Aalto University
School of Economics

Determinants of Technology Usage in Outsourced Cash Flow Forecasting Service

Information Systems Science

Master's thesis

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AALTO UNIVERSITY SCHOOL OF ECONOMICS **ABSTRACT**
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Cash flow forecasting is an emerging cash management function and business tool that hasn't received much scientific attention outside the finance and accounting field. Recent technological development of business process automation and networked services has enabled accounting companies to better service their clientele, focusing more towards value-added services. The purpose of this study is to examine the cash flow forecasting services offered by the accounting companies in the SME sector. Special focus is placed on the technology usage aspect; how the solutions fit with the forecasting tasks, what are the motivational drivers that enable the service outsourcing, and how does the outsourcing affect the forecasting process.

The research problem was first considered from a contextual perspective. Financial accounting and cash flow forecasting related theories and best practices were examined. In addition, the forecasting service environment was considered for three players: customer, service provider and solution provider. Once the research context had been studied, the theoretical framework was developed, first, by examining technology adoption and usage related literature from information systems field, and then, by synthesizing relevant theories for a conceptual research model. In addition to existing IS literature, the research context and expert interviews that were done in the empirical part of the study were taken into account when developing the research model.

To evaluate the conceptual framework, a combination of quantitative and qualitative methods was used. First, expert interviews were done with representatives from all forecasting service environment players to better understand practical point of views. Then, a research instrument was developed in the form of online survey, and targeted to accounting companies. The survey resulted in 108 valid responses, which were analyzed using covariance-based structural equation modeling (SEM) techniques.

The main findings based on the survey results were that system integration is a key determinant when considering the fit of technology solutions to the forecasting tasks, especially from the data quality point of view. Furthermore, the good fit and level of data quality incline higher utilization rates of the forecasting solutions. Deeper analysis on the forecasting solution characteristics related to integration capabilities and solution specificity supported this finding. Additionally, outsourcing setting highlighted the importance of integration and automation. Unexpected finding was that neither good fit nor increased utilization of forecasting solutions seemed to have positive impact for company performance. Motivational drivers focused toward long-term uses of strategic planning and decision making tool, and short-term use of solvency management.

Keywords: Accounting information systems, cash flow forecasting, task-technology fit, integration, structural equation modeling

AALTO YLIOPISTON KAUPPAKORKEAKOULU **TIIVISTELMÄ**
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Antti-Jussi Kangas

Teknologian käytön tekijät ulkoistetussa kassavirtaennustamisen palvelussa

Kassavirtaennustaminen on nouseva trendi kassanhallinnan ja liiketoiminnan työkalujen joukossa, eikä se ole juuri saanut tieteellistä huomioita rahoituksen ja laskentatoimen alueiden ulkopuolelta. Viimeaikainen teknologinen kehitys liiketoiminnan prosessien automatisoinnissa ja verkottuneissa palveluissa on mahdollistanut tilitoimistojen parantuneen palvelutarjonnan asiakkailleen, keskittyen enemmän lisäarvopalveluihin. Tämän tutkimuksen tarkoituksena on tarkastella tilitoimistojen tarjoamia kassavirtaennustamisen palveluita PK-sektorilla. Huomiota kiinnitetään erityisesti teknologian käytön näkökulmaan; kuinka sovellusratkaisut sopivat ennustamisen tehtäviin, mitkä tekijät motivoivat yrityksiä ulkoistetun palvelun käyttöön, ja miten ulkoistaminen vaikuttaa ennustamisprosessiin.

Tutkimusongelmaa käsiteltiin ensin tutkimuksen kontekstin näkökulmasta; tuloslaskennan ja erityisesti kassavirtaennustamisen teorioita ja parhaita käytäntöjä esiteltiin. Lisäksi ennustamispalveluiden ympäristöä tarkasteltiin kolmen toimijan kannalta: asiakkaan, palveluntarjoajan ja teknologiatoimittajan. Tutkimuskontekstin käsittelyn jälkeen rakennettiin teoreettinen viitekehys katsastamalla ensin olemassa olevaa tieteellistä kirjallisuutta teknologian omaksumisesta ja käytöstä tietojärjestelmätieteiden alalla, ja yhdistämällä sitten tutkimuksen kannalta olennaiset teoriat tutkimusmalliksi. Tutkimusmallissa huomioitiin myös tutkimuskontekstin erityispiirteitä ja ennustamispalvelun ympäristön toimijoille tehtyjen asiantuntijahaastatteluiden tuloksia.

Tutkimusmallin ja viitekehyksen arviointiin käytettiin kvantitatiivisten ja kvalitatiivisten metodien yhdistelmää. Ensin ennustamispalveluiden ympäristön toimijoille tehtiin asiantuntijahaastatteluita, jotta voitaisiin paremmin ymmärtää aiheeseen liittyvää käytännön problematiikkaa. Tämän jälkeen tutkimusvälineeksi kehitettiin online-kysely, joka kohdistettiin tilitoimistoille. Kyselyyn saatiin 108 vastausta, jotka analysoitiin kovarianssiin perustuvalla rakenneyhtälömalli-menetelmällä.

Kyselyn vastausten analysoinnin perusteella järjestelmäintegraatio on avainasemassa, kun tarkastellaan teknologiaratkaisujen sopivuutta ennustamisen tehtäviin, erityisesti tiedon laadun kannalta. Lisäksi ratkaisujen hyvä sopivuus tehtäviin ja käytetyn tiedon laatu näyttävät lisäävän ennustamisen palveluiden käyttöä. Tarkempi analyysi teknologiaratkaisujen ominaisuuksiin liittyen integroitavuuteen ja ratkaisun spesifisyyteen tuki tätä löydöstä. Ennustamispalvelun ulkoistaminen taas korostaa lisää integraation ja automaation tärkeyttä. Odottamattomana tuloksena oli, että ei hyvä sopivuus eikä lisääntynyt ennustamispalveluiden käyttö näyttänyt vaikuttavan positiivisesti palveluntarjoajan liiketoiminnalliseen suorituskykyyn. Ennustamispalvelujen käytön motivaatiotekijät liittyivät pitkän ajan strategiseen suunnitteluun ja apuvälineeseen päätöksenteossa, sekä lyhyen ajan maksukykyisyyden hallintaan.

Avainsanat: laskentatoimen tietojärjestelmät, kassavirtaennustaminen, tehtävä-teknologia yhteensopivuus, integraatio, rakenneyhtälömalli

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Helsinki, September 14, 2011

Antti-Jussi Kangas

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1 INTRODUCTION

Recent changes in the money markets, increased competition and technological and financial innovations have given new meaning for cash and liquidity management in organizations (Kytönen, 2004). While the flexibility of management of liquid assets has increased due to the innovations, the availability of cash has decreased at the same time as the credit lines from banks have tightened. This has lead to increasing importance of operational cash flows. This behavior strengthened especially during the financial crisis in 2008 (Kytönen, 2009).

Cash flow forecasting is one important subset in the cash and liquidity management. It has been identified as one of the key success factors for small businesses (Welsh and White, 1981). When sales volatility is high and cash is not in abundance, it is not worth much making good profits and high ROI figures if the company can run out of cash. In other words, knowledge about incoming and outgoing cash flows can help to invest excess cash efficiently, while maintaining enough liquidity for a bad day, thus keeping the business running.

Recent studies of Finnish companies have shown similar results: in a survey of 258 CFOs and financial managers, 95% of the respondents stated that cash flow forecasting is an important area of development (Basware, 2009a). The same studies showed, however, that while the importance of cash flow forecasting is evident for the respondents, there seems to be a gap between the need for it and the actual effective use of it. This challenge is not as acute among large corporations since they often have enough resources and competences available and their ERP systems support cash flow forecasting function. But the situation with small and medium-sized companies (SMEs) is not so good. In a study about cash and liquidity management behavior in Finnish SMEs, 25% of the respondents had no forecasting process in place and over one third used spreadsheets as the primary tool (Kaipiainen, 2008). In the same study respondents evaluated cash flow forecasting to be the most important function for improving the cash and liquidity management of their company.

As I mentioned, the large corporations have the luxury of accounting resources and sophisticated information systems to support cash flow forecasting functions. On the opposite, very small companies seldom need any such forecasting services as their business is simple enough to manage without. In between, however, there are the traditional SMEs, who receive added value from forecasts. One part of these SMEs is doing forecasting, while the other is not, meaning that there is a gap in the continuum. Furthermore, many of the SMEs are using accounting services provided by accounting companies, in order to focus in the core business.

The space of SMEs and accounting companies is very fragmented, when considering it from the information systems perspective. The systems help companies to automate tasks, however, the uncontrolled evolution of technology has lead to companies having islands of information systems with low level of integration between each other. For the accounting companies, the automation has enabled a move from mandatory bookkeeping and reporting services towards value-added services, such as cash flow forecasting. As a drawback, the value-added services often require centralized data management, and thus, integration and master data management between different information systems crossing organizational boundaries have become key elements for successful services. In this research I look into this fragmented space of SMEs and accounting companies, focusing in the cash flow forecasting systems and how their usage is affected by different organizational and information system characteristics.

This research was conducted as part of a Tekes funded research program to study solvency issues and strategic management of companies. In addition to master's thesis, parts of the results were presented in a research seminar for the program in May 2011. For this reason one of the primary objectives of this research was to support the program goals by studying cash flow forecasting methods and tools that companies have in place to assist in solvency management and strategic decision making.

1.1 Earlier Research

Most of the earlier research in the topic has focused in the cash and liquidity management as whole from the financial accounting perspective. Kytönen (2004) studied in his doctoral dissertation the changes of cash management behavior in Finnish listed companies in a 30-year period. According to his study, there were significant structural changes and improvements in the behavior after the de-regulation of money markets. Later, Kytönen (2009) studied the effects of recent financial crisis to cash management behavior. Both of these studies acknowledge the concept of cash flow forecasting but neither really focuses on it, especially from methods and systems perspective. Kaipiainen (2008) examined in his master's thesis the cash management motivations and methods among Finnish SMEs. As I already mentioned, his findings showed the importance of further studies in the cash management's subset of cash flow forecasting.

Kähkönen (1998) had a legal perspective to the topic in his doctoral dissertation. He studied the debtor's dishonesty and the available accounting methods that can be used to manage it in Finland, and formalized a model for metering the solvency. His model acknowledged the forecasting of

incoming and outgoing cash flows but only formally, thus, highlighting again the importance for research in the practice of cash flow forecasting and systems related to it.

Financial accounting and science of law are not the only fields interested in the topic. Cash flow forecasting from a project-based business perspective has been researched in the field of construction engineering (Navon, 1996; Jarrah et al., 2007). The construction industry, as any other project-based business, has a clear motivation for the management of cash flows since it has to deal with uncertainty and high risks.

Commercial organizations have also done studies in cash management and cash flow forecasting. Accounting software and solution provider Basware analyzed Finnish companies with a focus in cash management activities and highlighted the necessity for forecasting services (Basware, 2009a; Basware, 2009b). Similarly, editors and writers of GTNews, an online portal for finance and treasury professionals, have criticized the current cash flow forecasting methods and systems in their articles (GTNews, 2009; GTNews, 2010).

In the field of information systems sciences the technology adoption and usage has been researched widely. These theories are reviewed more thoroughly in the literature review chapter; however, no application context of financial accounting systems seems to exist among the literature. Similarly, the perspective of outsourced service provider (accounting company) as the user of the technology has been left without required attention in the literature.

Based on the described earlier research, there is a clear motivation for studying cash flow forecasting practices, the methods and systems, and motivational issues related to its usage. Previous studies on the context have been mostly from the financial accounting perspective. Here instead, a multi-disciplinary approach of both financial accounting and information systems is used to bring new insight into the area.

1.2 Research Focus

This research focuses in the cash flow forecasting activities from an information systems science perspective. Therefore, the scope of the research is aligned more with technology and IS theories, than with financial accounting theories. Nonetheless, to better understand the topic, cash flow forecasting theories are discussed in a supportive and describing way. The cash flow forecasting in financial accounting can be seen as the application context for the IS theories of technology usage and adoption.

As I already mentioned, the motivational gap for the research lies in the small and medium-sized businesses and their cash flow forecasting activities. Therefore, the perspective of large corporations is scoped out from this research. The scope of the service domain for cash flow forecasting is limited to three players: the service user (SMEs), the service provider (accounting companies), and the solution provider (accounting software companies). The domain and its players are described more in detail in the next chapter.

The research question of this study is stated with three objectives:

1. *To understand what is the motivation for SMEs to use cash flow forecasting services.*

2. *To find out how the used technologies fit with the cash flow forecasting tasks in the service domain.*

3. *To find out how outsourcing of cash flow forecasting activities to accounting companies affects the fit of tasks and technology.*

The methodology to answer to the question and objectives is a combination of qualitative interviews and quantitative survey. The interviews were done within the service domain scope of the research, to better understand the problem at hand and to help build the survey. Therefore, the survey is the main tool in this research to achieve the stated research objectives. However, the results of the interviews are also considered in the light of the responses from the survey. The survey was targeted within the service domain scope explained above.

1.3 Definitions

Some core definitions that are related to the topic and are used throughout this report are explained more in detail here.

Cash Management

Cash management can be seen as a broad context of theories and practices related to both monetary and financial theories (Kytönen, 2004). In this research the focus is more in the processes and tools. Thus, the concept of cash management can be considered as practices, methods, models and processes related to managing cash (Sharma, 2009). It involves many subsets, such as foreign exchange (FX) exposure management, short-term investments and borrowings, cash controlling, and cash flow forecasting among others.

Cash Flows

Cash flows are the incoming and outgoing movement of cash as the consequence from running a business (Sharma, 2009). Cash flows can be divided into operational, investment and financial subsets, depending on the function of the business that causes the flow. In this report the definition cash flow is used to describe all of these flows. If a distinction is made between the flow types, then it is mentioned in the usage context.

Cash Flow Forecasting

Cash flow forecasting is the estimation process of organization's incoming and outgoing cash movements. The forecasts are built using accounting data, e.g. accounts payable and accounts receivable, and business information, e.g. sales estimates and market projections. Cash flow forecasting focuses more in projecting and understanding future cash flows, while making decisions and acting based on forecasts is the responsibility of other cash management tasks (Sharma, 2009). Cash flow forecasting differs from cash statements in that it looks into future, while cash statements look in the past. In this research forecasts are divided into different time windows; short-term forecasts are from one to two months, medium-length forecasts are from two to eight months, and long-term forecasts are over eight months.

Cloud Service

Cloud services refer to software services that are managed centrally and offer high availability over the network. Instead of local deployments of software and maintenance of hardware, the IT resources are leased from a common pool, or cloud, of resources. The cloud services take advantage of economies of scale, and therefore, can offer dynamic pricing based on usage. The common business model in cloud services is the Software as a Service model (see below).

Software as a Service

Software as a Service (SaaS) refers to a software delivery method, in which the software is centrally hosted often within a cloud (see above), and accessed using web browsers or similar technology. The idea is that customers don't need to do any installation or maintenance related to the software, but instead they can just start using it, on demand. Services using this model commonly offer dynamic pay-as-you-go pricing schemes, in which customer only pays for usage.

1.4 Structure

This research report is structured in the following way. First, after this introduction in chapter two, I will describe the research context of cash flow accounting, and, in chapter three, I will review relevant literature of technology diffusion in the information systems science. Based on the research context and the reviewed literature, I will develop a research framework for the empirical part of the study. Then, in chapter four, I will describe the research methodology that is used with the constructed framework in the empirical part. Data collection, analysis and validity issues are discussed in this chapter. Following the methodology, in chapter five, I will lay out the results of the study in detail. Finally, in chapter six, I will give conclusions about the research and its results, and discuss implications, limitations and future projections related to it.

2 RESEARCH CONTEXT

In this chapter I describe the research context of cash flows in financial accounting. Different aspects of cash flow accounting are considered with a special focus on cash flow forecasting, which is explained more in detail. The research context is taken into account later in the development of research framework in the next chapter.

2.1 Cash Flows in Financial Accounting

The purpose of financial accounting is to provide information about company's business to different stakeholders. The provision can be divided into internal and external reporting depending on the stakeholder's position. Similarly, the reporting can be categorized as optional or obligatory, depending on legislation. For example, publicly traded companies have reporting obligations for their shareholders, thus, setting some requirements for the minimum level of necessary accounting. On the opposite, the level of internal accounting is decided solely by the organization itself, depending on how much information it needs for managerial decision making. Often the internal and external, and optional and obligatory reporting overlaps and supports each other.

The most common obligatory accounting report for a company is the financial statement. It contains information about the past year with a balance sheet and an income statement. Often a statement of cash flows is also required in the financial statement. While the income statement provides information about company's revenues and costs on accrual basis, it doesn't give an accurate picture of the company's cash position on the closing day. The purpose of cash flow statement is to provide this information. The flows can be divided into three parts based on the organizational function they are caused; operational, investment and financing. This general level division can be seen in the figure below (Figure 1). The statement of cash flows is described more in detail in the following subchapter. (Sharma, 2009)

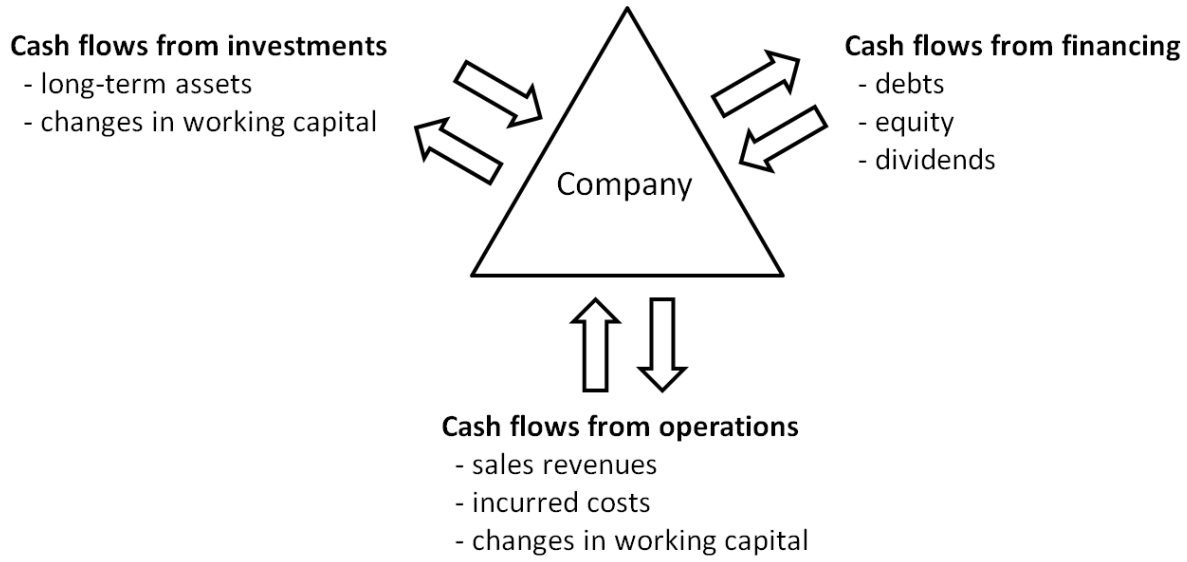

Figure 1. Cash flows from different organizational functions.

Even though analysts and shareholders often focus in the income statement and balance sheet, the cash flow statement should not be neglected. The accounting principles of accrual basis, consistency and periodicity define the fact that the actual movement of cash cannot be seen directly from the income statement (IFRS, 2009). For example, credit terms in both sales and purchases, i.e. conversion cycles of accounts payable and receivable and inventories, affect the size of working capital bound to run the business (see Figure 1). This means that a company may have smaller inflows of cash than what its revenues would suggest and larger outflows of cash than what its costs would suggest.

Cash flows have an impact on several areas in an organization. One of the most important is the solvency. It is often stated that *"cash is the lifeblood of any business"*, and with good reason, even though it sounds like a cliché. A good business can run on many years, but fail the day it runs out of cash. Cash flows regarding solvency focus often in the short-term time frame of months. Another area relates to valuation of a company and its share value. For example, widely used valuation method of DCF (discounted cash flow) relies on future cash flows of the company (Kruschwitz and Löffler, 2006). Cash flows regarding valuation are always focused in long-term time frame of many years. One more area relates to long-term strategic management. Well-estimated and managed cash flows support the strategy making of a company by quantifying alternative scenarios and answering what is possible and what does it mean in figures. As the examples show, the uses of cash flow related information are wide, and therefore, it becomes evident that understanding cash flows and managing them is essential in a healthy business.

2.2 Cash Statements

The statement of cash flows is one of obligatory items in financial statements for larger companies. It is a backward-looking report that evaluates the past accounting period in the light of cash movements. The cash flows from business transactions are separated into operating, investing and financing activities. The accrual basis accounting is adjusted to only take into consideration the cash flows of the period. The information needed to finish the task includes items from income statement and balance sheet as well as additional business transaction data. (IFRS, 2009)

The purpose for the statement of cash flows is information sharing to shareholders. The evaluation of ability to generate cash flows and use them helps to understand the business at hand and develop it. The systematic report also enables the comparison of cash flows throughout the history of the company and between different companies in the same industry. The patterns of that can be seen in historical reports also help in the projection of the future; this is one technique in cash flow forecasting that will be discussed in next subchapter. (IFRS, 2009).

2.3 Cash Flow Forecasting

Cash flow forecasting is the process of estimating future cash position of the company and how it changes with time (Sharma, 2009). Forward-looking cash flow forecasts, unlike backward-looking cash statements, are not required by any authority. Some special cases may arise in using cash flow forecasts as documentation in the court for debtor's honesty (Kähkönen, 1998). Other uses align with forecaster's own motives, such as for internal use of managing solvency, strategic planning, and investment and financial transaction decisions, and for external use of company valuation.

2.3.1 Process

The forecasting process can be described on general level with a short list of tasks described below (Exidio, 2009). These tasks are performed periodically in such a way that makes the forecasting process a routine.

1. Planning
2. Information gathering
3. Implementation
4. Evaluation and taking action
5. Monitoring and optimization

The forecasting process should always start by planning and writing down the objective of the forecast. Based on the objective, the necessary forecasting period and frequency can then be derived. For example, less frequent forecasts to support strategic planning should span for a longer time frame, while more frequent forecasts to optimize cash balance for a shorter time frame. Next, the information needed to develop the forecast and the people associated with it should be defined. Information ranges from basic reliable short-term transactions to long-term sales estimates and more complex project reports. The uncertainty level of the information must also be considered. The amount of people associated varies depending on the size of the company, its organizational structure and how dispersed the information is. Once time period, frequency, needed information and associated people are known, then the actual forecasting methods and used technologies should be considered. A good principle for methods is that they fit with the objective and other aspects of the forecast described earlier, and that there are more than one method used. Similarly the chosen technology should fit with the objectives, methods and the company business. Both methods and technologies are described more in detail in next subchapters. (Exidio, 2009)

Once the process is planned, the following steps are more straightforward. Information gathering and implementation should be done according to the plans. As it is likely that there are many people involved in the information gathering task, it is very important to communicate the responsibilities and benefits of the process to the participants. The information gathering is followed by the implementation using the planned methods and technology solutions. These two tasks, especially the information gathering, benefit from process automation and systems integration (GTNews, 2010).

Forecasting does not finish in the implementation task. The resulting forecast should be evaluated for faults and then actions should be taken aligned with the initial objectives. To develop the forecasting process further, monitoring of the forecast and re-evaluation should take place as time goes by. This enables the possibility to optimize the forecast for better accuracy and align it better with initial objectives. Similarly, the forecasting process should be done regularly as planned.

2.3.2 Forecasting Periods

The forecasts are prepared with a time period in mind. They can be divided into three time frames: short-term, medium-term and long-term. Short-term forecast spans from few days up to one month. It is prepared with known and reliable business transaction data, and used for short-term cash management, e.g. investment of excess cash and monitoring daily bank transactions for very short-term solvency. Medium-term forecast spans from one month up to one year, three months being the most common period with a good balance of information reliability and time span length.

Medium-term forecast is used for cash management decisions that need to consider a longer time horizon of few months. Long-term forecast, which spans for over one year, differs from the other two in that it uses less reliable information and makes estimations based on it. Its uses are directed more towards the strategic management of the company instead of short term cash management. A summary of different forecasting time periods is presented in the table below (Table 1). (Sharma, 2009)

Table 1. Comparison of different cash flow forecasting periods.

Forecast period	Short term	Medium-term	Long-term
Time frame	< 1 month	1 month – 1 year	> 1 year
Source of information	Known business transactions	Known and approximated business transactions	Known and approximated using different techniques, based on history and macroeconomic trends
Reliability	Reliable	Reliable - uncertain (continuum)	Uncertain
Purpose	Very short-term cash management, solvency	Short term cash management, short-term investments	Strategic planning, long-term investments

2.3.3 Methods and Techniques

There are several methods and techniques that can be used for forecasting cash flows. Some of them rely on historical data, e.g. projected balance sheet, percentage of sales, and statistical approaches, while others focus more on future transactions, e.g. projected receipts and disbursements approach (Sharma, 2009). These methods differ from each other and their suitability depends on the objectives of the forecasting and the background factors of the company.

Projected balance sheet and percentage of sales approaches both rely on historical data and use it as basis with future assumptions as modifying variables to create Pro Forma statements. This means that the company must have a track record of few years for the both approaches to be applicable. The balance sheet approach uses the accounting principle of assets equal liabilities plus

shareholders' funds (Sharma, 2009). Based on this principle all projected balance sheet fields are filled except cash figure using knowledge from historical data and future assumptions. Percentage of sales approach is similar, but it uses the principle that in stabile businesses the changes of sales levels correlate with the changes of assets, thus leading to a projection of changes in cash (Fight, 2006). Balance sheet figures are fixed to certain percentage levels of sales to enable projection. Neither of these methods can said to be accurate, but they function well for longer term forecasting, e.g. estimating cash positions for future fiscal periods.

Projected receipts and disbursements approach relies more on factual data; it uses the known and estimated cash inflows and outflows that occur on a specific time period. All the flows are categorized by uncertainty and type, and then placed on a timeline. Uncertain flows can be estimated using statistical methods such as regression or time series models. The time period in this approach can range for anything between one day and one year, however, as the approach itself states, the shorter the period is the more accurate the method is. Thus, the focus should be more in the short term forecast to use the approach effectively. This approach can be heavy to take into use as it requires a comprehensive understanding of the business and its specific cash inflows and outflows, but once it is built for the first time, it can be maintained with less work.

Statistical approaches can be used alone or they can be combined with other methods described above. Some methods that have been experienced to be useful for cash flow forecasting are time series models, moving average methods, exponential smoothing and regression techniques (Sharma, 2009). In addition to these, simulation can be used as a technique, together with other methods or alone (Mun, 2006). Similar to other methods, the statistical methods also rely on historical data, patterns and future assumptions. Their advantage is in describing uncertainty, different scenarios and possible risk levels, with the help of computing power; something that is difficult if not impossible with other methods.

The summary of different methods is presented in the table below (Table 2).

Table 2. Summary of different forecasting methods.

Method	Balance sheet	Percentage of sales	Receipts and disbursements	Statistical methods
Suggested time period	long term (> 1 year)	long term (> 1 year)	short term (< 1 year)	any
Historical data	required	required	useful	required
Current and future estimations	on high level	on high level	deeper analysis needed	depends

2.3.4 Technology and Systems

Cash flow forecasting process involves many tasks of which some are manual, e.g. planning, and evaluation and action, and others that can be computerized, e.g. information gathering and execution. The software to accomplish this, ranges from simple spreadsheet models to vast ERP systems, all having their advantages and disadvantages. One way to categorize and compare them is to divide them into two dimensions: solution specificity, and level of networking and integration. This division can be seen in the matrix in the figure below (Figure 2).

Specificity refers to the level of generality of the solution. Highly specific solutions work efficiently within their narrow scope of use but are very controlled and inflexible. Generic products, on the other hand, are flexible and function in a wide variety of situations but are costly to manage and the level of efficiency is not as high as with highly specific solutions. The level of networking and integration refers to the extent by which the solution is available anywhere and at any time, and enables the automation of cash flow forecasting tasks through integration. High level of networking and integration enables more efficient and accurate cash flow forecasting, when the complexity of the organization and its business increases.

In the matrix there are four categories defined based on the mentioned two dimensions: *spreadsheet model*, *integrated framework*, *deployed software* and *cloud service*. The first quadrant, *spreadsheet model*, describes generic solutions which are not networked and whose level of integration is low. The typical example of this category is an Excel spreadsheet with customized model. The software is very generic and flexible, not integrated nor networked, and its maintenance can be costly in long term. The second quadrant, *integrated framework*, describes a similar generic technology, or

framework, which, however, is networked and has better integration capabilities. Customizable package-based ERP systems fit into this category. They are widely accessible via network and often integrated to other systems, but they are based on generic framework that needs modularization. Additionally, they are only viable as a solution for the larger companies due to their high investment and maintenance costs.

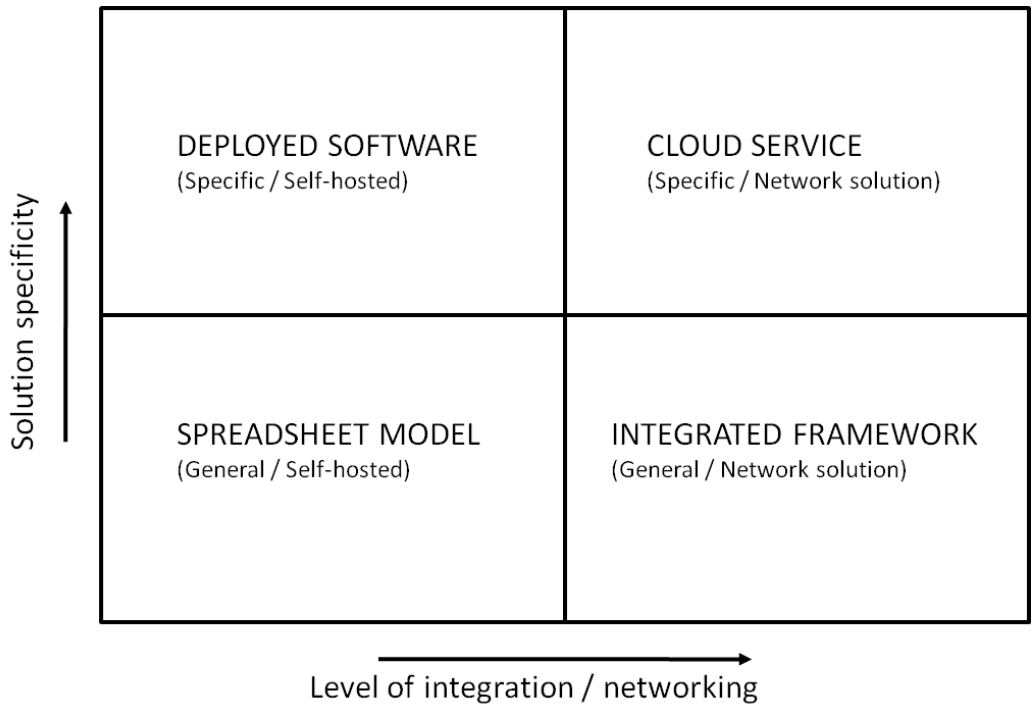

Figure 2. Solution specificity and level of integration matrix for accounting solutions.

The third quadrant, *deployed software*, describes a traditional "before-the-networked-economy" solutions, which are designed for a specific purpose, in this case for accounting tasks, but hosted locally and often need additional non-standard work for integration to other systems. Accounting software that needs to be deployed to each user separately is an example of this category. The advantage of this category is that there often exists available knowledge on these systems. However, scaling and integration work are the bottlenecks with these systems. The fourth and last quadrant, *cloud service*, describes solutions that are hosted centrally in one location and accessed via Internet. They are designed for specific purpose of cash flow forecasting, similar to the deployed software. The advantage of this kind of services is in that they offer good scaling and accessibility for the solution, and are often enabled for easier integration to additional information systems. They also benefit from fast on-demand implementation of the service and flexible pricing models for different service

levels. One drawback that they have is the lack of flexibility in customization for different business needs. Examples of this category fit in the online accounting solutions that are provided with Software as a Service model (SaaS).

2.4 Service Environment

There are different players involved in the value network for offering financial accounting services to SMEs. The list below shows these relevant parties that interact in the exchange for services.

- **Customers:** SMEs, who are the ultimate users of the technology.
- **Service providers:** Accounting companies, who offer outsourced services.
- **Solution and system providers:** Software companies specializing in accounting software.

The roles are simplified, and in a theoretical model they would interact with each other; customer buying the service from the service provider who in turn would buy the necessary systems from the solution provider. In practice, however, the roles can be mixed depending on the nature of the service provided, customer's strategy and competences, and technical capabilities of the solution.

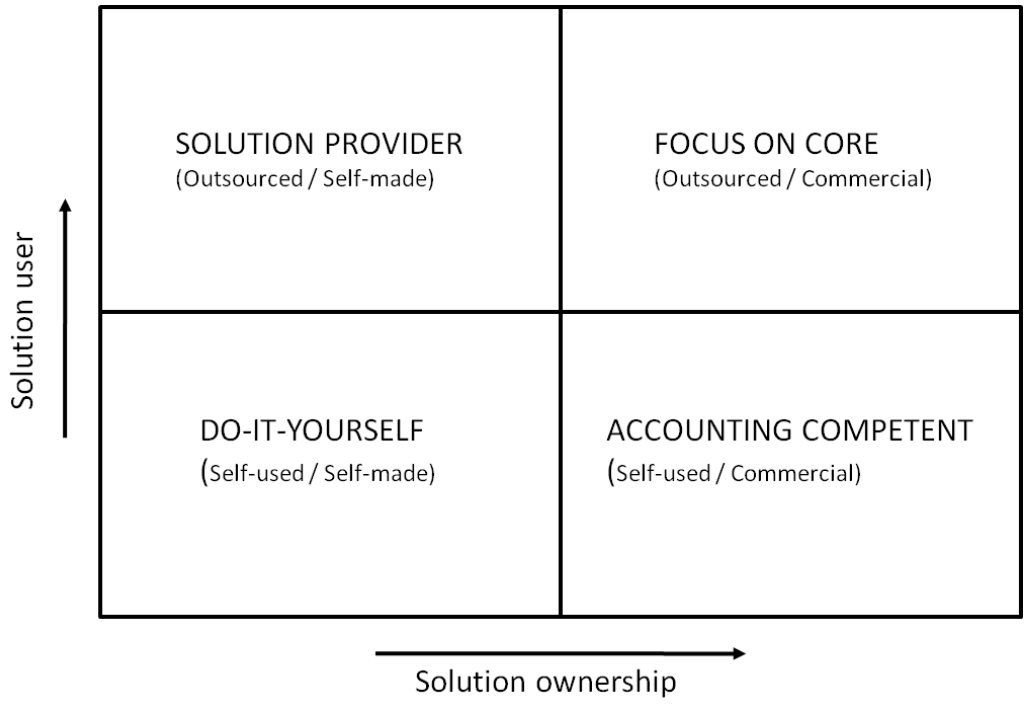

Figure 3. User-ownership matrix for accounting solutions.

The matrix in the figure above (Figure 3) describes the strategic choices for solution ownership and user from the customer point of view. These choices and hybrid combinations of roles are discussed more in detail in the descriptions of each player.

2.4.1 Customers

Customers are companies that are in need of financial accounting services. In this research they consist of small and medium-sized companies from various industries. Different industries and sizes lead to different business models, which in turn set challenges for non-generic accounting services. Customers focus in their industry specific core businesses, instead of supporting organizational functions. This means that their level of financial and accounting competence and IT skills often varies greatly.

In the user-ownership matrix, customers are divided in three groups: *do-it-yourself*, *focus-on-core*, and *accounting competent*. *Do-it-yourself* customers have their own solutions that they use for accounting functions. This is often the first step in the organizational evolution. *Focus-on-core* customers, on the other hand, are good at what they do, but they don't understand enough of finance and accounting to manage the accounting functions themselves. Instead, they outsource them to accounting service providers. The technology solutions used depend on the service provider, but they are often specific solutions licensed from the solution providers. *Accounting competent* customers are like the former, but they have enough financial and accounting knowledge to bypass the service providers and license the solutions directly from the solution providers. The solutions are either self-hosted or networked according to the specificity and level of integration matrix (see Figure 2). *Do-it-yourself* and *accounting competent* customers are examples of hybrid roles in the service domain. *Solution provider* customers are a special case, since their business is the actual provision of accounting systems.

2.4.2 Service Providers

Service providers are companies that offer financial and accounting services to customers. In this research they consist of small and medium-sized accounting companies. The offered services range from technology licensing to financial and accounting consultation, meaning that the core competence of service providers is in finance and accounting. However, the level of the core competence also defines the extent of the provided services. Basic accounting services are provided by all service providers, but value-added services, such as business consultation and cash flow forecasting, are only offered by those with enough competence in the subject. Similarly, the level of

IT knowledge affects the used solutions, which range from self-made spreadsheet models to licensed specific software and self-made solutions.

As mentioned, service providers interact between customers and solution providers in the general case. This means that their customers must fit the *focus-on-core* quadrant in the user-ownership matrix. However, a hybrid role is also possible when the service provider produces the technology solution itself. In this case it also fits the description of solution provider explained below.

2.4.3 Solution Providers

Solution providers are companies that produce software solutions to fit the needs of accounting service providers and end customers alike. They range from small and medium-sized software companies specified only in financial and accounting systems to large providers of ERP systems. In this research the ERP system providers are ignored based on the scope of the research. The competence of solution providers is in software development, specifically focusing in the area of financial accounting software. Even though the accounting methods are quite uniform, the heterogeneity of customer businesses sets challenges, especially for the software solutions that support value-added services.

In the generic model solution providers are the first link in the value chain of providing accounting services to customers. In this case the customers fit the *focus-on-core* quadrant, as they use the services from the service provider who in turn uses the technology solution from the solution provider. This can be characterized as indirect solution provision. As mentioned with the service providers, a hybrid role of service and solution provider is also possible. In such case, the service provider is bypassed by the solution provider and the customer uses the services and solutions directly from the solution provider.

3 LITERATURE REVIEW

This chapter looks into the existing literature of the research topic in information systems science and develops a research framework based on it. First, technology adoption and usage theories in IS research are discussed, with additional focus in integration, and then the theories are applied in the research context to build a research framework for the empirical part.

Information systems science has been studying technology and innovations in the context of social systems for several decades. The research evolved from the psychological studies of behavior and attitude (Rogers, 1962; Fishbein and Ajzen, 1975) and still today the behavioral aspects are strongly present in several of the IS theories of technology (Davis, 1989; DeLone and MacLean, 1992; Goodhue and Thompson, 1995; Venkatesh et al., 2003). During the evolution, the technology and innovation theories have been focusing on two lines: adoption theories, such as the Technology Acceptance Model from Davis (1989) and usage theories, such as the Task-Technology Fit model from Goodhue and Thompson (1995). Both lines of research and their evolution are described more in detail in the next subchapters.

3.1 Technology Adoption

In 1960s Rogers (1962) published his book about diffusion of innovations and initiated a new line of research which eventually evolved into technology adoption theories. In his publication he studied how new ideas and technologies are communicated through various channels in societies and what is the rate of this change in the continuum of time. He found out that the adoption of innovations follows a normally distributed curve and that there are different stages for different types of individuals (see Figure 4). In his model the individual characteristics influencing the decision to adopt an innovation are relative advantage, compatibility, complexity or simplicity, trialability, and observability.

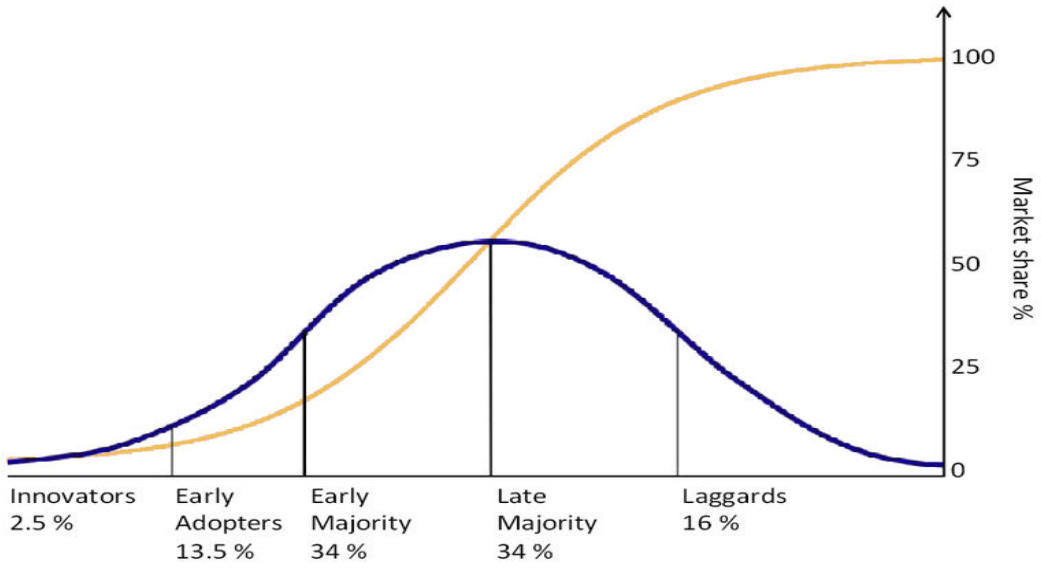

Figure 4. Adoption stages of the diffusion of innovation theory by Rogers (1962).

Some years after the development and evolution of the theory, Tornatzky and Klein (1982) performed a meta-analysis on 75 articles about innovation characteristics and their relationship to adoption and implementation. In their study they observed ten characteristics that were examined further: compatibility, relative advantage, complexity, cost, communicability, divisibility, profitability, social approval, trialability, and observability. Out of these ten characteristics they argued that compatibility, relative advantage and complexity were the most significant. These three characteristics were already present in the seminal publication by Rogers (1962).

The diffusion of innovations theory has been applied in the context of information systems (Bradford and Florin, 2003; Cooper and Zmud, 1990; Karahanna et al., 1999; Moore and Benbasat, 1991). These studies focused in the diffusion characteristics. At the same time another branch of technology adoption theories was evolving (Davis, 1989; DeLone and MacLean, 1992; Venkatesh et al., 2003). The influencing characteristics between the branches of theories and the models in branches partly overlap. This describes the nature of the incremental evolution in the adoption theories quite well. One example and extent of this is the Technology Acceptance Model (TAM) by Davis (1989). It has been widely used and modified, but also criticized from illusionary progress because of incremental changes (Benbasat and Barki, 2007). On the other hand, we can fairly argue that this kind of modifications and attempts to adjust theories are a natural way of progression in the science. By today, there are over 36,000 citations for the initial publication of diffusion of innovations by Rogers (1962) according to Google's Scholar search engine.

The mentioned branch of adoption theories started from Fishbein and Ajzen's (1975) study on attitudes and subjective norms and how they affect individual's intentions and further his behavior. Based on their findings they constructed the model of Theory of Reasoned Action (TRA). Continuing on this research line Ajzen (1985; 1991) extended TRA with behavioral control and named the model as Theory of Planned Behavior (TPB). While these two theories focused more on the general behavioral issues of individuals, Davis (1989) applied them to the field of IS and developed the Technology Acceptance Model (TAM). He argued that when individuals come to accept new technology, two factors, perceived ease of use and perceived usefulness, determine the individuals' attitudes and behaviors towards the technology and ultimately the extent to which the technology is adopted. This model follows closely the analogy of TPB and TRA analogies, as can be seen in the figure below (Figure 5). The factors, perceived ease of use and perceived usefulness are closely related to the three significant diffusion characteristics of compatibility, complexity and relative advantage (Tornatzky and Klein, 1982).

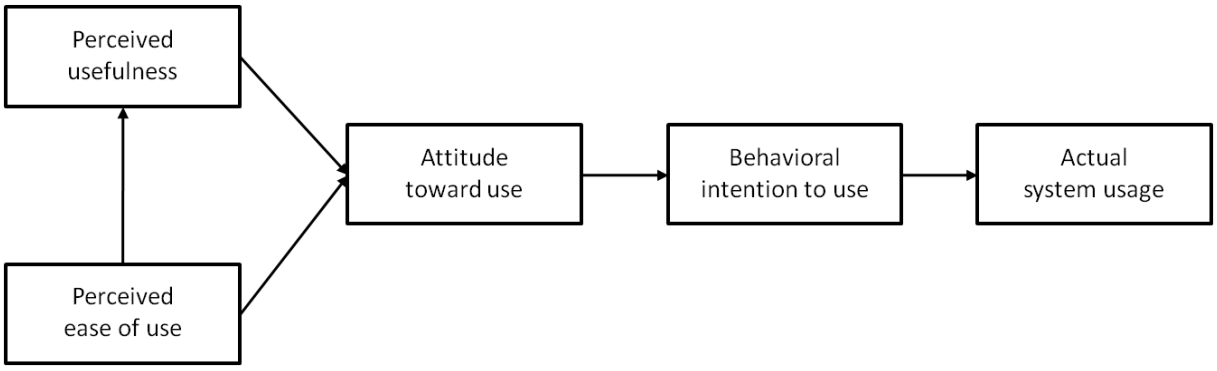

Figure 5. Technology Acceptance Model by Davis (1989).

TAM has been used widely to study the technology acceptance and it has been further developed. DeLone and McLean (1992) constructed a theory carrying their name, the DeLone and McLean model of IS success, by reviewing existing IS success related literature. Their model was evaluated thoroughly by fellow researchers and based on the feedback a revised model was published ten years later (DeLone and McLean, 2003). Their revised model constructs from three determinants: information quality, system quality and service quality. These determinants characterize any information system and affect the user satisfaction and intention to use as well as actual use. Consequently, these factors influence the net benefits, or the IS success, that the individual receives from the system. The net benefits affect the user satisfaction, thus, creating an iterative chain of

effect for the actual use. See the figure below (Figure 6) for details of the DeLone and McLean model of IS success.

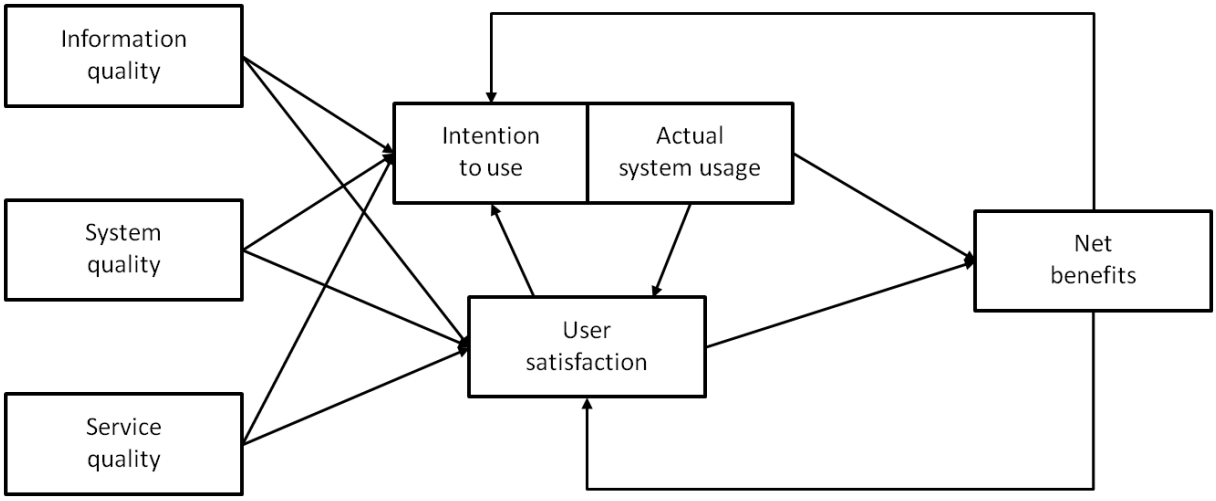

Figure 6. DeLone and McLean (2003) revised model of IS success.

Venkatesh et al. (2003) continued to extend the adoption theories and developed the Unified Theory of Acceptance and Use of Technology (UTAUT). They reviewed several innovation and technology studies and constructed a model that holds four key determinants of performance expectancy, effort expectancy, social influence, and facilitating conditions, and four supporting determinants of gender, age, experience, and voluntariness of use. The key determinants affect directly the individual's behavioral intention and his use behavior, while the supporting determinants moderate the effect of the key determinants. The UTAUT theory is the result of the consolidation of the relevant technology adoption theories mentioned here.

Both of these theories, the IS success model and UTAUT, characterize as technology adoption theories, but they also acknowledge the actual use of the technology. Next we will review the topic from the technology usage perspective.

3.2 Technology Usage

The interest towards the post-adoption stage in the technology lifecycle began after the introduction of TAM (Davis, 1989). One seminal study in this line of research was the Task-Technology Fit theory (TTF) by Goodhue and Thompson (1995). Their idea was to take adoption of technology for granted and instead focus on the usage and performance effects from a contingency perspective. According

to the contingency theory, there is no one best way of doing a thing, but rather the internal and external conditions affect the optimal case (Goodhue et al., 1988). In the case of TTF, the conditions affecting the optimal solution are the requirements that tasks place for the technology and, on the other hand, the features of the technology that enable the fulfillment of tasks. Therefore, the technology doesn't have to be the best one available, but it has to fit with the tasks of the specific case. Similar contingency approach for tasks and technology was considered earlier by Cooper and Zmud (1990) in a study of technology diffusion. They used the diffusion of innovation theory constructs but adjusted them for their study; compatibility was formed by task and technology characteristics and complexity from task and technology complexity.

Goodhue and Thompson (1995) used the Task-Technology Fit to measure the level of utilization and performance impacts. According to the model, the better the fit was, the higher the rate of utilization and the performance impacts were. The relationships can be seen in the figure below (Figure 6), which also includes the focus of this study in relation to the TTF theory. The focus will be discussed more when the research framework is built. Goodhue and Thompson (1995) performed their study in two organizations with multiple departments and technologies, and found eight key constructs for the fit of task and technology: quality, locatability, authorization, compatibility, ease of use and training, production timeliness, systems reliability, and relationship with users. Again, we can see that there are many constructs that overlap with other technology adoption and usage theories.

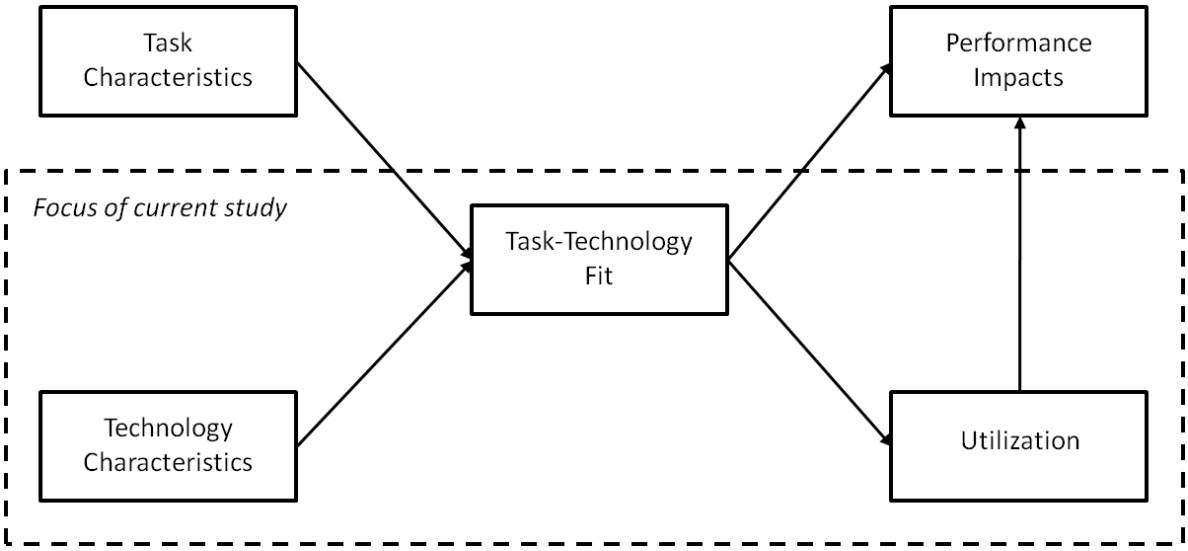

Figure 7. Task-Technology Fit model by Goodhue and Thompson (1995).

The Task-Technology Fit model by Goodhue and Thompson (1995) initiated a new line of research for the technology utilization and performance in a task contingency setting. Since its publication the model has been extended with various theories such as TAM (Dishaw and Strong, 1999; Klopping and McKinney, 2004; Chang, 2010; Yen et al., 2010), UTAUT (Zhou et al., 2010), computer self-efficacy (Strong et al., 2006), individual differences (Lee et al., 2007), social cognitive theory (Lin and Huang, 2008) and empowering leadership (Kuo and Lee, 2011). These are not the only extensions and integrations of the TTF model; Tjan (2001) and Liang et al. (2007) proposed a fit-viability model to study the performance of technology adoption within organizations. A different perspective was taken also by Junglas et al. (2008) who studied tasks and technologies from the conditions of under-, over-, and ideal fit.

The TTF model has been applied to different contexts. This is important for the evolution of the theory because the theory itself states the importance of contingency perspective; each different task setting gives insight how the TTF constructs and their relative importance are affected in that setting. The originating authors, Goodhue and Thompson (1995), Goodhue (1998) and Goodhue et al. (2000) applied TTF into managerial decision making tasks with quantitative information in large organizations. The technologies in their studies can be categorized as decision support systems. Zigurs and Buckland (1998) and Shirani et al. (1999) studied the interaction of tasks and technologies for group support systems. The former developed the general theory of TTF in the GSS context and the latter applied it for group communication technologies. Dennis et al. (2001) introduced a fit-appropriation model for the GSS context and used a meta-analysis to evaluate it. The fit perspective in their model is based on the original TTF theory. Other application contexts have been mobile and e-commerce (Lee et al., 2007; Yen et al., 2010), online web services (D'Ambra and Rice, 2001), online shopping for consumers (Klopping and McKinney, 2004), mobile locatable services (Junglas et al., 2008), mobile banking services (Zhou et al., 2010), online auction and client technology (Chang, 2010), knowledge management systems (Lin and Huang, 2008; Kuo and Lee, 2011), and military commander training with simulation (Cane et al., 2010).

3.3 System Integration

Integration can be defined as linkages of organizational resources through shared data, processes and systems (Seddon et al., 2010). Ross et al. (2006) emphasize the importance of data sharing and name it as the biggest challenge in integration of systems for end-to-end transaction processing. More recently, cloud services have become common practice, specifically addressing the problem of data integration through improved, centralized data hosting procedures and standardized interfaces for system integration.

Integration has been notified as one key determinant in several technology usage related studies. DeLone and McLean (2003) considered system and information quality as the determinants of IS usage and user satisfaction, consequently affecting the individual and organizational performance. One of the measurement items in system quality was system integration. Similarly, Wixom and Watson (2001) and Wixom and Todd (2005) found integration as a significant measurement of system quality and, therefore, affecting the user satisfaction of information quality. Seddon et al. (2010) identified three key factors affecting the organizational benefits from enterprise systems, integration being one of them.

3.4 Research Framework

The objective of this study, as stated in the research questions, is to understand how cash flow forecasting solutions fit with the forecasting tasks and evaluate if outsourcing of the forecasting service would have effects to the fit. In order to achieve the objective and to answer these questions, a research framework is needed. This framework relies on the technology adoption and usage theories in the cash flow forecasting context, and uses a path diagram form, so that it can be applied with statistical methods to evaluate its validity.

One of the critical points in the process of cash flow forecasting was related to gathering of information and tasks related to it. The amount and type of information needed depends on the forecasting that is wanted to be done, or conversely, the information availability and ease of access enables more sophisticated forecasting. Therefore, a special focus must be placed in the information gathering and its enablers, such as automation of data fetching and the capability of inter-system communications. One key determinant, definitely, is the level of system integration, meaning how well the cash flow forecasting solutions can fetch forecasting critical data from different IT systems of the organization, without manual interventions or costly customizations.

Based on DeLone and McLean (2003), Wixom and Watson (2001) and Wixom and Todd (2005), system integration affects system quality and information quality, which consequently turn into utilization and net benefits. Similar propositions were made by Goodhue and Thompson (1995), who argued that technology characteristics affect the task and technology fit and further the utilization and performance impacts of IT systems. The level of networking and integration (see Figure 2) of a solution are analogous to the technology characteristics. Additionally, TTF constructs of quality and locatability can be associated with information quality. In the cash flow forecasting context information quality refers to both the input information gathering and the output reports of the

forecasting process. Finally, all the above authors argue that information quality and task and technology fit lead into increases in utilization and net benefits or performance impacts.

The model for the research framework, which can be seen in the figure below (Figure 8), is a synthesis of these theories. Based on the framework and the theories above, a set of hypotheses was formulated (listed below, H1 - H4) to analytically answer to the research questions. These hypotheses were evaluated using statistical methods, more specifically structural equation modeling, that are described more in detail in the next chapter.

H1: *Integration of accounting systems leads to improved task-technology fit (data quality).*

H2: *Improved task-technology fit (data quality) leads to higher usage rates of cash flow forecasting services.*

H3: *Improved task-technology fit (data quality) leads to performance impacts.*

H4: *Higher usage rates of cash flow forecasting services lead to performance impacts.*

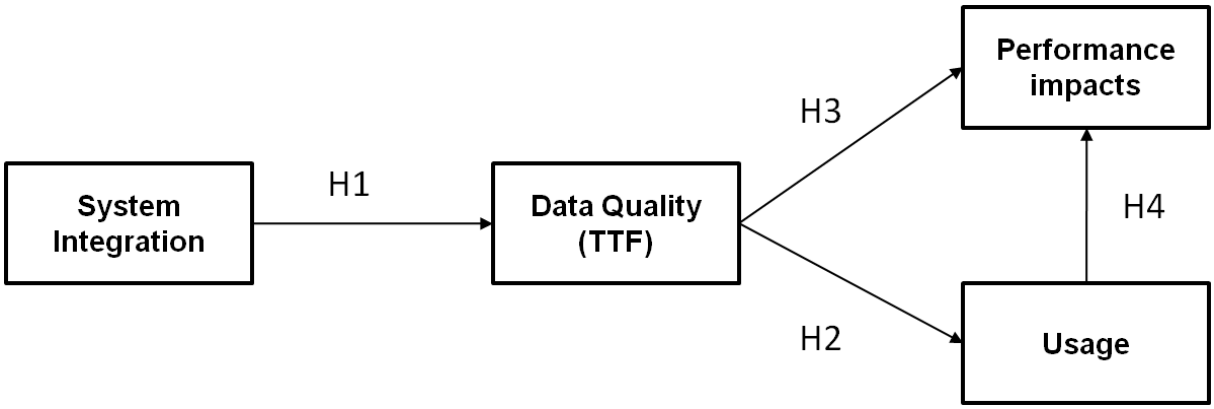

Figure 8. Conceptual framework and hypothesis (adapted from Goodhue and Thompson, 1995; DeLone and McLean, 2003; Wixom and Todd, 2005).

To operationalize the constructs in the model, a research instrument was developed. This instrument contained measurement items for the construct from the existing literature, whenever possible. Additionally, insights from the expert interviews at accounting companies, cash flow forecasting solution providers and customers were used. The research instrument contained multiple items for each construct, however in the analysis only some of these qualified as determinants of their respective constructs. The final relevant items can be seen in the table below (Table 3) with scaling

and references. Additionally, other items for TTF related constructs were included in the instrument to allow testing of different models. These items, however, were excluded from the final model due to failed qualification. All the items in the instrument can be found from the appendices.

Table 3. Operationalization of the constructs.

Construct	Item	Question	Scale	Reference
System integration	INT1	The cash flow forecasting tool supports automation of data transfer from the customer's information systems.	Likert 1-7	Wixom and Todd (2005), Expert interviews
	INT2	The cash flow forecasting tool is easily available to the accounting company and its customer (e.g. through a cloud service).	Likert 1-7	Expert interviews
	INT3	The cash flow forecasting tool supports the use of electronic invoicing data.	Likert 1-7	Expert interviews
Data quality (TTF)	QUAL1	Cash flow forecast contains all the information the customer needs and is up to date.	Likert 1-7	Goodhue and Thompson (1995)
	QUAL2	The information received from customer used for the cash flow forecast fulfils the requirements and is sufficiently up to date.	Likert 1-7	Goodhue and Thompson (1995)
	LOCAT1	It is easy for the customer to locate necessary information from the cash flow forecast and understand its meaning.	Likert 1-7	Goodhue and Thompson (1995)
	LOCAT2	The information needed for the cash flow forecast is easy to locate and understand.	Likert 1-7	Goodhue and Thompson (1995)
Utilization	UTIL	What proportion of the clientele is offered cash flow forecasts?	Percentage	Expert interviews
Performance	PERF1	The competitiveness of our company is at good level.	Likert 1-7	Expert interviews
	PERF2	The profitability of our company has been at good level for over one year.	Likert 1-7	Expert interviews

4 RESEARCH METHODOLOGY

In this chapter I will describe the methodology that is used in this research. The methodology includes descriptions of data collection and analysis methods and discusses the general reliability and validity related to the data. Further discussion of data analysis reliability and validity can be found from chapter five.

4.1 Data Collection

The chosen procedure to empirically study the research problem combined both qualitative and quantitative methods. This kind of combination of multiple viewpoints is encouraged to improve the accuracy of the observations and to give a more holistic view of the research topic (Jick, 1979). First, preliminary expert interviews were conducted to better understand the problem area. The interview targets were bookkeeping professional from accounting company, representative of cash flow forecasting system provider, and two customers who which used cash flow forecasting services offered by an accounting company. The background information of the interviewees can be seen in the appendices. The interviews were documented and a summary was validated afterwards with the interviewee before more careful analysis of the results. Then, by reflecting the results of the interviews with theories of technology adoption and usage, the research instrument was developed in the form of quantitative survey.

Survey was chosen to be the primary method, as it allows the gathering of large amounts of data and using quantitative methods to make generalizations based on the data (Galliers, 1992). Additionally, Hair et al. (2010) state that survey is the preferred method for gathering data for formal quantitative analysis using techniques such as SEM. In the development of the survey, the main contents were based on the items described in the research framework, in previous chapter, and followed either the reviewed theories or reflections from the expert interviews. In addition, there were other items that were of importance for the research program, resulting in a more lengthy and heavy questionnaire. The complete questionnaire can be found in the appendices.

The targets for the survey were chosen to be accounting companies who offered financial services, especially, to SME sector. They were the informants to explain task and technology fit characteristics, such as the link between the integration of accounting information systems and cash flow forecasting. The accounting companies were asked to project one of their clients when responding to the questions that were related to customer specific information. This ensured that the projection

contained information of only one client, attributing to the improved reliability and validity of the responses.

Before the survey was sent out, it was pilot-tested with two accounting professionals and two academics. Based on their feedback some of the questions and the structure were revised. The survey was implemented using Webropol, an online questionnaire service, and the recipients were approached with an email with guidelines for answering to the survey. To increase the motivation for participation, a lottery of accounting related prizes were offered for all respondents. Additionally, reminder emails were sent during the two-week online time frame of the survey.

4.2 Data Analysis

The method used for the data analysis was structural equation modeling (SEM). SEM procedures allow researchers to statistically evaluate complex relationships between unobservable variables and examine their causalities. Two common methods of SEM are covariance-based SEM, e.g. LISREL (Jöreskog and Sörbom, 1983) and component-based SEM, e.g. Partial-Least-Squares (PLS) technique. The two methods are described in the table further below (Table 4). In this research the covariance-based SEM was chosen, as it is the suggested method for confirmatory factor analysis when the requirements are fulfilled. (Gefen et al., 2000)

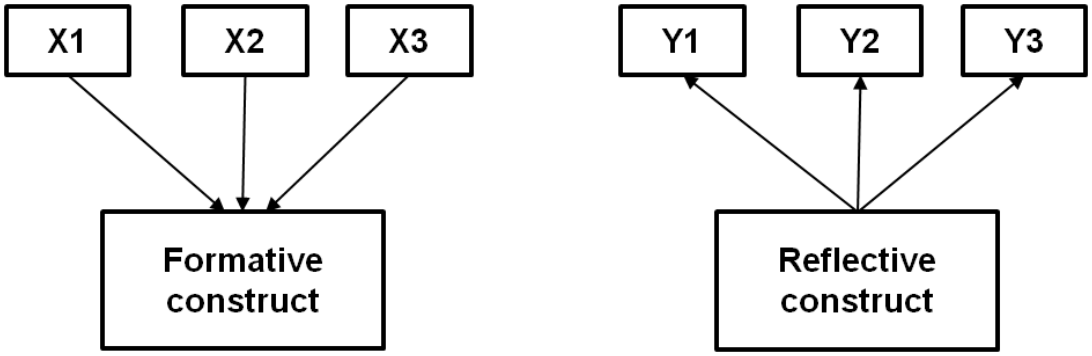

Figure 9. Reflective and formative constructs (Petter et al., 2007).

Structural equation models are formulated with two kinds of constructs: reflective and formative constructs. Reflective constructs are manifestations of the unobservable constructs and are interpreted as causing the changes in the observed items, while, formative constructs are determined by the observed items, turning the causality the other way around (Petter et al., 2007). This classification can be seen in the figure above (Figure 9). The constructs in the research

framework, integration, task-technology fit (data quality) and performance, which is a dependent variable, are formulated as reflective constructs, thus the usage of LISREL and covariance-based SEM is also plausible (Gefen et al., 2000). The dependent variable, usage of cash flow forecasting, is a single item.

The used SEM model and its analysis are described more thoroughly in the next chapter, along with other results.

Table 4. Comparison of covariance-based (LISREL) and component-based (PLS) SEM, adapted from Gefen et al. (2000).

Method	**Covariance-based SEM (LISREL)**	**Component-based SEM (PLS)**
Overall objective of analysis	Show that the null hypothesis of the entire proposed model is plausible, while rejecting path-specific null hypotheses of no effect.	Reject a set of path-specific null hypotheses of no effect.
Required theory base	Sound base required, confirmatory factor analysis (CFA) supported.	Sound base not required, both CFA and exploratory factor analysis supported.
Required sample size	At least 100-150.	At least 10 times the number of items in the most complex construct.
Supported relationships	Reflective.	Reflective and formative.

4.3 Reliability and Validity of Data

There are some issues regarding the survey that need to be considered when evaluating the reliability and validity of the data. First, as I already mentioned, the quantitative survey was lengthy and heavy due to the inclusion of multiple set of questions with differing objectives. Questions related to the framework were only one part in the whole questionnaire. The answering was estimated to take between 15 and 20 minutes, however, depending on the level of knowledge of the respondent, the duration might have been longer. This may have affected the overall response rate

in the survey, as well as the validity of the responses, due to decreasing level of respondent focus towards the end of the survey.

Additionally, the decision of accounting companies as the targets of the survey and their projections of customers must be acknowledged as a possible cause of bias. The instructions to answer the survey were included both in the survey email and in the actual online survey as part of the header information. They were also reviewed in the pilot-test by two accounting professional and academics, attributing to better validity and reliability. Still, during the online time frame of the survey, there were some email and phone contacts from recipients asking about the projection instructions.

Another consideration, during the development of the survey, was the fact that some of the recipients would not offer cash flow forecasting service per se, but their insights to the matter were still useful for the research. To overcome this, the respondents were instructed to consider a hypothetical case of *"what and how would they forecast for a potential client"*, in the case they did not offer cash flow forecasting services. This also caused some queries for additional instructions during the survey.

5 RESULTS

This chapter discusses the results of the quantitative and qualitative empirical research. First, respondent demographics are described, then SEM analysis, including model reliability and validity considerations, is presented, and finally, cash flow forecasting motivation and technologies are examined more in detail based on the sample responses. Additionally, the preliminary case studies are presented as qualitative examples to reflect the customer perspective for the research problem.

5.1 Respondent Demographics

The survey email was sent to 580 accounting professionals, working in accounting companies. Out of these, 110 responses were received with two invalid responses, yielding to 108 valid responses with a response rate of 19%. The first part of the survey asked about respondent background. The results are summarized in the table below (Table 5).

The results show that most of the respondents were female (71%) between 40 and 60 years old (79%). The most common job description was entrepreneur (72%), which is also supported by the number of employees figure: little under half (41%) worked as single-person companies and one third (34%) had between 2 and 5 employees. Revenue figures show that more than half (61%) of the respondent accounting companies made less than 200,000€ per year, and only 10% over 1,000,000€ per year. The number of customers that the respondents had varies largely from few up to more than two hundred. This number, however, may include both passive and active clients, as it was not specified in the background question. The customer demographics, in the table below (Table 6), give more insight to what kind of customers the accounting companies had. Nevertheless, this sample represents the small size entrepreneurial accounting companies of Finland.

Table 5. Demographics of the respondents.

Demographic variables		Sample composition (N = 108)	
Age		**Job description**	
Under 30	2 (2%)	Entrepreneur	78 (72%)
31 - 40	11 (10%)	Top mgmt	12 (11%)
41 - 50	41 (38%)	Mid mgmt	4 (4%)
51 - 60	44 (41%)	Specialist	14 (13%)
Over 60	10 (9%)	**Number of customers**	
Gender		Under 20	12 (11%)
Male	31 (29%)	21 - 50	31 (29%)
Female	77 (71%)	50 - 100	31 (29%)
Number of employees		100 - 200	17 (16%)
1	44 (41%)	Over 200	17 (16%)
2 - 5	37 (34%)	**Revenue**	
6 - 10	9 (8%)	Under 0.2 M€	66 (61%)
11 - 20	9 (8%)	0.2 - 0.5 M€	19 (18%)
21 - 50	5 (5%)	0.5 - 1 M€	12 (11%)
51 - 100	2 (2%)	1 - 2 M€	5 (5%)
101 - 200	1 (1%)	2 - 5 M€	1 (1%)
over 200	1 (1%)	5 - 10 M€	3 (3%)
		10 - 20 M€	1 (1%)
		Over 20 M€	1 (1%)

The respondents were asked to project one customer to whom they offered cash flow forecasting services. If no forecasting services were offered, they were asked to hypothesize a likely customer case and describe this. The respondents were given no other instructions on how to choose the customer, so it can be assumed that the projected customers were chosen arbitrarily from the pool of acceptable representatives. The received background information of the projected customers is described in the table below (Table 6).

The sample projection of customers using cash flow forecasting services is quite dispersed. The size, by number of employees and revenue figure, is weighted more towards small companies; largest groups being 2 – 5 employees (28%) and 1,000,000€ to 2,000,000€ in revenue (24%). As we look at larger customers, they tend to decrease, only 7% with more than 100 employees and 10% with more than 10,000,000€ in revenue. Intuitively, larger companies tend to use larger accounting companies as their service outsourcer, or they have internal organizational units for the accounting function.

When considering the industry diffusion, the largest groups were services (29%), construction and real estate (16%), and retail and trade (15%). Other groups were represented as well. More interestingly, the business types of the customers were divided more heavily toward continuous

business (57% – 73%) than project-based business (16% - 22%). Naturally, project-based business, which is characterized with uncertainty and varying cash flows, would enjoy the benefit of cash flow forecasts more than stabile continuous business. In practice, however, the complexity of forecasting in project-based business and the sheer amount of continuous businesses in relation to project-based businesses may affect these figures.

Table 6. Demographics of the projected customer companies.

Demographic variables		Sample composition (N = 108)	
Number of employees		**Industry**	
1	13 (12%)	Food production	8 (7%)
2 - 5	30 (28%)	Arts & Graphics	1 (1%)
6 - 10	20 (19%)	Retail & Trade	16 (15%)
11 - 20	19 (18%)	Transportation & Traffic	10 (9%)
21 - 50	13 (12%)	Services	31 (29%)
51 - 100	6 (6%)	Construction & Real estate	17 (16%)
101 - 200	3 (3%)	Restaurant & Accommodation	4 (4%)
Over 200	3 (3%)	Healthcare	1 (1%)
Can't say	1 (1%)	Production	9 (8%)
Revenue		Other	11 (10%)
Under 0.2 M€	15 (14%)	**Business type**	
0.2 - 0.5 M€	17 (16%)	Project business	17 (16%)
0.5 - 1 M€	15 (14%)	More project than continuous	6 (6%)
1 - 2 M€	26 (24%)	Both project and continuous	6 (6%)
2 - 5 M€	13 (12%)	More continuous than project	17 (16%)
5 - 10 M€	12 (11%)	Continuous business	62 (57%)
10 - 20 M€	6 (6%)		
20 - 50 M€	2 (2%)		
Over 50 M€	2 (2%)		

5.2 Structural Equation Modeling

SEM methods were used to analyze the response data according to the research framework and test the derived hypothesis. As mentioned in the methodology part, covariance-based SEM was used with LISREL 8.80. Based on the two-step approach recommended by Anderson and Gerbing (1988), first the measurement model was analysed to ensure the reliability and validity of the research instrument, and then the actual structural model was evaluated to test the research model.

According to Gefen et al. (2000), at least 100-150 respondents are needed to conduct the SEM using LISREL (see Table 3). The sample had 108 responses so its limitations must be acknowledged. However, the model in itself is simple, including only four constructs (one being a single item construct). In the final model, in total 22 parameters were estimated, yielding an adequate ratio of

data per parameter estimates at 5 (108/22) with communalities between 0.40 and 1.00 (MacCallum et al., 1999). Therefore, it can be concluded that, although the sample is relatively small, covariance-based SEM can be used to analyze the data.

5.2.1 Measurement Model

First, a confirmatory factor analysis (CFA) was conducted to ensure the reliability and validity, including both convergent and discriminant validity, of the model. Convergent validity shows whether each factor can be reflected by its own items (Campbell and Fiske, 1959; Gefen et al. 2000). Table below (Table 7) depicts the standardized item loadings, average variance extracted (AVE), composite reliability (CR), and Cronbach's Alpha values. As shown in the table, most item loadings were larger than 0.7. All AVEs, CRs, and Alphas exceed the recommended threshold values of 0.5, 0.7, and 0.7, respectively (Bagozzi and Yi, 1988; Gefen et al., 2000; Nunnally, 1978), except for the Alpha of performance construct (0.679), which is just below the limit of 0.7. The construct is a special case, similar to usage construct, as it has only two measurement items. This makes it more sensitive to the reliability indicators. The measurement model, however, can be said to show good convergent validity and reliability, as long as these circumstances are acknowledged. During the analysis of measurement model, several items in the research instrument were dropped due to inability to qualify as determinants of the constructs. These items are listed and explained in the appendices.

Due to the characteristics of the random sample, one of the items (PERF1) for performance construct showed slightly negative error variance value and a loading of over one. To solve this, the error variance of the item was estimated with the formula ([1 – construct reliability] * item variance), using 0.7 as the construct reliability estimate (Cadogan et al., 2005). After manually adjusting the problematic item, the model converged without further problems.

Table 7. Measurement model.

Construct	Item	Std. loading	Communalities	AVE	CR	Alpha
System Integration	INT1	0.70	0.49	0.631	0.833	0.816
	INT2	0.97	0.94			
	INT3	0.67	0.45			
Data quality (TTF)	QUAL1	0.73	0.53	0.601	0.857	0.855
	QUAL2	0.74	0.55			
	LOCAT1	0.82	0.67			
	LOCAT2	0.81	0.66			
Utilization	UTIL	1.00	1.00	1.000	1.000	Single item
Performance	PERF1	0.63	0.40	0.548	0.704	0.679
	PERF2	0.84	0.71			

Discriminant validity reflects whether two constructs are statistically different (Campbell and Fiske, 1959; Gefen et al., 2000). To test the discriminant validity of the constructs, the square root of AVE was calculated for each construct and compared to the correlation coefficients of the other constructs. The table below (Table 8) shows that, for each construct, the square root of AVE was larger than its correlation coefficients with other constructs. Therefore, the model exhibits good discriminant validity (Boudreau et al., 2001; Fornell and Larcker, 1981).

Table 8. Discriminant validity: Square roots of AVE and construct correlation coefficients.

	Sqrt AVE	**Data quality**	**Utilization**	**Performance**	**System integration**
Data quality	0,775	1,000			
Utilization	1,000	0,325	1,000		
Performance	0,740	0,094	0,056	1,000	
System integration	0,794	0,311	0,101	0,029	1,000

The fit between the data and the proposed measurement model can be tested with a chi-square goodness-of-fit (GFI) test where a probability greater than or equal of 0.9 indicates a satisfactory fit (Hu and Bentler, 1999). The GFI calculated was 0.929. Therefore, the measurement model demonstrated good fit of the data. In addition to the GFI, a number of other measures generated by LISREL were used to evaluate the goodness-of-fit of the measurement model (Chau, 1996) including chi-square/degrees of freedom ratio, Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA). The table below (Table 9) lists the recommended values of various measures of model fit as suggested by Segars and Grover (1993) and readapted by Chau (1996). All goodness-of-fit values show good model fit.

Table 9. Model fit indices for measurement and structural model and recommended values.

Measure of model fit	**Measurement model**	**Structural model**	**Recommended value**
Chi-square	39.51	46.35	-
Degrees of Freedom (df)	31	33	-
Chi-square / df	1.27	1.40	< 2
Goodness of Fit Index (GFI)	0.929	0.920	> 0.9
Normed Fit Index (NFI)	0.919	0.905	> 0.9
Non-normed Fit Index (NNFI)	0.972	0.959	> 0.9
Comparative Fit Index (CFI)	0.981	0.970	> 0.9
Root Mean Square Error of Approximation (RMSEA)	0.054	0.062	< 0.08

5.2.2 Structural Model

The causal structure of the proposed research model was tested using structural equation modelling (SEM). The resulting item loadings and path coefficients are shown in the figure below (Figure 10). Based on the results, system integration (β = 0.31, t-value = 2.85) showed statistically significant relationship with data quality. Similarly, data quality (β = 0.33, t-value = 3.14) had a significant relationship with utilization. However, the presumed performance effects were affected significantly by neither utilization (β = 0.06, t-value = 0.24) nor data quality (β = 0.09, t-value = 0.66).

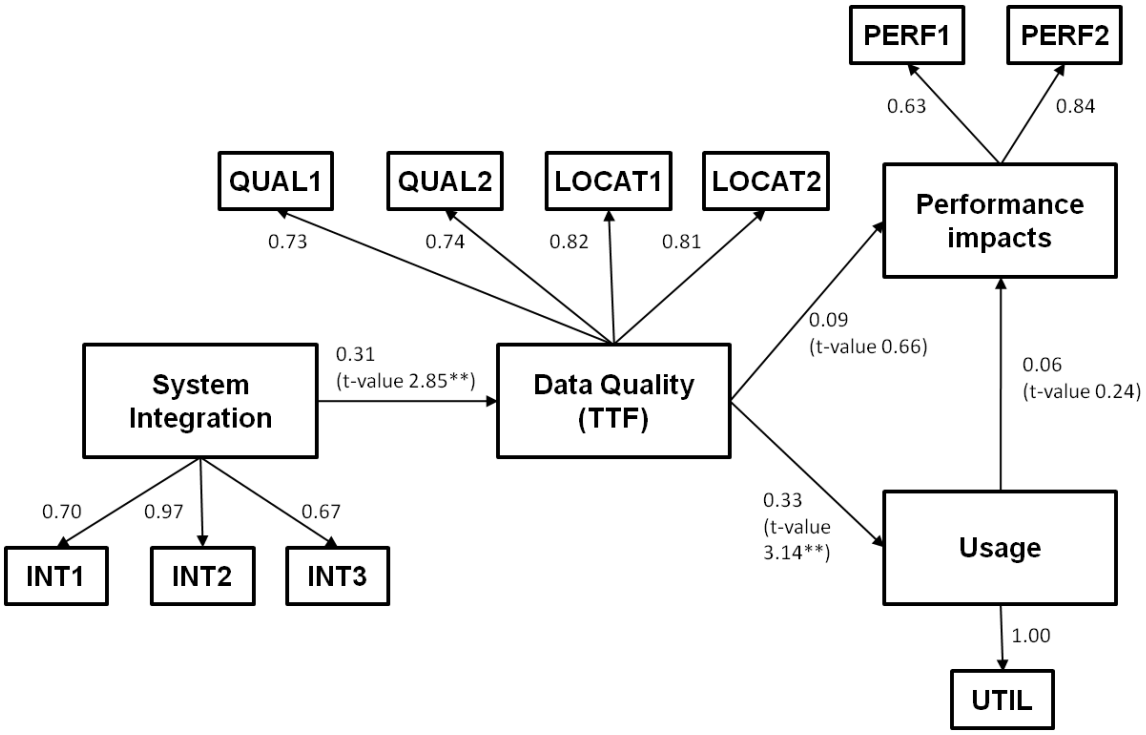

*Figure 10. Model estimation results (Note. ** p < 0.01, df = 33).*

These results give support for two out of four hypotheses, both at statistically significant level (p < 0.01). According to the results, system integration increases the level of data quality (H1), which in turn increases the utilization of the system (H2). The increases in data quality and utilization, however, don't turn into performance impacts (H3 and H4). The summary of hypothesis is shown in the table below (Table 10).

Table 10. Results of the hypothesis tests.

Hypothesis	Statement	Result
H1	Integration of accounting systems leads to improved data quality (TTF).	Supported
H2	Improved data quality (TTF) leads to higher usage rates of cash flow forecasting services.	Supported
H3	Improved data quality (TTF) leads to performance impacts.	Not supported
H4	Higher usage rates of cash flow forecasting services lead to performance impacts.	Not supported

5.3 Cash Flow Forecasting

The sample of accounting companies and their projected customers was further analyzed in motivational and technology related issues. The results are shown here; first considering motivational issues for using and not using cash flow forecasting services, then examining the forecasting periods that the respondents were using, and finally looking at the diffusion of cash flow forecasting technologies and related accounting systems. The results of these analyses appear in line with the results of SEM analysis in previous section.

5.3.1 Motivation

The respondents were asked to evaluate several motivational statements about why and for what purpose their customers use cash flow forecasts in a scale of 1 to 7. The statements were derived from expert interviews and cash flow forecasting related literature, dividing between strategic and decision making purposes, cash management and solvency issues, and juristic reasons. The highest values were found from solvency evaluation and business continuity assurance (avg = 4.90), tool for decision making and negotiations (avg = 4.80), and strategic tool for business development (avg = 4.65). Items, that were not seen as motivating, consisted of juristic reasons (avg = 3.00 for each), except for the solvency evaluation in a payment of dividend situation (avg = 4.00). Other items related to internal motivation (avg = 4.05) and efficient working capital management (avg = 4.30) were seen as neither motivational nor irrelevant. The results are shown in the figure below (Figure 11).

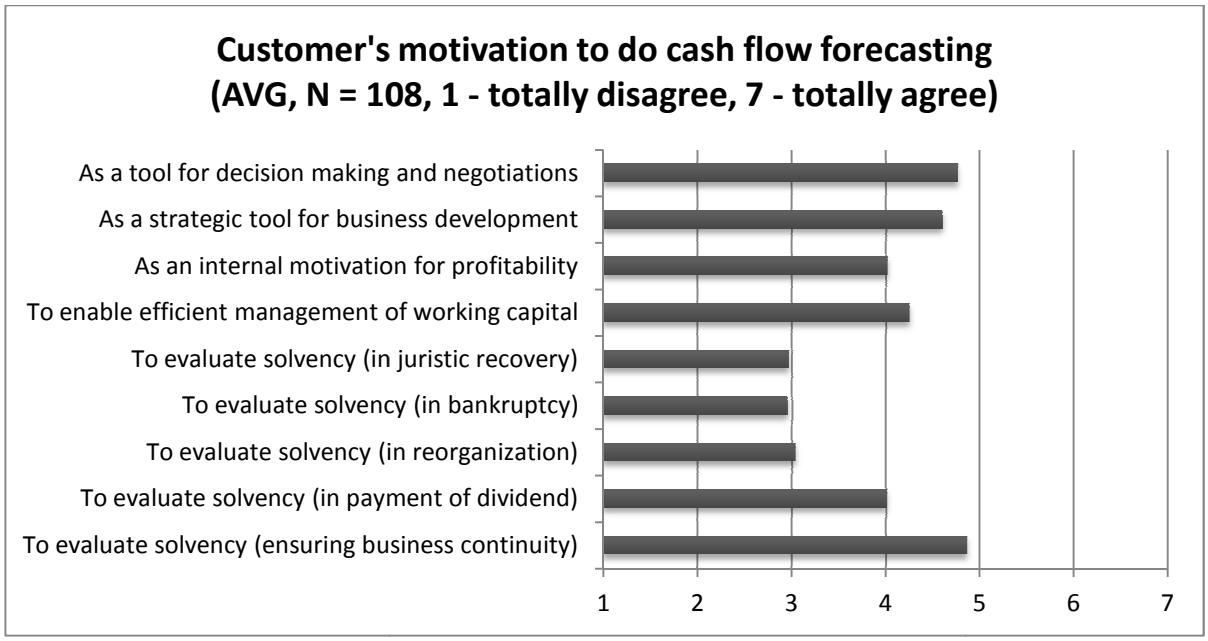

Figure 11. Motivational factors for customers to use cash flow forecasting services.

The respondents were also asked to evaluate motivational issues related to why their customers would not use cash flow forecasting services, by using a scale of 1 to 7. Similarly, the statements were derived from preliminary expert interviews and cash flow forecasting literature. The results show that from the accounting company perspective the most important factor is the customers' lack of practical experience (avg = 5.20) and lack of business and administration skills (avg = 4.80). Conversely, accounting companies didn't consider themselves lacking the needed business and administration skills to perform forecasting (avg = 2.55). The used forecasting tools were not considered unfit (avg = 3.30), neither the data was too dispersed or unavailable (avg = 3.40), forecasting too difficult (3.50), nor the lack of forecasting service offerings affecting (avg = 3.30). One irrelevant item was found to be the need of forecasting as business is foreseeable enough (avg = 4.00). The results are shown in the figure below (Figure 12).

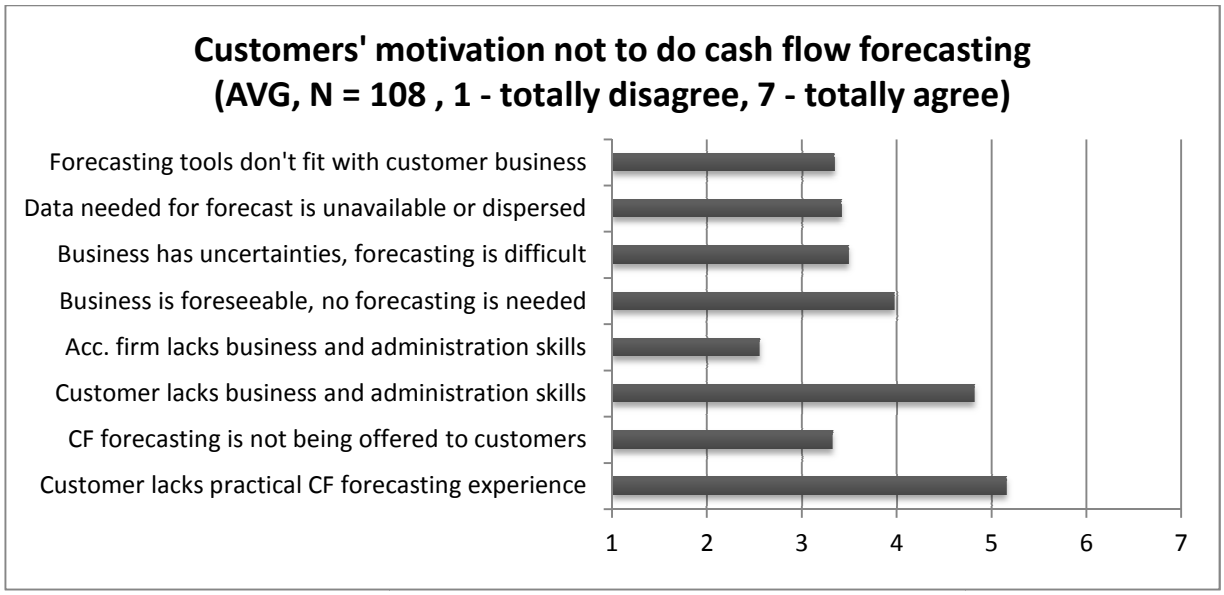

Figure 12. Motivational factors for customers not to use cash flow forecasting services.

5.3.2 Forecasting Periods

The respondents were asked to project one of their customers and describe the cash flow forecasting service offered to this customer. One of the items of interest was the offered forecasting periods. There were three periods, based on the research context description: short-term, medium length and long-term forecasts (see Table 1). First, the periods were considered separately, as can be seen in the figure below (Figure 13). Almost half of the respondents (47%) were offering short-term forecasts of one to two months, while medium-length forecasts of two to eight months or long-term forecasts of over eight months were serviced only by 20% of the respondents. According to these results, short-term forecasting is the easy alternative, and thus the most popular, while medium length and long-term forecasting are more complex, and more rarely used. Intuitively, these results are in line with the respondent demographics of small entrepreneurs and their focus in the service offerings.

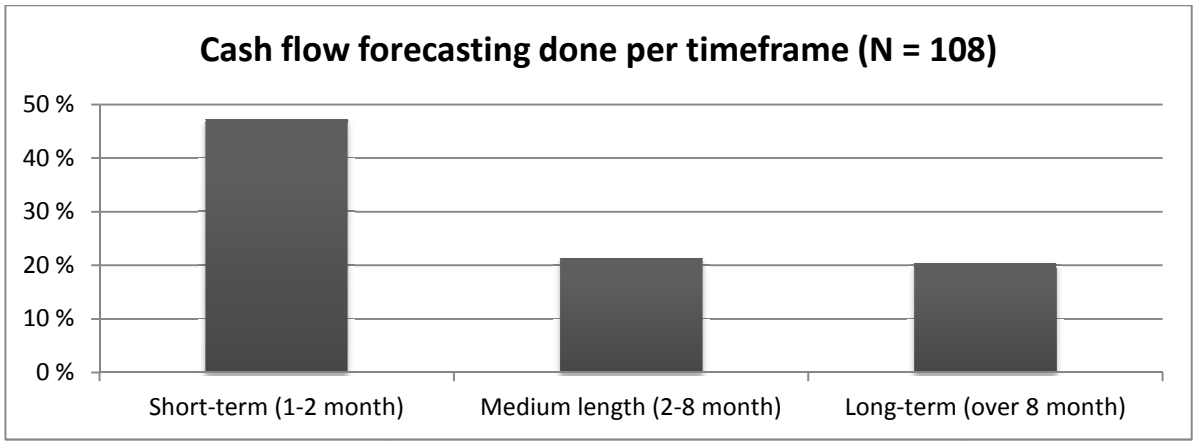

Figure 13. Cash flow forecasting done per different time frame in the sample.

When looking at the forecasting periods from another perspective, by considering how many different forecasting time periods were offered by a respondent to its customer, the results show similar focus in easy services. Almost half of the respondents (49%) offered forecasting only in one time period. Two and three different time periods were offered only by 7% and 8% of the respondents, respectively. These results are shown in the figure below (Figure 14). It is worth to note, that most of the one-period forecasters conducted forecasting in short-term periods (64%), and when two periods were included, all forecasters included short-term forecast with either medium length or long-term forecast.

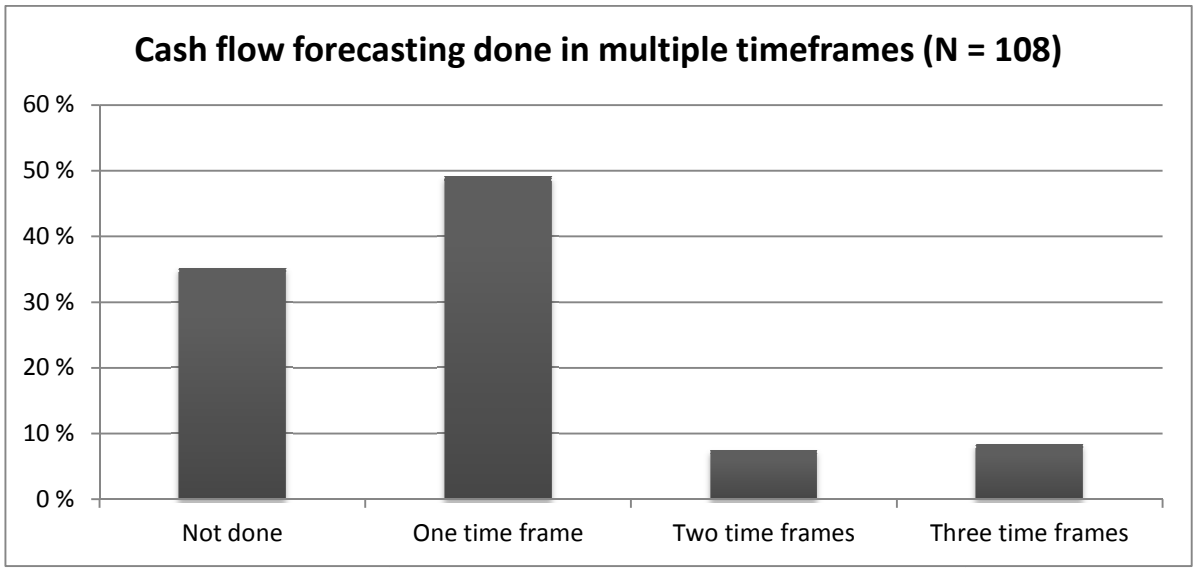

Figure 14. Cash flow forecasting done in multiple time frames in the sample.

5.3.3 Solutions

Another item of interest, about which the respondents were asked, was the tool that they use for making cash flow forecasts to the customer companies. If the respondent did not provide cash flow forecasting services, he was advised to answer which tool he would be most likely to use. Going through the answers, the tools were categorized into three groups: spreadsheet, own solution, and commercial. Spreadsheet tools were based on general spreadsheet programs, e.g. Microsoft Excel. Own solutions meant that the accounting company had developed a proprietary system for creating the cash flow forecasts. Commercial solution, on the other hand, meant that the accounting company had purchased or licensed a third party software or solution for making the forecasts.

Continuing the analysis, the accounting companies (respondents) were divided into three categories based on the level of usage. First, accounting companies, which did not offer cash flow forecasting services to their customers, were identified. This group was named as "*non-users*" and accounted for 44% of the total sample. Second, companies, which offered cash flow forecasting services to up to 10% of their customer base, were identified, and named as "*ad hoc users*" with 35% population of the sample. Finally, companies, which offered cash flow forecasting services to more than 10 % of their customers, were identified. This group was named as "*frequent users*" with a 21% share of the sample.

Table below (Table 11) shows the summary of different cash flow forecasting tools for these groups. Intuitively, we can see that frequent users employ more commercial software for the forecasts than ad hoc users. However, the use of spreadsheet programs is the most common way of providing the forecasts. Additionally, based on the results, we can assume that non-users are unfamiliar with commercial solutions as enablers of cash flow forecasting services, as they would prefer spreadsheet solutions.

Table 11. Division of cash flow forecasting solution types by service offering levels.

Solution type	**All (N = 108)**	**Non-users (N = 48)***	**Ad hoc users (N = 38)**	**Frequent users (N = 22)**
None	26 (24%)	25 (52%)	1 (3%)	0 (0%)
Spreadsheet	52 (48%)	19 (40%)	26 (68%)	7 (32%)
Own solution	8 (7%)	2 (4%)	3 (8%)	3 (14%)
Commercial	22 (20%)	2 (4%)	8 (21%)	12 (55%)

* Non-users group was to answer which would be the most likely solution.

When taking a closer look at the commercial systems, we can see that the most popular solutions were based on cloud services with efficient integration interfaces to the most common accounting

systems. The results in the figure below (Figure 15) show that almost one fourth of the commercial solution users (24%) used Talgraf as the forecasting tool. Talgraf, as a reporting tool, offers a wide selection of integration interfaces to various bookkeeping systems (Talgraf, 2011). Other popular solutions were Netvisor, Procountor and Tikon with shares of 16%, 8% and 8%, respectively. Netvisor and Procountor are both offered over the Internet, and work as prime examples of SaaS model cloud services (Netvisor, 2011; Procountor, 2011). Additionally, both solutions include functionalities for other bookkeeping services implicitly, and market themselves as a "turn-key solution" for accounting professionals. These results can be interpreted as a further support for the importance of systems integration and networked services.

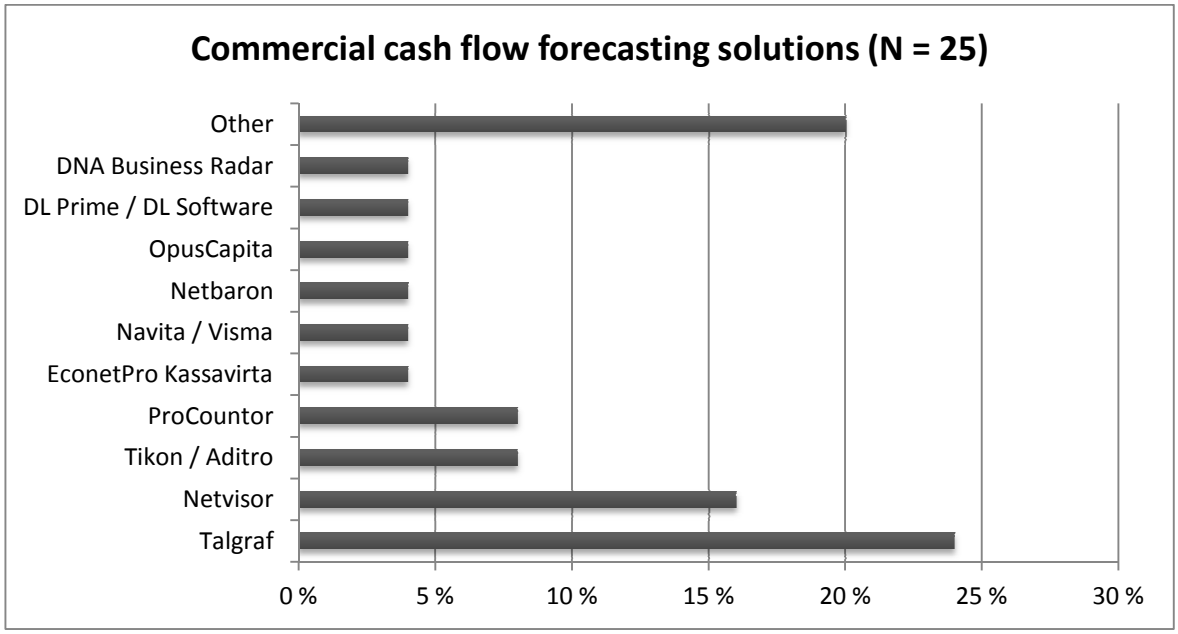

Figure 15. Summary of commercial cash flow forecasting solutions in the sample.

The commercial solutions can be mapped into the solution specificity and level of integration and networking matrix. In the figure below (Figure 16) the solutions were divided into six different groups based on available information on solution specificity and the level of networking and integration found from the solution providers' Internet pages. The size of the circle in the figure illustrates the relative proportion of that specific group.

The first group (N = 6) is characterized as specific solution that either has a good level of integration or networking capabilities but not both. The second group (N = 8) is similar to the first but it has both good level of integration and networking capabilities. The third group (N = 4) consists of specialized

solutions for cash flow forecasting that enjoy a good level of functionalities but lack the automation from integration and accessibility from networking. The fourth group (N = 2) is similar to the second group, in that it is characterized with high level of integration and networking, but instead of being task specific, it is part of a larger system or solution family, and therefore can be regarded as a "framework". Group number five (N = 5) consisted of less known other solutions that couldn't be categorized into any of the previous groups. For comparison, group number six (N = 49) with spreadsheet models is shown to illustrate the magnitudes of third party commercial solutions versus easy-to-begin-with spreadsheet models.

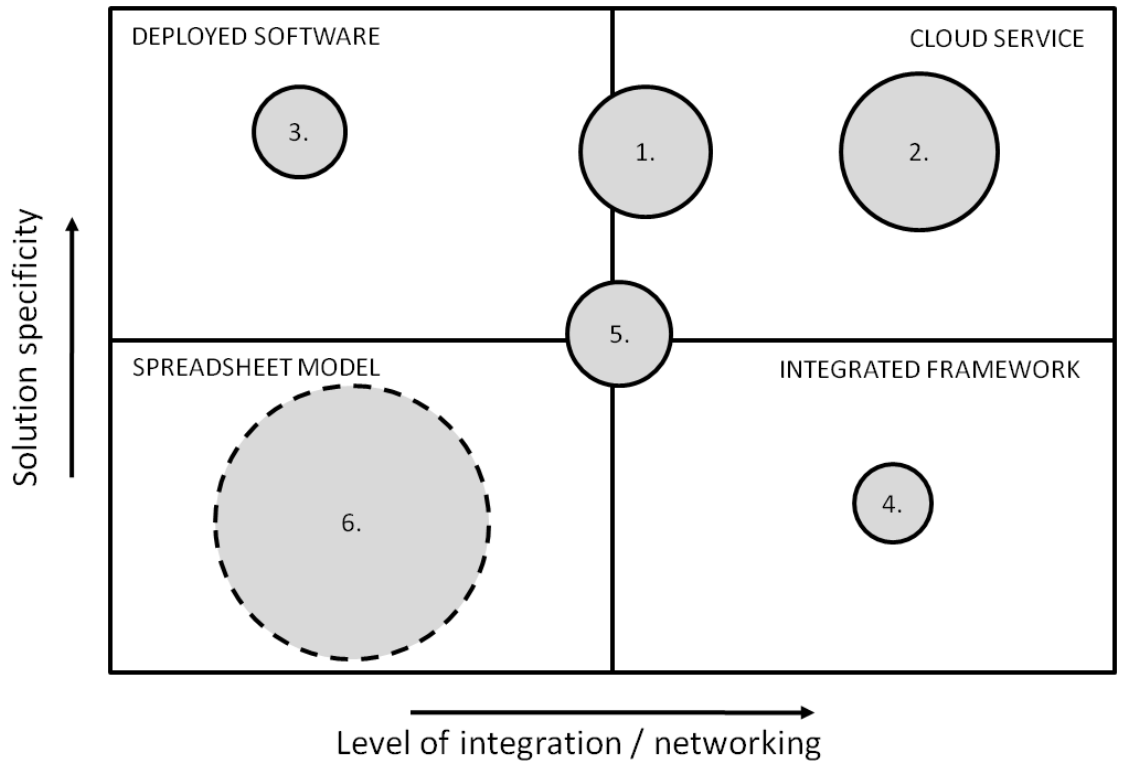

Figure 16. Commercial cash flow solutions mapped into the specificity and level of integration and networking matrix.

5.3.4 Accounting Systems

The respondent were asked about other accounting systems that they use for providing basic accounting services, such as bookkeeping, accounts payable and receivable, and invoice circulation, to their customers. The results showed a very granular and diffused set of technologies; solutions from the three mentioned basic functions added up to total of 44 unique solutions. Out of these 44

solutions, the ten most popular accounted for 70% of the sample. The division among these ten technologies can be seen in the figure below (Figure 17). The outstanding 30% was divided rather evenly among the 34 other solutions. Top three of the accounting solutions were Aditro's Tikon, Atsoft's Asteri and Visma's Nova with proportions of 16%, 10% and 9%, respectively.

When examining the accounting systems based on the usage frequency groups (see Table 11) for cash flow forecasting, there seems to be no change in the diffusion of technologies or any patterns to explain usage. However, this result doesn't take into consideration the level of integration between the accounting systems and the cash flow forecasting solutions, which might explain the behavior better.

These results clearly state that among the small entrepreneurial accounting companies, there is no consolidation to be seen towards few dominant technologies, instead, there are islands of different technologies, of which some are very old and other that are newer. The implications of these results are discussed more in the conclusions chapter.

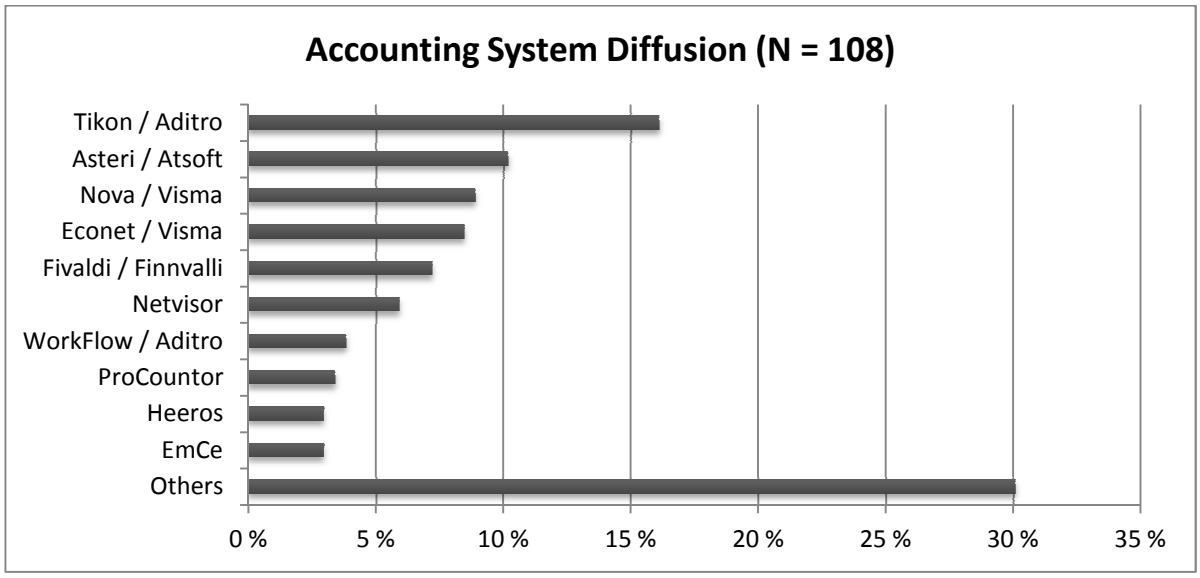

Figure 17. Diffusion of different accounting solutions among respondents.

5.4 Case Study: Customer Insights

Several preliminary case interviews were performed to better understand the context of cash flow forecasting from different perspectives. Here, two of these cases are represented to describe the

customer perspective of cash flow forecasting services. The case companies are customers to an accounting company and use both basic and value-adding services, such as cash flow forecasting.

5.4.1 Itä-Pasilan Pysäköinti Ltd

The company operates in the parking industry, renting parking lots, doing construction business and consulting in its area of expertise. The company cooperates with a subsidiary, Länsi-Pasilan Autopaikat Ltd, with a joint turnover of 2,000,000€ and personnel of four (CEO, technical expert, two salesmen). The premises and operative management are combined and done internally, except for the financial administration, which has been outsourced to an accounting company.

Motivation

Cash flow forecasting is seen as a fundamental part of the business management. The forecasts support the business development function and improve its controllability. Furthermore, they are used in decreasing insolvency risks, as a tool for cash management activities. The company invests part of its liquidity in financial instruments, thus another useful application for the forecasts is effective cash management, not from insolvency point of view, but rather from optimal and effective working capital management perspective.

Sometimes cash flow forecasts are needed in supporting decision making. These situations involve investments plans and pricing decisions, both of which have long-term effects to the business. The main motivation, therefore, is to understand risks related to uncertainty for both short-term cash management and long-term strategic planning.

Forecasting Process

As stated before, the company has outsourced its financial administration to an accounting company, meaning that cash flow forecasting is done by the outsourcee. The forecaster (accounting company) has direct access to part of the information necessary for the forecasts, such as accounts payable and receivable, and history data in financial statements, however, other information such as recurring costs, planned investments and sales estimates are needed from the customer company. Therefore, the company internally gathers the information from its systems and delivers it to the forecaster. The process requires active cooperation and communication from both parties, as the tasks and responsibilities cannot be clearly divided.

All personnel take part into forecasting process by doing their share in the information provision. The information is diffused into company's systems, such as access control system and customer

relationship management system. Some of the information is available automatically from internal systems, while other information needs manual fetching, e.g. phone calls.

The parking industry is quite stable business, as customers rent parking lots for long periods of time, therefore, the business can be described as continuous and risk-free. The incoming positive cash flow is even in size and highly foreseeable. Similarly, the outgoing cash flows are foreseeable due to stabile cost structure, e.g. salaries and maintenance costs. Some peaks can occur in the cash flows, however, when large investments are due or important customers terminate their contracts.

The forecasting is done in multiple periods; from short-term of few weeks or months to long-term of one year or more. Short-term forecasts use automatically available information about occurring business transactions and history data, and require less involvement from the personnel. The main motivation for short-term forecasts is in efficient management of liquidity. Long-term forecasts, on the other hand, require higher degree of involvement from the personnel and cooperation with the accounting company. They rely on a process familiar from discounted cash flow (DCF) valuation; historical data and patterns from previous financial statements are used to derive pro forma statements with the help of information gathered by the company, e.g. sales estimates and investment plans. This methods fits the description of projected balance sheet and percentage of sales approaches presented earlier in the cash flow forecasting practices chapter (see Table 2). Long-term forecasts are mainly used for strategic management and business development, investment plans and pricing decisions.

Customer, as the subscriber of the forecasting service, is not the only user of the forecasts, but the accounting company also acknowledges their usefulness with two functions: business monitoring and accounting monitoring. The business monitoring function helps the accounting company to evaluate customer's operations and notify him of possible difficulties ahead due to his operational decisions. In other words, it helps the accounting company to offer better consultation services. The accounting monitoring function, on the other hand, is an internal tool. It can be used as a double check on several other accounting functions that the accounting company offers to its customers.

Technology and Infrastructure

The forecaster (accounting company) offers two different technologies for making the forecasts, Aditro's Tikon for the short-term period, and DNA Business Manager for the long-term period. As mentioned earlier, the short term reliable business transaction information can be fetched from the forecaster's accounting solutions directly, but other information from access control and CRM systems needs to be fetched separately. At the time of conducting the interview, there was no full-

scale integration between these systems. However, some parts of the information gathering process were automated by customized integration between the systems.

Both of the forecasting solutions were hosted and primarily operated by the forecaster (accounting company), meaning that the customer company had limited access to the solution, and that all necessary changes and iterations of forecast reports involved cooperation from the forecaster. There were some report views that the customer could access alone, but they were static and based on information from previous run. Considering both short-term and long-term solutions from the specificity and level of integration and networking perspective (see Figure 2), they categorize as *deployed software*. The user-ownership role (see Figure 3) for the company would be *focus-on-core*, as the control for both usage and ownership are outsourced.

Challenges and Future Development

The biggest challenges that the company sees in cash flow forecasting are related to integration of systems. The main motivation for integration is the automation of information gathering process, as currently there are manual tasks involved in it. The company understands that differences between industries, and used business models and information systems create unique characteristics for the cash flow forecasting process and therefore affect the fit of the solutions. This leads to difficulties in standardization of the solutions. To solve this challenge, the company intends to customize its solutions to enable a better level of integration and automation of data exchange for the forecasting process. It is also important to remember, that the integration doesn't have to be complete, instead, a sufficient level with the right cost-benefit balance is preferred. From a process-perspective, however, the company emphasizes that standardization and documentation is important for transferring tacit knowledge and avoiding information asymmetry, for example in the cash flow forecasting function.

Financial and accounting competence plays an important role in enabling effective cash flow forecasting. These competences must be in place either in the customer company or in the accounting company. The case company has knowledge on this area, but it prefers to focus on its core business and outsource the related functions to the accounting company. IT competence, on the other hand, is not seen as critical as the financial and accounting competence. The company considers itself as a subscriber to services, instead of a user of licensed technology, and therefore, the level of required IT knowledge is not so high.

Other areas of improvement relate to forecast report accuracy and motivation to use. The company sees that by increasing the rate by which the forecasting is conducted, the report accuracy can also

be improved due to the better timeliness of information. Integration and process automation also enable more effective and frequent forecasting. Similarly, the motivation of the personnel regarding the cash flow forecasts, has improved by empowering them in the development and implementation process. This method will continue to be used in the future.

5.4.2 Axession Ltd

The company operates as an expert organization for sales and marketing consultation in the B2B sector. This means selling "activity services", sales knowledge and training, and marketing campaigns. The business can be considered as project based; income generation is based on successful sales of small service projects. The company has a turnover over of 900,000€ and personnel of 13, which consist mostly from sales experts. Similar to the first customer case company, Axession Ltd has its financial administration outsourced to an accounting company, except for some management accounting activities.

Motivation

The main motivation for the company to do cash flow forecasting is related to sales and revenue generation. In addition to cash flow forecasting, the company does budgeting, e.g. sales budgets. The cash flow forecasts, however, don't take into account any uncertain positive cash flows, but instead, focus on the negative cash flows. Positive cash flows are only acknowledged when they become certain, i.e. after successful sales deals. This works as a short-term motivation for income generation through sales efforts; as the costs are known and the revenues are set as time goes by, the gap for achieving short-term operational goals is diminished.

Another use of cash flow forecasts has been for tax authority reporting. They have been useful as a negotiation tool when discussing tax payment plans with tight cash.

Forecasting Process

As described earlier, the company focuses on the short-term cash flow forecasting. It is one of the management accounting activities that it manages by itself, without the help of accounting company. The accounting company offers short-term cash flow forecasting service, but it is not as flexible and customizable as the internal model. Short-term period in this case means six weeks ahead; the longest time the register of successful sales and the backlog of orders are known with sufficient certainty. When reflecting this short-term technique with the cash flow forecasting practices described in the research context chapter (see Table 2), it would categorize as a modified receipts and disbursements method. Longer than six week periods contain too much uncertainty and,

therefore, are neglected. Long-term forecasting of one year is offered by the accounting company, but the customer company doesn't have much use for it.

The information that is used for preparing the forecasts consists of costs, such as salaries, property rents, and other variable and fixed costs that follow a known pattern, and incomes, which are certain (6 weeks ahead). This information is diffused into the organization's IT systems and among personnel. Therefore, the whole company takes part into gathering the information by regularly updating information about used hours and sold cases into the systems. Then, once a week, the CEO, working as the CFO, draws out necessary information for the forecasts and updates them into the internal forecasting solution. The process consists of many manual tasks and, until the time of the interview, it hadn't been automated at any level. The accounting company has no part in this process, and no information from their accounting systems is integrated into this process.

The company operates with a business model that relies on many small projects produced by the sales efforts of the sales force. For this reason, the positive cash flow is highly depended on the successfulness of sales, which in turn is affected by macroeconomic forces, such as economic trends, customer characteristics and competitor moves. Company's customers can be divided into three groups: one-time customers, periodic customers, and continuous customers. To overcome the uncertainty in the business, caused by customer solvency and continuity of orders, the company uses differing terms of payment and monitoring of customer credit status. The realized cash flows from sales and the used terms of payment based on the credit information seem to correlate with each other. Therefore, it can be argued, that the company uses the cash flow forecasting also as a tool for strategic management of its operations, in addition to internal motivation.

Technology and Infrastructure

The company uses its own spreadsheet model for making the short-term cash flow forecasts. This spreadsheet model has been used and developed for many years and is quite sophisticated in its features. In addition to cash flow forecasts, the same model includes many other management accounting reports that are used for operational management. The model, however, lacks integration to other information systems and all data input has to be done manually. Other information systems that the company uses include SaaS-based CRM solution, licensed ERP system and few others. For the long-term cash flow forecasts, the accounting company offers DNA Business Manager solution, the same as in the previous case.

Both of the solutions are a bit problematic from the accessibility perspective. The short-term solution is only available to the customer company, and the accounting company cannot offer its expert

consultation services as it has no access to the reports. The long-term solution, even though it is rarely used, is not accessible to the customer company and is thus seen inflexible and less usable. The spreadsheet solution would categorize as a *spreadsheet model* in the specificity and level of integration and networking matrix (see Figure 2) and the company is a *do-it-yourself* role in the user-ownership matrix (see Figure 3). The long-term forecasting solution is *deployed software* in the former matrix, and the company has the *focus-on-core* role in the latter matrix.

Challenges and Future Development

The company sees that its biggest challenge is related to uncertainty in continuity of business, which is partly caused by its business model. Currently, most of the income is based on sales efforts and successful deals. The income follows a historical pattern quite well in long-term, but there are high variances in short-term, which cause the problems. To solve this issue, the company plans on changing its strategy related to customer offer. A move from service-based portfolio to productized service offerings and complementary products with periodic license fees would decrease the volatility of the income in short-term. Additionally, the already successful use of credit status information is planned to be used more extensively to manage the uncertainty with customer solvency issues. This would further simplify the forecasting process and increase its usage.

The cash flow forecasting is considered to be on a good level, even though no commercial software is used for the short-term forecasts and the long-term forecasts are not seen as useful. From the customer point of view, the accessibility of these solutions is one key issue that should be improved. The CEO has been considering cloud-based SaaS services for accounting functions to solve this, since the architecture has proven successful and the experiences are positive from CRM system.

6 CONCLUSIONS

This final chapter concludes the research. First, the whole research is summarized focusing on key points in each chapter. Then, main findings are presented based on the results from the previous chapter. These findings are discussed in the light of the context and theory, and reflected with earlier results. Following the findings, implications for practice are derived from the discussion. Finally, limitations of the research are considered and future research suggestions are given.

6.1 Research Summary

The objective of this research was to study the gap in the need for cash flow forecasting and the actual use of it for SMEs. Special attention was placed on the forecasting systems; how the systems fit for the forecasting tasks in a domain where the forecasting process has been outsourced to a service provider (accounting company). This topic is interesting because of the recent technological development of cloud-based SaaS services, and the automation of business processes using information systems. Additionally, changes in money markets and the emergence of cash management activities as an important business function in organizations, has created a demand for cash flow forecasting as a value-added service.

Based on this background and motivation for research, I derived the research question with three objectives: 1) to find out the motivational factors for SMEs to use cash flow forecasting services, 2) to examine the fit between used forecasting systems and the tasks related to forecasting, and 3) to consider the effects of outsourcing to the determinants of good system fit. These objectives were considered together as the research was performed.

To find answers to the research question, the context of the research was first examined. In chapter two, I described the financial accounting related to cash flows. The cash flow forecasting was examined in detail, considering the forecasting process, time periods, methods and techniques, and technology solutions. Furthermore, I presented the forecasting service environment and its three primary roles: customer (SME), service provider (accounting company), and solution provider (accounting software company). The service environment with its dynamic roles, and the forecasting solution characteristics were further examined by creating two-dimensional tools for analysis: the user-ownership matrix for the service environment (see Figure 3), and the specificity and level of integration and networking matrix for technology solutions (see Figure 2).

Once the research context of cash flow forecasting had been presented, I examined the information systems literature for a review on theories related to technology adoption and usage. In chapter three, I first described the evolution of the theories and how they emerged into different branches, still having many commonalities with each other, and then focused on Task-Technology Fit theory by Goodhue and Thompson (1995) and other theories around it. Using the TTF theory as basis and synthesizing it with other technology usage theories, I developed a formal research framework (see Figure 8) for analytically examining the research question. In addition to the framework development, the hypotheses were derived at this point.

After the review of context and theory and the development of research framework, the empirical part of the research took place. In chapter four I presented the methodology to be used in this research. The data collection methods were chosen to be a combination of qualitative interviews and quantitative survey. The interviews were to done in cooperation with companies from different forecasting service environment roles. These interviews helped to understand the problem area and to develop a research instrument (survey) for statistical analysis of the research model. The statistical analysis was performed using structural equation modeling (SEM) techniques with LISREL software. Additionally, general reliability and validity related to the chosen research methodology and its implementation were discussed in this chapter.

Following the methodology, the results of the empirical part were presented in chapter five. In addition to the results of statistical analysis of the SEM method, I described the survey results from several perspectives to give additional support for or against any earlier assumptions. These perspectives included background characteristics of the survey respondents, motivational issues related cash flow forecasting service usage, findings about forecasting periods and solution types, and related accounting software. To further describe the service environment, especially from customer perspective, I summarized two case interviews with customer companies.

The conclusions and practical implications of these findings are now further discussed in the next sections. Following the discussion, the limitations are acknowledged and future research suggestions are given.

6.2 Discussion on Main Findings

In the beginning of this research I derived three objectives that were tied around the research question: first, the motivational issues related to cash flow forecasting service usage, second, the task and technology fit in the forecasting service domain, and third, the effects of outsourcing to the

forecasting process. Now, based on the results from empirical part, I will conclude the main findings aligned with these objectives.

Motivational Issues

The motivational issues regarding cash flow forecasting service usage unfolded already in the preliminary case interviews and they were in line with the survey results. According to the survey results, the motivational reasons for customers' cash flow forecasting service usage can be divided into two groups; long-term motivations and short-term motivations. The long-term motivations are related to long-term organizational goals, such as strategic planning, investments and business development. The short-term motivations, on the other hand, are related to short-term operational activities, such as effective cash management and company solvency monitoring. This division reflects directly to the time periods the companies wish to apply for forecasts, and follows the forecasting process description presented in the research context chapter. Additionally, it is worth to note, that juristic reasons for cash flow forecasting didn't seem to motivate for service offering. This may be due to ignorance of juristic uses of a formal cash flow forecast, or just the lack of need for that purpose. Yet, the juristic perspective came up strongly in the preliminary discussions for cash flow forecast usages and was one of the high priorities in the research program.

When considering the customers' motivational issues based on the results, we have to keep in mind that the respondents acted as proxies to their customers, thus creating a possible subjective bias. This bias is in evidence in the "de-motivations" for customers' service usage, when the respondents (accounting companies) were asked if their lack of competence in cash flow forecasting would affect the customer motivation, which they of course denied. Conversely, the main de-motivations were related to customer ignorance, i.e. the lack of knowledge and experience of cash flow forecasting from customer's behalf. Again, this finding should be considered keeping the proxy setup in mind.

The customer perspective in the preliminary interviews showed similar results. The first case highlighted both long-term and short-term motivations using examples of business development, negotiation support for long-term decisions and guidance for pricing decisions, and effective cash management support and solvency management. The second case was more focused on the solvency management and metering the short-term operational efficiency. The fact that not all companies wish to do forecasting was also in evidence in the interviews. This should be understood by the forecasting service providers. However, there is a thin line when a company ignores forecasting for a sound reason, and when a company ignores it for plain ignorance. Another consideration is, whether or not the service provider has sufficient competences to offer cash flow

forecasting services to its customers, in such a way that fits with the customers' business and adds value to them. The survey results for forecasting periods and used technology solutions, when considering their complexity and specificity, respectively, support this argument about the effect of missing competences on both sides; there was a tendency towards the short-term forecasting (47% of respondents) with generic spreadsheet models (48% of respondents), instead of long-term forecasting (20% of respondents) and specific commercial solutions (20% of respondents). This suggests on taking the easy way out in cash flow forecasting service offering. Additionally, 44% of the respondents categorized as *non-users* of cash flow forecasting (see Table 11), and preferred simple generic spreadsheet as the "would-be solution" in the hypothetical case of offering cash flow forecasting services.

Fit between Technology and Tasks

In this study, I developed a conceptual research model from the existing IS theories to analyze the effects of technology solutions to task characteristics within the cash flow forecasting context. This model was a synthesis of technology adoption and usage theories by Goodhue and Thompson (1995), DeLone and McLean (2003) and Wixom and Todd (2005). The results of the SEM analysis supported the hypothesis that the level of system integration positively affects the fit of the technology to tasks within the scope of data quality. Consequently, the data quality positively affects the level of utilization of the systems.

These results are in line with the earlier research. Wixom and Todd (2005) found that level of integration was one determinant of system quality, based on their research on data warehousing technology. Goodhue and Thompson (1995) studied two companies on different technologies and found out that their TTF construct predicted the level of utilization. However, their results also predicted performance impacts from both utilization and TTF constructs, two hypotheses which were not supported by this study. We have to keep in mind, though, that the TTF construct in the current study focused in the data quality aspect, while Goodhue and Thompson's was a wider combination of several determinants. D'Ambra and Rice (2001) adjusted TTF model for their research on web services, and found results showing positive effects from interests, information, shopping costs, locatability and fun for the performance impacts. Again, their context differs from the one in the current study and the model was adjusted. Additional support for the link between TTF and utilization can be found from research by Strong et al. (2006), Dishaw and Strong (1999) and Yen et al. (2010).

While the link between TTF and utilization is evident and has strong support from earlier research, the link towards performance impacts is not so clear. There is supportive evidence to be found, but still many studies ignore the performance aspect completely and focus on the utilization instead. This creates a discussion on the existence of such link, its determinants and the contextual circumstances. Goodhue et al. (2000) acknowledge the difficulty of metering system performance, but at the same time suggest using user evaluations as a surrogate for performance metering. Considering the performance related hypotheses of this research, the research instrument applied the user evaluation criteria for metering performance. The next question is, whether the measurement items were constructed adequately or not. This calls for further research focusing on link for performance impacts. One area of research that has been dwelling into these questions from a different angle is the business value of IT research.

Effects of Integration

Cash flow forecasting involves gathering business critical data from several sources and processing it to a viable report that fills predefined objectives. Intuitively, as there is a variety of information involved, the level of system integration and process automation becomes a key success factor. The results from both the SEM analysis and the customer interviews highlighted the importance of these elements. Previous studies have acknowledged this finding also, however, in other contexts than financial accounting (Wixom and Watson, 2001; Wixom and Todd, 2005).

When digging deeper into the technology solutions and related accounting and information systems, we can find a clear pattern in the results. First, the diffusion of accounting solutions among accounting companies is wide; the survey resulted in 44 different solutions for generic accounting services. Second, as the case interviews showed, the number and the type of proprietary information systems in customer companies varies greatly; the level of granularity can be high and no consolidation towards standardized solutions is visible. Third and finally, only a small proportion (20%) of the accounting companies use commercial and cash flow forecasting specific solutions. Combining these three characteristics we end up with a complex setup of islands of information systems, which contain business critical information and have low level of integration with each other. Furthermore, the level of automation in these isolated systems for information provision is low.

The cash flow forecasting solutions were analyzed according to their specificity and level of integration and networking (see Figure 16). All the groups in the matrix, except for the spreadsheet users, were commercial and enjoyed higher level of utilization. Even so, following the previous

conclusion, the most useful solutions in the cash flow forecasting context were the ones that were characterized with high specificity and level of integration and networking, i.e. the *cloud services*. These solutions were serviced with a SaaS business model, and offered multiple integration interfaces for other information systems.

It is important to keep in mind, however, that this finding is evident only in the SME domain. Larger companies and well-established accounting companies were out of the scope of this research. Besides, they are using more standardized solutions, such as ERP systems, that lower the barriers for integration and process automation. Nonetheless, the integration aspect is essential within the larger and well-established companies as well.

Effects of Outsourcing

The research focused in a service environment with three players: customer companies (SMEs), service providers (accounting companies) and solution providers (accounting software companies). Common trend in today's economy has been the focus on core competences and outsourcing of supportive complementary functions. Consequently, this has created markets for a wide variety of specialized services, accounting being one of them. Therefore, the logical point of interest for this research was the interaction between accounting companies and their SME customers.

The outsourcing situation creates a different setup for the cash flow forecasting. As I already mentioned, the forecasting process involves a large variety of business data from different sources. In a normal situation, with internal accounting function, the integration of systems for improved information gathering process through automation involves mainly technical issues. Oppositely, with service outsourcing, the integration involves also cross-organizational factors and legal matters related to the system integration, raising the transaction cost economics into view (Coase, 1937; Williamson, 1981). In this research the outsourcing setup gives even more emphasis for the integration factor as a determinant for better fit of technology and successful usage of the systems. While interpreting these results, it is good to keep in mind that previous information systems research on technology usage hasn't taken an outsourcing perspective. Therefore, the effects of outsourcing to key determinants of different models are difficult to evaluate.

The customer interviews highlighted challenges in the separation of system ownership and usage (see Table 3). Whenever the customer acted as *focus-on-core* role and outsourced the user role of cash flow forecasting system to the accounting company, there appeared issues related to forecasting intervals, ad hoc changes of reports, and communication required for information exchange. These issues realized because of the challenges in system integration and process

automation and the lost control over forecasting. In the case the customer played the role of *do-it-yourself* or *accounting competent*, these issues related to integration and system automation diminished, following the theory of transaction cost economics. As a drawback in the latter case, the company lost some of the accounting competences that the service provider would give for the forecasting process.

6.3 Practical Implications

The discussion on findings from different perspectives leads to several conclusions that have implications for practice. The implications are considered from the accounting company perspective as it was the focal of the research, and are given in the form of advice on how to improve cash flow forecasting services.

Improve marketing. It was evident that the customers had a low level of experience and knowledge when it came to cash flow forecasting. It is difficult to sell a service which the customer doesn't understand or doesn't see the benefits. Therefore, it is essential, to first take the customer's position and understand his motives, and then explain what cash flow forecasting really is and what kind of benefits he can get from it, using practical examples. For example, if his motives include growing the business, then intuitively cash flow forecasting is a useful tool for business development, strategic planning and support for investment decisions. In the end, though, the service provider has to understand when the customer actually needs the service and when not.

Train customers (and your personnel). The cash flow forecasting process involves understanding of financial accounting and business principles as well the actual gathering of business critical information from different sources through different people. This means that people involved in the process need many skills, such as financial and accounting knowledge, IT competence, and business process understanding. Training customers together with your own personnel in the essential skills increases the user satisfaction and efficiency of forecasting services. Additionally, satisfied customers (and personnel) mean longer customer relationships and lower turnover of workers. Training also eases the communication, when both parties (customer and accounting company) speak the same language and understand each other.

Favor specific networked solutions with integration capabilities. As we saw in the results, there are often a large number of systems involved in the forecasting process. The ease of information transfer from one system to another, the access to information, and the fit of the solution to a specific task are directly related to the effectiveness and quality of the forecasting process. Therefore, forecasting service providers should favor solutions with common integration interfaces, good network access,

and specific functionalities rather than generic programmable framework. These requirements are fulfilled in many cloud-based SaaS services that specialize on different business tasks, such as the cash flow forecasting.

Automate forecasting process. As the forecasting process involves data gathering and communication between people, the process can be lengthy. The higher the automation level of the process, the more efficient the process is. In addition, automation leads to reduced risk of errors, adding to the quality of the forecast reports, and improved capability to offer and modify forecasts more frequently, adding to the accuracy and timeliness of the reports. It is neither realistic nor practical to try to automate the whole forecasting process, instead, considering a good cost-benefit ratio and acknowledging the bottleneck points that can be solved easily with automation is the golden path. Automation is closely related to system integration, hence, these two advices should be considered together.

Empower the customer. The service provider offers cash flow forecasting services to multiple customers, thus, the available resources for one customer are limited. To overcome running out of resources and servicing customers more effectively, the service provider should try to empower the customer in the forecasting service to a certain limit. This limit is depended upon the knowledge and experience, as well as the service setup of customer's information systems. Additionally, empowered customer with more control over the forecasting process can react more quickly to ad hoc changes and unexpected situations when they emerge, which in turn increases the customer satisfaction for the service. The idea is that accounting company consults the customer and guides him to use the forecasting tools. Empowerment is closely related to the training of customers, and increasing one increases the other.

6.4 Limitations and Future Research

There are limitations to this study that should be taken into account when evaluating the findings. The purpose of the study was to examine cash flow forecasting as an outsourced service and the technology solutions related to it, therefore, the focal of the research was the group of accounting companies who offered these services. Further, the accounting companies were required to project the beliefs of their customers when necessary. In order to gather information about the subject, a quantitative method was used. The data was gathered with an online survey, resulting in 108 valid responses. This amount enables the use of SEM techniques, unfortunately, only simple ones. To validate the results with more elaborate models, more data should be collected. Additionally, using accounting companies as proxies for customer beliefs may have created a subjective bias.

Going forward with the sample, it was gathered from a recipient group that represented certified accounting professionals in accounting companies. However, this group was weighted more towards the end of small accounting companies in the continuum of size. Intuitively, this has effects on the results and creates a scope within which the results can be argued to be valid. This research was knowingly focused on the SME sector, and therefore, the smaller accounting companies shouldn't create issues for interpretation of the results. To better generalize the results, the additional data collection, that was already mentioned, should be targeted to the whole space of accounting companies.

The statistical method of covariance-based SEM (LISREL) that was chosen to analyze the quantitative data creates certain requirements, in addition to the sample size, that was mentioned above. The SEM models are structured with latent variables, constructs, which are described with several measurement items. The conceptual research model of this study contained two constructs that were special cases; the utilization was a single item construct, and performance had two items, but suffered from convergent reliability related to Cronbach's Alpha value. Further, the utilization was measured as a proxy with customer demand for the forecasting service. To ensure better reliability and validity in the SEM analysis for future research, the utilization and performance metrics of this research should be reconsidered.

In this study I have focused in the accounting company perspective. This causes a subjective bias in generalization of the results. To better understand both sides of the same story, the customer perspective should be explored with similar objectives. Combining these two perspectives would give an insight to the subject that would be valuable to the solution providers, as the SME customers and accounting companies both serve as customers and end users of their solutions.

Another perspective worth exploring more is the generalizability of current results related to technology usage, system integration and data quality in an outsourcing situation. This could be achieved by making similar research but in different industry contexts. The results, on how different industry contexts affect the determinants of the model, could be useful for evaluating the generalizability of the suggested model.

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APPENDICES

Interviewee Information

Exidio Ltd – CEO Timo Hämäläinen (Solution provider), 1 February, 2011.

Satakerta Ltd – CEO Kati Jalojärvi (Accounting company), 28 February, 2011.

Itä-Pasilan Pysäköinti Ltd – CEO Juha Leino (Service user / SME), 11 March, 2011.

Axession Ltd – CEO Jani Aaltonen (Service user / SME), 18 March, 2011.

Dropped Measurement Items

Construct	Item	Question	Reference
System integration	INT4	The customer company's information systems are easily integrated with the forecasting tool.	Wixom and Todd (2005), Expert interviews
	INT5	Customer company's enterprise architecture is compatible with the cash flow forecasting tool without additional changes to the systems.	Expert interviews
Authorization (TTF)	AUTH1	Customer data that would be useful to me is unavailable because I don't have the right authorization.	Goodhue and Thompson (1995)
	AUTH2	Getting authorization to access customer data that would be useful in my job is time consuming and difficult.	Goodhue and Thompson (1995)
Compatibility (TTF)	COMP1	The data received from customer for the forecasts is not directly compatible with the forecasting tool.	Goodhue and Thompson (1995)
	COMP2	The forecasting tool is easy to integrate with the customer's information systems.	Goodhue and Thompson (1995)
Product timeliness (TTF)	PT1	The forecasting tool enables the offering of forecasts to customer as often as he wants.	Goodhue and Thompson (1995)
	PT2	There is no delay that bothers the client when conducting the forecasting with the tool.	Goodhue and Thompson (1995)
System reliability (TTF)	SR1	We can be assured that the forecasting tool is always available and no system malfunctions are likely.	Goodhue and Thompson (1995)
	SR2	Sometimes there are system malfunctions in the customer's information systems, which affect the availability and usability of the forecasting tool.	Goodhue and Thompson (1995)
Ease of use / training (TTF)	ET1	The forecasting tool is easy to use.	Goodhue and Thompson (1995)
	ET2	Help and support is available, if I encounter problems with the forecasting tool.	Goodhue and Thompson (1995)
Relationship with users (TTF)	RU1	The forecasting tool is designed for an accounting professional as the main user.	Goodhue and Thompson (1995)
	RU2	The forecasting tool functions flexibly for businesses in different industries.	Goodhue and Thompson (1995)
Performance	PERF3	The competitiveness of our company is at good level	Expert interviews

Complete Survey (in Finnish)

Taloushallinnon palveluiden kysely

Taloushallinnon palveluiden kysely

Kyselyssä kartoitetaan taloushallinnon palveluiden nykytilaa ja niihin liittyviä haasteita pk-sektorilla. Kysely toteutetaan Aalto-yliopiston kauppakorkeakoulun Real-Time Economy -ohjelman ja Taloushallintoliiton yhteistyönä ja se on osa Tekesin Maksukyky ja strateginen johtaminen -tutkimusohjelmaa.

Kyselyssä kassavirtaennustamisella tarkoitetaan tulevaisuuteen tapahtuvaa arviointia rahavirroista, joita yritykseen tulee ja yrityksestä lähtee operatiivisen toiminnan, investointien ja rahoituksen toimesta.

Lyhytaikaisella ennustamisella tarkoitetaan 1-2kk, keskipitkällä 2-8kk, ja pitkäaikaisella yli 8kk aikaväliä.

Kysely on tarkoitettu taloushallinnon palveluita tarjoaville palveluntuottajille, kuten esimerkiksi tilitoimistot. Jos ette kuulu tähän ryhmään, voitte sivuuttaa kyselyn.

Vastauksenne on meille tärkeä. Kaikki vastaukset käsitellään luottamuksellisina. Vastaamiseen meneen noin 15 minuuttia. Olemme erittäin kiitollisia vastauksestanne!

Lisätietoja kyselystä:
Antti-Jussi Kangas, antti-jussi.kangas@aalto.fi, 050-3723119

Osa 1/3 - Yrityksenne taustatiedot ja kassavirtaennustaminen yleisesti

Ensimmäisessä osassa tiedustelemme teidän ja yrityksenne taustatietoja sekä kyselemme kassavirtaennustamisesta yleisesti. Vastatkaa kysymyksiin yrityksenne ja koko asiakaskuntanne näkökulmasta.

1) Sukupuoli? *

Mies

2) Ikä? *

alle 20

3) Asemanne yrityksessä? *

- ○ Yrittäjä
- ○ Johto
- ○ Keskijohto
- ○ Asiantuntija
- ○ Muu, mikä?

4) Palvelusaikanne yrityksessä? *

alle 1 v.

5) Yrityksenne henkilöstömäärä? *

1

6) Yrityksenne toimipaikan sijainti? *

Ahvenanmaa

7) Yrityksenne liikevaihto (M€)? *

alle 0,2 M€

8) Yrityksenne asiakasmäärä? *

alle 5

9) Miten asiakkaat jakaantuvat liikevaihdon mukaan? *

(asiakkaan liikevaihto / lukumäärän osuus koko asiakaskannasta)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
alle 0,2 M€ *	○	○	○	○	○	○	○	○	○	○	○
0,2 - 0,5 M€ *	○	○	○	○	○	○	○	○	○	○	○
0,5 - 1 M€ *	○	○	○	○	○	○	○	○	○	○	○
1 - 2 M€ *	○	○	○	○	○	○	○	○	○	○	○
2 - 5 M€ *	○	○	○	○	○	○	○	○	○	○	○
5 - 10 M€ *	○	○	○	○	○	○	○	○	○	○	○
yli 10 M€ *	○	○	○	○	○	○	○	○	○	○	○

10) Mitä kirjanpidon ohjelmistoa käytätte yrityksessänne?

11) Mitä reskontra-ohjelmistoa käytätte yrityksessänne?

12) Mitä ostolaskujen kierrätyksen ohjelmistoa käytätte yrityksessänne?

13) Kuinka suurelle osalle asiakkaitanne tarjoatte kassavirtaennustamisen palveluita? *

0%

14) Oletteko samaa mieltä? Asiakkaanne käyttävät yrityksenne kassavirtaennustamisen palveluita seuraavista syistä: *

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Maksukykyisyyden varmistamiseksi liiketoiminnan jatkuvuuden kannalta *	○	○	○	○	○	○	○
Maksukykyisyyden varmistamiseksi osingonjaon kannalta (juridisena todisteena) *	○	○	○	○	○	○	○
Maksukykyisyyden tarkastelemiseksi yrityssaneeraukseen hakemisessa (juridisena todisteena) *	○	○	○	○	○	○	○
Maksukykyisyyden tarkastelemiseksi konkurssiin hakemisessa (juridisena todisteena) *	○	○	○	○	○	○	○
Maksukykyisyyden tarkastelemiseksi takaisinsaantilain puitteissa (juridisena todisteena) *	○	○	○	○	○	○	○
Käyttöpääoman tehokkaaseen hyödyntämiseen *	○	○	○	○	○	○	○
Sisäiseen tulosmotivointiin *	○	○	○	○	○	○	○
Strategisena työkaluna liiketoiminnan kehittämiseksi *	○	○	○	○	○	○	○
Perusteluna päätöksenteossa tai neuvotteluissa (esim. investoinnit, hinnoittelu) *	○	○	○	○	○	○	○

15) Oletteko samaa mieltä? Asiakkaanne eivät käytä yrityksenne kassavirtaennusteita seuraavista syistä: *

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Kassavirtaennustamista ei ole ikinä tehty, asiakkailta puuttuu kokemus *	○	○	○	○	○	○	○
Kassavirtaennustaminen ei kuulu palveluihin, joita tarjoamme asiakkaillemme *	○	○	○	○	○	○	○
Asiakkaalla ei ole tarvittavaa talousosaamista riittävästi *	○	○	○	○	○	○	○
Taloushallinnon palvelujen tarjoajana meillä ei ole kassavirtaennusteisiin tarvittavaa talousosaamista *	○	○	○	○	○	○	○
Liiketoiminta on tarpeeksi ennustettavaa ilmankin *	○	○	○	○	○	○	○

Liiketoiminnassa on liikaa epävarmuustekijöitä, joten ennustaminen on liian vaikeaa *	○	○	○	○	○	○	○
Kassavirtaennusteisiin tarvittavaa tietoa ei ole saatavilla tai se on liian hajautunutta *	○	○	○	○	○	○	○
Kassavirtaennustamiseen käytettävät työkalut eivät istu liiketoiminnan prosesseihin *	○	○	○	○	○	○	○

16) Oletteko samaa mieltä seuraavien väittämien kanssa? *

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Markkinoimme asiakkaillemme kassavirtaennusteita osana päätuotettamme *	○	○	○	○	○	○	○
Markkinoimme asiakkaillemme kassavirtaennusteita sivutuotteena *	○	○	○	○	○	○	○
Asiakkaamme ovat pyytäneet meiltä kassavirtaennustamisen palveluja *	○	○	○	○	○	○	○
Yrityksemme pystyy tehokkaasti vastaamaan asiakkaiden erilaisiin taloushallinnon tarpeisiin *	○	○	○	○	○	○	○
Yrityksemme kilpailukyky on hyvällä tasolla *	○	○	○	○	○	○	○
Yrityksemme kannattavuus on ollut hyvällä tasolla yli vuoden ajanjaksolla *	○	○	○	○	○	○	○

Seuraava -->

Osa 2/3 - Asiakasyritys ja sen kassavirtaennustaminen

Toisessa osassa kyselemme teidän näkökulmaa yhden asiakasyrityksen kannalta.

Valitkaa yksi yritys, joka hyödyntää kassavirtaennustamisen menetelmiä ja joka mielestänne sopii kyselyyn. Yrityksen tulisi mielellään olla pk-yritys. Jos kassavirtaennusteita hyödyntäviä yrityksiä ei ole, niin valitkaa yritys, jonka **mielestänne kannattaisi** hyödyntää niitä. Vastatkaa kysymyksiin tämän yrityksen pohjalta.

Simuloinnilla tarkoitetaan kyselyssä todellisuuden mallintamista, joka perustuu lähtöolettamuksiin ja todennäköisyyksiin ja joka hyödyntää tietojärjestelmiä mallien laskemiseksi. Herkkyysanalyysillä tarkoitetaan tuloksen epävarmuuden arvioimista lähtöolettamusten muutosten kannalta. Skenarioinnilla tarkoitetaan eri tulevaisuuden vaihtoehtojen, skenaarioiden, huomioimista epävarmuuden hallitsemiseksi.

Rahoitusomaisuuteen kuuluu sekä lyhytaikaiset rahat ja pankkisaamiset että pitkäaikaiset sijoitukset.

Muistutuksena! Lyhytaikaisella ennustamisella tarkoitetaan 1-2kk, keskipitkällä 2-8kk, ja pitkäaikaisella yli 8kk aikaväliä.

17) Asiakkaan toimiala? *

Elintarviketuotanto

18) Asiakkaan henkilöstömäärä?

1

19) Asiakkaan liikevaihto (M€)?

alle 0,2 M€

20) Asiakkaan yrityksen ikä?

alle 2 v.

21) Asiakkaan toimipaikan sijainti?

Ahvenanmaa

22) Onko asiakasyrityksen liiketoiminta projekti- vai jatkuvaluontoista?

Projektiluontoista

23) Minkä suuruisista myyntitapahtumista asiakkaan liikevaihto syntyy? *

(myyntitapahtuma / suhteellinen osuus kokonaismäärästä)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
alle 100 € *	●	○	○	○	○	○	○	○	○	○	○
100 - 1000 € *	●	○	○	○	○	○	○	○	○	○	○
1000 - 5000 € *	●	○	○	○	○	○	○	○	○	○	○
5000 - 10000 € *	●	○	○	○	○	○	○	○	○	○	○
10000 - 50000 € *	●	○	○	○	○	○	○	○	○	○	○
50000 - 100000 € *	●	○	○	○	○	○	○	○	○	○	○
yli 100000 € *	●	○	○	○	○	○	○	○	○	○	○

24) Minkä suuruisista maksutapahtumista asiakkaan kulut syntyvät? *

(maksutapahtuma / suhteellinen osuus kokonaismäärästä)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
alle 100 € *	●	○	○	○	○	○	○	○	○	○	○
100 - 1000 € *	●	○	○	○	○	○	○	○	○	○	○

1000 - 5000 € *	
5000 - 10000 € *	
10000 - 50000 € *	
50000 - 100000 € *	
yli 100000 € *	

25) Miten arvioisitte asiakkaan pääoman sitoutumista eri tase-eriin? *

(tase-erä / suhteellinen osuus taseesta)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Käyttöomaisuus *											
Vaihto-omaisuus *											
Saamiset *											
Rahoitusomaisuus *											

26) Miten arvioisitte asiakkaan liiketoiminnan kulujen osuuksia? *

(kuluerä / suhteellinen osuus liiketoiminnan kuluista)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Materiaaliostot *											
Henkilöstökulut *											
Muut kulut *											

27) Käyttääkö asiakas e-laskutuksen palveluja?

Kyllä

---

28) Tehdäänkö asiakkaalle kassavirtaennusteita? *

- [x] Lyhyellä aikavälillä (1-2kk)
- [ ] Keskipitkällä aikavälillä (2-8kk)
- [ ] Pitkällä aikavälillä (yli 8kk)
- [ ] Ei, mutta kannattaisi tehdä

29) Oletteko samaa mieltä, käyttääkö asiakas yrityksenne tarjoamia kassavirtaennusteita seuraaviin käyttötarkoituksiin? *

(Jos ennusteita ei tehdä, mieti miksi kannattaisi käyttää)

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Maksukykyisyyden varmistamiseksi liiketoiminnan jatkuvuuden kannalta *							
Maksukykyisyyden varmistamiseksi osingonjaon kannalta (juridisena todisteena) *							
Maksukykyisyyden tarkastelemiseksi yrityssaneeraukseen hakemisessa (juridisena todisteena) *							
Käyttöpääoman tehokkaaseen hyödyntämiseen *							
Sisäiseen tulosmotivointiin *							
Strategisena työkaluna liiketoiminnan kehittämiseksi *							
Perusteluna päätöksenteossa tai neuvotteluissa (esim. investoinnit, hinnoittelu) *							

30) Oletteko samaa mieltä seuraavien kassavirtaennustamisen prosessien väittämien kanssa asiakkaan tapauksessa? *

(Jos ennusteita ei tehdä, mieti miten todennäköisesti olisi)

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Ennustamista varten on olemassa toimintaohje jota seurataan systemaattisesti *							

Ennusteisiin tarvittu tieto on hajautunut asiakasorganisaatioon ja sen tietojärjestelmiin *	◉	○	○	○	○	○	○
Ennusteisiin käytetyn tiedon kerääminen vaatii manuaalista työtä *	◉	○	○	○	○	○	○
Asiakas tekee ennusteita itse ilman yrityksenne edustajien apua *	◉	○	○	○	○	○	○
Ennusteita tehdään ja käytetään fyysisesti eri paikoissa (esim. toimiston ulkopuolella) *	◉	○	○	○	○	○	○
Ennusteissa hyödynnetään historiadataa *	◉	○	○	○	○	○	○
Ennusteissa huomioidaan epävarmuuksia erillisellä formaalilla menetelmällä (esim. skenariointi, simulointi, herkkyysanalyysi) *	◉	○	○	○	○	○	○
Ennusteissa menopuolella (ja sen vaihtelulla) on tärkeämpi merkitys kuin tulopuolella *	◉	○	○	○	○	○	○

31) Jos ennusteissa huomioidaan epävarmuutta, niin mitä formaaleja menetelmiä käytetään?

- [x] Simulointi
- [ ] Herkkyysanalyysi
- [ ] Skenariointi
- [ ] Muu, mikä?

32) Kuinka usein lyhyen ajan ennustusta tehdään ja päivitetään?

Päivittäin

33) Kuinka usein keskipitkän ajan ennustusta tehdään ja päivitetään?

Päivittäin

34) Kuinka usein pitkän ajan ennustusta tehdään ja päivitetään?

Päivittäin

35) Mitä työkalua tarjoatte asiakkaalle lyhyen ajan kassavirtaennusteiden tekemiseen? *

- ◉ Taulukkolaskentaohjelma
- ○ Itsekehitetty ohjelmisto
- ○ Kaupallinen ohjelmisto, mikä?
- ○ Ei mitään

36) Mitä työkalua tarjoatte asiakkaalle keskipitkän ajan kassavirtaennusteiden tekemiseen? *

- ◉ Taulukkolaskentaohjelma
- ○ Itsekehitetty ohjelmisto
- ○ Kaupallinen ohjelmisto, mikä?
- ○ Ei mitään

37) Mitä työkalua tarjoatte asiakkaalle pitkän ajan kassavirtaennusteiden tekemiseen? *

- ◉ Taulukkolaskentaohjelma
- ○ Itsekehitetty ohjelmisto
- ○ Kaupallinen ohjelmisto, mikä?
- ○ Ei mitään

38) Oletteko samaa mieltä seuraavien kassavirtaennustamisen teknologioiden ja työkalujen väittämien kanssa asiakkaan tapauksessa? *
(Jos ennusteita ei tehdä, mieti miten todennäköisesti olisi)

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Käytetyt työkalut soveltuvat kassavirtojen ennustamiseen hyvin *	◉	○	○	○	○	○	○
Käytetyt työkalut mahdollistavat epävarmuuden huomioimisen formaalilla menetelmällä (esim. skenariointi, herkkyysanalyysi, simulointi) *	◉	○	○	○	○	○	○
Käytetyt työkalut mahdollistavat historiadatan hyödyntämisen tulevaisuuden ennusteiden mallintamisessa (esim. kausivaihtelut) *	◉	○	○	○	○	○	○
Käytettyjen työkalujen ansiosta kassavirtaennustaminen on systemaattista ja konsistenttia kerrasta toiseen *	◉	○	○	○	○	○	○
Käytetyt työkalut tukevat tiedonsiirron automatisointia (integraatio asiakkaan tietojärjestelmiin) *	◉	○	○	○	○	○	○
Asiakkaan on mahdollista käyttää työkaluja itse ennusteiden tekemiseen ja tarkasteluun *	◉	○	○	○	○	○	○
Työkalujen käyttö on mahdollista missä ja milloin vain *	◉	○	○	○	○	○	○
Käytetyt työkalut tarjotaan verkon yli ns. "pilvipalveluna" *	◉	○	○	○	○	○	○
Käytetyt työkalut tukevat e-laskutuksen tuomia automatisoinnin etuja *	◉	○	○	○	○	○	○

39) Oletteko samaa mieltä seuraavien väittämien kanssa asiakkaan tapauksessa? *

(Jos ennusteita ei tehdä, mieti miten todennäköisesti olisi)

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Asiakas ymmärtää hyvin kassavirtaennusteiden hyödyntämisen mahdollisuudet *	◉	○	○	○	○	○	○
Asiakkaan mielestä kassavirtaennustamisen kustannukset eivät riitä kattamaan niistä saatavia hyötyjä *	◉	○	○	○	○	○	○
Asiakas käyttää kassavirtaennusteita ja ennustamisen työkaluja usein *	◉	○	○	○	○	○	○
Asiakkaalla on useita tietojärjestelmiä ja ne sisältävät kassavirtaennustamisen kannalta olennaista tietoa *	◉	○	○	○	○	○	○
Asiakkaan tietojärjestelmien integrointi (automatisoinnin kannalta) ennustamisen työkaluihin onnistuu helposti *	◉	○	○	○	○	○	○
Asiakkaan tietojärjestelmä-infrastruktuuri on yhteensopiva ennustamisen työkalujen kanssa eikä lisäinvestointeja siihen tarvita *	◉	○	○	○	○	○	○
Asiakkaan johdolla on myönteinen asenne ja tuki kassavirtaennusteiden tekemiselle työkalujen avulla *	◉	○	○	○	○	○	○
Asiakkaan työntekijöillä on myönteinen asenne kassavirtaennusteiden tekemiselle työkalujen avulla *	◉	○	○	○	○	○	○
Asiakas tarvitsee paljon koulutusta, ennenkuin pystyy hyödyntymään kassavirtaennustamisen menetelmiä ja työkaluja *	◉	○	○	○	○	○	○
Asiakas on ollut vahvasti mukana työkalujen suunnittelu-, kehitys-, tai integraatioprojektissa *	◉	○	○	○	○	○	○

<-- Edellinen Seuraava -->

Osa 3/3 - Asiakasyritys ja sen kassavirtaennustaminen

Viimeisessä osassa jatkamme kassavirtaennustamisen tarkastelua asiakasyrityksen kannalta. Vastatkaa kysymyksiin tästä näkökulmasta.

Muistutuksena! Lyhytaikaisella ennustamisella tarkoitetaan 1-2kk, keskipitkällä 2-8kk, ja pitkäaikaisella yli 8kk aikaväliä.

40) Ennusteita laadittaessa asiakkaalle... *

(Jos ennusteita ei tehdä, mieti miten todennäköisesti olisi)

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
...eteen tulee usein uusia tehtäviä, joita ei aiemmin ole tehty. *	○	○	○	○	○	○	○
...työtehtävät ovat hyvin säännöllisiä ja systemaattisia. *	○	○	○	○	○	○	○
...laatimiseen osallistuu useita henkilöitä. *	○	○	○	○	○	○	○
...tarvitaan tietoa useilta liiketoiminnan alueilta tai näkökulmista. *	○	○	○	○	○	○	○

41) Oletko samaa mieltä seuraavien väittämien kanssa? *

(Jos ennusteita ei tehdä, mieti miten todennäköisesti olisi)

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Työkalun avulla tehty valmis ennuste sisältää asiakkaan tarvitseman tiedon ja se on riittävän ajankohtaista. *	○	○	○	○	○	○	○
Tieto, jonka saamme asiakkaalta ja käytämme ennusteen laatimiseen täyttää tarpeen vaatimukset ja on riittävän ajankohtaista. *	○	○	○	○	○	○	○
Valmiista ennusteista asiakkaan on helppo löytää haluttuja tietoja ja ymmärtää mitä ne tarkoittavat. *	○	○	○	○	○	○	○
Ennusteiden laatimiseen tarvittava tieto on helppo löytää ja ymmärtää sen käyttötarkoitus. *	○	○	○	○	○	○	○
Meillä ei ole lupaa saada kaikkea asiakkaan tietoa, josta olisi apua ennusteiden laadinnassa. *	○	○	○	○	○	○	○
Hyödyllisen tiedon saamiseen asiakkaalta tarvittavan luvan hankkiminen on työlästä. *	○	○	○	○	○	○	○
Ennusteen laatimista varten asiakkaalta saatu tieto ei ole suoraan yhteensopivaa työkalun kanssa. *	○	○	○	○	○	○	○
Ennustamisen työkalu on helppo integroida asiakkaiden tietojärjestelmien kanssa. *	○	○	○	○	○	○	○
Työkalun avulla asiakkaalle voidaan tarjota ennusteita niin usein kuin hän tarvitsee *	○	○	○	○	○	○	○
Ennusteiden tekemisestä työkalun avulla ei aiheudu viivettä, josta olisi asiakkaalle haittaa. *	○	○	○	○	○	○	○
Voimme olla varmoja että ennustamisen työkalu on aina käytettävissä eikä järjestelmähäiriöitä esiinny. *	○	○	○	○	○	○	○
Asiakkaan tietojärjestelmissä esiintyy ajoittain ongelmia, jotka vaikuttavat ennustamisen työkalun käyttöön. *	○	○	○	○	○	○	○
Työkalu on helppokäyttöinen. *	○	○	○	○	○	○	○
Apua on saatavilla, jos kohtaamme ongelmia työkalun käytössä. *	○	○	○	○	○	○	○

Työkalu on suunniteltu taloushallinnon käyttäjä mielessä. *	○	○	○	○	○	○	○
Ennustamisen työkalu toimii joustavasti eri liiketoiminta-aloilla. *	○	○	○	○	○	○	○
Ennustamisen työkalu mahdollistaa sellaisten palvelujen tarjoamisen asiakkaalle, jotka eivät olisi mahdollisia ilman työkalua. *	○	○	○	○	○	○	○
Ilman työkalua kassavirtaennustaminen ei olisi juuri mahdollista asiakkaan toimesta. *	○	○	○	○	○	○	○

42) Oletko samaa mieltä seuraavien väittämien kanssa? *

(Jos ennusteita ei tehdä, mieti miten todennäköisesti olisi)

	Täysin eri mieltä	Eri mieltä	Jokseenkin eri mieltä	En osaa sanoa	Jokseenkin samaa mieltä	Samaa mieltä	Täysin samaa mieltä
Asiakkaan liiketoimintaprosessit ja tietojärjestelmät ovat hyvin yksilöllisiä, "ei-standardoituja". *	○	○	○	○	○	○	○
Yrityksemme ja asiakkaan välillä on hyvä luottamussuhde. *	○	○	○	○	○	○	○
Ennusteiden tarjoaminen asiakkaalle vaatii paljon koordinointia ja tiedonsiirtoa. *	○	○	○	○	○	○	○
Sopimus kassavirtaennustamisen palveluiden tarjoamisesta asiakkaalle on joustava molemmille osapuolille. *	○	○	○	○	○	○	○
Ennustamisen palveluita tarjottaessa ja ostettaessa molemmilla osapuolilla on yhtenevät intressit. *	○	○	○	○	○	○	○
Asiakas on tietoinen mitä kassavirtaennustamisen palveluita hän voi yritykseltänne saada? *	○	○	○	○	○	○	○

43) Kommentteja kyselyyn liittyen?

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