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Applying User Experience Design into Creating Reports to Support External Client Billing

Metropolia University of Applied Sciences

Master of Business Administration

Business Informatics

Thesis

27.5.2019

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Title	Applying User Experience Design into Creating Reports to Support External Client Billing
Number of Pages	55 pages + 8 appendices
Date	27.5.2019
Degree	Master of Business Administration
Degree Programme	Business Informatics
Instructor(s)	Antti Hovi, Senior Lecturer
<p>The purpose of this Master's Thesis was to create tools in the form of mock-up templates which the Target Organization needs in order to bill the external clients effectively via reporting portal either amending the existing reports or by adding additional attributes. The Target Organization is a management consulting company offering auditing, tax and legal and advisory services to a wide range of clients from multinational organizations to small and medium-sized enterprises.</p> <p>The thesis was carried out as a mixed method research applying both qualitative and quantitative research methods. The qualitative analysis provided much of the research outcomes while the quantitative analysis provided depth to the research findings. A Current State Analysis was based on interviews and descriptive data analysis of actual usage per individual user.</p> <p>The conceptual framework focused on User Experience Design and Project Management Metrics literature. In addition, insights from testing the solution for enterprise resource planning was considered while creating the mock-ups.</p> <p>The outcomes of this study are mock-up templates and additional attributes to support the external client billing for the Target Organizations consideration while creating new or amending existing reports.</p>	
Keywords	Descriptive Analytics, External client billing, Project Metrics, User Experience Design, Mixed Methods research

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1 Introduction

1.1 Overview

Target Organization implemented a new Enterprise Resource Planning (ERP) software and reporting portal in October-November 2018 which in effect made legacy ERP solution and reporting portal obsolete. Based on the author's participation to ERP solutions testing phases, real business needs towards improving external client billing reporting and by the authors own interest towards reporting it was discussed and agreed with the author's supervisors that this topic would be suitable for study. The author of this study is closely connected to the ERP solution and reporting portal on a daily basis for the past ten years.

1.2 Business challenge, Objective and Scope

Legacy reporting portal had many successive layers and duplicate data scattered around to plural reports regarding external client billing. Some users struggled to find the most suitable report to certain situations – whether the purpose is to bill the client based on accruals, browse through past billings or simply to check utilization against budget. All of the aforementioned examples can be seen quite a time consuming and the time could be allocated to external client work for the purpose of generating more billable hours as one Advisory Director elaborated during an interview. A more simplistic approach towards building new reports for external client billing could be beneficial.

The objective of this study is to identify pain points in the legacy reporting portal of external client billing, identify what are the most usable reports and metrics that could be modified and created to comply with future ERP solution and reporting portal.

The outcome of this study is recommendations for external client billing reporting in the form of mock-up templates and additional attributes or metrics.

1.3 Target Organization

The target Organization of this study is a Finnish management consulting company offering audit, tax and advisory services to various instances such as businesses, governments, and public-sector agencies. Target Organization is a member of a global network of independent companies that operates in over 150 countries and is collectively employing more than 207.000 people. In Finland, the Target Organization operates in 22 cities and in two off-shore offices employing collectively more than 1.400 people. Revenue from the last financial year was 148,5 million euros while profit being 12,8 million euros.

1.4 Thesis Outline

The study is divided into seven chapters and is organized as follows. The first chapter is an overview of the business challenge and the Target Organization. The second chapter describes what methods and materials were used in this study, including research methods, data collection, and analysis. The third chapter describes the findings of the current state analysis from interviews and descriptive data analysis of report usage. The fourth chapter discusses existing knowledge of User Experience Design (UXD), insights from ERP –solution testing and project metrics for external client billing reporting purposes. The fifth and sixth chapter presents and validates mock-up templates for the Target Organization. The seventh chapter consists of a conclusion and the author's personal reflections.

2 Research Methods

This chapter describes the research approach, design and materials used in this study as well as data collection and validity. The main source for data collection and analysis are interviews within the Target Organization with the help of descriptive data analysis based on usage reports acquired from internal ITS –function.

2.1 Research Approach

This research is mixed method research and has characteristics of both qualitative and quantitative research approaches. As Saunders, Lewis and Thornhill describe mixed method research:

Quantitative or qualitative research may be used to test a theoretical proposition or propositions, followed by further quantitative or qualitative research to develop a richer theoretical perspective (2012, p. 164).

Mixed methods research in this study combines quantitative exports from the data warehouse and qualitative interviews. Qualitative interviews provided feedback from users of how current external client billing reports are used and what future aspects would be considered as an asset towards more approachable and functional external client billing reporting. Quantitative exports provide additional insights into what are the most used reports and what metrics these reports contain.

2.2 Research Design

The research design consists of four phases as shown in Figure 1 below.

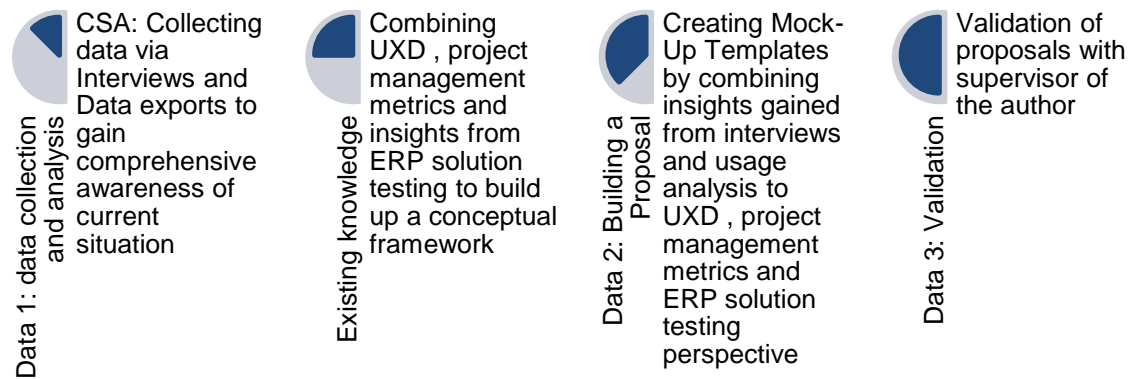


Figure 1. Research Design

The first part of the research is the business problem where the dilemma of the study is presented.

The second part of the research is the current state analysis. The objective is to gain comprehensive knowledge of the current state via interviewing selected users within the Target Organization and analyzing usage of external client billing reporting.

The third part of the research is the conceptual framework. The objective is to learn about User Experience Design (UXD) thinking and project management metrics and insight from ERP –solution testing.

The fourth part of the research is building a proposal. Combining insights from current state analysis and applying a conceptual framework to mock-up templates with comments from the Target Organization supervisor.

The fifth and final part of the research is the validation of the proposals based on feedback from the Target Organization supervisor.

2.3 Data Collection and Analysis

Data in this study is collected via interviews and usage analysis. Both of the data can be described as Primary Data as their primary function is collected specifically for this research (Saunders, Lewis and Thornhill 2012, p. 678)

Data from interviews were collected as shown in Table 1 below. A total of 12 interviews were conducted during February-March 2018 for the purpose of gathering information on the current status and usability of external client billing reporting to find aspects that should be addressed while designing future external client billing reports. All three Business Units (Audit & Assurance, Advisory, Tax & Legal) were presented in these interviews. Out of the 12 interviewees, seven were partners, two Directors, and three Senior Managers. All of the interviewees act in a role responsible for external client billing. Questions that were presented to the interviewees prior to the actual interview are included in appendix 1. Out the interviews, 10 were face to face and two via video conference. All of the interviews were conducted in Target Organization's premises. The duration of interviews lasted on average of 56 minutes.

Table 1 Interview Schedule

Date	Position	Business Unit	Method	Recording/Written Notes
20.2.2018	Partner	Audit & Assurance	Face to Face	Recording, written notes
20.2.2018	Partner	Audit & Assurance	Video conference	Written notes
21.2.2018	Partner	Tax & Legal	Face to Face	Recording, written notes
21.2.2018	Senior Manager	Tax & Legal	Face to Face	Recording, written notes
22.2.2018	Partner	Tax & Legal	Video conference	Written notes
22.2.2018	Partner	Audit & Assurance	Face to Face	Recording, written notes
23.2.2018	Director	Advisory	Face to Face	Recording, written notes
26.2.2018	Partner	Audit & Assurance	Face to Face	Recording, written notes
27.2.2018	Senior Manager	Advisory	Face to Face	Recording, written notes
27.2.2018	Senior Manager	Audit & Assurance	Face to Face	Recording, written notes
28.2.2018	Partner	Tax & Legal	Face to Face	Recording, written notes
1.3.2018	Director	Advisory	Face to Face	Recording, written notes

Data of report usage was obtained through internal ITS-function. Usage analysis is generated based on actual usage per report per by individual user between 1.11.2016 –

31.12.2017. Usage of scheduled reports and usage of Admin personnel (mainly team members of the Finance department) has been deducted from material to gain confirmed usage of reports by the Business Unit users. The analysis was conducted via Microsoft Excel and PowerBI.

A more comprehensive data collection plan is shown below in Table 2.

Table 2. Data Plan

Data Round	Data Type	Data Source	Date & Approach	Recording	Purpose and Focus
Data 1: CSA	Internal document	Usage report	Continuous during research	Written notes	Descriptive and statistical data analysis
Data 1: CSA	Interview	Engagement Managers from Business Units	February-March 2018	Recording	To gather insights of different needs on business areas
Data 2: Building the proposal	Internal document	Billing team, controller team, other managers not interviewed during CSA	Continuous	Written notes	Build the proposal in a collaborative manner
Data 3: Validation	Presentation and discussion	Target Organization supervisor	May 2019	Written notes	To present the proposal (Mock-up templates and additional attributes)

2.4 Validity and Reliability

When considering the worth, validity and reliability of the data one should consider the following questions provided by Coghlan and Brannick (2014, p. 91):

- 1 Who collected the data?
- 2 When was it collected?
- 3 What was collected?
- 4 Why was it collected?

The primary data was collected by the author via interviewing Target Organizations selected engagement managers who were confirmed by the Business Unit leaders. By choosing multiple interviewees from all of the three Business Units the reliability of the

interviews will be enhanced as each of the Business Units have different needs and approaches. Each of the interviews was documented and therefore each question and answer can be traced to its origin. The interview questions were reviewed and confirmed by the author's supervisors.

An extract from data warehouse regarding report usage of the Target Organization was requested from internal ITS –function in order to analyze which reports are being used in the Target Organization. The author does not possess the necessary access rights to the data warehouse and therefore the aid of internal ITS –function was necessary. The cleaning of the data was done by the author.

Both the interview data and data warehouse extract were mostly collected during February-March 2018. Data streams were collected in order to get a fairly comprehensive viewpoint on how the Target Organization uses reports to support external client billing.

Mock-up templates were constructed via insights gained from interviews, descriptive data analysis and discussions with members of the billing team, controller team, and various other engagement managers who were not interviewed. Mock-up templates were validated by the supervisor of the author.

3 Current State Analysis

Current state analysis (CSA) is done to comprehend what is currently being used or utilized and what is the status of it. Paul Crosby from The Uncommon League describes current state analysis as follows:

Understanding the current state is arguably the biggest step for a Business Analyst or Product Owner on a new project to take. Projects, processes, and systems have a rich history that is typically complex. The larger the organization, the more complexity that is in play. User perceptions, stakeholder expectations, the political landscape, and many other factors help or hinder the ability of the Business Analyst to acquire an understanding of the current state (2017).

Sergey Korban (2015) describes valuable outputs that CSA provides. To mention a couple that is feasible regarding this study:

- 1) Clear definition of a business problem, needs and pain points
- 2) Identified causes of the poor performance of either business processes or technology solutions (or both).

Having a clear picture of the current situation and identified pain points, a Business Analyst can make well-supported recommendations about the project scope and feasible options to address the identified problems. Thus, the gathered knowledge enables to set out a path of improvements towards the desired 'to-be' state (2015).

Current State Analysis chapter is divided into two sections: interviews and descriptive data analysis. The goal is to combine these two elements into a single point of view for building mock-up templates and additional attributes for validation.

3.1 Interviews

A total of 12 interviews were conducted during February-March 2018 for the purpose of gathering insights from the end-users responsible of external client billing on the current status and usability of external client billing reporting to find aspects that should be addressed while designing mock-up templates for proposal and validation. All three Business Units (Audit & Assurance, Advisory, Tax & Legal) were presented in these interviews. Out of the 12 interviewees, seven were Partner -level, two Director -level and

three Senior Manager -level as shown in Table 1 in chapter 2.3. All of the interviewees were accepted by the leader of the Business Unit of interviewees' respective function.

All answers in the analysis part of the interviews are treated as anonymous and only Business Unit and position of the interviewee are shown, for example, Audit & Assurance Partner, Advisory Director or Tax & Legal Senior Manager.

Out of the 12 interviews, two were conducted via video conference and 10 face-to-face. Interview questions were sent beforehand to the interviewees in order to the interviewed be prepared for the questions. Field notes were taken during all of the interviews and audio recordings were taken in face-to-face meetings. Interview question can be found in the appendix 1 and field note template in the appendix 2.

Interviews questions were confirmed with Target Organization supervisor and with the author's colleagues. Questions are broken down into three sections:

- 1 General questions for background and support,
- 2 External client billing reporting questions and
- 3 Other questions

3.1.1 General Questions for Background and Support

In this section, basic background questions regarding external client billing reporting are asked. The purpose of these questions is to get an overall view and feelings of the reports.

Question: With what word would you describe our current reporting portal?

Answers & Analysis: Most of the interviewees regardless of their respective Business Units described the current reporting portal as complex, confusing, disordered, multi-faceted or ineffective. However, some of the interviewees acknowledged that their opinion could be derived from the fact that their own skills in operating and moving around the portal could be better. Few interviewees gave positive comments (clear, straight, good) about the portal – these interviewees indicated that they know what to look for.

As described in the business problem of this study and based on the analysis above there clearly is a need for restructuring and training to be considered when designing mock-up templates for external client billing.

Question: In what role do you usually perform in an engagement?

Answers & Analysis: Each one of the interviewees performs as a responsible person of external client billing and depending on their position in either as a Client responsible person or an Engagement Partner. Modified internal confidential descriptions of different roles are presented in appendix 3. A couple of the interviewees also perform in the Project Manager -role when the engagement is opened under different Business Unit's cost unit e.g. tax consultancy in Audit engagement or financial consultancy in tax engagement.

Question: In overall, what is your opinion on external client billing reports?

Answers & Analysis: Overall the answers can be described as positive in the sense that there is much information available. However, this can be seen as a strength and a weakness: lots of data and plural reports can be utilized if a person knows what and where to look for and this is a challenge. Few of the interviewees regarded the portal as illustrative and some others failed to see any actual value for their own personal use. One Tax & Legal Partner had a comment that the business has grown and moved forward ("cross-doing") and the reporting portal does not support this transition.

Clearly, there is a pattern here in terms of questions and answers which are overlapping themselves. Current reports gain thanks for the availability of data. The downside is from what available report one looks for the correct answer for a particular challenge.

Question: What are the strengths of external client billing reports?

Answers & Analysis: Interviewees feel that data is widely available, it is multi-faced, there are plural reports to choose from and the portal itself has been developed further during its time of existence. These answers from the interviewees are encouraging. The availability of data and the ability to exploit the data is crucial.

Question: What are the weaknesses of external client billing reports?

Answers & Analysis: Data is widely available but is it scattered for example one has to browse two different reports to gain comprehensive view of unbilled amount in an engagement: of who's hours it consists of, what is the booked hour work comment, are there expenses and if yes, how much, what has been previously billed and so on. Few interviewees saw a lack of comparison to previous year billed amount as a weakness. No flexibility in terms of sorting, filtering or customization can be seen as a huge weakness and one might feel stuck. Also the lack of a "main view" is a weakness. One interviewee raised a concern of the up-to-datedness of the portal and therefore the user is unsure which report has the most correct data in it.

The availability of data can be seen as a strength and a weakness as mentioned before. A weakness in terms of how to use the data and what is the most suitable report for a particular situation. As there are quite a few reports to choose from with overlapping information this is a challenge that should be addressed. Perhaps combining reports with similar information together and at the same time trying to achieve a much more simplistic approach to reports with the ability to drill down deeper to a detailed level.

Question: What do you require from external client billing reports?

Answers & Analysis: Ability to drill down to individual data in engagement during certain timeframe i.e. in one month's time. To see a "whole picture" at one glance. What is the engagement margin? Were there any negative or positive adjustments to work in progress (WIP)? When the engagement was last billed? What was billed the last time? What was the whole billed fee last year? Search, sort, filter and customization methods for reporting. Unification of reports.

Some of the above requirements are quite challenging. Luckily for some of these, the answers are already there to some extent. For an example implementation of a cockpit (a main page -view) in current ERP –solution is presented to the end-user, therefore, the user is able to see engagement WIP, utilization or debtor information in one glance. In addition, the current reporting tool supports customization – users can create their own reports with the data and visualization they need.

3.1.2 External client billing Reporting Questions

This section attempts to get deeper into external client billing reports and how interviewees are utilizing these.

Question: How do you follow your WIP (Work In Progress)/ unbilled amount?

Answers & Analysis: There are multiple ways to follow unbilled amount and WIP or engagements: some of the interviewees use ERP solution and create draft bills of their engagements and from this viewpoint decide most accurate approach towards billing the client and some follow the scheduled On-going projects –report which is delivered on a weekly basis and act accordingly. Clearly there are as many ways as there are users.

Current ERP –solution has a cockpit main page view which shows WIP in euros, Engagements, Debtors, and Utilization to mention a few elements and the user can access from this view the corresponding area. As the cockpit is the first viewpoint on the headers mentioned earlier there should be some unification regarding how users will follow their WIP and act accordingly. Obviously, there will be a user who like to run reports and drill down to data separately.

Question: How would you like to follow your WIP/ unbilled amount?

Answers & Analysis: In general there were many different answer from different interviewees. Some would like to have a main page –view compared to scheduled reports; On-going projects –report was delivered on weekly basis and the Senior Manager from Legal Services would like to have this process commenced. One Advisory Director would like to follow unbilled amounts per phase. Most of the interviewees would like to see the profitability and the margin of engagement more frequently.

Most agreed that a comparison to last year's fee and current unbilled amount would aid them in the billing process. In addition drilling down to booked hours would be a great asset. Audit Partner raised a point that lighter reports, that is, fewer columns and less clutter would be more usable. One Legal Partner would add bill rights to assistants to reduce the dependency in billing team – the billing team members possess admin rights to the portal and therefore are able run every report compared to the assistants.

The trend continues. Interviewees feel that in order to bill the client successfully these are crucial elements to do so. Obviously, there are multiple ways to follow WIP – depending on whom you ask.

Question: What are the most relevant pieces of information in external client billing reports –reports you try to find?

Answers & Analysis: Revenue of the engagement and the ability to drill down: booked time and expenses and what is the margin of the engagement and tasks (phases), that is, of what elements the WIP consists of. What has been previously billed by the client (cumulative value).

The last two questions could be grouped together as these both clearly state how the interviewees follow their WIP and how they would like to do so in the future.

Question: Do you modify external client billing reports –reports to your liking? For what purpose, what information is missing?

Answers & Analysis: In essence, only a few of the interviewees modify the reports to their liking in Excel removing or hiding columns or adding sum function or sorting options.

The current reporting tool will allow users to create and modify the report to their own liking and the user still has the option to export the data to Excel for further manipulation of data.

Question: In what situation did you find the external client billing reporting inadequate/sufficient?

Answers & Analysis: Comparison to last year's data to bill the current engagement is missing and would be helpful. Comments on booked time to bill the client if there are some out-of-scope work that is not part of the engagement and should be billed separately. Editing and adding manual breakdowns or subcontractor invoices to our own invoices. Lack of customization, that is, a more simplistic approach would be appreciated.

Few of the interviewees couldn't recall incidents that could have been resulted from inadequate reporting.

Customization, comparison data and drill down –options could have a positive effect on external client billing.

Question: What would you change in external client billing –reports? Free thoughts.

Answers & Analysis: Most of the answers reflect "In what situation did you find the reporting inadequate" questions answered. Interviewees wish to see comparison data between clients engagements, drill down to engagements booked time and expenses or to customize reports for their own liking.

Question: In what kind of form would you like to see our external client billing reporting?

Answers & Analysis: In general the graphical presentation of reporting was perceived good. However more mobile friendly and modern approach would be appreciated, the main page overall/cumulative view of billing and margin, how these compare to last month or adding different colors to indicate the status of a metric, that is, green indicates a good situation and red indicates a bad situations based on chosen configuration.

The current reporting tool will solve many of these requests as users can create and modify their own reports and add graphs based on the data. In addition, PowerBI dashboards have been introduced to engagement managers and other stakeholders depending on user access rights.

Question: Scheduled email containing certain reports/ information – would you find this useful?

Answers & Analysis: There were interviewees who follow these scheduled emails regularly and some never. Some of the interviewees would like to see this kind of information in the main page view and some of the interviewees run these reports themselves.

Clearly, there are different types of working habits between interviewees. Unfortunately, regarding future ERP and Reporting solutions, the scheduled email containing different reports is in essence in the past as user have access to main page view which contains WIP and Debtor information. However, users are able to schedule their own favorite reports through the current reporting tool.

Question: What is your opinion on transparency? I.e. team members would be able to see the hours of colleagues, accrual of the whole engagement (vs. budget?) etc.

Answers & Analysis: This was a controversial topic. Some of the interviewees would like to see more transparency in the booked time of the engagement for the whole team to see them. Some of the interviewees feel that this would create unforeseen managerial work or that the engagement's focus is lost and the follow-up should be left in the hands of the engagement manager.

Question: How up-to-date reports would you like to access (i.e. what kind of update frequency would you like to have)?

Answers & Analysis: Most of the interviewees feel that the current frequency is adequate enough and few would like to have as up to date data as possible. A couple of the interviewees felt that this issue cumulates how frequently people book their time to their engagements, that is, WIP is up to date as long as everybody book their time regularly or as Tax & Legal Partner elaborated: "integrity of activities".

3.1.3 Other Questions

The focus of these questions is to gather additional insights towards external client billing and other issues regarding reporting.

Question: Are there any regularly occurring client needs that our reporting cannot handle i.e. you have to combine data manually from different sources etc.?

Answers & Analysis: Interviewees from the Audit & Assurance Business Unit would like to have reports which breaks down audit and other fees. By nature of Audit, the auditor is required to break down how much has been billed from the client i.e. what are the audit fees and what are other consultancy services. External clients would also like to have this information. Most of the interviewees feel that we should have the option to add manual breakdowns and/or other attachments to support our billing or that reporting would support man-days calculation.

The current ERP –solution supports attaching user created breakdowns and therefore the Engagement Managers are not that dependable on the Billing team for support in this matter.

Question: Does your team/ group use budgeting and/or update estimates to track progress on engagements?

Answers & Analysis: Interviewees from Audit & Assurance Business Area stated that some teams use their own excels or tools for budgeting and this info does not flow into Legacy ERP Solution and follow up is rather difficult when data is spread in two different places and formats i.e. in ERP solution and Excel spreadsheets. However, all interviewees from Audit & Assurance Business Area recognized the fact that budgeting should be maintained in some format and most preferably in one place. One partner felt that for smaller engagements e.g. less than twenty hours conducted in previous engagement would suffice for reference for the new engagements whereas another partner felt that engagements with more than 100 hours would benefit on a more detailed budget for follow-up and forecasting.

Interviewees from Tax & Legal share mostly the same thoughts as Audit & Assurance interviewees that budgeting could be implemented to certain types or longer engagements for forecasting purposes. However, it should be noted that audit engagements and e.g. legal engagements are quite different in nature regarding their respective services. Usually audit fees are fixed and agreed between service providers and clients whereas legal services can be described more on-going and the work can occur in irregular intervals: during an engagement billable hours can vary from five hours in the first month of the engagement to twenty hours in the second month – budgeting these hours can be quite challenging when these hours could be described merely as plausible. One partner in legal services stressed out that: "we should identify regularly occurring work to increase forecasting to remove factors on uncertainty". However, there are exceptions. Compliance services teams engage in monthly bookkeeping, reporting or tax returns on the client's behalf. Hours conducted in these services are quite well known on a monthly basis so forecasting could be done – in principle, as obviously booked hours can vary.

Interviewees from Advisory services also had similar thoughts on budgeting as other services. One Senior Manager preplan hours separately in the offerings phase for the

client and afterward, this info is maintained in separate forums and not in the ERP solution. The senior manager feels it would be beneficial to compare budgeted hours to accrued hours and act accordingly i.e. contact client if the budget is too small or there are unplanned elements in the engagement scope which are not covered in the offerings phase.

Not budgeting in technically speaking but the current ERP solution has an estimated fee numerical value in the engagement data (this will be covered in 'Existing Knowledge' – section). Utilization of this field could serve as a starting point to track progress within engagement in terms of cumulative euros i.e. if the engagement has a recoverable estimated for 10.000 euros and the total cumulative unbilled amount is 8.000 euros the engagement would have an 80% completion rate.

Question: Report “sparring” –role. Would you be interested in becoming a contact person for upcoming requests on reports i.e. evaluate if certain attributes are necessary for the whole Service Area?

Answers & Analysis: Most of the interviewees showed interest in this role and are available for this role when and if their own schedule permits this. However, there were few opinions that these kinds of a decisions of what we report should come from top to bottom and not the other way around.

The idea behind this question is to gather potential interest in a role that would consider or evaluate certain changes or additions to the reports. By forming this collective the Finance department would have access to insights from different Business Areas on what to improve or modify in billing reports. Then again different dashboards could be designed towards different Business Units.

3.1.4 Interview Summary

Generally speaking, there are answers, issues, and themes that come up frequently from the interviewees – partly due to overlapping interview questions. Most of the interviewees feel that the legacy reporting portal in overall was complex, confusing and in disorder. Some, however, felt the portal being clear. As mentioned earlier some of these answers

reflect on the whole portal not just external client billing reports of it. Overall the whole reporting portal gained thanks for the availability of data but as data is presented widely and scattered it can be difficult to find the most convenient report to exploit the data. Also, the inability to search, sort, filter or drill down to data was seen as a weakness as well as a lack of comparison data to previous engagements. Some added information (such as margin) would be appreciated.

Most of the interviewees would appreciate the main page view which the current ERP solution provides. The user is able to drill down to engagement on a general level as a method of following engagement WIP or debtors. Some, however, would like to follow the WIP as was done in the legacy ERP via scheduled emails containing more detailed information (such as hours, revenue, margin, adjustments to WIP and so forth) of an engagement. Most of the interviewees felt that delay of one day would suffice as to how up to date the data is.

When asked about the transparency of available data the interviewees were divided. Some of the interviewees would like to have and allow access to engagement data while others feel transparency would add unnecessary managerial work and focus would be lost from the non-managerial perspective. The ERP solution provides answer to this as engagement managers are able to grant different access rights to different users given some Target Organization internal criteria (such as position or security roles) are met within the ERP solution.

Budgeting is a theme that should be looked more closely throughout the Target Organization. Some Business Units use budgeting on different forums that are not linked to the ERP solution. Budgeting of hours is only done on discipline level in the Target Organization. Budgeted engagements would allow the managers more visibility of how the engagement progresses. The Target Organization is, however, implementing a solution that would solve some of the issues regarding budgeting. The ERP solution also provides a partial solution by forcing the manager to estimate how much the billable fee of the engagement is.

One of the issues that came up with most of the interviewees, or to have more a general assumption, was that persons responsible for external client billing do not know how to use or to be more precise do not know what would be the best option for certain report.

Therefore unification of reports and less available reports should be considered. In addition training, glossary or manual of individual reports and attributes could solve this issue to some extent. The rest is more or less up to the person her/himself.

3.2 Descriptive Data Analysis

This section covers how the data analysis of report usage is covered using descriptive data analysis. Descriptive (or reporting) analytics is about knowing what is happening in the organization. It also refers to understanding trends and what are causing these occurrences. It typically answers the questions “what happened?” and “what is happening?” (Sharda, Delen and Turban 2018).

Usage analysis (primary data) is generated based on actual usage per a report by individual users between 1.11.2016 – 31.12.2017. Data itself was obtained from the internal ITS support function based on a request by the author of this study. The data contained detailed information of what reports have been used, when was it run and by whom and to which Business Unit and group the users belong to. Additional manipulation and cleaning of the data were performed by the author to serve the descriptive data analysis.

On the 1st of November 2016 a new portal was implemented to use and data is available from this point on. It was also decided with the Target Organization supervisor that the end date of data concerning this research is set to the end of 2017. During 14 months timespan, the Target Organization went through one fiscal year and two calendar year ends which are typically busy in terms of external client billing. Based on this it could be assumed that this should show up as an occurrence in the analysis. However, it should be noted that the usage of Finance department personnel has been omitted from the analysis part as well as any scheduled reports to gain a more comprehensive picture of how different users from different Business Units use the billing reports. The figure below visualizes billing report usage between Business Units and the Finance department.

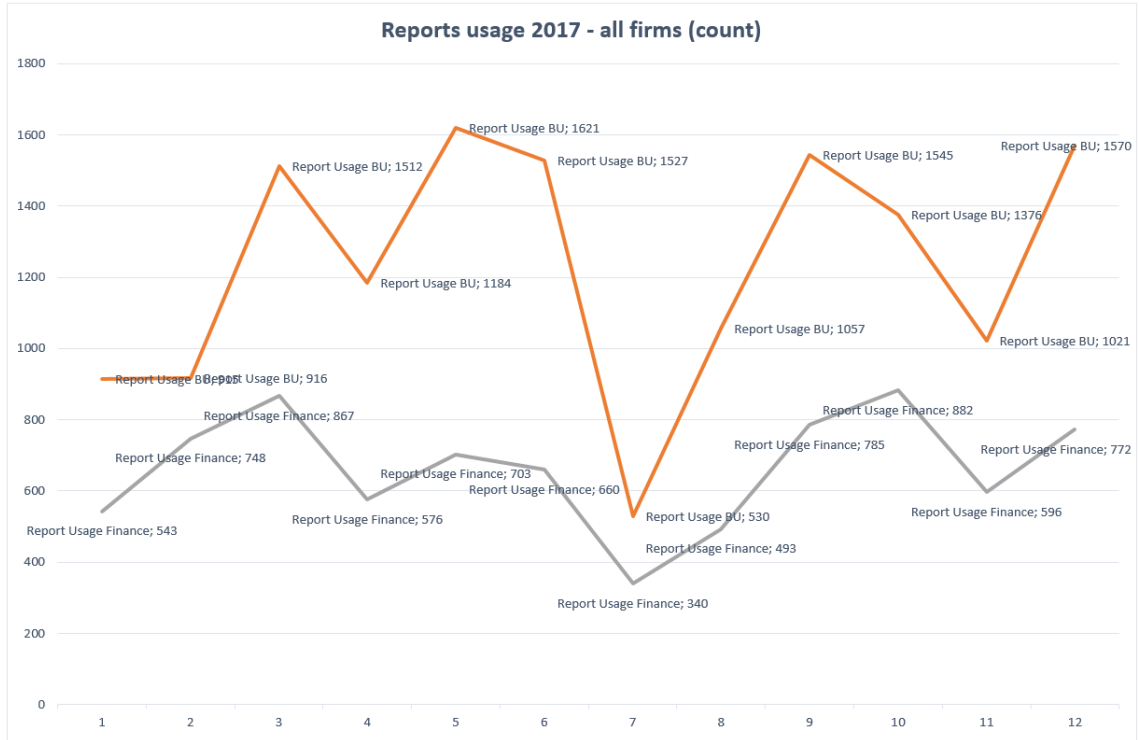


Figure 2. Business Unit and Finance report usage

The objective is to get a comprehensive understanding of current usage and to offer enlightened assumptions based on report attributes of why certain reports are being used.

Data visualization of the analysis is created with Microsoft Power BI and Excel. Acquired data from the internal ITS –department is imported to Microsoft Power BI and dashboards created for the purpose of visual analytics.

3.2.1 Report Usage

Figure 3 below is a visual summarization of all reports usage per Business Units. As it is shown in figure Audit & Assurance is the most active Business Unit to use external client billing reports followed by Tax & Legal and Advisory. At a glance, it can be seen that all three Business Units show similar usages per reports while there are some differences.

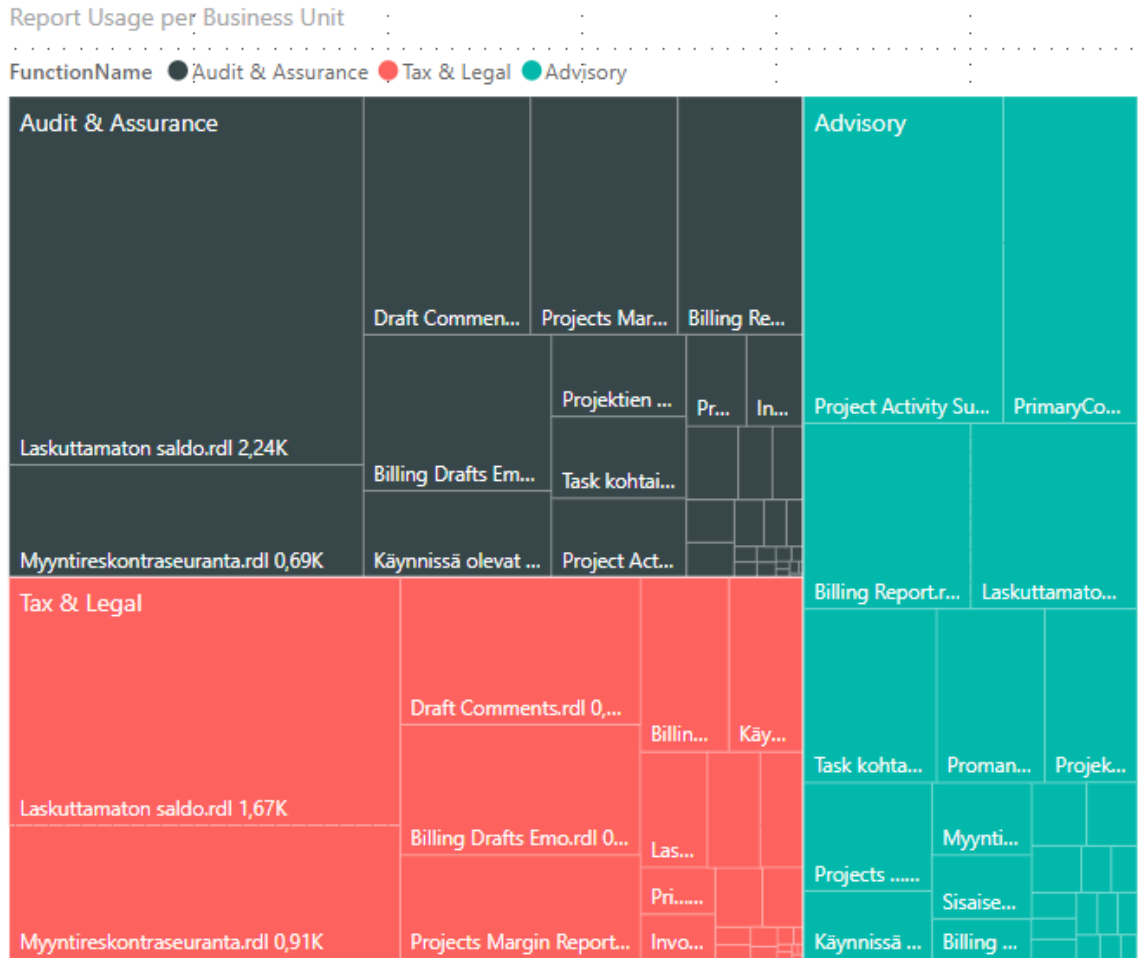


Figure 3. Report Usage per Business Unit

Figure 4 below illustrates usage per reports divided by Business Units. Usage is also narrowed down to the ten most used ones.

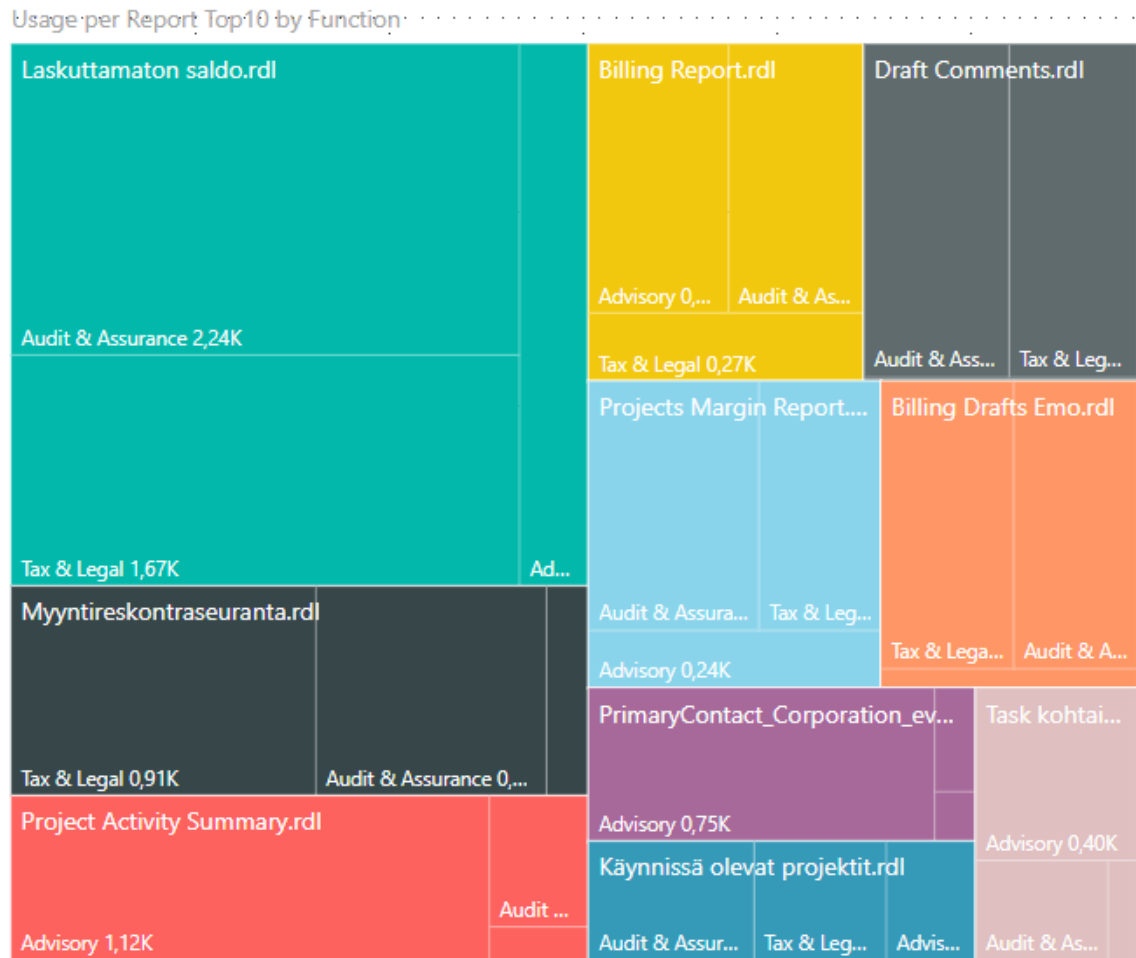


Figure 4. Top 10 reports per Business Unit

The most used report combining all three Business Units is the Unbilled Amount –report (Laskuttamaton saldo). This report is the most convenient way of following up unbilled amounts in a summary level per engagements as it contains basic information such as corporation, client, engagement code and profit center, whether the engagement is active, locked or closed, description, which time and expense bookings have been billed and which have not been billed). It is interesting to notice that the Advisory Business Unit has so little use for this particular report. However, there could be plausible reasons why the Advisory Business Unit does not utilize this report. As shown in the figure above Advisory Business Unit shows significant use of Project Activity Summary and PrimaryContact_Corporation_events_and_comments –reports compared to the other two Business Units. Both of these reports contain booked time details in summary per person or in detail down to daily inputs divided into phases of the engagement. Some subunits in Advisory Business Unit engage heavily in fixed price billing meaning that a fixed fee

has been agreed with the client regardless of hours per month – for example, monthly retainers. Additional or out-of-scope hours are agreed separately. By nature Audit Business Unit is similar in terms of fees. However, as the audit is mandatory and legislated in Finland from multinational corporations to small family-owned businesses varying from thousands of hours to just a few the follow up of accrued hours could be done via any of the three reports mentioned in this chapter.

The second most utilized report is accounts receivable/debtors –report (myyntireskontraseuranta). Again both Audit & Assurance and Tax & Legal use this report considerably more than Advisory Business Unit. There could be various reasons why this is so. Either there is no need to follow accounts receivable items in Advisory Business Unit as bills are paid promptly or persons responsible for external client billing neglect this info. Perhaps the reason is much more simplistic than the aforementioned assumptions. This report is also scheduled and sent every two weeks to engagement managers and follow-up is being done this way throughout organization – Audit & Assurance and Tax & Legal personnel are just more eager to follow these items themselves. Basically, this report has become obsolete because of ERP's cockpit –view where open debtors (accounts receivable) are shown. However, there could be a need for a report format to be provided to clients or other stakeholders.

The third used report is 'Project Activity Summary' -report. Basically, it is a listing of hours and tasks/phases per person in an adjustable timeframe. Also, the Standard cost is added. As mentioned earlier this report can be used to check the hours and expenses in fixed fee or time based -engagements as a whole. This report does not take into account whether the hours have been billed by the client or not.

The fourth most used report is 'Billing' -report. Basically, this report is a list of engagement managers billing on the desired timeframe. Interestingly Advisory Business Unit is the most frequent user of this report followed by Audit & Assurance while Tax & Legal follows this report the least. Tax & Legal billing, in general, is done on a monthly basis and in most cases there is no need to know what has been billed as any hours that occur in draft bills are in principle unbilled from the client. Obviously, there are special cases that require more scrutiny and these are out-of-scope of this study. Audit & Assurance utilization of this report could be presumed quite straight forward: usually, clients are billed on a quarterly, bi-yearly or on a yearly (or some other frequency) basis. Audit &

Assurance shows significant usage of this report during May comparing to the other two Business Units. Usually, the first few months are the most pressing in auditing and hence the billing is done during Q2 in the calendar year as most Finnish corporations follow calendar year as their fiscal year.

Draft comments –report contains detailed information of a draft bill, such as workday, booked time and expenses, euros and work comments. This report has the option to take all of the (approved) draft bills of the engagement. Similar to Draft comments –report the billing Drafts Emo –reports contain a breakdown of a draft bill which contains work day, booked time in hours and euros of a person(s), work comments and expenses but in a more edited form. This report is only generated if a draft bill exists in the legacy ERP. This report is the most convenient way of browsing through what hours and/or expenses are booked on engagement and to ponder whether the amounts are billable from the client or not.

Project Margins report is the sixth most run report. The report contains margin data on a high level (on an engagement level) and on a detailed level broken down to each team member. Audit & Assurance personnel run this report almost half of the total usage followed by Tax & Legal and Advisory. Project Margins report could be described as a mid-tier report by usage – however much of the metrics are also presented in On-going projects –report (which is automatically sent weekly). Consolidation of these two reports should be considered.

PrimaryContact_Corporation_events_and_comments –report is a quite similar report compared to Project Activity Summary –report. However, this report breaks down each individual booked time entry per task/phases to its own row, indicates what the standard cost amount for the row is and what the standard charge rate is. Whether the engagement is fixed fee or hourly based this report is more detailed compared to Activity Summary –report and users are able to check the hours and expenses in a more detailed level considering the whole engagement.

On-going project –report is not surprisingly ninth most run report and in the low-tier in ten most used reports as this report is scheduled to be sent on a weekly basis to the engagement managers. In principle all time and expense bookings from the previous

week should be entered by Monday and therefore the On-going projects –report should have the most accurate info with one day delay.

Task kohtainen laskuttamaton saldo –report contains much of the same info as Laskuttamaton saldo –report but with more details of how the hours and expenses have been distributed between tasks/phases. This report can have three separate detail levels for users' liking: simple, full and finance. The depth and attribute increase depending on the level: simple contains fewer attributes than full and finance contains the most attributes.

3.2.2 Report Usage Summary

Table 3 below contains a listing of how Top10 –reports rank in different Business Units in combined usage. As only combined usage was taken into account in Top10 –reports there are individual reports used by Business Units that are not covered in the analysis part.

Table 3. Ranking of Top10 Reports by Function

Most used reports by Function (combined use)	Advisory	Audit & Assurance	Tax & Legal
Unbilled Amount	4	1	1
Debtors	10	3	2
Project Activity Summary	1	10	
Billing Report	3	5	6
Draft Comments		2	3
Project Margins Report	8	4	5
Billing Drafts Emo		6	4
PrimaryContact_Corporation_events_and_comments	2		
On-going projects	9	7	7
Unbilled Amount by Phases	5	9	

The unbilled amount is clearly the most used report for the organization to follow up billable amount manually even though On-going projects –report is delivered weekly and ranked 9th on total usage. Therefore it can be argued that this could be one of the most convenient ways to follow ones unbillable amounts within engagements. Unbilled Amount by Phases is also run quite frequently by Advisory and Audit & Assurance Business Units – this report is similar to the Unbilled Amount report the difference being more detailed visibility to individual phases. On-going projects –report contains unbillable amounts per engagement on a summary level. Debtors –report is also highly used in Audit & Assurance as well as in Tax & Legal. Open Accounts receivable sums are also

presented in On-going projects –reports – however, this report does not contain detailed information when there are multiple invoices unsettled within one engagement.

As mentioned earlier the Project Activity Summary and PrimaryContact_Corporation_events_and_comments contain much of the same information, the latter being more detailed and presenting data on a work date level among other details. Consolidation of these two reports should be considered however both of these reports serve a purpose, especially in the Advisory Business Unit as can be seen in the table above.

Billing report contains individual external client billings per engagement manager and it is widely used in all of the Business Units. It would be safe to assume that this kind of report can be utilized in the new reporting portal besides the fact that the ERP solution by default displays engagement manager's billings when accessing the actual billing portal.

Project Margins report is run by all of the Business Units and as indicated in the interview results the engagement managers would like to have this data in the future as well.

Billing Drafts Emo –report and draft comments -report are surprisingly only run by Tax & Legal and Audit & Assurance Business Units. It is interesting to notice that the Advisory Business Unit does not use or rather their usage does not reach Top10 ranking. There are various plausible reasons why this could be as it is: some of the services that the Advisory Business Unit provides are fixed (monthly) fees where in principle the need to see the hours on draft bill level is not necessary. Following accruals, however, are done via two other reports. Tax & Legal Business Units' services are in general considered on-going services where the billing frequency could be characterized essential and this report provides the most accurate information. The usage of this report by Audit & Assurance could be derived for using to SME companies to gain confidence that all hours are booked.

As mentioned before On-going projects –report is delivered on a weekly basis and this could be seen a convenient way of following up the status of engagements.

3.3 Summary of Current State Analysis

The interviews confirmed the business problem statement stating external client billing reporting having many successive layers and duplicate data scattered around to plural reports. The availability of data was perceived both as a strength and a weakness. These statements can also be observed from the descriptive data analysis part of the current state analysis and therefore consolidation and restructuring of reports should be considered.

As the descriptive data analysis indicates along with the interview results there are various ways to follow accruals of the engagement and bill the client accordingly; some follow engagement accrual through scheduled reports, some through ERP solution. Much of the needs the engagement managers have are already presented in various reports described in the descriptive data analysis chapters. The issue seems to be how the data is presented in the most convenient way. What are the metrics that instigate the external client billing? In essence the managers need to have information about how many hours there are booked on the engagement, are there any expenses, which of the hours and expenses are billed and which are not, what has been billed in the past or last time – if anything, what is the margin of the engagement and are there any adjustments – either positive or negative being made. The question seems to be how to exploit the data most conveniently and to access the data in a drill-down fashion to the detailed accruals of the engagement without browsing multiple different reports. In addition, a glossary, manual or formal training of reporting should be considered to raise the awareness and knowledge of the engagement managers.

Some of the issues that arose during interviews are already solved, such as the main page view on a high-level which the engagement managers can follow and act accordingly or add a user-created manual breakdown to the invoice.

4 Existing Knowledge

The existing knowledge chapter concentrates on existing knowledge and literature gathered for this study and is divided into three sections: User Experience Design (UXD), project metrics and discoveries and insights gathered from the testing phase of the new ERP –solution in fall 2018.

As the business challenge and outcome of the CSA indicated there are multiple overlapping reports to be run in order to get a comprehensive view of the billing status of the engagement. With this in mind, the existing knowledge consists of the UXD approach. The goal is to design mock-up template reports which could answer better to the needs of the engagement managers. In addition to UXD other focuses are on insights gained from testing phases of the ERP solution. Project management metrics literature is added for support.

4.1 User Experience Design (UXD)

One of the most important challenges for companies is to design the best User Interface (UI) for their product. To achieve this the companies need to change the focus from designing the best UI towards designing the best User Experience (UX). Usually, the focus is given to visual aspects – the best UX can be achieved if the usability is also aligned with the functionality and visual concerns. Usability is a criterion that determines how easy the product is to use for its users. Even if the product is visually aesthetic and it has many performance related attributes it cannot be fully utilized if it is unusable (Yayici 2014).

UXD is about designing interactive experiences. It combines a variety of methods for the creation process. A product or a service can only be considered successful if it meets the demands from the client and it provides a good experience for the intended users. Products or services with poor experience tend to be replaced with improved designs – sooner or later (Allanwood and Beare 2014).

4.1.1 UXD Processes

The below image is a simplified linear design model presented by Allanwood and Beare (2014, p. 124) based on an interview of Garry Byrne. The purpose of this chapter is to familiarize one into the concepts of UXD via this simplified model. Each section is further explained and combined with the topic of this study.

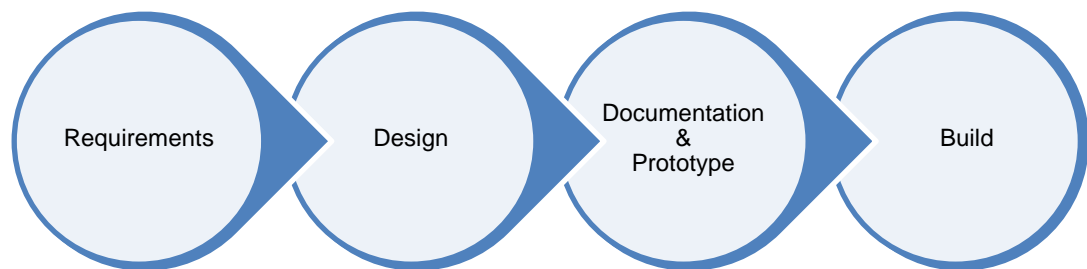


Figure 5. Linear UXD process

Requirements

Yayici (2014, p. 28) broke the requirements into five headings:

- 1 **Business requirements** answering why clients need a new solution
- 2 **User requirements (use cases)** answering what client needs should the new solution meet
- 3 **Functional requirements** answering what functionalities should the new solution have to meet the user requirements
- 4 **Non-functional requirements** (such as usability and performance) and business roles answering how the new solution should work
- 5 **System requirements** answering technically how the new solution will function

Allanwood and Beare (2014, p. 120) elaborate the above first two headings by: 'A good place to start the design process is by creating a list of initial design requirements'. In reference to this study the first two requirements can be characterized as follows:

- 1 Target Organization needs to bill the external clients more effectively and needs clear supporting solutions for it and
- 2 The person responsible for external client billing needs to have functional billing reports and clear understanding of what metrics the billing report contains

The last three requirements can be closely linked to the second requirement in terms of generalizing 'what' the persons responsible for external client billing need. In addition, the needed drill-down option as indicated in the interviews is functioning properly as the function has already been implemented into use. However further exploration of the reporting portal's functionalities and modifications and iterating the user requirements could be seen as on-going work in the future to answer client needs more thoroughly.

User requirements were gathered in the CSA phase via interviewing persons responsible for external client billing. Szabo argues that interviews are 'a must have' in user experience projects (2017, p. 81). The CSA highlighted pain points which the interviewees face while browsing legacy billing reports.

Design

The design aspects of user requirements are personas and scenarios. Allanwood and Beare (2014) describe personas as:

A fictional description of a model user based on high-quality user research of actual users in the target user group. It will include details about the user's education, lifestyle, interests, values, attributes, and patterns of behavior (2014, p. 114).

Szabo (2017) described personas as:

Personas are fictitious characters, representing a group of users with similar goals. Personas should be rendered as short, shareable, and easy-to-understand character sheet containing the behavior patterns, needs, and emotions of a target group (2017, p. 79)

In conclusion, a persona can contain many attributes that may help the designer to create a persona that describes the target audience. For this study, the personas attributes are in essence non-existing as there is no actual need to define demographic information,

education or age to mention a few. Based on the interviews during CSA the below statements have been derived in order to create scenarios.

Table 4. User Persona and Scenarios

M. Manager – user goals and scenarios	
What do I need to bill the external clients effectively?	I need to know the booked time on my engagements (who has booked the time, when the work occurred, how much hours the person booked, what was the work that occurred – I need to know the work narrative)
	Are there any expenses booked to my engagements (travel expenses, subcontractor fees, trade register/governmental fees – whose expenses, when did these occur, how much are the expenses, expense description)?
	Are we on a budget (scope creep)? What was the estimated fee for the engagement?
	What is the margin of the engagement? Were there any adjustments?
	What has been previously billed from the client? Did we bill the client for this service already?
	What is the unbilled amount? Of what hours and expenses it consists of? I need to have a breakdown of unbilled hours and expenses.

According to Allanwood and Beare scenarios are created to give the personas a life in order for the designer to see the world from the user's perspective. Scenarios are useful as they allow the designers to place their ideas in context. Generally speaking, it is good to keep the scenarios simple as they will give the designers useful pointers to provide a good user experience (2014, p. 118). Within the context of this study, the scenarios could be simplified into a few sentences and the mock-up templates are build based on the above sentences in Table 4.

Documentation and Prototype

Prototype (or a mock-up) is a model of design that can be used as a basis for improvements in the design. Prototypes should be created as early as possible in the development project. Prototypes can be created in low-fidelity, meaning a sketchbook look; or in high-fidelity, meaning the final look of the design. Initial designs are encouraged to be built in low-fidelity look as they can be recognized as work in progress and design improvements are easy to suggest (Allanwood and Beare 2014, p. 152).

In the context of this study, the prototypes are built in low-fidelity in Microsoft Excel in order to demonstrate what the look or the order of columns could be.

Build

Building a prototype can be broken down into five steps according to Allanwood and Beare (2014, pp. 168-169):

- 1 Preparing to build: review your notes and sketches
- 2 Make the interface and interface elements: creating a thin card sheet
- 3 Build: Build the prototype with the help of card sheets
- 4 Try it out: revisit the user goals and work through the prototype to review how the user is able to achieve the goals and make necessary adjustments. The prototype is used to validate the design
- 5 Test it: testing it with potential users

In the context of this study, the last step is left out of the scope. Plausible testing with potential users will be done after the validation of the mock-up templates. In addition, the second step is also replaced with Microsoft Excel.

4.1.2 Conclusion of UXD

User experience design, in essence, is an iterative process. In the context of this study, the iteration or rather an evaluation would be the fifth element in the linear process in Figure 4.

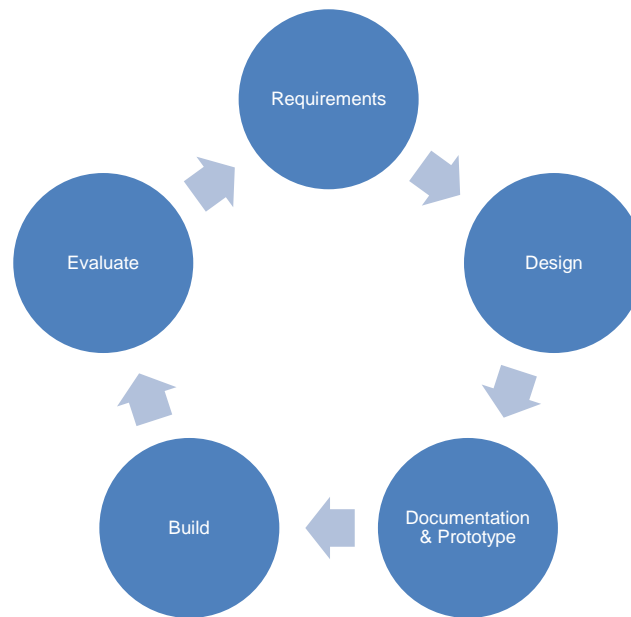


Figure 6. Amended UXD Process

The designer gathers the necessary requirements in order to design, document and prototype and finally build the mock-up template. According to Minhas (2018), the evaluation can be based on a few factors:

- Whether the system is usable?
- Is it easy to use for the end user?
- Is it flexible and easy to change?
- Does it provide the desired solution to the user's problems?
- Does the product have the credibility that makes someone want to use it because of the experience it provides?

The above evaluation criteria will be taken into consideration with the proposal.

4.2 ERP –solution testing and Reporting Portal

During the fall of 2018 a more extensive testing of ERP –solution was conducted and insights from various testing scenarios and differences compared to future ERP –the solution is described below.

4.2.1 Main page -view

The ERP –solution supports the main page view as indicated earlier. For the purpose of this thesis, values have been nullified in the figure below.

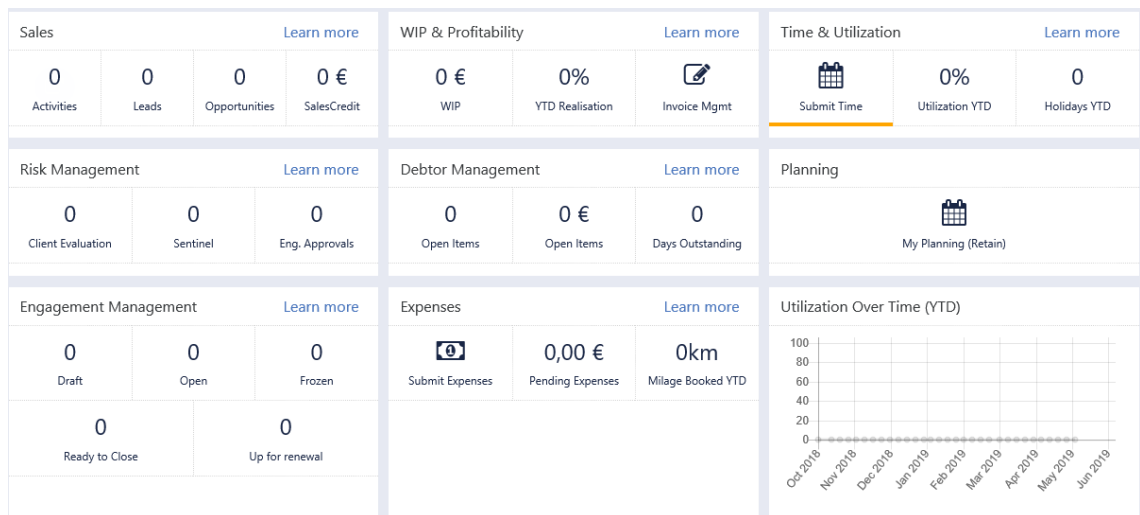


Figure 7. Main page view of the ERP -solution

Engagement managers can access their accruals through WIP & Profitability –section. In addition, the status of unsettled invoices is presented in the Debtor Management –section. Engagement managers can also access their engagements via Engagement Management –section.

4.2.2 Engagement

The ERP solutions force engagement managers to estimate how much the billable fee from the client is before the engagement is active and open for time and expense book-ings. Currently, this estimated billable fee is not fully utilized in reporting and thus it could be exploited more, for example, in Engagement summary –report. This issue is

further discussed in the Initial proposal chapter. This attribute is closely connected to the Scope Creep –attribute discussed in chapter 4.3.

As indicated in the interview engagement managers wish to have the knowledge to what work is the time booking referring to. It is possible to force the users to write down comments regarding time booking entry.

4.2.3 Invoice Management

Engagement managers have visibility to their own billings while accessing the billing portal in the ERP solution. While this is a convenient way of browsing ones billing it can be time-consuming browsing and accessing individual invoice data. Search and sorting options via ERP solution are also available to narrow down results.

4.2.4 Billing techniques and options

Two different types of how to create a bill (on account vs. matched bill) exist in the ERP solution. The On Account –billing function disregards hours and expenses booked against the engagement. In principle, the user has the option to create invoices with zero WIP value or based on the accrued WIP value with the amount the user chooses. The On Account function itself does not mark the accrued hours or expenses as being billed. However, there is a function available to mark accruals up to a certain time period as being billed or the user has the ability to drill down to each individual hours or expenses and mark them as billed. The Matched Bill –billing function creates a draft bill based on accrued hours and expenses at draft bill creation time. Once the draft bill is approved all booked hours and expenses within that draft bill are marked as billed. This function is similar to legacy ERP billing.

The on account –billing function also prompts the user to choose between Engagement level and Phase level billing. In essence, the Engagement level disregards booked hours and expenses and the billable amount is given on a high level and thus no actual allocation between billable sum is divided between phases. In the phase level billing

the user inputs the billable sums to phase levels. Matched bill –billing function in general functions similarly as the on account –billing function. Both of the methods have similarities to legacy ERP billing methods.

4.2.5 Reporting Portal

The reporting portal has a drill-down, or in this context, a drop-down selection available while creating reports for users. A drop-down menu will allow the user to get the big picture and the detailed activity level information (Kerzner 2017, p. 328).

4.2.6 Conclusion

External client billing has not changed. The methods and techniques with the new ERP –solution and reporting portal have. Generally speaking when comparing legacy and current ERP –solution and reporting portal there are many changes, some better for the end users and some not, such as the users are able to create reports to their own liking but the reporting portal itself logs out the user quite quickly due to security reason. The introduction of the main page perspective for the end users offers a quick glance of the accruals on a high level. With the help of the reporting portal, the engagement managers can act and evaluate appropriate measures toward external client billing and ultimately bill the accruals.

4.3 Project management metrics

Douglas Hubbard presented good examples of metrics management for engagement managers. According to and amending to Hubbard: the problem is not as unique as the engagement managers think, the engagement manager has more data than one thinks, the engagement manager needs less data than one thinks and that there is a useful measurement that is much simpler than one might think (cited by Kerzner 2017, p. 92).

With this in mind, the metrics keep stakeholders informed of the engagement's status. Stakeholders in the context of this study essentially are engagement managers, engage-

ment partners, and the Target Organization's management. Stakeholders must be confident that correct metrics have been chosen and that these metrics portray a truthful representation of the engagement status. Metrics may determine if a certain course should be taken or is an engagement feasible to take on (Kerzner 2017, p. 83).

Also, the metric has some basic characteristics. For example, a metric should have a need or purpose, it should provide useful information, it should be able to be measured with reasonable accuracy, it should support proactive management or it should assist in assessing the likelihood of failure or success (Kerzner 2017, p. 97).

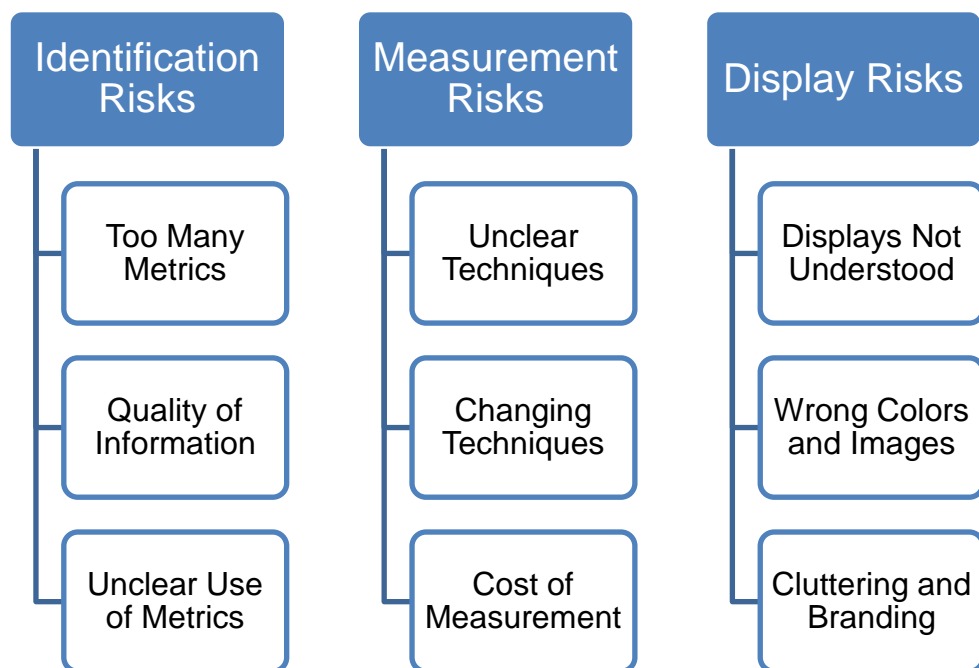


Figure 8. Metric Risks to Maintaining an SCA (Kerzner 2017, p. 34)

In the above figure Kerzner (2017, p.24) describes metric risks to maintaining a sustained competitive advantage. In the context of this study, all of the three headings can be grouped together. In essence, these statements visualize the fact that having too many reports can have a deteriorating effect as engagement managers have multiple reports to choose from. As indicated in the CSA data is widely available but the challenge is how to fully exploit it.

Project management metrics in the context of this study are derived from existing reporting and from the interviews. Discovering new metrics is kept to a minimum based on the figure above.

Scope Creep

Scope creep is a natural occurrence and in essence a growth in engagement's scope – changes can occur in any phase of the engagement life cycles. Usually, as the engagement progresses the engagement team gains more knowledge, and it could lead to the creeping scope and scope changes. There are various reasons why scope creeps are caused, for example, poor understanding of requirements, poorly defined requirements, complexity or failing to drill down from high-level requirements to detailed activities. (Kerzner 2017, pp. 57-64)

4.4 Conceptual Framework

The conceptual framework is based on three approaches: User Experience design, insights from ERP –solution testing and project management metrics literature.

Table 5. Conceptual Framework and Literature

Existing Knowledge	Purpose	Literature
User Experience Design (UXD)	Approaches of how to gather information, design, build and evaluate mock-up templates	Allanwood, G. Beare, P. (2014). User Experience Design: Creating Designs Users Really Love. London: Bloomsbury Publishing Plc.
		Szabo, P. W. (2017). User Experience Mapping. Get Closer To Your Users And Create Better Products For Them. Birmingham: Packt Publishing Ltd.
		Yayici, E. (2014). UX Design And Usability Mentor Book. USA: Emrah Yayici
ERP –solution	To offer general insights how the ERP –solution functions regarding external client invoicing	Author, Internal document
Project Management -metrics	To offer general support for mock-up template design regarding metrics	Kerzner, H. (2017). Project Management Metrics, KPIs And Dashboards: A Guide To Measuring And Monitoring Project Performance. 3rd edn. Hoboken, New Jersey: John Wiley & Sons, Inc.
		Melnyk, S. A., Calantone, R. J., Luft, J., Stewart, D. M., Zsidisin, G. A., Hanson, J. and Burns, L. (2005). An Empirical Investigation Of The Metrics Alignment Process. International Journal of Productivity and Performance Management, 54(5), pp. 312-324.
		Sharda, R., Delen, D., Turban, E. (2018). Business Intelligence, Analytics, and Data Science. 4th edn. Harlow, England: Pearson Education Limited.

Focus is on the UXD. The UXD provides the baseline of how to gather information, design, build and evaluate the mock-up templates. ERP –solution testing provides the boundaries where the mock-up templates can be built within. Project management metrics literature provides additional viewpoints to designing and building mock-up templates. The conceptual Framework leads to Proposals.

5 Building a Proposal

Proposal chapter is concentrating on how the external client billing could be more efficient with the help of new reports or adjustments to existing reports. Proposals are a combination of the CSA and the conceptual framework. The end result is recommendations in terms of mock-up templates to the Target Organization for consideration. The mock-up templates are presented for validation to the supervisor of the thesis author.

Findings from the CSA revealed that most of the interviewees struggle to find the most convenient data to exploit in terms of searching, sorting or drilling down.

5.1 Initial proposal

In this chapter, additional attributes and proposals of mock-up templates for external client billing reporting are presented. These additional attributes and mock-up templates are created based on conducted interviews and discussion with the billing team, controller team and other engagement managers who were not interviewed during the CSA phase of the study.

5.1.1 Additional attributes to existing reporting

Estimated fee completion/delivery –rate

Interviewees wished that they could see what the status of their engagement is – is there a need for a discussion with the client if and when it is possible that the scope of the engagement is ill-advised. The ERP solution forces the engagement managers to estimate how much the billable fee is before the engagement is activated in the ERP solution. By exploiting this attribute in external client billing reporting managers would have the visibility of how much accruals the engagement has compared to the estimated fee. Is there a scope creep lurking that was not or has not been taken into account during the engagement life cycle? By introducing a delivery rate attribute to reporting the manager can estimate are the costs in line with the agreed fee, for example: engagement fee is capped to 10.000 euros and currently accrued hours are at 7.000 euros – this would

indicate a 70 percent delivery rate as monetary value – the engagement manager could then take possible corrective actions.

This would also serve as some degree of a reference point of what has been previously billed from the client considering Audit engagements and assuming the engagement continues to future financial year and given the engagement manager is able and willing to keep data as up-to-date in the engagement management as possible via proxy or by her- or himself.

The turnover rate for billing

The Target Organization has a turnover rate set for 30 days. In this context, the ratio means that after booking time on an engagement the work is billed from the client and the payment is received from the said client within 30 days. As this KPI is measured throughout the organization it could be beneficial to add this measurement to existing reports. As Melnyk et al. argue:

At the highest level, the performance measurement system level integrates. In other words, it is responsible for coordinating metrics across the various functions and for aligning the metrics from the strategic (top management) to the operational (shop floor/purchasing/execution) levels (2005, p. 314).

Obviously, there are limitations why this time limit can be exceeded, such as quarterly or bi-yearly billing, client's long payment terms, nature of the engagement depending on the service rendered, milestones or delay in billing frequency. Melnyk et al. continues:

On one hand, it is useful to have the metrics remain constant since such metrics provide a basis for comparing performance over time. Yet, on the other hand, static metrics run the very real risk of becoming obsolete. This dynamism also complicates the challenge of alignment (2005, p. 315).

In essence, this ratio cannot be applied to every engagement due to the reasons stated above. Assuming the engagement manager has multiple engagements and of these engagements, a portion would follow the rate and other portions would exceed the rate, the rate would still provide a target point to which the engagement manager should aim for in order to get a lower average ratio. This could also have a positive effect on cash flow for the Target Organization.

Last time billed

Engagement managers could also benefit from the info about the client being billed the last time as discussed in the interviews chapter. This attribute would give the manager insights is the engagement ready to be billed, that is, are the billing schedules or frequencies to be considered according to mutual agreement between the Target Organization and the external client. If the manager neglects the billing for a long time it would also be indicated in the billing turnover rate.

Billing report with debtor status

Both Engagement Manager and Engagement Partner can see the payment status of the invoice from Invoice Management screen in the ERP solution – in essence, there is no need to see the payment status on the billing report. Still, the debtor status should instigate engagement managers to take action if the invoice is due. Receiving the funds for rendered services is ultimately the engagement managers' responsibility according to the internal guidelines of the Target Organization. Also, this addition could be seen usable as clients or other stakeholders may ask for a report showing the payment status of billed invoices.

Number of open invoices in engagement summary

Currently, the Engagement Summary contains information about how much the total amount of unsettled invoices is. In effect, the amount can contain multiple invoices. By adding information of how many unsettled invoices the engagement contains the manager should take necessary actions – whether it is to halt services or inform Accounts Receivable team of extra ordinal circumstances such as client's financial difficulties.

Combining the above two attributes to different reports should give the engagement manager a fairly reliable image of the debtor statuses.

5.1.2 Consolidation

As stated in the business problem there were successive layers and duplicate data within different reports. As each one of the interviewees acts as a person responsible for external client billing it would be safe to assume more simplistic, easy to use (and customizable) approach would be appreciated. With this in mind, a consolidation to the extent of different reports is presented. In addition, some additional attributes are introduced in this context.

Engagement hours by phase level (individual and grouped)

As discussed in the Descriptive Data Analysis chapter the PrimaryContact_Corporation_events_and_comments –report is quite a similar report compared to Project Activity Summary –report. In essence Project Activity Summary report summarizes hours per person (and activity) into one line whilst PrimaryContact_Corporation_events_and_comments –report breaks down each time booking into a separate line. In essence, these two reports could be consolidated into a single report without forgetting one or the other. The current reporting portal supports interleaves – therefore the first interleaf would contain time bookings on a detailed level (for example date, person, hours, narrative) and the second interleaf would group the hours by a person on neglecting date and narrative attributes. In principle the reporting portal would have only one report but with two interleaves. Alternatively, these two dimensions could be installed into a single view. Low-fidelity example can be found in appendix 4.

The drill down –option which rose during the interviews could also be introduced into this report. The legacy reporting portal managed to combine draft status invoice breakdowns into excel and each draft was presented in its own interleaf. Engagement Managers had a relatively easy job to take action based on this information, that is, to see the current unbilled amount of the engagement, what are the work comments and act accordingly. New ERP solution has a slightly different logic in billing and Engagement Managers cannot, in essence, create multiple draft bills simultaneously compared to the legacy ERP solution. The new reporting portal supports the use of drop-down menus and an attribute to distinguish unbillable and billed hours or expenses from each other. Using this function the engagement manager can in principle browse which hours have been billed from the

client and which hours still remain to be billed depending on the method of how the engagement has been billed as discussed in chapter 4.3.

Progress billing by phases

Progress billing by phases –report attempts to capture what has been billed on certain phases of the engagement. Via this report, the engagement manager would be able to see in one glance what invoice contains what phases and with what amount. This report would be usable especially within engagements that contain multiple phases. One particularly good example is Tax Compliance services which usually contain work streams such as monthly VAT, monthly bookkeeping, monthly reporting, corporate income tax returns, or statutory financial statements. Naturally, this report could also serve other engagements that occupy multiple phases. However, it should be noted that the engagements should be billed on a Phase –level via ERP solution for this report to function as designed. The ERP solution offers engagements to be billed on an Engagement level and the billable amount is only given on a high-level, not divided into phase –levels.

Engagement summary (by phases)

Two almost identical reports were found in the legacy billing portal: unbilled amounts –report and the unbilled amount by tasks. These two reports contained the same data, the latter broke the unbilled amounts into phases of the engagement and the first one only on a high level. The third report which more or less contained the same data but in a deeper level (such as margin) was the On-going projects –report. These three reports have been replaced – in principle in the new reporting portal, as it contains a report called ‘Engagement summary’. Much of the information is similar compared to the legacy portals reports. This report would suffice for the most needs the organization requires – adding a more detailed level of information would breakdown the WIP into phases and in principle the original Engagement Summary –report would become obsolete.

The Engagement Summary report contains only one value of unbilled amount (closing WIP balance) and it does not break this value into unbillable expenses or hours. As the interviewees would like to have visibility of which elements the unbilled WIP consists of a plausible solution is presented in the following chapter.

5.2 Mock-up templates

In this chapter, a description or visualization of mock-up templates are presented based on the above additional attributes or amendments.

Engagement Summary

The reporting portal has a report called 'Engagement Summary'. It contains much the basic information of the engagement (such as client, engagement name, engagement manager and partner) as well as how the WIP is accrued. As the reporting portal allows the creation of customized reports in addition to default on a new 'Engagement Summary' with additional information is presented in low-fidelity in appendix 5.

The first interleaf is a modified Engagement Summary which contains the following attributes:

Table 6. Engagement Summary Attributes

Metric/Attribute	Purpose/Description
Client number, Client name, Engagement number, Engagement name Current Engagement Partner number, Current Engagement Partner name, Current Engagement Manager number, Current Engagement Manager name	A descriptive, informative field for identification purposes
Current Engagement ERP%	With what percentage the WIP accrue compared to a standard hourly rate
Opening WIP Balance	This attribute will become obsolete in the future as engagements are opened in the new ERP solution. This field indicated the unbilled amount of an engagement that was transferred from the Legacy ERP
Hours	Accrued hours of the engagement
Revenue @ Standard	Revenue created at the standard hourly rate
ERP Discount	Adjustment (+/-) to revenue via ERP%
Revenue @ Realization	Revenue created with hours reflecting ERP% or special pricing
Admin Surcharge	Not applicable/not in use
Estimated fee	Value in euros.
Completion at estimate	Percentage value, Revenue @ Realization in relation to an Estimated fee
Net Engagement Revenue	Internal revenue
Expenses	Expenses booked to the engagement, consists of traveling expenses, subcontractor, authority and other fees
Gross Engagement Revenue	Revenue combining net revenue and expenses

Gross Margin	The margin of the engagement in monetary value
Gross Margin %	Margin percentage
Write On/(Off)	A value indicating adjustments against the engagement
Billed WIP	Sum of created invoices
Last Billed	Date of the latest issued invoice
Net Lockup	Sum of closing WIP Balance and Open A/R Balance
Closing WIP Balance	Unbilled amount (+/-) of the engagement
Billing turnover rate	Internal calculation
Open A/R Balance	Sum of unsettled invoices in euros

The second interleaf contains engagement hours and expenses by phases presented in Appendix 5. This report has already been developed in a collaborative effort between members of the billing and controller team to help the engagement managers with external client billing. This report contains a column indicating which of the hours and expenses are billed from the client and which are not depending on the method of the billing discussed in chapter 4.3. with the help of a drop-down menu. The below image extracted from the reporting portal represents selections the user is able to make on client, individual engagement and matched accruals values.

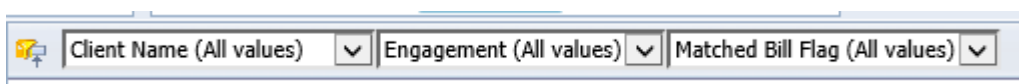


Figure 9. Reporting Portal drop-down menu

The third interleaf contains the engagement managers billing list of sent invoices on a general level. The billing list will also contain the debtor status. Example of the billing report is presented in appendix 6.

The ultimate proposal is to integrate the drop-down menus to all interleafs and the data will adjust accordingly based on the user selection.

Progress billing report

Many engagements engage in the use of phases and it is not uncommon for the engagement managers to ask the billing team what has been billed from a certain phase. As the billing report only shows billings on a high level it could be beneficial to have a progress billing or rather phase billing report to support the overall billing report. The report would

break down the individual bills into phases given the bill is made in phase level. Low-fidelity visualization is presented in the below figure and appendix 8.

	inv#	inv#	inv#	inv#	inv#	inv#	
	draft bill#	draft bill#	draft bill#	draft bill#	draft bill#	draft bill#	
Engagement #/desc.	inv. Date	inv. Date	inv. Date	inv. Date	inv. Date	inv. Date	Total Billed
Phase #/desc.	10,00					50,00	60,00
Phase #/desc.		50,00					50,00
Phase #/desc.	10,00		20,00		40,00		70,00
Phase #/desc.		40,00					40,00
Phase #/desc.				10,00		40,00	50,00
Phase #/desc.				10,00			10,00
	20,00	90,00	20,00	20,00	40,00	90,00	280,00

Figure 10. Phase Billing mock-up template

5.2.1 Scheduling

ERP solution has a cockpit view of user's accruals but the user is only able to access data on a general level via the cockpit as discussed before. The reporting portal offers the scheduling of existing (or user created) reports.

By introducing scheduling to the reports via reporting tool the manual labor for the managers and the billing or controller team would reduce. Obviously, these reports can be run separately whenever needed.

Scheduling the proposed Engagement Summary

Even though the interviewees were divided regarding the scheduled reports and following WIP in main page view the first few months with the new ERP solution has proven the billing and controller team that managers still need more detailed data to support billing. Therefore scheduling Engagement Summary –report on a weekly basis would allow the managers to have visibility on how their engagement hours and expenses accrue, what is the margin, what sum has been billed from the client or are the engagements on budget reflecting the estimated fee. At the first stages, the scheduling could be done to volunteers or smaller groups based on agreement.

Scheduling Debtors

In the legacy ERP –solution and reporting portal the debtors –report for engagement managers was delivered twice a month. Current ERP –solutions main page view offers visibility by count for the unsettled invoices and when needed, detailed level information. After all receiving payment for rendered service is engagement manager’s responsibility. Amending Billing report presented earlier and in appendix 6 could be modified to only present invoices which remain unpaid.

5.3 Summary

The purpose of this study was to create mock-up templates for external client billing and to create additional attributes. Mock-up templates presented in this chapter reflect the current state analysis and insights gathered from the ERP –solution testing. In essence the needs of engagement managers are relatively easy to fulfil however further development based on the mock-up templates should be considered if the Target organization chooses to proceed with the suggested proposals after the engagement managers have had sufficient time to test the reports.

As presented in the UXD chapter, there are criteria from which the mock-up templates and additional attributes can be evaluated. The criteria are:

- Whether the system is usable?
- Is it easy to use for the end user?
- Is it flexible and easy to change?
- Does it provide the desired solution for the user’s problems?
- Does the product have the credibility that makes someone want to use it because of the experience it provides?

In essence the Engagement Summary with three interleafs and drop-down menus answer much to the needs of the engagement managers and the criteria above.

The first interleaf presents the whole picture of the engagements with hours, expenses, margin, what has been billed and when, what is currently unbilled or is the engagement

on a budget. Second interleaf drills down to individual entries and the engagement manager can scroll between clients, engagements or monitor if the entry has been billed or not. The third interleaf will indicate what has been previously billed, if any.

Other mock-up templates presented in the proposals are meant to support the Engagement Summary –report.

6 Validation of the Proposal

Validation and presentation of the mock-up templates and additional attributes were held in a meeting between the author and author's supervisor on 14.6. 2019. Proposals were presented as they are described in chapter 5. Chapters below contain a summary of discussions concerning each proposal.

Some subgroups already use **Estimated Fee** attribute in their billing procedures. However it was discussed that the use could be extended to other teams as well by implementing the attribute to existing reports by promoting the usability and exploitability regarding project billing accruals.

The **Turnover rate for billing** would be a useful metric, however the formula is static. Implementing a dynamic formulae would be beneficial and impartial. In essence the metric is useable for reporting purposes with modification to the formulae. This metric can also be implemented to separately created dashboard not related to the scope of this thesis.

The **Last time billed** metric is available in the reporting portal and already in use to some extent. However, it was also discussed that this metric could also serve the needs on Engagement Partners and Group Leaders in order to follow billing accrual of subordinates and therefore instigate billing procedures towards Engagement Managers.

The **Billing report with debtor status** and **number of open invoices** in Engagement Summary –reports should be consolidated into one single report. The report should only contain the open invoice amounts in a detailed level rather than the whole billing report which contains the debtor status attribute. In essence the initial proposal would have contained much more clutter and the amended proposal would be more to the point.

The **Progress billing by phases** –report could also be implemented into use. The essential issue is to guide the Engagement Managers into engaging in Phase level billing as described in the initial proposal. In addition a useful report to the Engagement Managers and Engagement Partners could be constructed similar to the initial proposal: to follow up client and engagement billing as a whole not just on billing and phase level as indicated in the figure below. The report would visualize client and engagement billing in

a matrix form. This report would particularly be useful with engagements with multiple phases and high billing frequency.

	Month Name	Month Name	Month Name	Month Name	Month Name	Month Name	Total Billed
Client Name - Engagement Name	10,00					50,00	60,00
Client Name - Engagement Name		50,00					50,00
Client Name - Engagement Name	10,00		20,00		40,00		70,00
Client Name - Engagement Name		40,00					40,00
Client Name - Engagement Name				10,00		40,00	50,00
Client Name - Engagement Name				10,00			10,00
	20,00	90,00	20,00	20,00	40,00	90,00	280,00

Figure 11. Client Billing by Month in matrix visualization

The **Engagement hours by phase level (individual and grouped)** could also be implemented into a single report with two interleaves to serve as a supportive tool and a breakdown template for billings.

Scheduling of the proposed **Engagement Summary** –report containing three interleaves could be implemented as such in principle, however, there are few concerns raised. In order to use the design as planned the Engagement Managers should access the report in the reporting tool. If the data is delivered in Microsoft Excel –file the design is not functional as such. There is however the functional ability to send the template via tool itself where Engagement Managers can access the desired data with drill-down options. The use of this design would require guidance and training in the reporting portal. In addition the Engagement Summary –report should be altered. In essence only Client Name and Engagement Name and Number should be visible and the other information in the descriptive, informative field for identification purposes should be removed as indicated in the figure below. In essence the need for Engagement Manager and Engagement Partner name and number is not required and should be considered clutter as no actual value is gained in billing procedures.

Client Name	Engagement	Engagement Name	Current Engagement ERP%	Opening WIP Balance	Hours	Hours	Revenue @ Standard	ERP Discount	Revenue @ Realization	Admin Surcharge
Organization 1	12345678	Engagement 1	100,00%		100,00	100,00	10 000		10 000	
Organization 2	87654321	Engagement 2	75,00%		100,00	100,00	10 000	-2 500	7 500	

Figure 12. Amended Engagement Summary -report

The **Scheduling Debtors** –report would be beneficial in terms of cash collection. Even though the information is available in the main page –view the detailed information for the Engagement Managers and Engagement Partners would provide total visibility of debtor status and instigate actions.

Overall the initial proposals were perceived applicable and according to the scope of the thesis and thus approved. In principle the initial proposals can be implemented into use considering the above adjustments and notifications.

7 Conclusion and Reflection

The final chapter focuses on the study, the overall process and the conclusion of the thesis.

7.1 Conclusion

The objective for this thesis was to create mock-up templates and additional attributes for external client billing based on user interviews and descriptive data analysis. In essence a timely manner billing of external clients is crucial for any service provider and the Target Organization is no exception. Moving from legacy ERP –solution to new ERP –solution also raised some challenges regarding billing the external clients and therefore the objective of this thesis can be justified. As mentioned earlier the billing itself has not changed, the methods, reports and tools have.

The process started with gathering data via interviewing 12 Engagement Managers and Partners and analysing internal report usage via acquired data extract. Purpose of the interviews was to gather insights of where the legacy reporting portal performed well and answered to the need of the Engagement Managers and which issues are to be considered pain points and should be addressed. Internal report usage analysis was performed to support the interview data and to find out what reports are being run to support external client billing process. In addition supportive literature regarding User Experience Design and Project Management Metrics were acquired. ERP –solution testing and implementation phase provided valuable insights of how the ERP –solution and reporting portal function which lead to the creation of initial proposal, discussions with colleagues and other Engagement Managers and ultimately validation of the proposal. As a result mock-up templates and additional attributes were created.

The outcome of this thesis answers the business problem. The Target Organization has been provided with suggestions and mock-up templates for consideration and in essence the mock-up templates and additional attributes can be implemented into use. For future

study a similar approach could be considered in order to evaluate if the changes made in result of this study have had any concrete impact.

7.2 Reflection

When the project started to form in the early 2018 I had a vision of how the project should commence. Interviews were rapidly organized and data obtained from internal ITS – function. I have to thank the collaboration from the interviewees as each perceived this study as an important one and also the ITS –function for providing me the necessary data to work with. In addition the support from my colleagues and supervisors were essential. By the time I’m writing these last words almost 1,5 years went by with testing the new ERP –solution, taking part in the implementation, getting through financial year end as well as calendar year end while doing this thesis and other school work. Originally I had an idea that I would be ready with the thesis on summer 2018 but in reflection I was a bit too ambitious. On a hindsight using the ERP –solution and reporting portal provided me with insights I do not believe would have been written in this thesis if I had completed this in the summer 2018.

Overall this was an interesting project in terms of collecting the primary data via interviewing Engagement Managers and gaining valuable insights as well as crunching data and learning new ways of working with descriptive analytics. At first I perceived this work leaning towards project management metrics but as the project progressed the UXD aspect emerged more in terms of data collection and designing and building the mock-up templates.

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Appendix 1. Interview questions

General Questions for Background and Support	With what word would you describe our current reporting portal?
	In what role do you usually perform in an engagement?
	In overall, what is your opinion on external client billing reports?
	What are the strengths of external client billing reports?
	What are the weaknesses of external client billing reports?
	What do you require from external client billing reports?
External client billing Reporting Questions	How do you follow your WIP (Work In Progress)/ unbilled amount?
	How would you like to follow your WIP/ unbilled amount?
	What are the most relevant pieces of information in external client billing reports –reports you try to find?
	Do you modify external client billing reports –reports to your liking? For what purpose, what information is missing?
	In what situation did you find the external client billing reporting inadequate/sufficient?
	What would you change in external client billing –reports? Free thoughts.
	In what kind of form would you like to see our external client billing reporting?
	Scheduled email containing certain reports/ information – would you find this useful?
	What is your opinion on transparency? I.e. team members would be able to see the hours of colleagues, accrual of the whole engagement (vs. budget?) etc.
	How up-to-date reports you would like to access (i.e. what kind of update frequency would you like have)?
	Are there any regularly occurring client needs that our reporting cannot handle i.e. you have to combine data manually from different sources etc.?
	Does your team/ group use budgeting and/or update estimates to track progress on engagements?
Other Questions	Report “sparring” –role. Would you be interested in becoming a contact person for upcoming requests on reports i.e. evaluate if certain attributes are necessary for the whole Service Area?

Appendix 2. Field note template

Interviewer(s):

Interviewee:

Date:

Time:

Method:

General - Questions	Answers
With what word would you describe our current reporting portal?	
In what role do you usually perform in an engagement?	
In overall, what is your opinion on external client billing reports?	
What are the strengths of external client billing reports?	

What are the weaknesses of external client billing reports?	
What do you require from external client billing reports?	

Project management reporting - Questions	Answers
How do you follow your WIP (Work In Progress)/ unbilled amount?	
How would you like to follow your WIP/ unbilled amount?	
What are the most relevant pieces of information in external client billing reports –reports you try to find?	
Do you modify external client billing reports –reports to your liking? For what purpose, what information is missing?	

In what situation did you find the external client billing reporting inadequate/sufficient?	
What would you change in external client billing –reports? Free thoughts.	
In what kind of form would you like to see our external client billing reporting?	
Scheduled email containing certain reports/ information – would you find this useful?	
What is your opinion on transparency? I.e. team members would be able to see the hours of colleagues, accrual of the whole engagement (vs. budget?) etc.	
How up-to-date reports you would like to access (i.e. what kind of update frequency would you like have)?	

Other - Questions	Answers
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<p>Are there any regularly occurring client needs that our reporting cannot handle i.e. you have to combine data manually from different sources etc.?</p>	
<p>Does your team/ group use budgeting and/or update estimates to track progress on engagements?</p>	
<p>Report “sparring” –role. Would you be interested in becoming a contact person for upcoming requests on reports i.e. evaluate if certain attributes are necessary for the whole Service Area?</p>	

Appendix 3. Role descriptions

Confidential document of the Target Organization.

Appendix 4. Engagement hours by phase level (individual and grouped)

Client Name - Engagement Number Engagement Name

Hours						
Current Phase Desc	Work Date	Employee Name	TimeSheet Narrative	Hours	Revenue @ Realization	Revenue @ Standard
Current Phase Desc	09.02.2019	Employee Name 1	TimeSheet Narrative 1	0,25	18,75	25,00
Current Phase Desc	12.02.2019	Employee Name 1	TimeSheet Narrative 1	0,50	37,50	50,00
Current Phase Desc	13.02.2019	Employee Name 2	TimeSheet Narrative 2	0,25	18,75	25,00
Current Phase Desc	13.02.2019	Employee Name 1	TimeSheet Narrative 1	3,75	281,25	375,00
Current Phase Desc	13.02.2019	Employee Name 3	TimeSheet Narrative 3	0,25	18,75	25,00
Current Phase Desc	15.02.2019	Employee Name 1	TimeSheet Narrative 1	1,00	75,00	100,00
Current Phase Desc	18.02.2019	Employee Name 2	TimeSheet Narrative 2	0,50	37,50	50,00
Current Phase Desc	18.02.2019	Employee Name 1	TimeSheet Narrative 1	1,25	93,75	125,00
Current Phase Desc	20.02.2019	Employee Name 2	TimeSheet Narrative 2	0,25	18,75	25,00
Current Phase Desc	21.02.2019	Employee Name 1	TimeSheet Narrative 1	0,25	18,75	25,00
Current Phase Desc	26.02.2019	Employee Name 1	TimeSheet Narrative 1	0,75	56,25	75,00
Current Phase Desc	27.02.2019	Employee Name 2	TimeSheet Narrative 2	0,25	18,75	25,00
Current Phase Desc	01.03.2019	Employee Name 1	TimeSheet Narrative 1	1,50	112,50	150,00
Current Phase Desc	06.03.2019	Employee Name 2	TimeSheet Narrative 2	0,50	37,50	50,00
Current Phase Desc	06.03.2019	Employee Name 1	TimeSheet Narrative 1	1,00	75,00	100,00
Current Phase Desc	07.03.2019	Employee Name 1	TimeSheet Narrative 1	0,50	37,50	50,00
Current Phase Desc	11.03.2019	Employee Name 1	TimeSheet Narrative 1	1,00	75,00	100,00
Current Phase Desc	18.03.2019	Employee Name 2	TimeSheet Narrative 2	0,25	18,75	25,00
Current Phase Desc	18.03.2019	Employee Name 1	TimeSheet Narrative 1	1,75	131,25	175,00
Current Phase Desc	20.03.2019	Employee Name 2	TimeSheet Narrative 2	1,50	112,50	150,00
Current Phase Desc	20.03.2019	Employee Name 1	TimeSheet Narrative 1	2,50	187,50	250,00
Current Phase Desc	21.03.2019	Employee Name 2	TimeSheet Narrative 2	1,00	75,00	100,00
Current Phase Desc	21.03.2019	Employee Name 1	TimeSheet Narrative 1	0,50	37,50	50,00
Current Phase Desc	25.03.2019	Employee Name 1	TimeSheet Narrative 1	0,75	56,25	75,00
Current Phase Desc	26.03.2019	Employee Name 1	TimeSheet Narrative 1	1,00	75,00	100,00
Current Phase Desc	01.04.2019	Employee Name 2	TimeSheet Narrative 2	0,25	18,75	25,00
Current Phase Desc	01.04.2019	Employee Name 1	TimeSheet Narrative 1	1,75	131,25	175,00
Current Phase Desc	02.04.2019	Employee Name 2	TimeSheet Narrative 2	2,00	150,00	200,00
Current Phase Desc	02.04.2019	Employee Name 1	TimeSheet Narrative 1	4,50	337,50	450,00
Current Phase Desc				31,50	2 362,50	3 150,00
Total				31,50	2 362,50	3 150,00

Client Name - Engagement Number

Hours				
Current Phase Desc	Employee Name	Hours	Revenue @ Realization	Revenue @ Standard
Current Phase Desc	Employee Name 1	24,50	1 837,50	2 450,00
Current Phase Desc	Employee Name 1	6,75	506,25	675,00
Current Phase Desc	Employee Name 2	0,25	18,75	25,00
Current Phase Desc		31,50	2 362,50	3 150,00
Total		31,50	2 362,50	3 150,00

Appendix 5. Engagement Summary

Client	Client Name	Engagement	Engagement Name	Current Engagement Partner	Current Engagement Partner Name	Current Engagement Manager	Current Engagement Manager Name	Current Engagement ERP%	Opening WIP Balance	Hours	Revenue @ Standard	ERP Discount	Revenue @ Realization	Admin Surcharge
1122334455	Organization 1	12345678	Engagement 1	35800000	P. Partner	35800001	M. Manager	100,00%		100,00	10 000		10 000	
6677889900	Organization 2	87654321	Engagement 2	35800001	M. Manager	35800000	P. Partner	75,00%		100,00	10 000	-2 500	7 500	
Estimated Fee	Completion At Estimate	Net Engagement Revenue	Expenses	Gross Engagement Revenue	Gross Margin	Gross Margin %	Write On/(Off)	Billed WIP	Last Billed	Net Lockup	Closing WIP Balance	Open A/R Balance	Open Invoices	Billing Turnover Rate
7 000	#REF!	#REF!		#REF!	5 000	#REF!					10 000	10 000		TBD
10 000	#REF!	7 500	1 000	8 500	3 750	44,12 %		8 500	7.5.2019	8 500		8 500	1	TBD

Appendix 6. Phase Level Hours and Expenses

Client name - Engagement Number Engagement Name

Hours							
Current Phase Desc	Work Date	Employee Name	TimeSheet Narrative	Hours	Revenue @ Realization	Revenue @ Standard	Matched Bill Flag
Current Phase Desc	dd.mm.yyyy	Employee Name	TimeSheet Narrative	1,00	0,00	0,00	x
Current Phase Desc	dd.mm.yyyy	Employee Name	TimeSheet Narrative	1,00	0,00	0,00	
Current Phase Desc	dd.mm.yyyy	Employee Name	TimeSheet Narrative	1,00	0,00	0,00	
Current Phase Desc				3,00	0,00	0,00	
Total				3,00	0,00	0,00	

Expenses							
Current Phase Desc	Work Date	Employee Name or Vendor Name	Vendor Invoice Number	Expense Desc	Expenses	Matched Bill Flag	
Current Phase Desc	dd.mm.yyyy	Employee Name or Vendor Name	Vendor Invoice Number	Expense Desc		0,00	x
Current Phase Desc	dd.mm.yyyy	Employee Name or Vendor Name	Vendor Invoice Number	Expense Desc		0,00	
Tietosuojä						0,00	
Total						0,00	

Appendix 7. Billing Report

Client Group Name	Client Group Lead Partner Name	Client Number	Client Name	Debtor Name	Engagement Number	Engagement Name	Bill Order Type	Invoice Number	Draft Bill Number	Invoice Date	Billing Narrative	Invoice Print Amount	Time @ Realization	Expense	VAT Amount	Total Amount	Debtor status	Payment date
Client Group Name	Client Group Lead Partner Name	Client Number	Client Name	Debtor Name	Engagement Number	Engagement Name	Invoice	1122334455	6677889900	dd.mm.yyyy	Billing Narrative	1	1	1	1	3	Unpaid	n/a
Client Group Name	Client Group Lead Partner Name	Client Number	Client Name	Debtor Name	Engagement Number	Engagement Name	Invoice	1122334455	6677889900	dd.mm.yyyy	Billing Narrative	1	1	1	1	3	Paid	dd.mm.yyyy

Appendix 8. Phase Billing

	inv#	inv#	inv#	inv#	inv#	inv#	
	draft bill#	draft bill#	draft bill#	draft bill#	draft bill#	draft bill#	
Engagement #/desc.	inv. Date	inv. Date	inv. Date	inv. Date	inv. Date	inv. Date	Total Billed
Phase #/desc.	10,00					50,00	60,00
Phase #/desc.		50,00					50,00
Phase #/desc.	10,00		20,00		40,00		70,00
Phase #/desc.		40,00					40,00
Phase #/desc.				10,00		40,00	50,00
Phase #/desc.				10,00			10,00
	20,00	90,00	20,00	20,00	40,00	90,00	280,00