

Financial Planning & Analysis Tool for Commissioning Company X in Architectural Design

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<p>This Bachelor's thesis looks at the role of a FP&A tool in architectural design. The objective is to create a tool which will help the commissioning company in their financial management in projects. The reason for the creation of the tool was the company's need to dig into project data and analyze it in more detail. It enables the commissioning company to present their designing offers backed by accurate and reliable data to their clients. It also helps in planning of future projects.</p> <p>This thesis has two major parts. The theoretical part and an empirical part, both which contribute (or set the basis or framework for the system) to the creation of the FP&A system. The theoretical part will focus on the key concepts, and the empirical part in creating the tool.</p> <p>The thesis is based on implementing the theoretical aspects in to the system and testing its performance with real data. The system is built in Microsoft Excel and it will measure project performance and budgeting so that the commissioning company has maximum financial accuracy with minimum error in performance.</p> <p>By analysing previous projects, the company gets valuable data. The company's cost estimations are much more accurate when a lot of data has been analysed. The data shows how the actual costs compared to estimations in projects. When comparing actuals to the budget, the company can justify their offers to their clients because of the previous projects they have designed. This gives the company an advantage over their competitors, when offers are planned with actual costs and not cost estimations.</p>	
Keywords Budgeting, Performance evaluation, Responsibility Accounting, Digitalisation, Project management, Project Costing	

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1 Introduction

This is a bachelor's thesis for the degree programme in International Business in Haaga-Helia University of Applied Sciences in the major of Financial Management (ACC).

This chapter presents the thesis plan and the PO and PT's. This chapter answers questions such as what is done and why. It specifies the type of thesis and also what is the goal of the thesis product. This chapter goes through the project scope, benefits, key concepts and the case company.

1.1 Background

Budgeting has a primary purpose of helping in planning business processes and operations. In business operations, effective use of resources and their allocation help companies in balancing their financials and implementing them towards their objectives. Companies who have assessed the significance of budgeting in their business management are trying to find new ways of analysing data in a way that reveals problems and promotes better accuracy in their finances. (Stončiuvienė & Vaznonienė 2013, 157.)

Companies want to increase their profits and decrease costs. By closely looking at their performance on a financial level and doing their budget accordingly, companies are able to gain better results. Especially in construction and architecture, a mistake in budgeting and performance evaluation can lead to designing companies losing income. Therefore, it is important to have a tool that helps managers to evaluate their performance and make project management decision that are financially accurate.

The tool provides financially accurate data and performance analyses for the company. The tool uses ARK12 Architectural Design Task List as a base and is automated so that it provides real time data, while it is also capable of evaluating older projects and help in designing offers for new projects. Built in Microsoft Excel, the tool is efficient in performance evaluation and budgeting. All project data can be modified according to any project that needs to run through it. The tool uses formulas with changing values in a range of 6 different timetables for specific lengths in projects. The tool utilizes SKOL-classes, which are a cost level list of employees with different experience and competence working on the project.

1.2 Project Objective and Tasks

The Project Objective (PO) for this thesis is to create and design a financial planning and analysis tool for the commissioning company X. The tool will help the company in designing new offers, budgeting of ongoing projects and evaluation of previous projects. The objective is to have a tool that provides maximum accuracy in finances and minimum error in performance.

This thesis is divided in to different tasks: Theoretical part, designing and creating the FP&A Tool, proof of concept; new tool in real environment, providing the commissioning company with the tool and project evaluation.

The theoretical part will focus on the concepts that are of importance to understand the need and goal for this project. Designing and creating the FP&A Tool will utilize the knowledge gained from the theoretical aspects and implementing relevant elements and features to the tool. Running data through the tool will prove that the concept works and brings value to the commissioning company. Presenting the tool to the company and giving additional suggestions on what kind of features could be added to the FP&A Tool is part of this thesis. To finish the project, the author will ask for feedback from the commissioning company and to evaluate the project as a whole.

Project Tasks: (PT's)

PT 1. Preparing the theoretical framework for the project

PT 2. Designing and creating the FP&A Tool

PT 3. Proof of concept; new tool in real environment

PT 4. Finalising and presenting the FP&A Tool

PT 5. Project evaluation

1.3 Project Scope

This project will focus on the importance of budgeting and project costing, in architectural design in particular. The focus will be in a few different theoretical topics, such as responsibility accounting, project costing and digitalisation, and their implementation to the FP&A Tool. The project does not focus on the theories in general, but instead on how these theories support the need for a tool. The main goal is to create and implement a tool in excel for performance evaluation and budgeting.

The value that the tool brings is defined by the commissioning company. The demarcation is that the tool is created and designed specifically for the commissioning company and their needs. It is not supposed to be a universal tool that any company in any given

industry may use. The thesis focuses on relevant aspects around the tool and these aspects are defined in the key concepts. By getting feedback from the commissioning company, the final evaluation of the thesis project can be assessed. This thesis aims to report the process, creation and implementation of theoretical and practical knowledge in a tool that brings value to the commissioning company.

1.4 Key Concepts

Budgeting: A budget can be seen as a financial plan which is used to manage operations. Funds are allocated towards desired outcomes and followed through for productive management. (Shim, Siegel & Shim 2011, chapter 1.)

Performance Budget: A budgeting method in which budgets are prepared using evaluations of performance in different operations or projects. It helps companies in utilizing their resources efficiently, such as finances and productivity. (Borad 2019.)

Responsibility Accounting: An accounting concept that separates parts of business in to manageable segments, which are called responsibility centres. (Martin 2019.)

Digitalisation: The use of digital technologies in order to improve processes in a business. The goal of digitalization is to increase process efficiency and productivity. (Gupta 2020.)

Project management: “Is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements” (PMI 2020).

Project Costing: A forecast of spending resources and costs which is needed to successfully complete a project. (Eby 2017.)

1.5 Commissioning Company X

Established in 2007, based in Kamppi, Helsinki. Operating countries Finland and Qatar. The company has two branches offices which are located in Helsinki and Doha. The company had a turnover of 7,6 million euros and net income of 645 thousand euros in 2019. The services the company provides are architectural designs and project management to B2B clients. Company X has a staff of around 70 employees. The company specializes in housing, hotel and commercial design as well as city and land use plans. They offer design services for construction professionals such as major building companies, property owners, and impressive developing companies. (AS&H, 2020.)

The company has understood, that with better performance-based budgeting and project costing they can present their designs and offer their services with better financial accuracy. The reason for designing the tool was the company's need to dig into the project data and analyze it in more detail. The tool enables them to present their designing offers backed by accurate and reliable data to their clients. It also helps in planning of future projects from a cost standing point.

1.6 Project Management Methods

The project will be managed through key topics and the implementation of theory in to practice. By setting the theoretical framework for the project, all key concepts are clear, and the designing of the tool can begin. The designing will take important factors in to account according to the requirements set by the commissioning company.

The project management will be divided in 5 tasks which are then managed in three sections: data collection, data analysis and results. The first task is to establish the theoretical framework. From there the author will move on to designing the tool. The designing will be analysed and tested throughout the project. The proof of concept requires the tool to be able to run real data through it in order for the analysis to be made. The last tasks is to finalize and present the tool to the commissioning company.

In the figure below, the theoretical aspects and their implementation is illustrated.

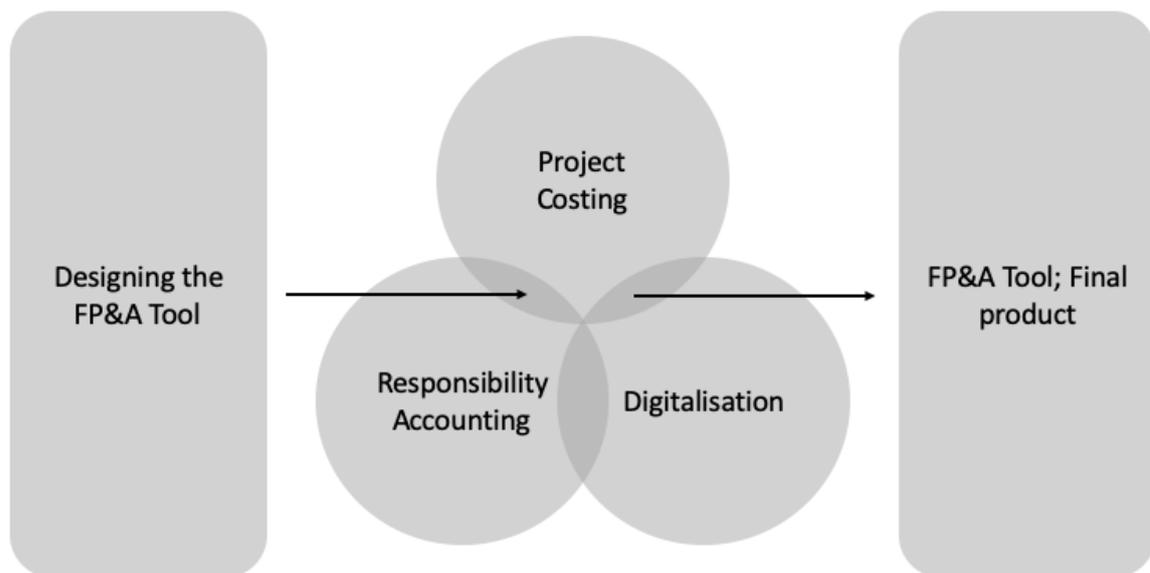


Figure 1. Theoretical framework for the FP&A Tool (Author 2020)

In figure 1, it is shown how the designing of the tool requires the implementation of theory in to practice so that the tool can provide data that is comparable and analyzable by the commissioning company.

The author will go in to the project management methods more in detail in chapter 3.

2 Importance of Budgeting and Project Costing

This chapter presents the theoretical aspect surrounding the creation of the FP&A Tool. The chapter emphasises the importance of budgeting, responsibility accounting, project management and project costing and gives a reason for the creation of the tool. The theories will be introduced and their importance to the tool will be discussed.

2.1 The Purpose of Budgeting

The purpose of budgeting in businesses is to help in planning of the business operations. According to Stončiuvienė and Vazonienė (2013, 157), budgets are seen as tools, which help in establishing the scope of activities in businesses and also defining the required resources and their efficient allocation towards future costs. Companies create budgets for the same reason but use different methods of budgeting, best suited for the business model and process.

2.1.1 Different Budgeting Methods

There are four kinds of budgeting methods that are most commonly used in businesses: Incremental, activity-based, value proposition and zero-based budgeting (CFI, 2020).

Incremental budgeting looks at the previous year's numbers and either adds or subtracts a percentage in order to define the budget for the ongoing year. It is the most commonly used method, because of its simplicity. If the primary cost drivers stay the same each year, it is fitting to use incremental budgeting method. Some problems companies may experience while using incremental budgeting method are tied to manager's decisions. For example, a manager might knowingly use the whole budget, instead of trying to find methods to cut costs in order to increase profits. (CFI, 2020.)

In **activity-based budgeting**, companies need to first determine all the activities they need to take in order to meet sales targets, and afterwards determine all the costs that are related to the same activities. The method does not consider last year's budget relevant as it does in incremental accounting. The problem with activity-based budgeting is that it requires an in-depth understanding of the business process. If a manager does not understand all the functions of the business, it will most likely lead to inaccurate preparation of the budget. (Borad, 2019.)

Value proposition budgeting method emphasizes on the idea that all activities and functions listed on the budget deliver value to the company. The point is to avoid unnecessary expenditures. (CFI, 2020).

Zero-based budgeting is also a very common budgeting method. In zero-based budgeting, the budgets are always prepared starting from nothing, so the previous year's budget is also irrelevant in this method. The starting point is zero for every financial period, and all resources need to be carefully and justly allocated towards activities while looking at the expenditures the same way. With zero-based budgeting, it takes more time to establish the budget, but the results are much more accurate when comparing to some other methods. (Borad, 2019.)

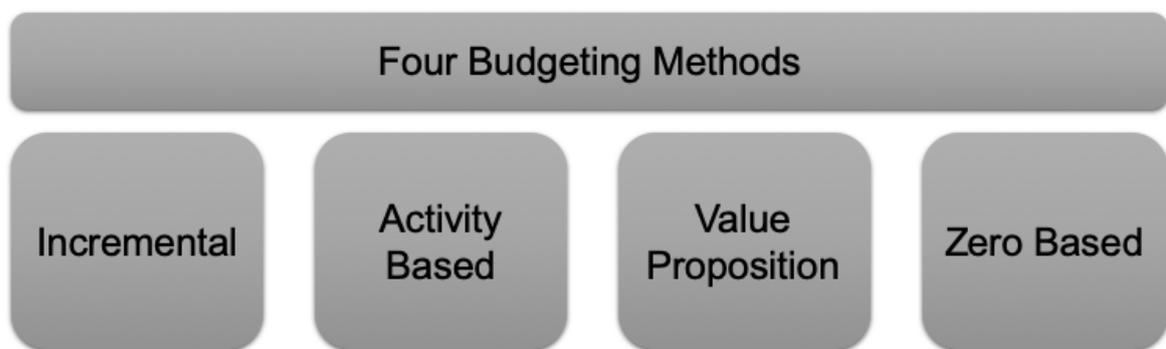


Figure 2. Four Budgeting Methods (Author 2020)

In Figure 2, the four most common budgeting methods are listed. Incremental, Activity-based, Value Proposition and Zero-based Budgeting.

2.2 Budgeting Through Performance

A very important aspect of budgeting is to keep track of it and closely follow the performance of the business and how it copes with the budget. It is not enough to just create a budget, companies need to compare budgets to actuals and assess the performance of the business. By doing this, companies can see whether they are performing as they had planned and if their goals are achievable. It is also important to notice mistakes or errors as soon as possible, so that actions can be taken. (Borad, 2019.)

Performance budget is a concept where companies prepare their budgets by evaluating their performance in certain projects. A large portion of resources are allocated towards projects that are the most profitable. In architecture, a project consists of different designing tasks that require different skills and workforce. (Borad, 2019.)

For example, architectural design tasks A, B and C in a project require different number of working hours to complete and different people with different competence to work on those tasks. Therefore, it is important to understand which of the tasks require the most resources, so that the resources can be allocated accordingly to different tasks. The designing team plans the resource allocation for the whole project, task by task. By looking at past data from similar projects, it is a lot easier to evaluate and determine the need for resources for a specific task. When doing project budgeting, performance budgeting helps in efficiency and financial accuracy.

2.3 Management Through Responsibility Centres.

Most companies have multiple departments that are responsible for different parts of the business. It can prove to be extremely difficult to manage the whole company without separating the departments in to manageable parts. (Martin, 2020.)

Responsibility accounting is a concept which separates parts of business into manageable parts that are called responsibility centres. These parts are separated in order to give responsibility to managers who are in charge of a segment in a business. This gives more control to the segment managers. There are four types of responsibility centres: Revenue centres, cost centres, profit centres and investment centres. Revenue centre focuses on activities that bring revenue to the company. Cost centre for one focus on activities that generate costs and not revenue. Profit centre is a mix of both, activities that generate both revenue and costs. Investment centre is where the manager controls the obtaining of assets as investments, as well as revenue and costs. (Martin, 2020.)

The figure shows how cost centres are divided in responsibility accounting.



Figure 3. Cost centre segments (Author 2020)

In figure 3, the cost centres are simply separated from each other in to manageable segments in responsibility accounting.

2.3.1 Controllability Concept in Responsibility Accounting

In responsibility accounting, controllability is a concept which indicates that managers should be responsible for all segments that they are able to control. According to Martin (2020), the concept is rarely applied successfully, because all accounting systems are subject to variation in the system. What it means is that in seeking to apply the controllability concept in responsibility accounting reports, all managers are responsible for the activities of all subordinate managers, in a top down controlled responsibility centre. Controllability concept illustrated below. (Martin, 2020.)

Table 1. An example of Controllability Concept in responsibility accounting reports (Author 2020)

CEO	Budgeted	Actuals	Variance
Office	40 000 €	42 000 €	2 000 € U
Controller	35 000 €	31 000 €	4 000 € F
Operational Manager	460 000 €	520 000 €	60 000 € U
Investments	325 000 €	360 000 €	35 000 € U
Total Controllable Costs	860 000 €	953 000 €	95 000 € U

Operational Manager	Budgeted	Actuals	Variance
Office	10 000 €	9 000 €	1 000 € F
Warehousing	50 000 €	62 000 €	12 000 € U
Store Manager	300 000 €	309 000 €	9 000 € U
Logistics	100 000 €	140 000 €	40 000 € U
Total Controllable Costs	460 000 €	520 000 €	60 000 € U

Store Manager	Budgeted	Actuals	Variance
Salaries	90 000 €	95 000 €	5 000 € U
Stock	50 000 €	45 000 €	5 000 € F
Store	70 000 €	69 000 €	1 000 € F
Sales	90 000 €	100 000 €	10 000 € U
Total Controllable Costs	300 000 €	309 000 €	9 000 € U

In table 1, under the CEO's own responsibility report, the total controllable budget of the operational manager is under his responsibility, and the operational manager is responsible for the store manager's respectively. Responsibility accounting reports account all subordinate managers activities (Martin, 2020).

2.4 Digitalization in Accounting & Finance

Companies want to separate themselves from their competitors by creating new and efficient ways of doing business. Digitalization allows companies in revolutionizing business processes and creating a product or service that sets them apart from their competitors. Digitalizing even a simple business process may benefit a company in a huge way. (RabIT, 2018.)

The PwC released a survey about digitalisation in finance. According to the survey and their study, the scope of digitalization and technology in auditing today is relatively small, which does not mean that the systems are incompetent. It was pointed out that digitalization will more likely be used for data analytics. Documentation and reporting are easier to digitalize rather than reconstructing a whole auditing system in short term. (PwC, 2018.)

2.4.1 Enabling Digitalization

The development of global economy will have a future in digitalization. Companies that are changing their structure or business strategies should grasp digital technologies. Digitalization enables companies to pursue opportunities and add value to their business on behalf of digitalization. Implementing a new technology to a business can have a small internal effect, but also open up a new market for a company. Digitalization can give a company a competitive advantage in the market. (Abanmai, 2020.)

2.5 Project Planning

A project can be seen as a temporary assignment that lasts a certain period of time. Companies apply knowledge, skills, techniques and tools in project activities in order to match the project requirements. Resources are usually allocated before the start of the project. (PMI, 2020.)

Project management should be aligned with the strategy of the business. Projects should have a clear focus and well determined objectives. Project planning also needs to be realistic. It needs to be clear that what is expected, when it is expected and for what price. With clear process and vision for the project, it is easier for a project manager to achieve the objectives and deliver the value that was promised. (Aston, 2020.)



Figure 4. PMI's five segments of project management (Author 2020)

In figure 4, the Project Management Institute (2020) identifies five segments of activities required in the project management process: Initiating, Planning, Executing, Monitoring and Controlling and Closing. (PMI, 2020.)

2.5.1 Project Financial Management

Project financial management is a process which composes of different activities, such as: Planning, financial reporting, budgeting, internal control and accounting. The goal of project financial management is to manage the resources properly and to meet the project objectives. (NCSU, 2020.)

Making the financial management successful requires careful planning, organizing and controlling of finances. Financial management is not the same as financial planning. Financial planning is a strategy that falls under the financial management concept. Financial planning is more focused on budgeting only, whereas financial management composes of more activities. (NCSU, 2020.)

Financial management is one of the most crucial aspect of any business. The purpose is to keep supplying funds for the company and their effective utilization. As said, financial planning is a component in financial management. In almost all businesses, the financial management department is run by the financial manager. The financial manager makes

decisions about resource allocations, investments and controls and analyses the company's financials in the short-term and the long-term. (LSBF, 2018.)

Risk management is also an important factor in project planning. By implementing a risk management plan, companies may have different procedures for threats and act early enough when detecting risks. This can save the company a lot of time and help in not losing profits. (Rouse, 2020.)

2.6 Project Cost Estimations

Project costing is the act of estimating the cost of completing a project. Project costing is part of the financial management. The total project cost is called the cost estimate, which determines the budget and therefore manages the costs. (Eby, 2017.)

The cost estimate is the total off all the costs that are required to finish off a project. According to Eby (2017) the cost estimate can be used to create a project cost baseline, which is a milestone-based point of comparisons, which allows companies to evaluate the actual financial performance of a project.

It is important for project managers to take project costing in to consideration in project management. Some projects are very complex and require precise and careful cost estimations so that projects do not get abandoned. The monitoring and controlling of costs are a key factor in project costing. (Akpan & Amade, 2014.)

2.6.1 Cost Estimate Components

In cost estimates, the costs can be divided in to multiple segments, but the simplest way of classification is to put costs in direct cost and indirect costs. Direct costs consist of expenses that are directly involved in finishing a project, for example, wages and cost of resources to produce something. Indirect costs consist of expenditures that contribute to all project, so they are not assigned to any specific project. For example, an architectural company pays rent for their office where all designs are done for different projects. Therefore, the rent would be in indirect cost. While direct cost and indirect cost is the broad classification of costs, many companies use more categories for their expenses, such as: Labour, equipment, materials, software, services and facilities. (Eby, 2017.)

2.6.2 Cause for Inaccurate Project Cost Estimations

All companies want to be accurate when doing their project cost estimations. Inaccurate estimations may cause companies to lose revenue and allocate way more resources to

some projects that was supposed to. By understanding the causes for the inaccuracy, companies can act towards more accurate estimations.

Lack of experience may prove to be a crucial mistake companies make when allocating resources in a project. Without proper knowledge of the workload and tasks in a project, the costs may exceed the budget. By putting the workforce in project similar to what they have done previously, or at least the project manager, the whole team has a better understanding of the tasks and what it takes to complete them. Financial management and planning are important at this stage because it might be hard to adjust budgets later on in a project, especially if the price for completing the project has been defined at the start. (Eby, 2017.)

3 Project Management Methods

The project management methods compose of project tasks, time management and meetings with the commissioning company. The first project task is to create the theoretical framework which will be done by studying the relevant topics around the project scope. The creation and designing of the tool will take place simultaneously with the theoretical framework. The knowledge gained from studying the theoretical aspect will help in creating the FP&A Tool.

The project management will include meetings with the commissioning company to discuss the project process with ideas and observations. The creation of the tool will have to follow the requirements set by the commissioning company. The tool will be created and worked on in Microsoft Excel.

The proof of concept requires the FP&A tool to be able to run data through it and provide data that can be analysed by the commissioning company. First tests for the tool in a real environment will take place before presenting the final product to the company. Proof of concept requires the commissioning company to provide real data.

The FP&A tool does not fulfil the requirements of the commissioning company if the data is not analyzable by the company management. Together with the topics that need to be studied and requirements from the company, the project goes forward to the designing phase.

The designing phase requires getting the raw project data from the company. The data will have to be filtered and changed to suitable form for the tool. By testing and designing prototypes of the product, the process can be evaluated, and the tool can be modified accordingly if needed and features can be added.

Presenting the final product to the commissioning company concludes the project. The company will give feedback on the project as a whole.

The figure 5 below will show the project management methods. The project is managed according to the different tasks in the thesis project. Each task is managed in three sections; Data collection, Data analysis and Results.

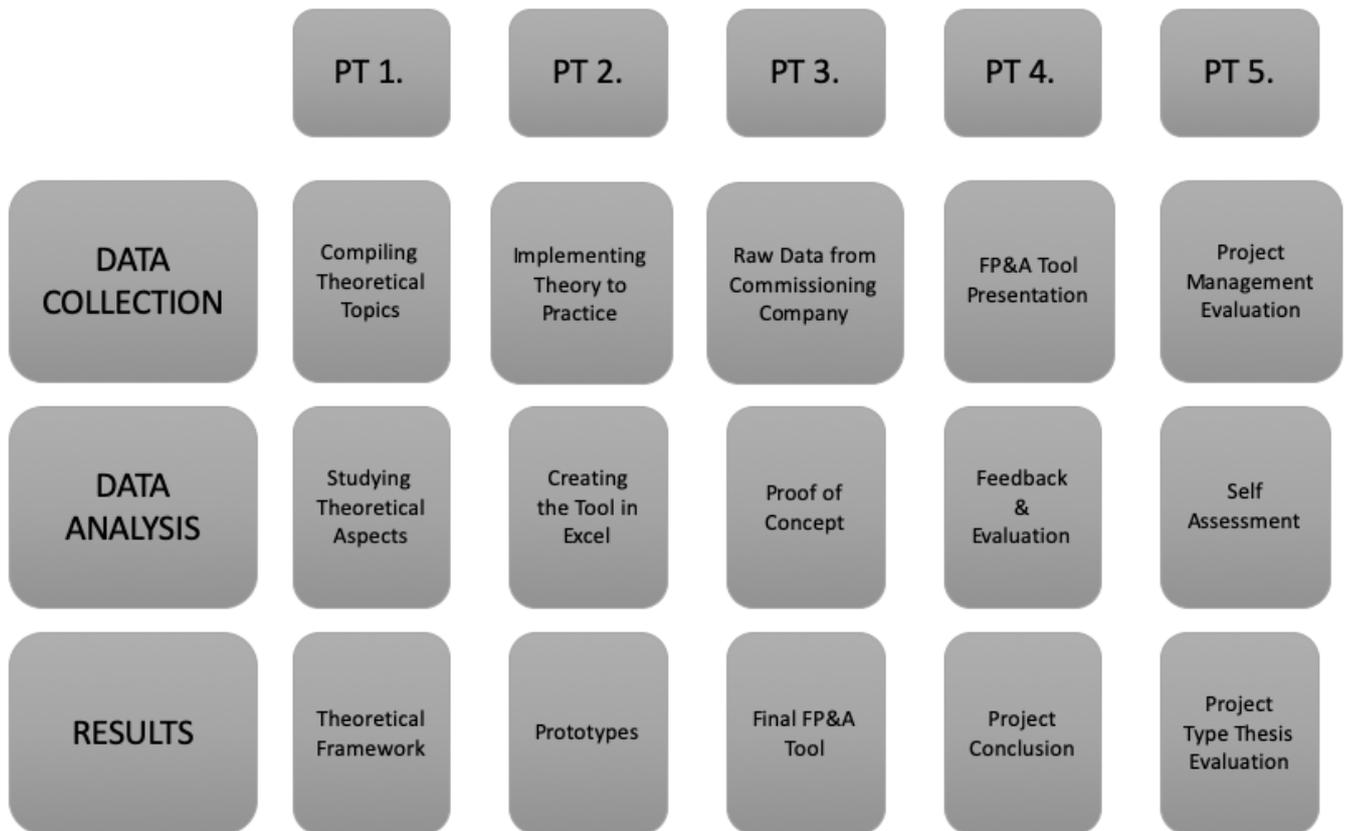


Figure 5. Project Management Methods (Author 2020)

In figure 5, the first task consists of compiling and studying the theory behind the FP&A tool. By the start of task two, the theoretical framework will be clear and designing of the tool can begin. The designing of the tool will produce prototypes of which the best will be chosen and modified to match the set requirements.

The proof of concept part is where the final product will be tested in real environment, which needs real data. After making a few analyses of architectural projects that are comparable, the tool will be presented to the company.

The finalization and presentation of the tool to the commissioning company will conclude the project. Project evaluation will take place after the final presentation of the FP&A Tool and also a review will be asked from the commissioning company, so that they can give feedback after they have taken the tool in to use.

4 The FP&A Tool in Architectural Design

This chapter focuses on the actual FP&A tool and its creation. The chapter is divided into segments that present different factors in the designing and creation of the tool.

The chapter identifies what the tool is and what it is for. The commissioning company's need and viewpoint on the tool will be explained. The purpose for the tool and how it was created will also be a part of this chapter. The final product concludes this chapter.

4.1 Architectural Company's Viewpoint

The commissioning company x has understood that that with better performance-based budgeting and project costing they can present their designs and offer their services with better financial accuracy. The tool enables them to present their designing offers backed by accurate and reliable data to their clients. The reason for FP&A tool for the commissioning company x was the need to design new offers, budgeting of ongoing projects and evaluation of previous projects and project analyses. (Simelius 6.11.2020.)

On the corporate level the company uses Incremental- and Activity-base budgeting methods. The next fiscal year is planned with respect to their strategy, market evaluation and investments that are needed. Investments such as internal development projects, training etc. are planned beforehand. Fixed costs such as back office, leases and such are known and quite accurately estimated by the company. (Simelius 6.11.2020.)

The company budgets their designing projects on an individual level. They use incremental budgeting in projects, when they are readying their offer for a new design for a customer. With incremental budgeting, the company looks at how they have performed previously in similar projects in general. The similarities might be cost per square meter, working hours per task and the designing cost of the total project cost percentage. This is for the offer planning phase. Offers are planned by looking at past data from similar projects and comparing the requirements between the quoted and the previous project. (Simelius 6.11.2020.)

Ongoing project's budgets are of course monitored and controlled. The company also uses a similar method to activity-based budgeting, where they determine all the costs that are related to tasks that need to be completed. Since tasks require different competence to complete, more resources are allocated towards demanding or time-consuming tasks. (Simelius 6.11.2020.)

The company's project plan includes WBS, responsibility matrix and scheduling. The project manager together with the team makes decisions about resource allocations and also controls and analyses the performance of the designing team (LSBF, 2018).

As architectural projects are subject to changes, another way to budget a project from the company's standing point is to use zero-based budgeting in the project plan for the designing phase. The reason is that because requirements and timelines for projects can change, so do the budgets in the process, therefore it is hard to make any estimations in some projects. (Simelius 6.11.2020.)

4.1.1 Contractual part

Depending on the designing contract, the commissioning company uses different methods in project budgeting. Some project budgets are fixed and predefined so that there is really no room for flexibility. In these kinds of contracts, it is extremely important to the designing company to provide a justified and factually proven offer for the design. The offer should correspond to previously completed projects, so that the two parties can agree on the price of the design. In other forms of contracts, a customer may ask for the company for a price, and if they perform over budget, the variance is subtracted from the revenue. (Simelius 6.11.2020.)

In the figure below, the hourly price rates are explained.

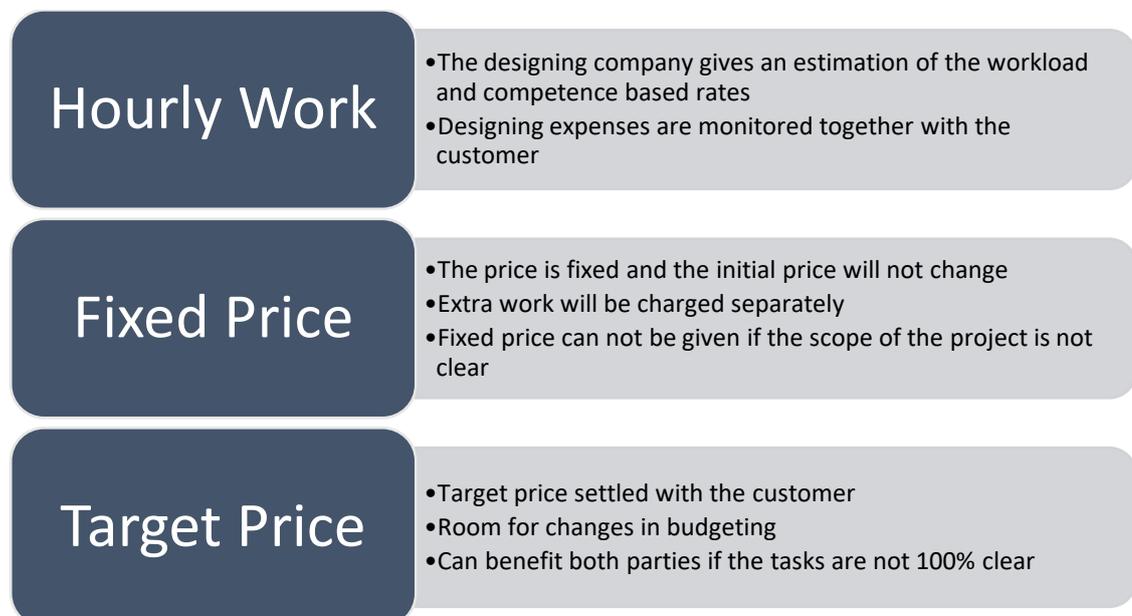


Figure 6. Common architectural design consultancy contracts (Author 2020)

In the figure 6, the most common contracts between the designing company and the customer are illustrated. Projects that have hourly work contracts are budgeted by the designing company and then offered to the customer. In these kinds of contracts, there is usually a price cap which will ensure the customer that the price will not be more than that. (Simelius 6.11.2020.)

Fixed price contracts do not change in the middle of the project. All extra work will be charged separately if the customer wants to add something more, and if they want to change a whole task, the designing company has the right to revoke the initial price and set a new one. (Simelius 6.11.2020.)

The target price contract has both parties agree on a target price. If the designing company delivers the final design and has used only 80% of the total budget, it is common that the 20% left on the budget will be split by the contract. On the other hand, if the budget exceeds the price cap of 100%, the designing company will give the customer a discount on the designing costs for the over exceeding time. These examples were given by the commissioning company. (Simelius 6.11.2020.)

4.2 The Purpose of the FP&A Tool

The need for the FP&A tool was to collect and analyze data from previous projects for several reasons. One of them is to understand the cost accumulation of different types and stages of projects to have a better cash flow control to implement in contracts. Another reason is the desire to develop the company's project management process. When projects are managed correspondingly, and the reporting is the same, it is easier to draw comparisons between projects. Another important reason is to give data-based understanding to clients on their investment in a project and to have a better budgeting data for marketing and sales. (Simelius 6.11.2020.)

By understanding and comparing the workload and resources required to complete the project, the company is able to estimate the price of the design much more accurately. From a customer's point of view, it is extremely gratifying to see how resources are distributed across the project and especially when they can be justified with data from previously completed projects. Customer satisfaction and trust can be increased greatly by using these methods and being transparent. (Simelius 6.11.2020.)

The company also wants to detect similarities in different stages and tasks of projects. The tool serves as a basis of project management structure. All project's management should follow the same reporting guidelines and structure, making comparisons and data

analyses easier. The tool changes the way the company manages their projects.
(Simelius 6.11.2020.)

4.3 The Creation of the FP&A Tool

The idea for the FP&A tool came from the commissioning company's need to analyze data. At first, the data was not analyzable, because all projects were managed differently in their ERP system. The company uses Visma Severa as their ERP system. All project team members mark their worked hours under a designated project. It was quickly discovered that the projects did not follow the same reporting methods and structure. It meant that there was no easy way of analyzing the data between different projects, because the data was incomparable.

The first task was to build a prototype of the tool to see in which form the data has to be in order to analyze it. The tool would need a baseline that all designing projects follow. Each designing project follows the ARK12 Architectural Task List, so the author took 15 projects and asked project managers to clarify which markings in the ERP system belonged to which task. After the first analysis, the data was comparable. The ARK12 task list proved to be a good measuring point when comparing projects.

Another important factor was the length of projects. The variation can be years, so the tool should be able to handle projects of different sizes. Since the company specializes mostly in hotel and commercial design, the FP&A tool concentrates in these kinds of projects. The tool has five different lengths that can be used according to the project schedule.

The creation of the actual tool started by discussing about the requirements of the commissioning company. Microsoft Excel was the used platform. Data should be easy to analyse, and the tool should also provide a visual presentation of the project process as a whole. Actuals should be comparable to the budgets. All ARK12 tasks should be involved and used SKOL-classes.

The three main factors that define an architectural project are the SKOL-classes, ARK12 architectural design task list and project schedule. By knowing these three factors, the project cost estimations can be drawn (Simelius 6.11.2020).

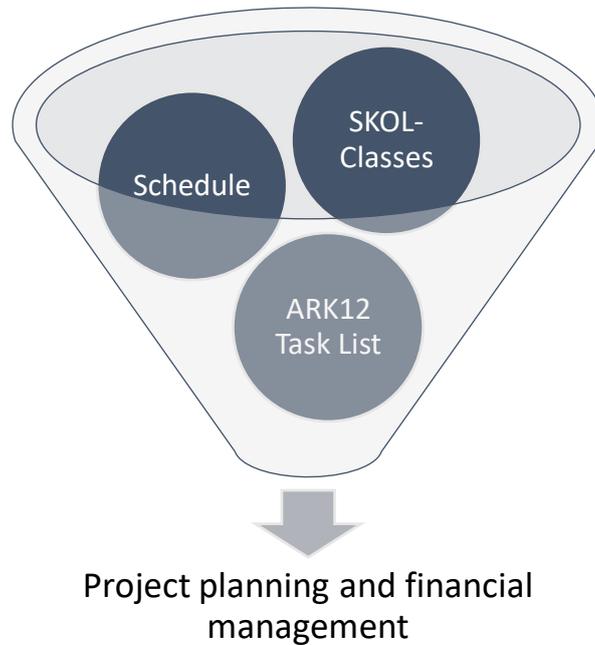


Figure 7. Three main components in architectural project (Author 2020)

In figure 7, the three components showcase how architectural projects are planned. By knowing the price rates, stages and tasks and project schedule, resources will be allocated. The allocation of resources is easier when comparable data shows how similar projects in the past have carried out in reality, which emphasizes the importance of the FP&A tool for the commissioning company.

The company also asked for the ARK12 tasks to be colour coded in to the system. This helps the visualization of the project process graph. The graph shows the total hours of all tasks in the project. By looking at the graph, the company can analyse the designing process and see when certain tasks started and how long it took to complete them. The graph also shows how some tasks may have stacked on top of each other. The graph is presented in subchapter 4.4.3.

4.3.1 Comparing Actuals to Estimations

The commissioning company wanted the tool to show comparisons in percentages. The author decided to compare two factions in both estimations and actuals; hours worked and price. The tool first gives the total amount of hours worked on a specific task and the price for that task from the designing point of view. Then the total hours of that tasks are divided by the total hours of the whole project. This way it can be determined how much time a task consumes of the whole project in percentages. The same process is done for the designing costs.

After the system has established the price and hours per tasks, these numbers are compared to the estimation. The estimation percentage follows the same process as actuals. The figure below illustrates how hours worked are put in the tool and how the percentages are divided between tasks.

Table 2. Task comparison is percentages (Author 2020)

VAIHEET	TARVESELVITYS A	HANKESUUNNITTELU B	SUUNN. VALMISTELU C	YHTEENSÄ	ARVIO
TUNNIT	805 h	1050 h	190 h	2045 h	1860 h
KUSTANNUS	72 545 €	93 495 €	17 990 €	184 030 €	185 000 €
TUNNIT / YHTEENSÄ	39,4 %	51,3 %	9,3 %	100,0 %	
KUSTANNUS / YHTEENSÄ	39,4 %	50,8 %	9,8 %	100,0 %	
TUNNIT / ARVIO	43,3 %	56,5 %	10,2 %		109,9 %
KUSTANNUS / ARVIO	39,2 %	50,5 %	9,7 %		99,5 %

In table 2, the tasks A, B and C are compared as an example. The tool shows the hours and costs for each task, and also how much they contribute to the total in the project. The actuals per estimation is shown as illustrated above. This allows the company to analyze how the actuals compare to totals and estimations.

When looking at Tunnit / Arvio and Kustannus / Arvio, it is shown that the hours are at 109,9% and the cost is 99,5%. This tells the company that the actual total hours have exceeded the estimations and the actual total costs are just below the estimation. In reality the numbers would be different and expand between 6-10 tasks in more complex projects.

4.3.2 The ARK12 Task List and SKOL-Classes

Before starting to work on the actual FP&A tool in Excel, the ARK12 Architectural Task List was to be studied in order to understand the many tasks involved in architectural design. The task list is used to determine the scope of the designer's tasks and for controlling the designing operation. The task list is also used for quality assurance, as it has very detailed steps and requirements for each task to be marked as completed. The task list has all 12 tasks in analogous order. The task list is always part of the designing contract. (Rakennustieto, 2020.)

Because the ARK12 task list is a crucial part of the tool, it needed to be clear and noticeable to the user that tasks are in order and all hours are put to the system under the specific task. After studying the ARK12 architectural task list, the work on Excel started. The different tasks were supposed to be implemented in to the tool. Instead of analysing individuals working on a project, the author decided to analyse tasks. In order to get accurate cost estimations, SKOL-classes needed to be implemented.

In an architectural project, individuals are classified according to their competence and the level of difficulty of their job. The competence and level of difficulty determine the price of how much an hour of work for a specific person's role in the designing team is going to cost to the customer. There are eight groups of which seven was implemented by the commissioning company's request. The groups are called SKOL-classes. (Suunnittelu- ja konsultointiyritukset SKOL, 2020.)

The table below illustrates how the ARK12 tasks were implemented in the FP&A tool.

Table 3. Data rows and columns in the FP&A tool (Author 2020)

VAIHEET	Aug-16	Sep-16	Oct-16	SKOL%	TUNNIT	KUSTANNUS
					h	€
A TARVESELVITYS	120 h	220 h	260 h		600 h	58 665 €
SKOL 1				0 %	0 h	0 €
SKOL 2				0 %	0 h	0 €
SKOL 3	100 h	150 h	200 h	75 %	450 h	46 125 €
SKOL 4	20 h	40 h	60 h	20 %	120 h	10 320 €
SKOL 5		30 h		5 %	30 h	2 220 €
SKOL 6				0 %	0 h	0 €
B HANKESUUNNITTELU	150 h	110 h	160 h		420 h	34 320 €
C SUUNNITTELUN VALMISTELU	110 h	50 h	30 h		190 h	20 900 €

In table 3, the tasks are listed according to the actual ARK12 task list by letters and names of the tasks. A dropdown list is implemented so that hours can be put under tasks on the same row with used SKOL-class. In this example, hours were distributed in three SKOL-classes in task A (3,4 and 5). The **SKOL%** column shows the percentage distribution and the hours and total costs are on the last columns. In task A, SKOL 3 accounted for 75% of the total, with 450 hours. The SKOL 3 price rate in this project was 103€ per hour, so the total cost of SKOL 3 was 46125€ (450 * 103 = 46 125).

This analysis shows the company how the workload is distributed between designers and at what cost. The tool follows on-going projects with this method, but also project planning

for the offer phase can be done by estimating costs and schedules. Again, this proves why the data needs to be comparable for the estimations to be accurate.

The table below shows how the SKOL-classes were implemented in the tool.

Table 4. SKOL-classes and their implementation to the system (Author 2020)

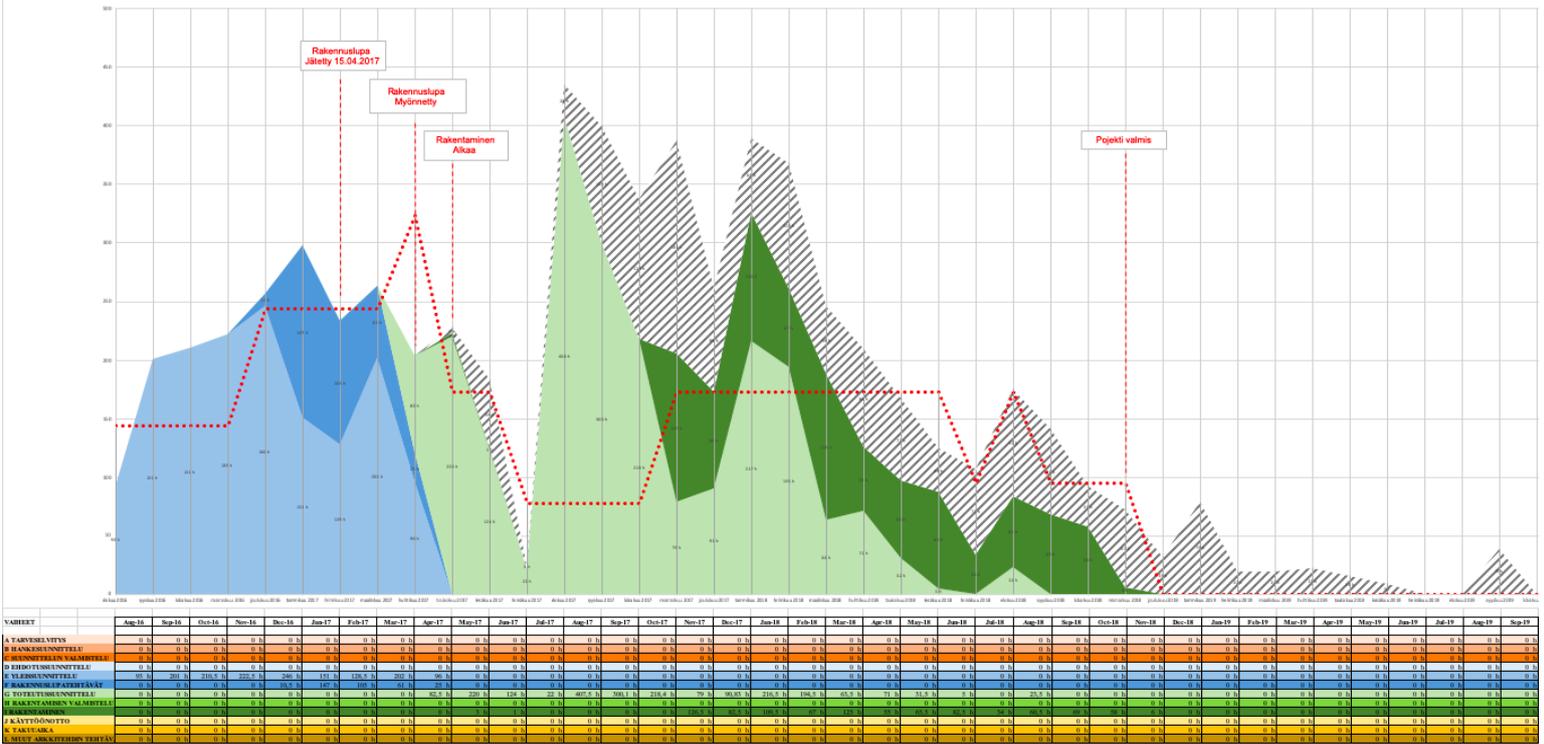
HENKILÖRYHMITTELY	ORGANISAATIOTASO	VAATIVUUSTASO I	VAATIVUUSTASO II	VAATIVUUSTASO III	KÄYTETTÄVÄ SKOL	SKOL%	KESKITUNTIHINTA
E	PROJEKTINJOHTAJA SUUNNITTELUJOHTAJA	160 €	197 €	222 €	197 €	0 %	94 €
1	PÄÄSUUNNITTELIJA ERITYISASiantuntija	128 €	157 €	179 €	157 €	0 %	
2	VASTAAVA RAKENUSSUUNN.	105 €	125 €	142 €	125 €	8 %	
3	PROJEKTIPÄÄLLIKKÖ	86 €	103 €	117 €	103 €	40 %	
4	TOIMISTOARKKITEHTI	73 €	86 €	99 €	86 €	36 %	
5	SUUNN. ASSISSTENTTI PROJEKTIASSISSTENTTI	64 €	74 €	84 €	74 €	15 %	
6	ASSISSTENTTI	56 €	65 €	74 €	65 €	0 %	

In the table 4 above, the SKOL-classes are classified with competence and the level of difficulty of the job. It shows the percentage distribution in the whole project between different SKOL-classes. The figure shows which designers have worked in their class the most throughout the project. In this example, designers in SKOL-class 3 account for 40% of the whole project workload. The system also shows the average hourly price rate of 94€ in this example.

4.3.3 Project Schedule Analysis

The company also asked for the ARK12 tasks to be colour coded in to the system. This helps the visualization of the project process graph. The graph shows the total hours of all tasks in the project. By looking at the graph, the company can analyse the designing process and see when certain tasks started and how long it took to complete them. The graph also shows how some tasks may have stacked on top of each other.

The picture below was taken of the tool by the author and it shows how the graph comes together with real data.



Picture 1. Project process in real environment (Author 2020)

In picture 1, a project is presented. This specific project was three years long and had five different designing tasks. The tasks are the colored stacks in the graph. The red dotted line illustrates the project schedule estimation. This graph shows the company the actual designing process and also how the estimation correlated with actual schedule. This project was completed before the company started using the tool, so already from this picture it can be determined that the estimation was inaccurate for the Design Implementation (Task G) and Construction phases (Task I) in the project which are shown in colors light green and dark green. The text boxes give extra information, such as when the construction permit was submitted.

4.4 Final Product

The company uses the tool to budget their future projects by estimating the workload and dividing it into tasks that need to be complete in a given timeframe. The tool is used in project cost estimations and project analyses, since different tasks in a project require different set of skills and time to complete. Like all budgets, the goal is to establish a scope of activities and define resources and efficiently allocate them towards costs (Stončiuvienė & Vazonienė 2013, 157).

The tool provides real-time data of ongoing projects which are analysed by the company. By following the designing process with the tool, the commissioning company can reallocate resources to tasks that for any reason might take longer to complete than what

was initially planned. That is why companies need to monitor and control costs and allocate their resources as efficiently as possible. In construction and architectural industry, projects can be very complex and become subject to rapid changes (Akpan & Amade, 2014).

By analysing previous projects, the company gets valuable data. The company's cost estimations are much more accurate when a lot of data has been analysed. The data shows how the actual costs compared to estimations in projects. When comparing actuals to the budget, the company can justify their offers to their customers because of the previous projects they have designed. This gives the company an advantage over their competitors, when offers are planned with actual costs and not cost estimations. The project manager can review previous projects and determine the need and cost of resources to a new project together with the designing team. When doing project costing for a new project, looking at the performance of previous projects can help in financial accuracy. The tool also helps in the project's time management.

The final FP&A tool filled the commissioning company's expectations. The tool has all required features and the concept proved to work as the data analyses have shown accuracy in project costing. The tool has SKOL-classes, ARK12 Task list and different project schedule lengths implemented in it. The formulas give automated percentages on actuals and estimates. The tool was tested with multiple projects and gives accurate results. (Simelius 6.11.2020.)

5 Conclusion

This chapter concludes the thesis. The author will go through key outcomes and results and give suggestions for further development for the tool for the commissioning company. Project evaluation and self-assessment will also be part of this chapter.

5.1 Key Outcomes & Results

The project objective was to create and design a financial planning and analysis tool for the commissioning company. In order to reach the objective, project tasks needed to be completed. The project tasks were divided in parts that would build the foundation for the final product. The first task was to establish the theoretical framework of important topics that the tool revolves around. After the theoretical framework was established, the actual designing and creation of the tool started. The tool was tested in real environment and adjusted according to the requirements of the commissioning company. The tool was then finalized and presented to the commissioning company. In this subchapter, the author goes through the project tasks and outcomes.

The first project task of compiling the theoretical topics and studying them. The theoretical framework was created by looking at the key concepts. These concepts were chosen for the thesis based on their relevance. The concepts were project management, project costing, responsibility accounting, budgeting and performance evaluation and digitalization. Project management and especially financial planning is a crucial part of the designing project process. The process is followed and controlled with the help of the FP&A tool. Comparing actual and estimated costs between projects supports the idea of project costing and its implementation to the tool. The performance of a project is evaluated by looking at its results and financial accuracy.

The second task was to design and create the FP&A tool. The designing and creation started by listing all the requirements set by the commissioning company. The work on Excel started after establishing the three most important factors in an architectural design project: SKOL-classes, ARK12 task List and project schedule. SKOL-classes determine the price rate of each designer and their level of competence in a project. The ARK12 task list serves as a base for the whole tool, because projects are divided in to stages and resources are allocated towards those stages and tasks. The project schedule needs to be clear and carefully planned from the financial and managerial point of view.

The proof of concept project tasks required real data to be analysed. The analysis came from running multiple projects through the tool. By editing the data from the source in to comparable form, the designing projects provide comparisons in actuals and estimations between projects. The concept of the tool serves the commissioning company in planning offers for clients, controlling and monitoring on-going projects and reviewing previously completed projects. All features were tested, and requirements were reviewed.

The finalization of the tool and presentation concluded the designing project of the FP&A tool. The tool brought value to the commissioning company in the form of better understanding the cost accumulation of projects, project management process development, gaining client trust and investment and a better image of the company's overall project workload and financial structure of projects.

5.2 Project Evaluation

The objective of designing a FP&A tool for the commissioning company in architectural design was successful. The project was finished as planned. The author had a clear vision of the tool and because of the good cooperation with the commissioning company. The hardest part was to try and implement different concepts from the accounting and finance industry in to the design of the tool. The tool has basic budgeting principles, but the data analysis is accurate and has already provided valuable results. The tool's purpose was to bring value particularly to the commissioning company.

The designing of the FP&A tool as a project can be evaluated by its value and compliance of requirements. The company now has a way of analysing data comparably and efficiently. The system brought the commissioning company value in transparency and logic for the whole designing process of an architectural project. Time management and scheduling in projects can now be systematic and more accurate when compared to the past. The financial planning of designing offers are also more accurate which leads to maximizing potential revenue.

The FP&A tool has changed the way the company monitors and controls projects and how the offering process is carried out. The company has since amended its ERP system to follow the same stages as projects. Deviations in designing projects can now be detected and responded to in a timely manner. By continuing using the tool, the company can develop more processes in the business.

5.3 Development Suggestions

An idea of transforming the tool from Microsoft Excel in to an actual ERP/FP&A system could be very beneficial to the commissioning company. Instead of moving data from the existing ERP system to Excel, there is potential in developing a system that is more automated which would streamline the data analysis process. The tool could be upgraded by programming a proper system out of it, while also simplifying it.

It could also be investigated what other processes could be digitalized in the company. The FP&A tool as a project has proved that creating a digital solution can take a business process to a new level.

Another suggestion would be to make data analyses a continuous task in the company, which would ensure the continuity of more comparable data storage. The tool could be developed visually to a more appealing version, which could potentially make clients more intrigued in the design offering phase.

5.4 Self-Assessment

The author is proud of his achievement in designing the FP&A tool and successfully creating value for the commissioning company. The thesis has given the author valuable knowledge that will surely foster his professional development. The author has better understanding of business processes related to finance, financial management of a SME, data analyses, using ERP systems and cooperating with professionals. The thesis has sparked a bigger interest in finance than what the author thought it would.

The creation and design of a FP&A tool has given the author skills and competence in making data analyses and made project costing a skill to develop even further. Working on Microsoft Excel has increased the authors skills in Excel tremendously.

One area the author wants to work on and develop is the planning of projects. The planning phase is crucial in all projects, at the individual level, as in this thesis, as well as in business projects. This thesis has highlighted the importance of project planning especially when it was one of the main focuses on the FP&A tool.

Architecture is an industry that is interesting to the author, and by working for a company that is one of the leading companies in the industry in Finland has given the author insight in to the world of architecture and complex project management.

The thesis as a project has had an impact on the author. The author has understood the strengths and weaknesses in project planning, scheduling and in doing research. The topic was interesting and pleasing, and a project type thesis proved to be the right choice for the author. The author is motivated and strives to develop and become a professional with great competence and believe in his own work.

References

Abanmai, O. 2020. The Importance of Going Digital for SMEs. SME Finance Forum. URL: <https://www.smefinanceforum.org/post/the-importance-of-going-digital-for-smes>

Accessed: 12 Oct 2020.

Akpan, E. O. P & Amade, B. 2014. Project Cost Estimation: Issues and the Possible Solutions. International Journal of Engineering and Technical Research. ResearchGate. Owerri. URL:

https://www.researchgate.net/publication/280805190_Project_Cost_Estimation_Issues_and_the_Possible_Solutions Accessed: 12 Oct 2020.

Aston, B. 2020. Why Is Project Management So Important to An Organization? The digital project manager. URL: <https://thedigitalprojectmanager.com/why-is-project-management-important/> Accessed: 4 Oct 2020.

AS&H, 2020. About us. Architects Soini & Horto Ltd. URL:

<http://www.soinihorto.fi/en/about-us> Accessed: 9 Oct 2020.

Borad, S. B. 2019. Performance Budget. eFinance Management. URL:

<https://efinancemanagement.com/budgeting/performance-budget> Accessed: 10 Sep 2020.

Borad, S. B. 2019. Budgeting. eFinance Management. URL:

https://efinancemanagement.com/budgeting#Types_of_Budgeting_Methods Accessed: 10 Sep 2020.

CFI 2020. Types of Budgets. Corporate finance institute. URL:

<https://corporatefinanceinstitute.com/resources/knowledge/accounting/types-of-budgets-budgeting-methods/> Accessed: 4 Oct 2020.

Eby, K. 2017. The Ultimate Guide to Project Cost Estimating. Smartsheet. URL:

<https://www.smartsheet.com/ultimate-guide-project-cost-estimating> Accessed: 10 Sep 2020.

Gupta, M. S. 2020. What is Digitization, Digitalization, and Digital Transformation?

Advisory Group. URL: <https://www.arcweb.com/blog/what-digitization-digitalization-digital-transformation> Accessed: 10 Sep 2020.

LSBF 2018. What is the importance of Financial Management? London School of Business & Finance. URL: <https://www.lsbf.org.uk/blog/news/importance-of-financial-management/117410> Accessed: 1 Oct 2020.

Martin, J. R. 2020. What is Responsibility Accounting? Management and Accounting Web. URL: <https://maaw.info/ResponsibilityAccountingConcept.htm> Accessed: 10 Sep 2020.

NCSU 2020. Project Financial Management. North Carolina State School. URL: <https://research.ncsu.edu/nctc/study-guide/project-administration/project-management/project-financial-management/> Accessed: 2 Oct 2020.

PMI 2020. What is Project Management. Project Management Institute. URL: <https://www.pmi.org/about/learn-about-pmi/what-is-project-management> Accessed: 10 Sep 2020.

PwC 2018. Digitalization in Finance and Accounting. PricewaterhouseCoopers. URL: <https://www.pwc.de/en/digitalisation-in-finance-and-accounting.html> Accessed: 13 Oct 2020.

RabIT 2018. 7 Reasons Why You Need to Start Business Digitalization Right Now. RabIT software engineering. URL: <https://www.rabitse.com/blog/7-reasons-behind-business-digitization/> Accessed 7 Oct 2020.

Rakennustieto, 2020. Arkkitehtisuunnittelun tehtävälueetelo ARK12. rakennustieto.fi. URL: <https://kortistot.rakennustieto.fi/kortit/RT%2010-11109?page=1> Accessed: 27 Oct 2020.

Rouse, M. 2020. Risk Management. Search Compliance. URL: <https://searchcompliance.techtarget.com/definition/risk-management> Accessed: 12 Oct 2020.

Shim, A. I., Shim, J. K & Siegel, J. G. 2011. Budgeting Basics and Beyond. John Wiley & Sons. Hoboken. URL: https://books.google.fi/books?id=uiBwToy7Z1MC&printsec=frontcover&source=gbs_ge_summy_r&cad=0#v=onepage&q&f=false Accessed: 10 Sep 2020.

Simelius, H. 6.11.2020. Partner. AS&H. Interview. Helsinki.

Stončiuvienė, N. & Vaznonienė, M. 2012. The Formation of Company Budgeting System: Importance, Problems and Solutions. Management Theory and Studies for Rural Business and Infrastructure. Kaunas. URL: <http://mts.asu.lt/mtsrbid/article/view/19> Accessed: 10 Sep 2020.

Suunnittelu- ja konsultointiyrittökset SKOL, 2020. SKOL Luokitukset. Jengineer. URL: <http://www.jengineer.fi/303769506> Accessed: 28 Oct 2020.