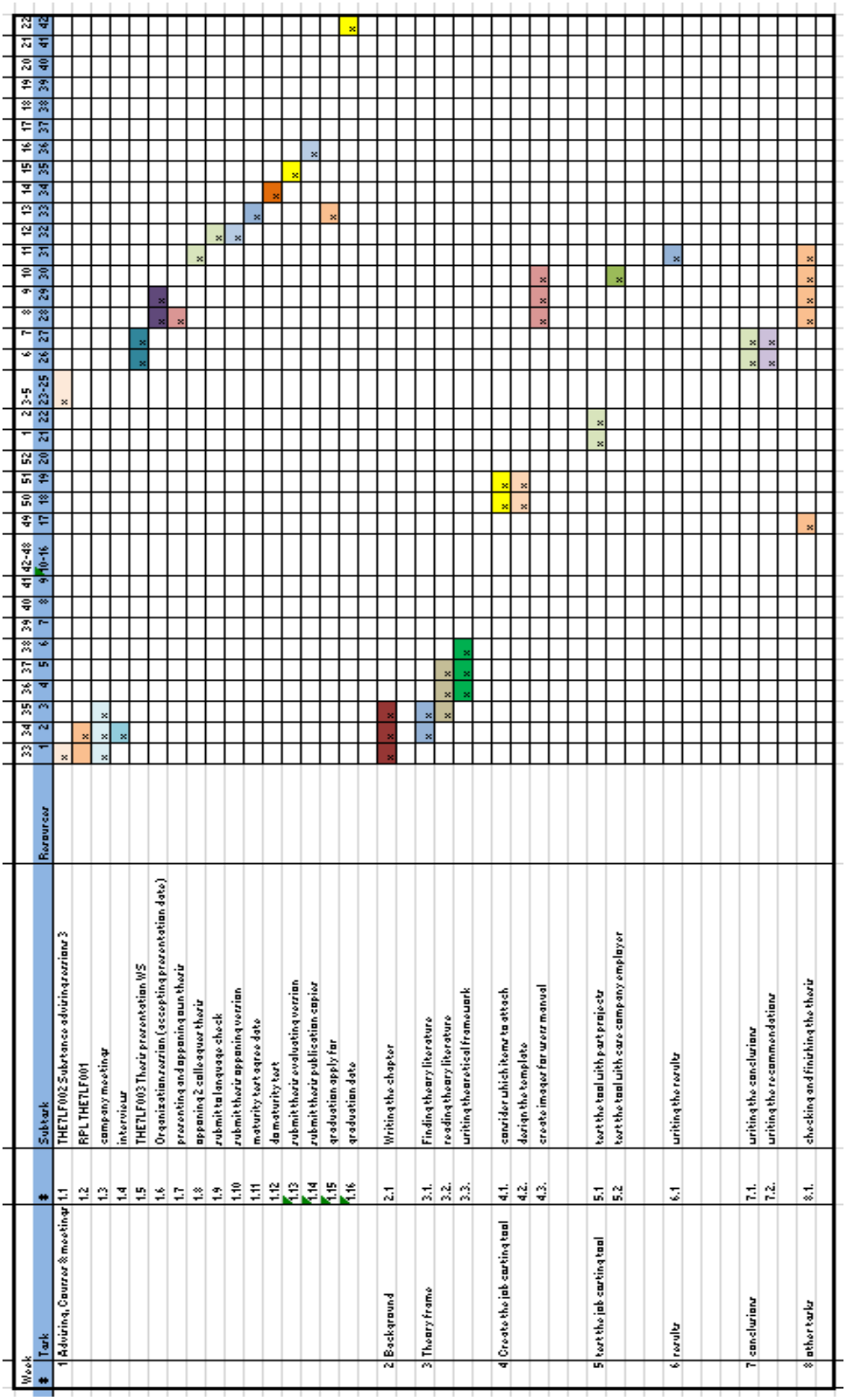
Appendices

Appendix 1 Gantt chart for graduation



Appendix 2. Income statement 1-7/2014

TULOSLASKELMA 2.1.2015 14:41:45

			1.7.2014-30.11.2014
TULOSLASKELMA			
MYYNTITUOTOT			
Yleiset myyntitilit			
3000	Myynti 24%	105 712,05	105 712,05
Yleiset myyntitilit yhteensä			105 712,05
Rakentamispalvelut			
3188	Myynti rakentamispalvelut 0%	10 408,14	10 408,14
Rakentamispalvelut yhteensä			10 408,14
MYYNTITUOTOT yhteensä			116 120,19
LIIKEVAIHTO			116 120,19
MATERIAALIT JA PALVELUT			
AINEET, TARVIKKEET JA TAVARAT			
Aine-, tarvike- ja tavaraostot			
4000	Ostot 24%	-8 535,63	
4004	Ostot	-1 722,95	
4080	Ostot, ostaja verovelvollinen 24%	-20 549,48	-30 808,06
Yhteishankinnat			
4110	Yhteishankinnat 24%	-5 418,43	-5 418,43
Tuonti			
4144	Tulli, verot ja muut maksut tullatessa	-37,32	-37,32
Ostojen oikaisuerät			
Rahdit, huolinta ja muut hankintakulut			
4290	Ostorahdit 24%	-230,52	
4300	Yhteisökuljetus 24%	-6,03	-236,55
AINEET, TARVIKKEET JA TAVARAT yhteensä			-36 500,36
Ulkopuoliset palvelut			
Alihankinta			
4450	Alihankinta 1 24%	-3 440,32	-3 440,32
Yhteisöpalveluhankinnat			
4470	Yhteisöpalveluhankinnat 24%	-400,00	-400,00
Ulkopuoliset palvelut yhteensä			-3 840,32
MATERIAALIT JA PALVELUT yhteensä			-40 340,68
Henkilöstökulut			
Työntekijöiden palkat ja palkkiot			
Työaikakorvaukset			
5000	Työntekijäpalkat	-19 845,00	
5020	Tuntipalkat	-1 390,00	-21 235,00
Lisät ja korvaukset			
5100	Ylityölisät	-7 479,00	-7 479,00
Loma-ajan ja sosiaalipalkat			
5340	Sairausajan ja vanhempainvapaan palkat	-105,00	-105,00
Työntekijöiden palkat ja palkkiot yhteensä			-28 819,00
Johdon palkat			
Johdon palkat ja palkkiot			

accounting_incomestatement1.rpt 3 (6)

			1.7.2014-30.11.2014
5600	Johdon palkat	-14 900,00	-14 900,00
Johdon palkat yhteensä			-14 900,00
Osakkaiden ja omaisten palkat			
Osakkaiden ja omaisten luontoisedut			
5940	Osakkaidenkomaisten muut luontoisedut	-2 400,00	-2 400,00
Osakkaiden ja omaisten palkat yhteensä			-2 400,00
Henkilöstökulut yhteensä			-46 119,69
Henkilösivukulut			
Eläkekulut			
Eläkevakuutusmaksut			
6130	TyEL-maksut	-10 339,41	
6140	Työntekijän TyEL-maksut	2 324,02	-8 015,39
Eläkekulut yhteensä			-8 015,39
Muut henkilösivukulut			
Sosiaaliturvamaksut			
6300	Sosiaaliturvamaksut	-938,91	-938,91
Pakolliset vakuutusmaksut			
6400	Tapaturmavakuutusmaksut	-2 291,68	
6410	Työttömyysvakuutusmaksut	-1 659,89	
6420	Työntekijöiden työttömyysvakuutusmaksut	160,50	
6430	Ryhmähenkivakuutusmaksut	-24,12	-3 815,19
Muut henkilösivukulut yhteensä			-4 754,10
Henkilösivukulut yhteensä			-12 769,49
Liiketoiminnan muut kulut			
Vapaaehtoiset henkilösivukulut			
Henkilökunnan virkistys			
7010	Sisäiset palaverit ja henkilöstöntajuhlat 24%	-1,10	
7011	Sisäiset palaverit ja henkilöstöntajuhlat 14%	-81,27	-82,37
Työterveyshuolto			
7054	Työterveyshuolto	-595,46	-595,46
Työvaatteet ja suojavälineet			
7120	Työvaatteet 24%	-180,37	
7130	Suojavälineet 24%	-48,43	-228,80
Vapaaehtoiset henkilösivukulut yhteensä			-906,63
Toimitilakulut			
Vuokrat ja vastikkeet			
7230	Toimitilavuokrat 24%	-2 040,00	-2 040,00
Hoitokulut			
7360	Siivous ja puhtaanapito 24%	-94,82	
7400	Jätehuolto 24%	-25,81	-120,63
Toimitilakulut yhteensä			-2 160,63
Ajoneuvokulut			
7520	Ajoneuvovuokrat 24%	-241,47	
7534	Ajoneuvojen polttoaine	-2 532,90	

			1.7.2014-30.11.2014
7544	Ajoneuvojen huolto ja korjaus	-2 427,40	
7564	Ajoneuvojen jälkiset maksut	-94,17	
7574	Ajoneuvovakuutukset	-1 017,23	
7610	Muut ajoneuvokulut 24%	-33,90	
7614	Muut ajoneuvokulut	-20,34	-6 368,11
Ajoneuvokulut yhteensä			-6 368,11
Atk-laite ja -ohjelmakulut			
7660	Atk-ohjelmistot. päivitykset. ylläpito 24%	-118,80	
7690	Atk-laitteiden pienhankinnat 24%	-29,00	-147,80
Atk-laite ja -ohjelmakulut yhteensä			-147,80
Muut kone- ja kalustokulut			
7730	Kone- ja kalustohuolto ja korjaus 24%	-72,58	
7750	Koneiden ja kaluston pienhankinnat 24%	-814,75	-887,33
Muut kone- ja kalustokulut yhteensä			-887,33
Matkakulut			
Matkaliput. majoitus ja muut matkakulut			
7802	Matkaliput 10%	-0,40	
7804	Matkaliput	-654,50	
7834	Ruokailut matkalla	-26,00	-628,90
Matkakustannusten korvaukset			
7874	Kilometrikorvaukset	-1 965,48	
7894	Ulkomaan päivärahat	-690,00	-2 655,48
Matkakulut yhteensä			-3 284,38
Edustuskulut			
7954	Edustustilaisuudet	-10,67	-10,67
Edustuskulut yhteensä			-10,67
Markkinointikulut			
Mainonta			
8090	Internetmainonta 24%	-182,47	
8094	Internetmainonta	-50,00	
8100	Mainoslehtisaukset 24%	-227,50	-459,97
Markkinointikulut yhteensä			-459,97
Hallintopalvelut			
8380	Taloushallintopalvelut 24%	-760,00	
8420	Perintä- ja luottotietopalvelut 24%	-95,00	-855,00
Hallintopalvelut yhteensä			-855,00
Muut hallintokulut			
Tieto- ja rahaliikenne			
8510	Matkapuhelinkulut 24%	-801,20	
8514	Matkapuhelinkulut	-49,86	
8530	Datasiirtokulut 24%	-21,90	
8540	Posti- ja lähetikulut 24%	-607,05	
8544	Posti- ja lähetikulut	-106,50	
8564	Rahaliikenteen kulut	-24,50	-1 611,01

			1.7.2014-30.11.2014
Vakuutukset ja vahingonkorvaukset			
8604	Muut vakuutukset	-88,22	-88,22
Toimistotarvikkeet			
8620	Toimistotarvikkeet 24%	-95,58	
8624	Toimistotarvikkeet	-438,39	-533,97
Muut hallintokulut			
8650	Kokous- ja neuvottelukulut 24%	-0,96	
8651	Kokous- ja neuvottelukulut 14%	-77,51	-78,47
Muut hallintokulut yhteensä			-2 311,67
Liiketoiminnan muut kulut yhteensä			-17 392,19
LIIKEVOITTO (-TAPPIO)			-591,17
Rahoitustuotot ja -kulut			
Rahoitustuotot			
Muut korko- ja rahoitustuotot			
Muilta			
9240	Palautettava yhteisökorkolpalautuskorko	0,14	0,14
Rahoitustuotot yhteensä			0,14
Rahoituskulut			
Korkokulut ja muut rahoituskulut			
Muille			
9470	Korkokulut rahoituyhtiölainoista	-169,55	
9490	Korkokulut ostovelasta	-2,44	
9540	Verojen viivästyseuraamukset	-7,26	
9560	Lainojen hoitokulut	-40,00	
9614	Perimiskulut	-10,00	-229,25
Rahoituskulut yhteensä			-229,25
Rahoitustuotot ja -kulut yhteensä			-229,11
TULOS ENNEN SATUNNAISIA ERIÄ			-738,28
TULOS ENNEN TILINPÄÄTÖSSIIRTOJA JA VEROJA			-738,28
TILIKAUDEN VOITTO (TAPPIO)			-738,28

Appendix 3. Indirect costs estimation for 2015

Monthly amounts in euros. (Huikko 2014.)

Other business expenses	119
Office maintenance	24
Meetings	32
Rent	730
Healthcare services	119
Vehicle expenses	1300
Transportation costs	615
Clothing and safety equipment	46
Kilometer allowance	393
Software	30
Equipment and small appliances	178
Marketing	200
Financial management services	171
Phone, postal services	322
Office supplies	107
Indirect labor (252h x 15€)	3780
Total indirect costs	***8164***

Appendix 4. Job costing tool

Job Cost Record

Job Number: _____

Customer: _____

Job Describtion: _____

Date Started: _____ **Date Comp-leted:** _____

Service cost information:				**Cost Sum-mary**
Direct Materials	**purchase price**	**margin**	**sell price**	
Product 1			**0**	
Product 2			**0**	
Product 3			**0**	
Product 4			**0**	
Materials total	**0**		**0**	
Direct Labor hours				
Employee 1				**0**
Employee 2				**0**
Employee 3				**0**
Employee 4				**0**
Direct labor total				**0**
Indirect costs total	**76 %**			**0**
Service costs total				**0**
Desired profit mar-gin	**30 %**			**30 %**

COST AND PRICE SUMMARY			
Excluding VAT		***Including VAT 24%***	
Job cost	**0**	**Job cost**	**0**
Selling price	**0**	**Selling price**	**0**
Materials included	**0**	**Materials included**	**0**

Appendix 5. User's manual

Job Cost Record				
Job Number:				
Customer:				
Job Describtion:				
Date Started:			Date Completed:	

Type here the number of the job, customer's name, job description, starting date and once the job is done, the completing date. (Figure 8.)

Service cost information:				Cost Summary
Direct Materials	purchase price	margin	sell price	
Product 1	10	15 %	12	
Product 2	20	20 %	25	
Product 3	30	25 %	40	
Product 4	40	30 %	57	
Materials total	100	23 %	134	

Input here the purchase price of direct materials 1-4. Input the desired profit margin for the products. In sell price column you will see the selling price for the products including desired profit. In materials total row, you will see the total purchase price and selling price of the products, as well as the average margin percentage. (Figure 9.)

Direct Labor hours				
Employee 1	1			21
Employee 2	2			28
Employee 3	3			42
Employee 4	4			44
Direct labor total				135
Indirect costs total	76 %			103
Service costs total				238
Desired profit margin	30 %			30 %

Input here the direct labor hours used to complete the job. Allocate the direct labor hours to the employee who performed the job. The job costing tool will calculate the cost for the direct labor hours to cost summary on the right hand to each employees row according to hours spent. Direct labor total will be calculated to cost summary. According to calculations, the current indirect cost allocation percentage is 76. If it changes, please input the new percentage to indirect costs total. In cost summary, the tool will calculate the indirect costs based on the direct labor hours spent for the job. Service costs total are direct and indirect costs added together. Now input the desired profit margin for service. It will also be displayed in the cost summary. (Figure 10.)

COST AND PRICE SUMMARY			
Excluding VAT		*Including VAT 24%*	
Job cost	**238**	**Job cost**	**295**
Selling price	**339**	**Selling price**	**339**
Materials included	**473**	**Materials included**	**473**

After inputting direct materials, direct labor hours and desired profit margin, the cost and price results can be seen in cost and price summary. On the left side are the amounts excluding VAT, on the right side including VAT. Job cost is the cost of the service. Selling price is the service cost added with desired profit. Materials included adds the selling price of the materials to the selling price. This price can be used for customer sales, remember to check if the customer wants the offer with or without VAT. (Figure 11.)