



# Universiteit Leiden

## ICT in Business

Analysis of Data Sources and Processes for Cash  
Flow Prediction in Small Seasonal Businesses

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MASTER'S THESIS

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## Abstract

In modern financing, cash flow forecasts serve as an important consideration factor for establishing eligibility for a loan. Small seasonal businesses have strongly fluctuating data, which makes creating such a forecast manually labor intensive and error prone.

This paper presents a model for forecasting cash flow in small seasonal businesses in real time, as opposed to doing so once at the start of a fiscal year. By offering real time insight into cash flows, a prognosis can be actionable: it can be used to change the behavior in a company in such a way that it improves its overall liquidity.

The model contains two primary dimensions: a prediction of income and a means of registering financial commitments in a company-wide manner. For income prediction, this study shows that attempting to forecast cash flow based on past revenues is not feasible for small businesses: there is too much variation year over year, making it impossible to extract a trend. As an alternative approach, a method for cash flow prediction based on weekly relative cash flow accumulation is introduced. This model makes it possible to discover trends in a company's cash receptions. Combining these trends with an estimated annual budget allows for the creation of a cash flow prognosis before the start of a fiscal year, while weekly extrapolations of the current cash receptions offer an increasingly accurate cash flow prediction. In the expenses dimension, a conceptual hierarchy for the registration of financial commitments is introduced. Such a system abstracts business logic into an isolated module, reducing implementation and adaption costs within a company while providing early insights into expenses.

To test the validity of the model, it was implemented in a sample company. A cash flow prognosis was generated for the year 2016 based on data from the period 2012 to 2015. The income prediction generated by the model correlated strongly to the actual 2016 cash receptions.

**Keywords:** *Cash Flow; Predictive Model; Expense Management; Forecasting; SME; Seasonal Businesses;*

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# 1 Introduction

## 1.1 Background

One of the simplest ways to manage a company's accounting is by means of the 'shoebox principle', in which all receipts for both incoming and outgoing transactions are collected in a box, to be passed on to an accountant for processing at the end of the year.

While the concept is an oversimplification and its essential form is only applied by very small companies, its primary principle of managing accounting as a process executed in batches still applies to the majority of small and medium sized businesses (Robyn & Halabi, 2007). When businesses grow and mature, they are likely to improve and professionalize their accounting process, processing invoices and receipts as they come in and reporting in a timelier fashion, such as monthly. At this stage in a business's growth, accounting reports become more useful and can be used for decision making processes. Research into small businesses has shown that improved financial reporting practices tend to result in increased business growth and performance (McMahon, 2001).

For stable businesses with a constant stream of revenue, making decisions based on accounting data may not result in any immediate problems, as long as they have sufficient cash flow throughout the year. However, issues arise in businesses that have a more cyclical spending pattern, where the timeframe cash flows into the company doesn't match with when expenses are made.

The problem with using accounting data is that it is always at least partially outdated. Even when the data is assessed much quicker than monthly, say weekly or even daily, it never shows what is in the pipeline, so it remains relatively unclear which costs and incomes can be expected.

To counter this ambiguous state, a company can draft a liquidity and cash flow prognosis, in which it predicts when it'll receive income and when it can expect costs based on historical data and the current investment strategy. A cash flow forecast can aid to prevent issues in cash balances and act as an early indicator that changes in payment agreements have to be made. In modern financing, cash flow forecasts serve as an important consideration factor for establishing eligibility for a loan (Gockel and Jansen, 2017). As such, SME's<sup>1</sup> would benefit from a reliable and automated cash flow forecast that considers the data they have available.

In order to establish a complete conceptual model of the data points required in projecting liquidity and cash flow, an assessment of the types of required forecasts can be useful. These common reporting categories can be compared to the requirements of seasonal businesses. Common reports expected from a liquidity forecast include:

- *A rolling daily **seven-day forecast** [emphasis added] to ensure adequate funding of daily operations*
  - *A rolling monthly forecast going out 12 months for visibility on longer term cash availability*
  - *A **cash forecast** [emphasis added] upon request*
  - *A 12-month rolling liquidity forecast to ensure long-term funding*
  - *Forecast **scenarios** [emphasis added] based on changes in underlying assumptions*
- (Financial Sciences, no date)*

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<sup>1</sup> Small and Medium Sized Enterprise. For this study, this is defined as businesses with up to 25 employees.

Not all of these forecasting types are applicable to seasonal businesses, and other reports might be of more importance there. The mentioned seven-day forecast is of very little value. Off-season, whether this is in the winter for a travel company or in the spring for a producer of Christmas lights, there will be very little revenue, and a day-to-day rolling forecast does not offer any information. The same applies for the rolling monthly forecast. The rolling nature of this report offers no value as separate months can have very different incomes and expenses.

On the other hand, the 12-month liquidity projection is a very valuable tool, as it considers an entire (fiscal) year. In such a forecast, the cyclical nature of a business is represented properly and a balance between income and expenses becomes visible. Making multiple forecasts based on different scenarios can also be very useful, and can aid in decision making.

## 1.2 Environment

Research was carried out at Rent-a-Tent, a Dutch company in the travel industry. Applying the research process to an operating SME allowed for access to a medium size business with a large number of available data sources.

Rent-a-Tent rents out camping accommodations on campsites in nine countries throughout Europe. Various accommodation types are available, including bungalow tents, safari tents, lodge tents and mobile homes. Campsites are contracted to rent out pitches over the entire season. Rent-a-Tent places its accommodations on these pitches, with crews touring Europe to construct them in May and April and retrieve them in September. The company has been expanding rapidly over the last years, offering 135 different campsites in 2016, compared to 87 in 2011. With an average of 10 pitches per campsite, this results in a product offering of approximately 1350 accommodations.

The travel and hospitality industry in the Netherlands is doing well overall, with Rabobank predicting a 2.4% growth in 2017 (Rabobank, 2016). A large competitor in the camping holiday business is *Vacansoleil Camping Holidays*, which offers comparable vacations to the product selection of Rent-a-Tent. Vacansoleil is relatively large compared to Rent-a-Tent, its 2015 revenue was €107 million (Vacansoleil, 2015), compared to approximately €10 million at Rent-a-Tent. To position itself in the market, Rent-a-Tent has focused on quality and customer satisfaction, while optimizing its operations by automating its sales processes. Sale of vacations is done almost entirely through the internet, and as such the company is dependent on customer communication: having a streamlined sales process, advertising effectively and offering a clear and transparent user experience on its websites.

The holiday market has shifted drastically in the last decade. Roughly 10 years ago, travelers used to book holidays months in advance, often when they received their vacation period in January. These customers would make a prepayment of approximately 30% on the moment of their booking, which would cover the company's initial costs of setup. Furthermore, it made it clear how well a company had performed early in the year, which made it possible to attract seasonal financing to cover the period until clients had fulfilled the remainder of their payment.

Today, the travel market looks entirely different. Customers book their vacations increasingly on the last minute. This is particularly visible in car-based holidays, where there is no issue of coordinating flights and accommodation. For Rent-a-Tent, this shift has resulted in a significant financing dilemma.

Campsites with whom it has contracts require payments early in the season (in April and May), before the company has received the majority of its reservations (in August), let alone payments. Additionally, (re)-investments concerning the purchasing of new materials or the replacement of current ones must occur in this period as well. With this gap growing, it has been difficult for the company to attract sufficient funding to cover the period in between those months.

One of the reasons it is hard to attract financial backing is that it is difficult for portfolio managers at banks to understand the business area dynamics in the travel business. A bank manager requesting information about the current level of sales in February isn't happy about the prospects, as little sales have yet been finalized. Furthermore, the Basel accords for the banking industry has pushed banks in the direction of '*asset based funding*' (Nuccio et al. 2013). This is a difficult proposition for companies with many of their assets abroad, as those are relatively hard to recuperate by financers (Westbroek, 2014).

### 1.3 Research Questions

This research seeks to find a method for creating an actionable cash flow forecast in small seasonal businesses. Banks often ask companies for a forecast when assessing it, yet a curious observation can be made: "*When you don't have a forecast, we ask for a forecast. If you do have one, we'll say: it is only a forecast.*" (Wegen, 2017).

While manually creating a cash flow forecast once a year can offer many insights, its influence on a company's behavior is very limited. To gain true value from a forecast, it must be *actionable*: managers in a company must be able to draw conclusions from the cash flow prediction and actively use it to improve a company's liquidity.

The problem Rent-a-Tent faces can be generalized into a set of research questions that apply to several industries, developing a broad model for the prediction and visualization of cash flows in such a way that a company can act on it continuously. Such a model would allow a company to move on from *just a forecast* to a valuable tool in its decision making. The following research questions have been devised to guide the development of this model:

#### Main question:

- What data points and processes do seasonal SMEs require to create an accurate and actionable cash flow projection?

#### Further questions:

- What data sources regarding are available within a small seasonal business?
- How can cash flow information be presented to purchasing, advertising and sales departments to influence their operations in an effective way?
- What are the requirements for an actionable representation of cash flows over time?

## 1.4 Research Relevance

Financing needs for small business are rapidly changing, and companies are struggling to adapt. The development of a generic model or framework for the management, overview and control of a medium-sized business's liquidity could prove a valuable starting ground for the development of new financing models in the banking, private equity and crowdfunding sectors. While there is extended research into the management of working capital in SMEs by researchers from economic fields, there is limited attention from the field of computer science for this type of businesses. There is currently insufficient literature available that focusses on data modelling in medium-sized business; research is often carried out by and in large companies that have fundamentally different dynamics and financial requirements.

The needs and requirements of smaller businesses are very different than those of large multinationals with well-defined processes, structures and responsibilities. Smaller businesses with limited accounting and IT resources cannot afford to extend academic interest into researching the factors in their liquidity: they need an actionable process to get insights into their data and present it to their financers.

Research into the general data points that affect and influence cash flow management can produce a model that can be a helpful tool in other companies that are facing liquidity management problems. An investigation and assessment of data sources can also be relevant for companies that do not have these issues themselves, but are instead focused on supporting industries in which they occur, such as financers, payment providers and accountants.

Some of the challenges and practices discussed in this paper are specific to the market in which Rent-a-Tent operates, while others are more easily generalizable. Ideas and concepts are described in such a manner that equivalent dynamics and processes in other lines of business can be found by following the line of reasoning. For example, iterating the types of commitments and contracts within one industry and assessing the properties and exceptions that apply could be a helpful tool for other researchers and businesses looking to find the inputs for a liquidity system of their own design.

## 1.5 Research Domain

The research was conducted from the 'ICT in Business' field, and will as such attempt to combine aspects of IT and business topics into a useful review. The used methodology will focus on acquisition and application of data, the verification of data sources and the establishment of (IT) processes to manage information within small businesses.

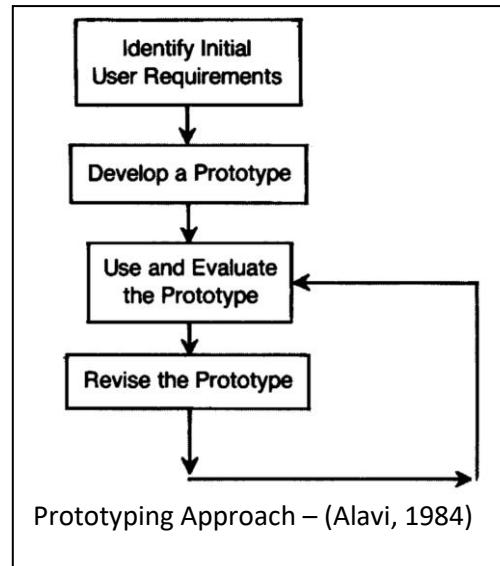
The flip side of that coin is that this research does not focus on the financial and accounting concepts that are discussed. While readability benefits from a short introduction into a topic, it is not the intent of this paper to describe accounting concepts with complete accuracy. Descriptions of these concepts might occasionally be too broad. Research in these areas is more likely to be conducted by researchers in economic sciences.

## 1.6 Research Methodology

In order to find the factors influential in seasonal SMEs, as prototype of a cash flow prediction application was developed using a typical Prototyping Approach. This methodology was selected as it allows addition of factors to the proposed model, continuously refining as new data sources and other liquidity effects are discovered. The Prototyping Approach consists of four steps:

### 1.6.1 Identify initial user requirements

In this phase, users within Rent-a-Tent are verbally surveyed to identify the insights currently lacking that require clarification. This information and a rough set of initial input factors was gathered from the company's accounting system in order to be able to provide an early (and almost certainly inaccurate) cash flow prediction.



In order to assess current research regarding liquidity forecasting, a literature study was conducted. In this study, current methodology regarding data models and cash flow curves was assessed.

### 1.6.2 Develop a prototype

With the gathered data, a model for registration of expenses, prediction of earnings and projection of cash flow is developed. The early version of the model only includes a small number of data sources, but provides the framework for further development.

### 1.6.3 Use and evaluate the prototype

After developing an initial version of the model, its early results can be discussed with the stakeholders in the process. As the model is lacking significant data sources, its prediction of cash flow is not a good fit to the actual situation. Additionally, the reporting does not provide sufficient insights for all informed stakeholders. To improve the fit of the model and make it more accurate, interviews with stakeholders across industries were conducted. Due to the nature of the topic ('money') the interviews were not always recorded, allowing interview subjects to speak freely. During interviews notes were taken, the content of which was offered to the interviewed, allowing them to either agree or rephrase. After the interview the topics were summarized and paraphrased. The final record was send to the interviewee for signoff.

### 1.6.4 Revise the prototype

New insights gathered from the conducted interviews are integrated into the model, in order to improve its predictive accuracy and reporting usability. As more sources are integrated, the cycle of evaluation and revision can be repeated until a sufficiently fitting model is established.

## 2 Literature review

Literature addresses a wide variety of modeling methods to predict cash flow, mostly focusing on finding an approach to extract an ideal liquidity curve in a project environment. Odeyinka et all (2012) categorize these methods into three different approaches: net cash flow, value flows and cost flow. Much of the applied research and literature available is done in an environment of construction companies, which due to its cyclical nature lends itself reasonably well to the seasonal business dynamics investigated in this paper.

### 2.1 Statistical Models

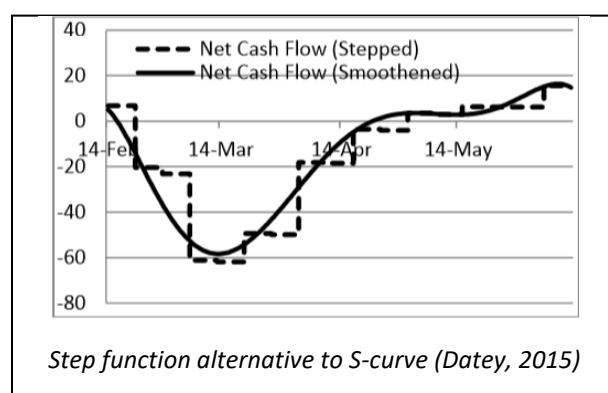
Kenley and Wilson (1986) propose an idiographic (favoring specificity rather than generalization) method for the modelling of construction project cash flows. They base their model on historical data of 72 projects and attempt to find a mathematical formulation that provides the best possible fit with the smallest standard deviation. They hypothesize that there is too much variation between projects to fit them to a standardized curve, and support this with both a graphical representation and statistical data. They conclude that "*standard or average curves do not reflect individual projects, and as such cannot be used for forecasting*" (Kenley and Wilson, 1986).

Kaka and Price (1991) propose a cash flow model for contractors at the tendering stage. They base their model on cost commitment schedules, rather than value curves, and test its reliability on five building projects. The model presented shows relatively small differences between estimated and actual net cash flows and is thus a reliable forecasting tool, but they conclude that nets cash flows varied too much to derive an ideal cost curve across projects.

Heaps and Domingo (2013) investigated literature regarding cash flow forecasting curves, and established the logit model (as proposed by Kenley and Wilson and reinforced by Kaka and Price) and polynomial regression as the most common models. They used both models to assess the cash flows in seven supermarket projects and twelve healthcare projects, and categorized the results by grouping the projects by size. The 4th degree polynomial was identified as the most suitable model to predict cash flow at the pre-tender stage of these projects. Heaps and Domingo conclude that "*with every construction being unique, [...] no standardized curve could accurately be used to forecast cash flow.*"

Boussabaine and Elhag (1999) hold that the factors that determine the shape of the curves described in existing regression models are very difficult to quantify and may not lend themselves to curve fitting. They propose an artificial neural network, trained using the cash flows of 40 projects as a superior solution. Testing the network showed encouraging results, but further testing is required.

Datey (2015) studies the empirical and mathematical models developed in literature. He suggests that projecting cash flow as a smooth S-curve is inappropriate, as it tends to average out cash deficits between two moments of time. He holds that these differences cannot be ignored as they hide potential cash deficits that might severely impact a project, even if they only last for a couple of days. As an alternative to the common S-curves, Daley proposes use of a step function.



## 2.2 Probabilistic Forecasting

Barraza et all (2004) propose the use of probabilistic methods to determine forecasted project estimates as an alternative to deterministic S curves. They conclude that the use of their probabilistic approach allows users to more accurately determine project costs and evaluate the result of corrective actions.

El Razek et all (2014) propose a three-stage model for net cash flow prediction. The model uses planning and scheduling data to establish a cash-out curve. They then construct a register of risk factors which they apply to the resultant cash out, resulting in a 'probabilistic cash out'. Finally, they propose a mathematical model to add other variables such as markup, interest value and down payments to project cash flow curves for various probabilities.

Park and Ock (2015) find that current literature does not consider the time lag of various cost categories, and suggest an algorithm for more precise cash flow forecasting. The proposed algorithm is composed of five stages: "*input of project information, determination of weights for cost categories and calculation of costs according to budget, planning of monthly progress and cost, calculation of cash-in and cash-out applying time lag, and comparison of cash-in and cash-out.*" (Park and Ock, 2015). In assessing their forecasting algorithm, they show at the consideration of time lags leads to a more accurate cash flow prediction.

## 2.3 Cash flow prediction

Gupta et all (2014) develop two one-year failure prediction models: one using ratios obtained from the financial statements and balance sheets of 2600 SMEs in the UK, the other extending the first with operation cash flow (OCF) information from the businesses cash flow statements. They show that of the various OCF ratios considered, only the ratio 'Cash flow from operation/current liabilities' showed a significant predictive value regarding the failing and non-failing firms. They conclude that the significant effort required to acquire these OCF ratios from small businesses does not yield marginal gain in understanding the credit risk behavior of SMEs.

Hwee & Tiong (2002) developed a computer based model for predicting cash flow in a construction project, while considering five possible risk factors. The model considered contract factors, as well as other practices that affect cash flow. The program could be used to show the effect of risk factors and costs variations on the cash flow S-curve. Data that would be considered by the model included equipment, overheads, material and labor. The program featured a 'Real-time Adjustment' module that allowed contractors to add data over time in order to steer the projection with information as accurate as possible. The authors conclude that the model they developed "*gives a good prediction of internal rate of return and capital requirement of projects*" (Hwee & Tiong 2002).

## 2.4 Discussion

Existing research shows that modelling cash flow and liquidity in businesses requires an accurate recording of data, and shows the consideration of risks are important. While research from the early 1980's tries to find optimal or standard cash flow curves, recent research focusses on expenses as well as earnings, and attempts to show the effects of various business factors. However, most research considers businesses significantly larger than the SMEs considered in this paper and offers little in form of a pragmatic approach to project cash flow in such a situation.

### 3 Method

This section describes the methodology designed in this research, and presents a theoretical foundation for the eventually proposed model.

To provide a clear narrative that allows understanding of the proposed methodology, this section starts with a consideration of the factors that are of significant influence on the cash flow within the researched organization. These factors may not directly apply to businesses in other industries, but there will likely be other unique factors influencing them.

This chapter will develop a reliable and verifiable approach to predict cash flow from operations, both based on an initial annual budget as well as by means of prediction based on historical data. A conceptual model for the registration of financial commitments will be introduced, along with a methodology for synchronizing this information with a company's financial administration system. Finally, a method for safeguarding the cash flow forecast against trend breaches and biases is discussed.

#### 3.1 Considerations regarding sales and purchasing partnerships

This section describes influences that are fairly specific to the travel industry, and might not directly apply to other seasonal SMEs. However, similar effects and processes might exist in other industries, and as such a consideration of these effects is deemed relevant.

##### 3.1.1 Liquidity effects

Rent-a-Tent does not only sell vacations in its own accommodations, it also makes sales on accommodations of other parties, for which it receives a commission. Similarly, Rent-a-Tents accommodations are offered through other sales and distribution channels (usually called Tour Operators), to whom a commission is paid. These companies mostly operate in different markets, such as the German or Danish market, and do not directly compete with Rent-a-Tent for the Dutch customer. For the end customer, the price remains the same regardless of where they book their vacation, but the parties pay each other a certain percentage of the sale price.

This method of sales has some interesting effects on liquidity that should be considered when making a prognosis for the year. When customers book directly at Rent-a-Tent, they make a down payment (usually 30% of the total sum), paying the remainder some weeks before their actual vacation. For reservations made through a third party the customer makes a payment to this party, which does not make a down payment to Rent-a-Tent. Not only does Rent-a-Tent have to pay a commission on this sale, it also does not have access to this cash until the tour operator pays the full amount when it is due, usually at the end of the season. Similarly, when a sale is made for a product purchased at a partner, the customer makes a payment to Rent-a-Tent, which then has use of this cash until it is invoiced by said partner. While it can only keep the commission amount, the cash strengthens the company's liquidity during the season.

The costs of paying commission are higher than those of a direct sale, but can reduce other costs such as spend on advertising and as such are not a total loss. Yet, a tour operator can be selling too much. When it sells mainly vacations in the high season on popular campsites, it is selling time Rent-a-Tent would likely have sold itself, while this does not result in an immediate influx of cash. Similarly, as customers in the travel market are quite price aware, small differences in prices could shift a customer to another

seller. If these factors are not considered when plotting the liquidity projection and only revenue is reviewed, the prognosis would miss an important cash balance.

### 3.1.2 Price Curve

The price to rent a pitch for a season is agreed to in a contract, and as such the costs of offering this accommodation is almost entirely fixed. Regardless of the amount of sales, the pitch and the construction of the accommodation will have to be paid for. Pricing for vacations varies heavily throughout the season, as time in the August summer vacation is obviously more valuable than the early weeks of April when the weather is less favorable. This is a simple supply-and-demand mechanism.

However, this does mean that the costs to rent an individual pitch should not be divided by the total number of nights to arrive at a purchasing cost-per-night. Selling the time in the preseason is important to draw in cash early and maintain liquidity. It does not matter whether a margin is made on these nights, in fact, they are sold at a loss. From a liquidity perspective, it is very favorable to sell as much as possible in this season, even if at a too low price.

Another factor in selling nights in the pre- and postseason is maintaining a good relationship with the campsites, who want their partners to bring in as many customers as possible. A vacation on a campsite is more fun if it is more crowded, so selling nights makes the campsite more favorable for other customers. Campsites are also dependent on revenue from add-on sales they can make in areas such as a bakery or bike rental.

### 3.1.3 Value Added Tax

In non-seasonal businesses, VAT can usually be considered an accounting-only factor that doesn't significantly affect the company's cash flow. Conversely, for seasonal businesses, the effect can be measurable. Customers pay 6% VAT on their vacations that will have to be remitted to the revenue service (*Belastingdienst, 2017*). The settlement of VAT paid and received must be made at the end of the fiscal year. As most of Rent-a-Tent's purchases (campsite contracts) are made abroad, VAT cannot be settled. The effect of this is that the VAT paid by customers in the Netherlands can be considered an interest free loan by the revenue service until it must be remitted. The same considerations must be made for the taxes paid on tour operator commissions: within the Netherlands they must be billed with VAT, for parties abroad this doesn't apply. In the travel industry, this effect is positive for companies, but in industries that make a lot of VAT burdened payments companies could be locking up cash in VAT that is yet to be reclaimed.

### 3.2 Income forecasts

To generate a cash flow forecast, a prognosis of receivables should be created. From its business model, a seasonal business will be able to approximately estimate the margin it needs and can expect on its capacity. While this experience gives a relatively clear idea about expected revenues, a revenue forecast does not readily translate into a cash flow prediction: customer behavior must be factored in. To assess this behavior, an analysis of historical data must be made in order to extract a trend. As researchers such as Kenley and Wilson (1986) have found, “*standard curves do not reflect individual projects*”. Therefore, a company must derive a prediction for its specific curve from the data it has available.

Figure 1 shows the weekly distribution of payments for reservations at Rent-a-Tent (2017 is in progress). While the seasonality is apparent, there is no clear visual trend: the data is not specific enough.

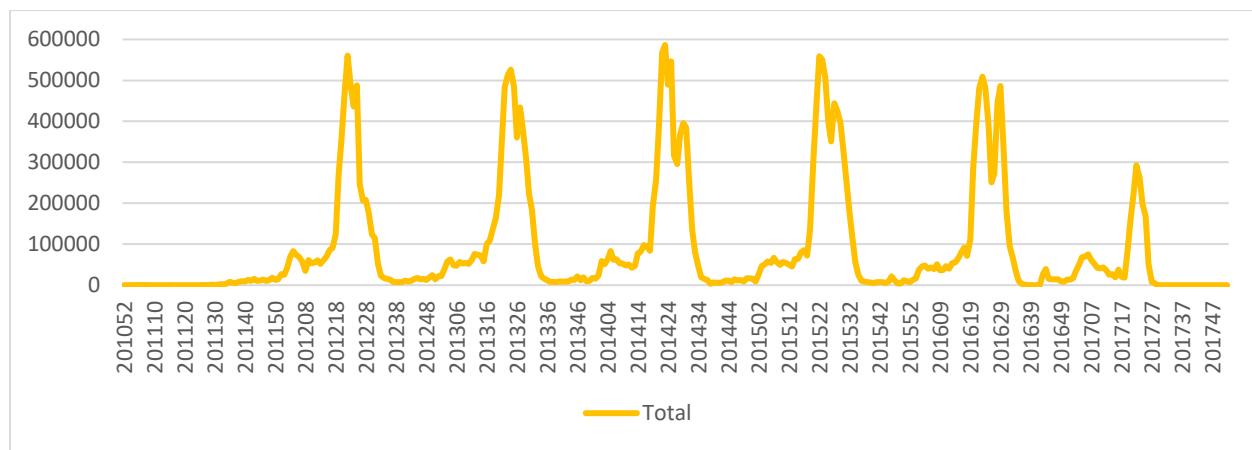


Figure 1 – Weekly distribution of payments

To correct for this, the payments can be split into three categories by grouping them by the percentages of the sales total they represent. This splits prepayments, made within two weeks after placing a reservation, the remainder, paid eight weeks before the reservation period, and last minutes, which are paid on placing a reservation. Figure 2 plots these groups. This plot shows the trend of vacations being booked later in the season, which also results in later payments.

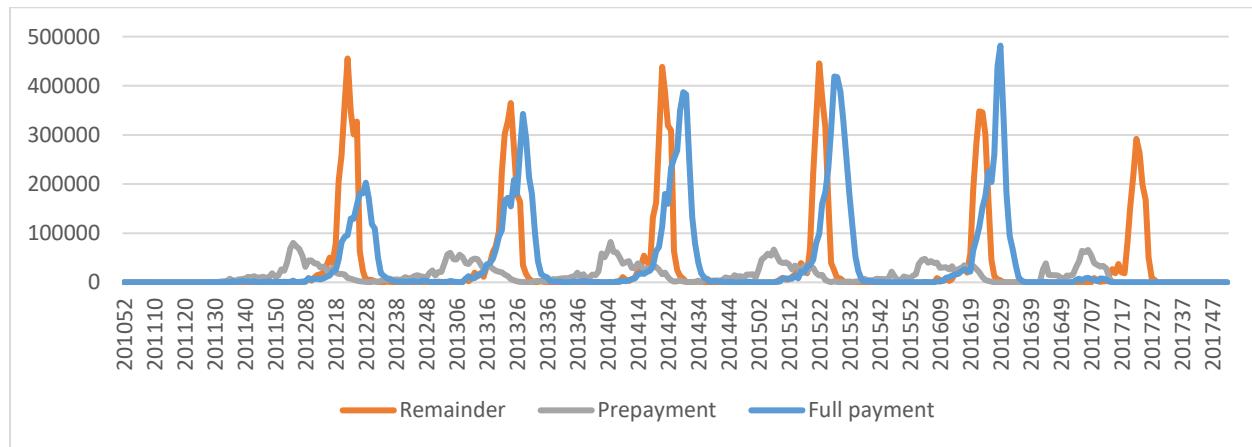


Figure 2 – Figure 1 split up into payment types

While this dataset can be used to provide a forecast for the running season, a predictive model that provides a good fit for the data needs to be established. As the 2017 season was in progress when these graphs were generated, there is no ‘full payment’ spike yet. Figure 3 plots figure 2 against the weighted holidays (number of regions that have a holiday in a certain week) in the respective years.

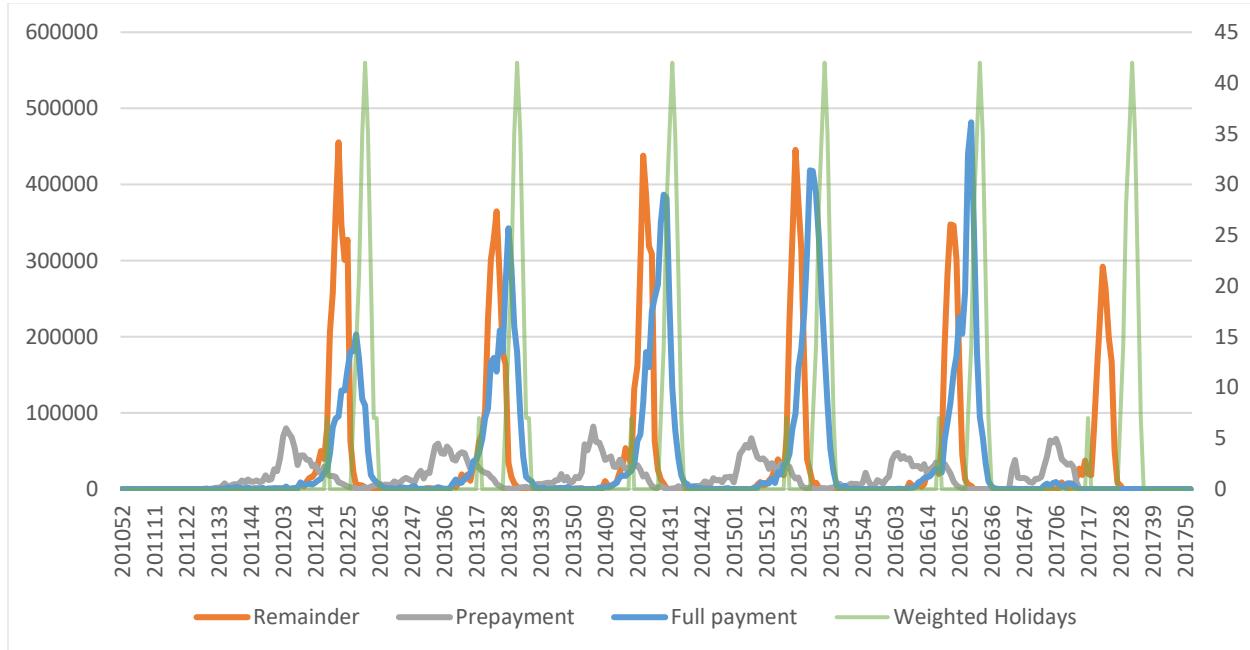


Figure 3 – Plot of payment terms against holidays from 2012 to 2017

From these plots, it can be concluded that that there are too many non-deterministic variables in the seasonality of the tourism industry to forecast cash flows on a purely statistical model. For the tourism industry, these variables include:

- **School holidays.** The Dutch government determines 6 weeks of summer holidays for primary and secondary education. For this allocation, the Netherlands are split in three regions: North, Middle and South. The exact weeks in which these holidays are placed change every year, and which region has their holiday period start first rotates. This rotation was put in place to spread supply and demand in the tourism industry (Rijksoverheid, 2016).
- **Holiday pay.** Legislative changes and renegotiations of collective labor agreements can change the amount and move payments of holiday pay across several weeks. These payments are a deferred wage and are often used to book vacations, so shifts in these payments are reflected in payments for vacations.
- **‘Bouwvak’.** Like school vacations, there is a collective period in which the construction industry closes (FNV Bouw, 2016). This period has the same north-middle-south split as the school vacations, so the overlap between the two usually forms the ‘high season’ in the tourism industry.

Due to the split (pre/full payment) nature of the payment system, changes in the most popular weeks also change the weeks in which payments are made, which is especially important as reservations are made closer to their fulfillment dates.

To prevent shifts in the progression due to weekday differences, a standardized 52-week year is defined for this research. For lack of a better term, these week numbers will be called ‘fiscal weeks’ (*fw*). This week numbering system starts on the Monday *closest* to the start of the fiscal year (October 1st). Any dates prior to this Monday are added to the first week. The fiscal year starts in October because there are almost no payments made in this month, so the extended first week of up to 10 days doesn’t cause a significant difference in the yearly progression.

Figure 4 shows the accumulated revenue progression in the years 2012 – 2016. This transformation from absolute values to the percentage domain shows the ongoing trend of booking later in the holiday season. Where in 2012 50% of revenue was booked in the period up to the last week of February (*fw* 22), in 2016 this milestone has shifted by 12 weeks to the end of May (*fw* 34).

The implications of these trend changes in cash flow are pronounced. Figure 5 shows the accumulated percentages of customer payments. Reception of 50% of revenues shifts back 4 weeks, 75% as much as 6 weeks. Overlaying figure 4 and figure 5 allows for another observation: the revenue accumulation and payment reception curves start matching in *fw* 42: this is the high season in which last-minute vacations are sold. These reservations are paid immediately.

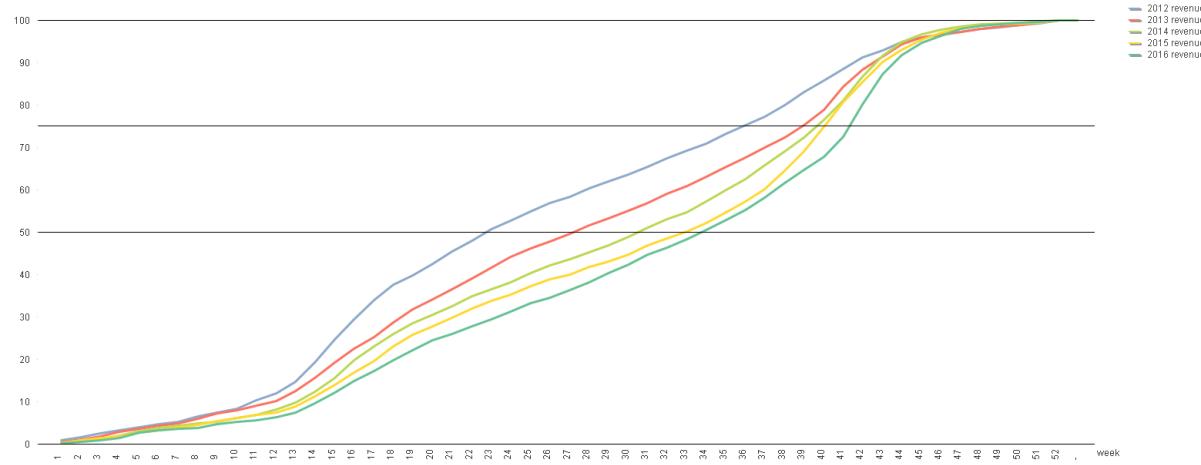


Figure 4 - Accumulated revenue progression

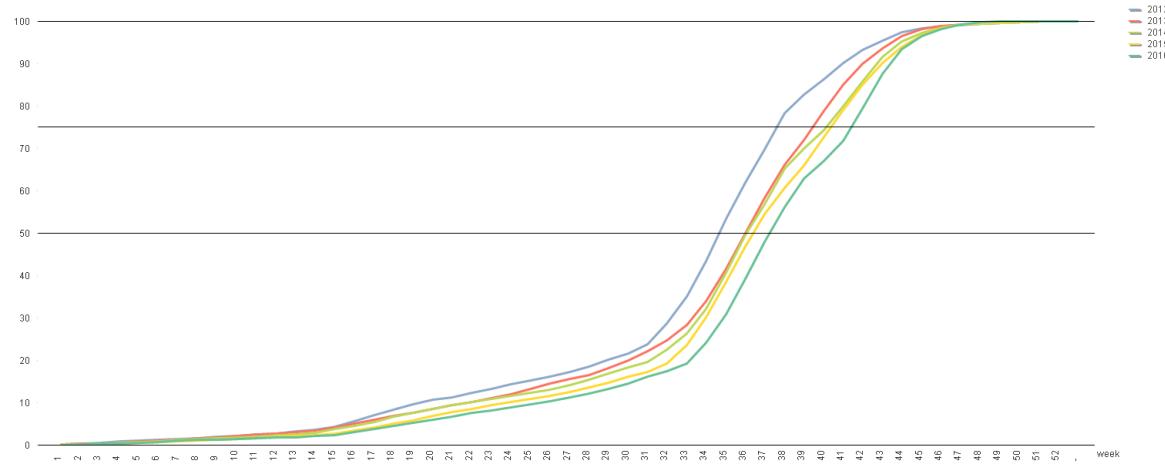


Figure 5 – Accumulated percentages of customer payments

Comparison of these graphs allows for the conclusion that revenue is not a good prediction signal for cash flow. It is tempting to apply a purely statistical approach to these curves to establish a prognosis for the next year, but such an approach runs into the same limitations as the direct cash flow prediction: there are too many variables responsible for sizeable shifts in the curves.

As an alternative, visual observation of the trend combined with global industry trends can be used to give a general statement about the next progression curve. This statement can then be translated into a transformation function that can be applied to data from previous years to generate a prediction.

To validate that such an approach is correct, this method can be used to generate a predicted curve for 2016 based on data from 2015. As the final curve for 2016 is known, the prediction can be compared to the actual curve. The following hypothesis is tested: “*customer payments to Rent-a-Tent are made a week later every year*”. By shifting the fiscal week number up by one in the 2015 data and plotting this new line, we can identify a closely fitting trend, as plotted in figure 6. Statistical validation of this shift is also possible by calculating the Pearson correlation coefficient (0 for no correlation, 1 for total linear correlation): the 2016 data correlates stronger to the shifted data set ( $r = 0.98$ ) than it does to the non-shifted set ( $r=0.93$ ). Other than for 2014, where the company underperformed as a whole, the model fits for other years as well.

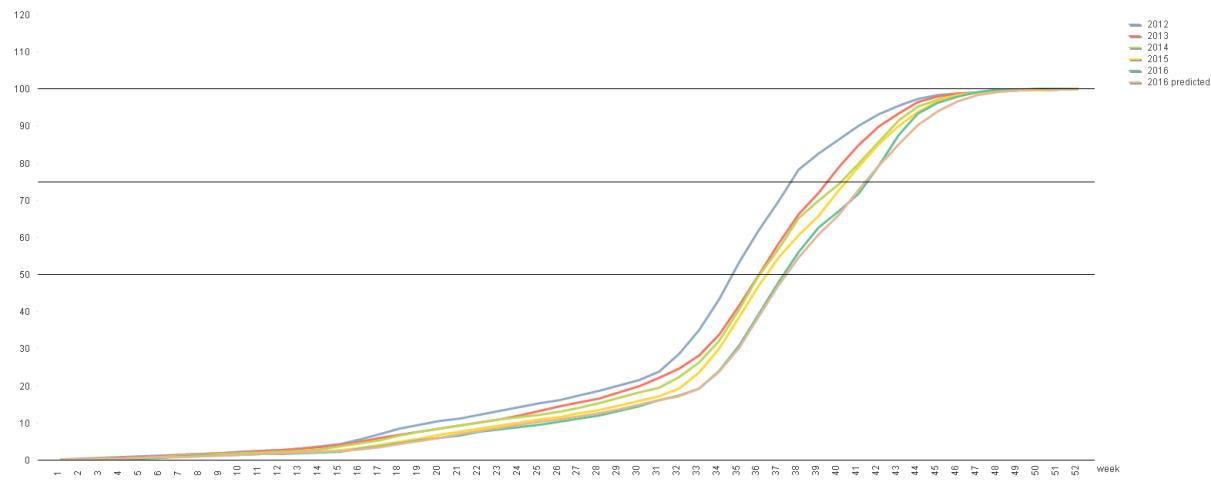


Figure 6 – Plot of prediction for 2016 based on 2015

The most noticeable discrepancy in the prediction is the gap in fw 43 through 46: the prediction fails to account for the fact that this is high season and payments are made before the customers' vacation. A small manual correction (moving part of the value for fw 47 to fw 43) corrects for this issue. A similar correction should be made in a forecast for unknown data.

Industries other than the travel industry may have observed different trends in their payment progressions, or there could be no significant trend at all. The abstraction of actual payments into a progression domain, combined with a transformation function based on the observed trend provides a usable prognosis of cash flows.

The percentages in the plotted curve can be applied to predict cash inflows in two ways: by comparing the percentage in the current week to the currently received amount and extrapolating to a final budget, or by mapping the percentages to a manually set target.

### 3.3 Predicting Third Party Revenue

Translation to an accumulated domain has shown to be an effective predictive tool in the previous section, so the same methodology can be tested for the other revenue source at Rent-a-Tent: tour operator revenues. Figure 7 shows the same percentage based revenue accumulation for these revenues as was used for the revenue from sales.

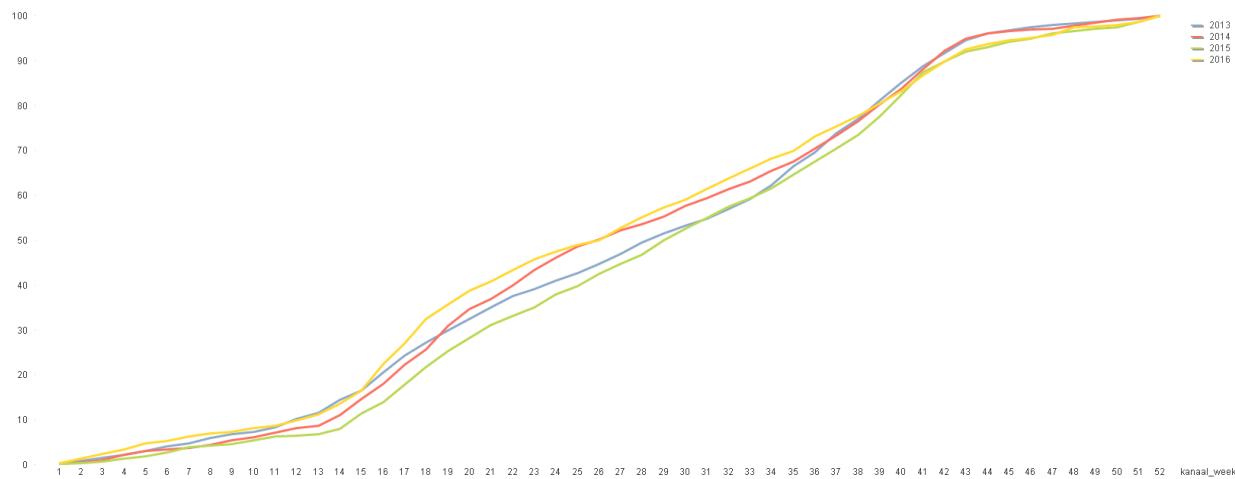


Figure 7 – Percentage accumulation of tour operator revenue

From the plot alone, it is immediately clear these curves aren't directly comparable to the sales made by Rent-a-Tent itself: there is significant shift between sequential years, and no trend is evident. The explanation is rather simple: the tour operators are not the same year over year. Contracted parties change every season, as would partners and relations in other industries. As these partners operate in different markets (such as different European countries) with different dynamics, attempting to predict the behavior based on this historical data isn't feasible.

This isn't too problematic for the establishment of the overall cash flow prediction, however. These partners do not make payments to Rent-a-Tent at the moment a customer books with them, so the exact moment of this reservation isn't relevant. More interesting are the payment dates as agreed per the contract negotiated with the partner. This contract has been signed before the start of a season, and as such this data can be utilized in the cash flow prediction model.

When comparing the tour operator revenue to private sales, we can derive the percentage share in table 1. Tour operators sell earlier in the year, but towards the end private sales catch up. Based on the current contracted parties, an estimate of 35 to 40% can be made for the final share in 2017.

Year	% up to fw 29	% final
2012	29.08	28.34
2013	26.33	26.58
2014	30.59	25.68
2015	38.10	32.51
2016	55.37	38.90
2017	56.95	

Table 1 – Tour operator revenue as a percentage of private sales

### 3.4 Forecasting expenses

Simply put, on the inverse side of receivables are payables. Like income, expenses should be forecast to create a cash flow prognosis for a given period. Unlike income, however, expenses are more stable and controllable by the business.

In order to generate a reliable cash flow prediction, it is important that all sources of expenses within in a company are registered and accurately processed. Integrating all separate business processes separately into a cash flow prediction program would be a large and expensive software development project which many small sized companies will not be able to undertake.

#### 3.4.1 Unified model for registration of commitments

Instead, a conceptual model for registration of commitment must be established. This model maps business logic and business entities to a single practical structure for the registration of payment requirements, prognosis, and expected sources of income. Figure 8 depicts a hierarchy for such a model, which offers the facilities to store both final and expected payables and receivables.

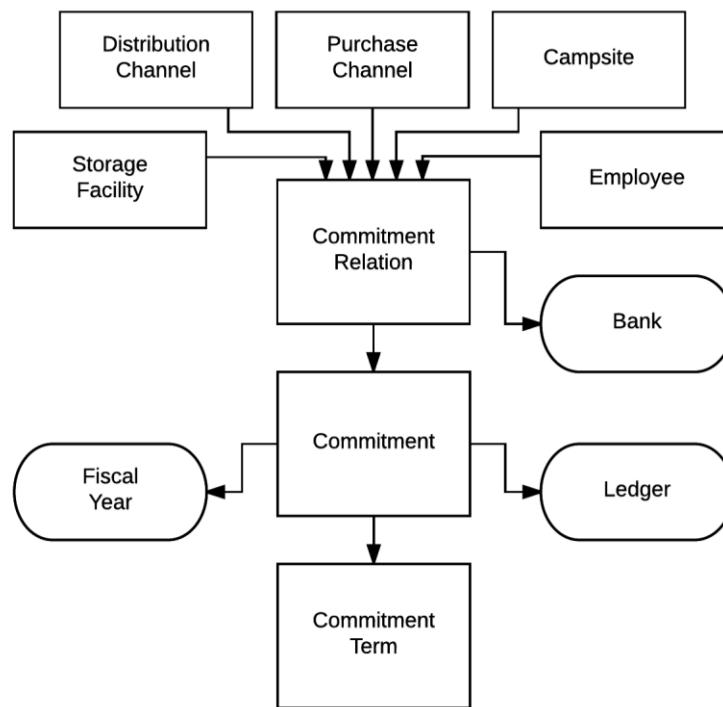


Figure 8 – Conceptual model for registration of payment commitments, extended with some of the entities within Rent-a-Tent

##### 3.4.1.1 Commitment Relation

This level in the hierarchy represents an abstraction of the diverse types of entities a business can have a financial commitment with. By abstracting this information into a single hierarchical level, the processing of commitment information can be standardized, while adding a new type of relation does not require modifications to the processing software. Furthermore, this approach allows for modularization of the registration process.

Information that can be recorded at this level:

- Payment information. This includes the IBAN number payments must be made to, the legal name of the relation, and a reference to the bank the number is made to. By storing bank information separately, the bank's BIC number can be stored while maintaining database normalization. Maintaining a record of the bank also allows for validation of invoices, as well as offering the opportunity to automatically validate the user-entered IBAN.

#### [3.4.1.2 Commitment](#)

With an abstracted registration of commitment relations all commitments can be recorded in a centralized store. This allows for a standardized method of input throughout the various departments in the company, such as logistics and sales.

The commitment level in the hierarchy also serves as the data store for the relation between the business software and the accounting system. This is detailed in a following section of this paper.

Information that can be recorded at this level:

- A general ledger. A ledger is the accounting repository on which the costs of the contract are registered. Due to the use of a double-entry bookkeeping system, every entry is entered as credit on one account, and a debit on another. By abstracting the ledger in the hierarchical model, properties of this recording can be separately stored. For a commitment, only one of the credit or debit ledgers must be recorded, the other side can be abstracted into a ruleset that is stored with the ledger entity. This abstraction makes it easier for office staff to enter contracts without needing to consider the specific complexities of, for example, the tax situation in the country where a contract is signed.

Connecting a contract to a single ledger also allows for automated validation of data integrity based on a ruleset for each of the entities connected to the *Commitment Relation*. It is programmatically simpler to infer that a contract for a campsite in France is mistakenly entered on the ledger *Campsite Expenses Netherlands*, than it is to assess individual contracts.

- Fiscal year. The fiscal year a contract is applicable to can be recorded to increase performance of reporting tools, as well as to maintain an overview of all contracts made in subsequent years without assessing the individual payment terms. Maintaining this overview of contracts can also serve as a valuable tool for the development of prognoses for the next year.
- Contract state. To project liquidity as accurate as possible, it is paramount that expected expenses are recorded as early as possible. Contracts of which the payment criteria are clear, but that have not been signed yet due to other nuances in the agreement should be registered anyway. Contracts may also be in an advanced state of negotiation, but not be entirely finalized. The expected final contract can also be recorded. To prevent pollution and maintain integrity of the data in the accounting system, these contracts should not be processed onward to a financial accounting system. To balance these requirements, every contract can be assigned a state from a predefined list, including *final*, *provisional* and *processed*.
- Taxation style of invoice. The nature of a travel business means it has many dealings with companies in other countries in the European Union. These companies may send invoices in a

range of styles, including or excluding VAT, depending on local regulation. To prevent oversights in VAT payments that must be made at the end of the year, these discrepancies must be recorded. The information recorded in this property can be combined with the selected ledger to select the correct ruleset for registration in the accounting system and the liquidity prognosis.

- Commission style of invoice. As with the taxation style, there are several ways commission may be recorded in incoming or outgoing invoices. A party for which a vacation was sold may send an invoice for the entire amount, and an additional credit invoice for the commission, or it may send one invoice in which the commission is subtracted from the total. The applicable style of invoicing is subject to local law, but might have direct impact on revenue and subsequently taxation.

#### *3.4.1.3 Commitment Term*

Contracts specify one or multiple moments on which payments must be made. To record the state of these payments and plot their effect on the liquidity curve, each of these is recorded a separate entity in the commitment hierarchy. This structure allows for an arbitrarily large number of terms to be assigned to a contract. A commitment may also be entirely dependent on other performance factors, such as purchases through partners, or sales made by external distribution channels. For these commitments, dates payments will have to be made or of which reception can be expected can be recorded, while the amount must be inferred from other data sources.

Information that can be recorded at this level:

- Payment dates as per the contract.
- The amount to be paid on a certain date. This value may be left blank if the amount is the direct consequence of other processes. The processing system will have to infer the amount from the ledger recorded in the *Commitment*, as well as the properties recorded in the *Commitment Relation*.
- The date of actual payment. To accurately project the business liquidity, payments made should be taken in to account. While undesirable and preferably avoided, the nature of a seasonal business in the current financing climate means invoices will occasionally be paid later than originally agreed to. This practice is quite common across various industries (Kenley, 2003). If a payment is not yet made at the date specified in the contract, a deficit has formed. This deficit should be made up for somewhere in the future, which means there will be an outgoing cash payment. If this belated payment is not considered in projecting the current and future liquidity, the projection is incorrect and loses its value. By maintaining a relation between a company's financial accounting system and the proposed commitment registration system, this information can be automatically updated and would not require manual action.
- Date of expected payment. If a deficit has formed, the new payment must be projected somewhere in the timeline. With the payment date in the contract no longer applicable, a new date should be planned for making the payment. To accurately plot the liquidity graph, a new date should be recorded. This date can be adjusted when necessary, and can be registered before the payment date as per the contract has passed, optionally after reaching a new agreement with the contract party.

### 3.4.2 Recording expenditure prognoses

To forecast cash flow, it is important to associate costs with a certain period in the year as early as possible. Therefore, expected expenditures will have to be extracted from the minds and inboxes of department managers and registered in a useful, maintainable and reliable way. To do so, the proposed conceptual model for recording financial commitments can be extended to include registration of prognoses and speculation towards expenses resulting from business operations. These prognoses are not final costs and they are not based on any finalized contracts with third parties. As such, they are not recorded in the company's financial accounting system.

To get a basic idea of the fixed costs in a company that aren't the result of expansion plans or changes in strategy, costs of the previous year can be reviewed. Large categories of expenses, such as salaries, insurance policies, rent and utilities can, within the small companies that are the target of this research, be estimated fairly accurately based on past payments.

These costs, and any other expenses that are roughly expected, can be added to the commitment registration system marked as *prognosis*. For example, if a manager plans to spend €300.000 on purchasing new equipment, and expects this amount to be paid in July, August and September, they could already enter these amounts as a prognosis. These expenses can then be accounted for in the cash flow curve, alerting other processes in the company to expect less cash to be available in those months. In this example, when the purchase of equipment is finalized, the actual contract can be registered in the payment system once again, balancing out the initial prognosis.

One careful consideration that has to be made when using historical data to create a cost forecast is to distinguish between date of invoice, invoice expiration date and payment date. In the cash flow forecast, costs could be planned at any of those moments, but the second gives a more realistic idea of when payments should be expected. Planning costs on the invoice date, relatively far before they have to be paid, is not valuable in a cash-constrained environment. When forecasting based on the payment dates as they are registered in a financial accounting system, care should be taken not to plan payments that were made after their due date late once again.

#### 3.4.2.1 *Ledger registration*

Like *commitments*, *prognoses* are also marked with a ledger. This allows for an automated matching between finalized contracts and prognoses in the registration system without user coordination, as they can be matched by ledger. Contracts that are entered on a certain ledger throughout the fiscal year can be matched to the initial prognosis given for that ledger. This mechanism implements an important step in the maintainability of the prognosis and the accuracy of the liquidity projection, as the system could alert users when, at a predefined period before a payment term registered in the prognosis, there is still a significant lack of entered contracts. Such a lack could either indicate a prognosis that is too high, or a number of contracts that have not been properly registered. Either case would have to be corrected. Another point of action is detection of overruns: when a new (provisional) contract is entered that exceeds the initial prognosis, the company's management would have to reallocate budget to maintain a position of sufficient liquidity.

### 3.5 Generalized strategy for maintaining synchronization with financial accounting

While forecasting is based on the future and thus on expectations and events that haven't happened yet, there is still a clear need to remain grounded in reality. In any company, its financial accounting serves as the single source of truth: it contains a record of payments that were made and invoices that were received. A cash flow prediction attempts to expand this information by extending it into the future, adding in contracts that haven't been invoiced, finalized or even started yet.

In large companies, it is very likely for a multi-stage acceptance process to exist before making any financial commitments. Payments either have to pass by a financial planning department or fit within a previously established budget that the company is able to comfortably fit within its cash flow. In the small enterprises that are the subject of this research, the same may not be true. A purchasing manager may have the authority to make deals and agreements without these passing through an acceptance phase, or in even smaller businesses, the owner-operators may take decisions by themselves.

To make sure any established commitments that influence a company's cash flow are accounted for as soon as possible, a connection should be made between the financial accounting and the cash flow prediction tooling. To create this connection, the proposed hierarchical model for the registration of commitments can be employed. Figure 9 describes a generalized process for establishing a synchronization between these two computer systems. Upon registration of a commitment, the '*Contract Relation*' can be inserted into the financial accounting system, registering payment information

While not all financial accounting systems will possess a feature set capable of reflecting updates back into the commitment system, it is likely possible to establish a batch-operated procedure. Changing the data for a relationship in the cash flow system would flag the record as '*modified*', so that a sub-sequential run of the batch process could update the data in the financial accounting system. Similarly, by comparing the records in the financial accounting to those in the cash flow system periodically, inconsistencies can be prevented or resolved.

Beyond payment information and contact management, the system should maintain a relation between the registered '*commitments*' and those in the financial accounting system. As soon as a commitment is flagged as '*final*', its terms and their payment dates can be inserted into the accounting system, flagging the commitment as '*processed*' thereafter. A processed commitment would no longer allow modifications: as soon as a commitment is finalized it might be paid by those in the company responsible for accounts payable. Such a process would provide a clear separation of concerns: purchases are made in one process, payments in another isolated process.

Upon inserting a commitment and its terms into the financial accounting system, the cash flow system would retain an identifier for each of the individual terms, which, depending on which accounting system is being used, could be id's, GUID's or manually entered identifiers. This registration allows the cash flow system to check back whether payments are made or received as expected. Upon the due date of a payment term, the cash flow system checks in the financial accounting system whether a term was paid. If it was, all is well: the cash flow system has projected a cash flow impact that happened in reality. If it wasn't, the projected cash flow curve becomes unaligned: cash that was planned to leave the company didn't do so, while a payment was shifted to an unknown moment in the future. The system is now wrong on two accounts: it has an incorrect cash balance, and it is not accounting for an expense.

The cash flow system can now alert its users to assign the relation a new expected payment date, so that it can correct its cash flow projection. The effect exists for receivables as well: if an expected transfer was received earlier than expected, this frees up cash in the company, while a belated reception means payments may need to be moved to prevent liquidity problems.

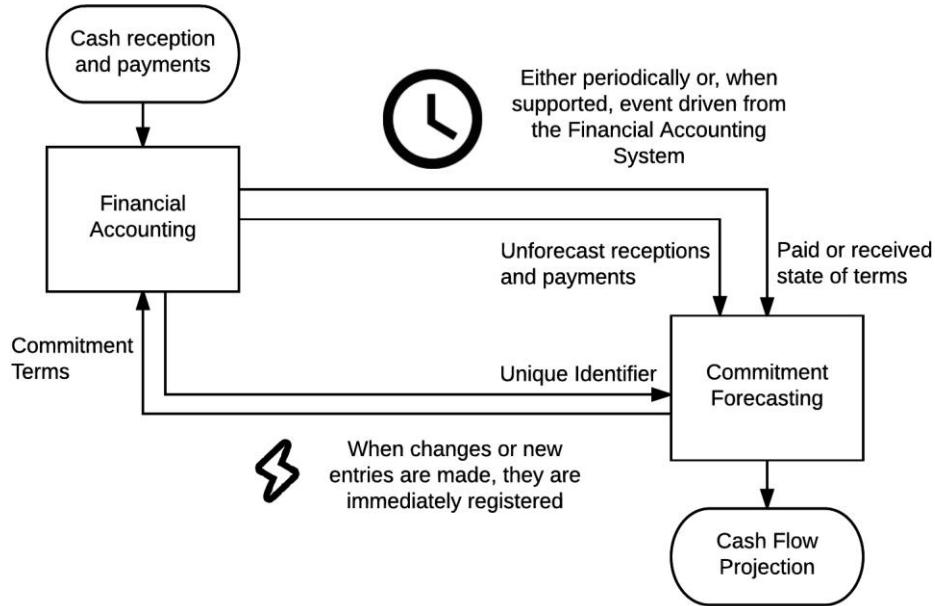


Figure 9 – Process architecture for maintaining synchronization between Cash Flow projection and Financial Accounting systems.

The process described here has a human factor that can be of significant impact to the cash flow management in a company. If the cash flow systems offers tooling that allows vague forecasts to be considered not separately but rather as part of the entire organization, different, more aligned decisions can be made. When a business opportunity or requirement can flow through the phases in a single system, from early plans through negotiations to eventual payment, a better insight in cash flow can be gained. This will likely change some of the roles and responsibilities in a company. Jobs that are mostly administrative, such as the processing of received invoices, are automated away and merged with the roles of more senior people in the company. This doesn't necessarily mean a reduction of the amount of work that is done: it is more likely a de-duplication. A purchasing manager is very likely to already keep note of ongoing plans, negotiations and opportunities. If, instead of keeping these notes private, they are canonically registered in a centralized system, their final processing (for example, in the form of re-digitizing and authorizing an invoice) can be eliminated, optimizing the process and adding an automated validation step. After all, it is considerably simpler to base payments on the agreements in a contract and validating them to a received invoice than it is to find and re-read a contract whenever a new request for payment is received.

### 3.6 Independent validation mechanisms

To validate that an automated cash flow prediction based on historical data is not biased by fluctuations in the current year, an independent validation mechanism should be introduced. For seasonal businesses, this mechanism could be a comparison of capacity sold up to the current week in the previous year.

### 3.7 Occupancy rate

Insight into occupancy rate or, inversely, remaining inventory is critical for projecting cash flow accurately. If there is no inventory left to sell, there will be no incoming cash flow. A comparison ignoring this might declare a lead of sales in a year-over-year comparison, but if there is no remaining capacity this lead will dissipate. This metric serves to validate the results of the projected income curve, and to make sure projected results are still feasible.

For the travel sector, time limited inventory could concern hotel rooms, plane seats or car rentals, but the concept is equally applicable to other seasonal industries with time-limited inventory. Examples include staffing agencies, shipping companies and craftsmen dependent on weather conditions.

The process for determining occupancy rate is depicted in figure 10.

#### 3.7.1 List available dates and join to available capacity

This results in a two-dimensional map of all dates and all availability, which can then be extended using the currently sold capacity.

#### 3.7.2 Join to sold capacity

By adding a third dimension, the current occupancy rate can be determined. Each date can be said to be 'occupied' or not. The example here compares availability per day, but also applies to other time slices such as hour or weeks. This concept is visualized in table 2.

	Timeslot 1	Timeslot 2	Timeslot 3
Unit 1	Sold	Free	Free
Unit 2	Sold	Sold	Sold
Unit 3	Free	Free	Sold

Table 2 – Visualization of availability mapping

#### 3.7.3 Declare (not) occupied state

To compare occupancy rate season over season, the rate for last year can be calculated using the same model, with the exception that only sales made up to 'today last year' are considered.

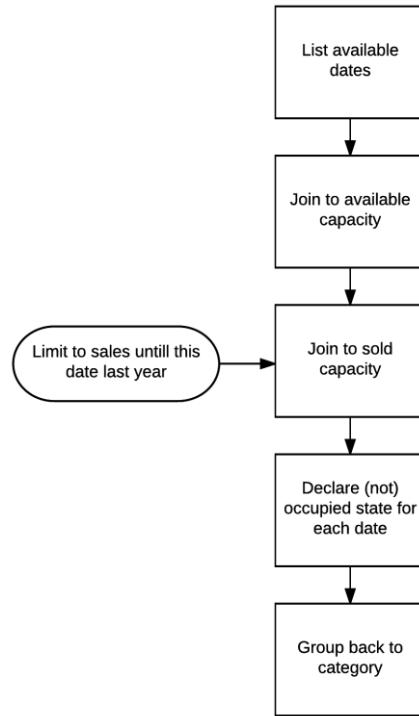


Figure 10 – Process for determining and comparing occupancy rates.

### 3.7.4 Group back to category

Availability can then be collapsed (grouped) back into its main category to determine an overall occupancy rate. In line with previously given examples, the category could consist of a hotel in chain of hotels or a certain skillset for employment agencies.

The gathered data set can be plotted as in figure 11 to achieve insights into the current progression of the season. For this comparison, there is no need to normalize the data using the definition for *fiscal weeks*, as the businesses seasonal effects ensure that calendar weeks as per ISO 8601 can be used directly. In figure 11, the current occupancy rate is plotted against the level on this day last year, as well as last year's total.

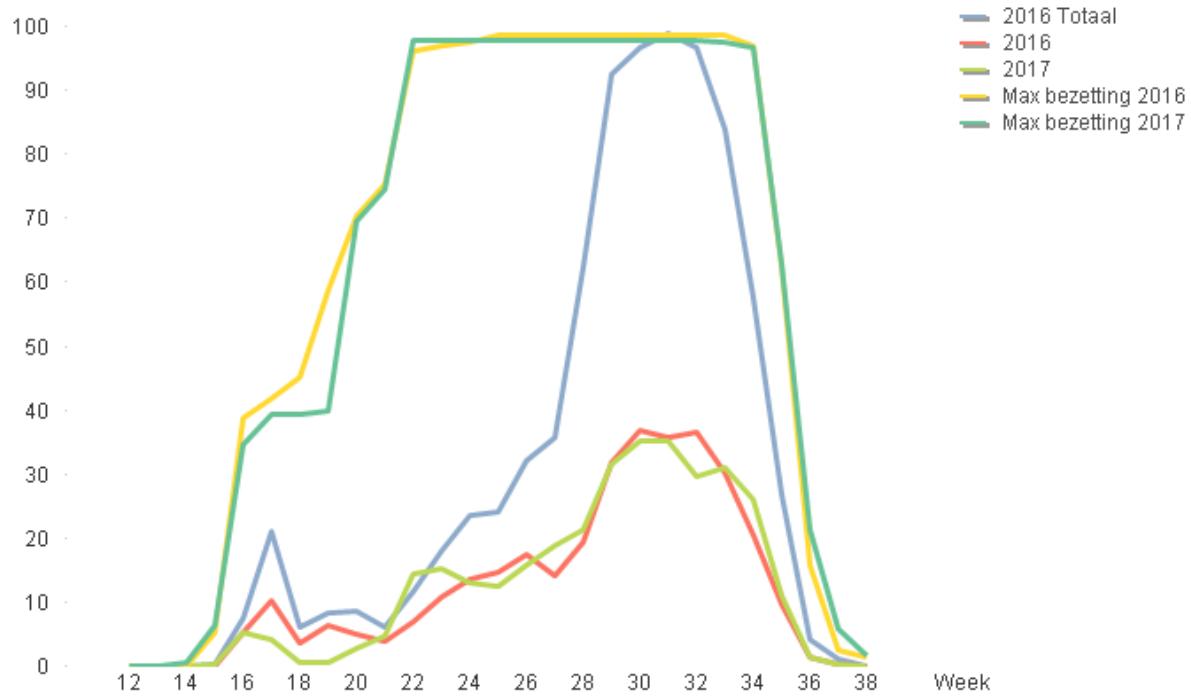


Figure 11 – Plot of occupancy rates

If occupancy in the high season were to have progressed considerably above the current stance last year, there is less capacity left to sell and it is unlikely that sales will progress in the same curve they did last year.

## 4 Implementation of a Cash Flow Projection

Based on the proposed methodology, a reference implementation was created within the sample company to test the model's validity. This chapter describes the procedures required to create the individual modules within the model, and transforms the concepts from the 'Methods' section into processes within a cash flow forecasting system.

The conceptual logic for the cash flow forecast based on accumulated percentages of the total annual cash flow, as well as the integration requirements of the model for commitment registration were developed and generalized into a set of procedures that is applicable for seasonal businesses across industries.

To describe a broadly applicable model, all infrastructure within this study's sample company was generalized away into database views<sup>2</sup>. A prototype implementation of the proposed commitment registration model was created. To create a fully useful model for Rent-a-Tent, some business specific properties were added, most of which served as modifiers towards the registered amounts. These properties aren't relevant for a broader audience or other industries, and including them in a reference model for implementation of a cash flow forecasting system in small companies would not be helpful.

This information was thus abstracted and processed in steps outside the model described in the following sections. The resulting abstraction leaves a 'clean' data model that is applicable to virtually any seasonal industry. Other companies attempting to implement a cash flow system based on this research would follow the same approach: implement any needed business-specific logic, then flatten it for final processing and the generation of a forecast. This multi-stage approach keeps most of the model broadly applicable and reusable.

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<sup>2</sup> A database view can be described as a 'virtual table' that pulls together data from any number of other tables and reorganizes it into a new overview of data. Creating views is a valuable tool for abstracting business logic into a logically query-able model, as it allows for re-naming, grouping and segmenting data.

## 4.1 Generation of percentages per week

The pseudo SQL in figure 12 is a generalized expression that is used to generate a list of percentages of total cash flow per week. This expression is re-usable across industries, as it maps expected payments to the standardized ‘fiscal week’. The payment records for Rent-a-Tent have been abstracted into a database view (‘*PaymentTerms*’) that contains the payment amounts as well as the fiscal week and year. For convenience, a table (‘*Dates*’) containing all dates and corresponding fiscal weeks between 2012 and 2018 has been generated.

The expression groups these dates into weeks, forming a baseline list to *join* payment terms against. This baseline prevents errors by preventing weeks in which there are no payments are planned to fall out of the final report. The list is extended by *left joining* a sum of all payment amounts per week, as well as by the total per year. The collected data allows for calculating the weekly percentages, forming a table we’ll call ‘*PercentagesPerWeek*’.

```
INSERT INTO PercentagesPerWeek

SELECT
    fiscalWeek,
    fiscalYear,
    IF(amount, amount, 0) AS amount,
    100 * (IF(amount, amount, 0) / total) AS percentage

FROM (
    SELECT
        fiscalWeek,
        fiscalYear
    FROM Dates
    GROUP BY
        fiscalWeek,
        fiscalYear
) AS D

LEFT JOIN (
    SELECT
        fiscalWeek,
        fiscalYear,
        SUM(amount) AS amount
    FROM PaymentTerms
    GROUP BY
        fiscalWeek,
        fiscalYear
) AS a

ON D.fiscalWeek = a.fiscalWeek AND D.fiscalYear = a.fiscalYear

JOIN (
    SELECT
        fiscalYear,
        SUM(amount) AS total
    FROM PaymentTerms
    GROUP BY
        fiscalYear
) AS b

ON b.fiscalYear = D.fiscalYear

ORDER BY
    fiscalYear,
    fiscalWeek;
```

Figure 12 – Generalized expression to gather weekly payments are a percentage of an annual total.

## 4.2 Creating a prediction for a new year

Based on the comparisons and validations in the ‘income forecast’ section, the ‘PercentagesPerWeek’ table can be extended to include a prediction for the current or upcoming year. An industry broad generalization of the expression used in this study is included in figure 13. A ‘TrendAdaptionFunction’ is defined that uses information from industry-wide as well as business-specific trends to forecast the cash flow progression in the targeted year.

It is imperative to keep in mind that the prediction is *not* a direct cash or revenue prediction: a trend line is established based on a transformation to a percentage domain. Business management is not providing monthly or weekly sales numbers, but rather a prediction whether sales or capacity will happen sooner, later or similar to prior years.

```
INSERT INTO PercentagesPerWeek

SELECT
    fiscalWeek,
    '2017-predict' AS fiscalYear,
    TrendAdaptionFunction(percentage, fiscalWeek) AS percentage

FROM PercentagesPerWeek

WHERE fiscalYear = '2016'

ORDER BY fiscalWeek;
```

Figure 13 – Generalization of expression to generate percentage based forecast.

The expression used in the prediction for Rent-a-Tent implements the previously established hypothesis that payments will, in general, be made one week later than in the previous year. This hypothesis can obviously not continue to be true in to the future indefinitely: a new hypothesis must be established on a yearly basis. Figure 14 shows a ‘TrendAdaptionFunction’ that moves the percentages for 2016 into the next week for 2017. A small manual correction was made to account for the issues observed in the ‘Income forecast’ section.

```
INSERT INTO PercentagesPerWeek

SELECT
    IF(fiscalWeek + 1 = 53, 1, fiscalWeek + 1) AS fiscalWeek,
    '2017-predict' AS fiscalYear,
    percentage

FROM PercentagesPerWeek

WHERE fiscalYear = '2016'

ORDER BY fiscalWeek;
```

Figure 14 – Specific implementation of Figure 13 at Rent-a-Tent.

### 4.3 Extrapolating weekly cash flows based on current data

Based on the data collected in the previous section, a prediction can be made for weekly revenue based on extrapolation of data for the current week. The set of annotated expressions in figure 15 show the predictions that can be made, as well as the equivalent values based on last year's result. A comparison of the predicted values for this year, those for last year, and last year's actual result allows for validation of the model's prediction. For example: if the applied '*TrendAdaptionFunction*' forecasts an accumulated percentage of 50 in fiscal week 30, but week 30 in the previous year only represented 30% of final revenues, a correction may be required.

```
/* Cash flow up to this fiscal week */
SELECT SUM(amount) FROM PercentagesPerWeek WHERE fiscalWeek <
FiscalWeek(now()) AND fiscalYear = '2017' AS received_2017

/* Accumulated percentages up to this fiscal week */
SELECT SUM(pct) FROM PercentagesPerWeek WHERE fiscalWeek < FiscalWeek(now())
AND fiscalYear = '2017-predict' AS pct_prediction_2017

/* Cash flow up to this fiscal week, extrapolated to predict final revenue */
SELECT received_2017 / pct_prediction_2017 * 100 AS predition_2017

/* Cash flow last year, up to this fiscal week */
SELECT SUM(amount) FROM PercentagesPerWeek WHERE fiscalWeek <
FiscalWeek(now()) AND fiscalYear = '2016' AS received_2016

/* Predicted percentage of revenue for last year, up to this fiscal week */
SELECT SUM(pct) FROM PercentagesPerWeek WHERE fiscalWeek < FiscalWeek(now())
AND fiscalYear = '2016-predict' AS pct_prediction_2016

/* Actual percentage of last year's final revenue, up to this fiscal week */
SELECT SUM(pct) FROM PercentagesPerWeek WHERE fiscalWeek < FiscalWeek(now())
AND fiscalYear = '2016' AS pct_real_2016

/* Extrapolation for last year's final revenue, based on data up to this
fiscal week */
SELECT received_2016 / pct_prediction_2016 * 100 AS predition_2016

/* Total acquired revenue (but not cashflow) up to this fiscal week */
SELECT SUM(amount) FROM PercentagesPerWeek WHERE fiscalYear = '2017' AS
current_2017

/* Total acquired revenue for last year, up to this fiscal week */
SELECT SUM(amount) FROM PaymentTerms WHERE fiscalYear = '2016' AND
FiscalWeek(create_date) < FiscalWeek(now()) AS current_2016

/* Total revenue for last year */
SELECT SUM(amount) FROM PercentagesPerWeek WHERE fiscalYear = '2016' AS
final_2016
```

Figure 15 – Expressions that allow extrapolation of the model predictions and validation of the results

#### 4.4 Defining a distribution for variable costs

While the organization's fixed costs have been registered in the standardized commitment model, the variable costs that result from income, such as taxes, must be accounted for based on the data generated in the income forecast. To this end, a matrix '*VariableCostDistribution*' can be defined that derives expected variable costs based on predicted final revenue. Table 3 shows the matrix used in the proposed model.

Column	Type	Description
<b>Ledger</b>	Foreign key	Like the commitment model, the distribution matrix is based on the ledgers used in the company in order to ensure interoperability with the accounting system.
<b>Share</b>	Decimal	Define the share of revenue that this part of the matrix applies to.
<b>Multiplier</b>	Decimal	Define the variable costs that result from this share of revenue in the matrix.

Table 3 – Matrix for definition of variable costs based on revenue

Based on the financial accounting, as well as the prediction for tour operator revenue made in the section 'Predicting tour operator revenue', the matrix displayed in table 4 was established for Rent-a-Tent. Total taxes for tour operator revenue are stated twice: this money is received from the tour operators, then paid forward. Both transactions must be accounted for.

Ledger	Share	Multiplier
<b>Local tax to be paid on private revenue</b>	2	100
<b>Customer insurance to be paid</b>	1	100
<b>VAT 6%</b>	82	6
<b>VAT 21%</b>	3	21
<b>To be paid partners</b>	12	100
<b>To be received from tour operator</b>	35	79
<b>Local tax to be paid on tour operator revenue</b>	35	-1.6
<b>Local tax to be received on tour operator revenue</b>	35	1.6

Table 4 – Variable cost matrix for Rent-a-Tent

Using this matrix and the predicted final revenue ('*prediction\_2017*' from figure 15), an expression can be defined to derive a prediction for the variable costs resulting from the predicted revenue.

```

SELECT
    description,
    (multiplier / 100) * (share / 100) * prediction_2017 AS expected_amount
FROM VariableCostDistribution
  
```

Figure 16 – Deriving variable costs from predicted revenue using the '*VariableCostDistribution*' matrix

#### 4.5 Implementation of the conceptual model for commitment registration

The model for commitment registration proposed in this research was implemented to test its feasibility and applicability within small seasonal businesses.

Figure 17 shows a wireframe for the user interface of the commitment registration system as it was prototyped. The registration system displays payment information for the contracted party, which is synchronized with the financial accounting system. The left side of the control shows the contracts for the currently selected party. Depending on the type of partner, the columns in the application can change to only show the relevant information and options (commission, for example, isn't always applicable). The right side of the panel shows the terms that belong to the selected contract. The *paid* state and the date of payment are pulled in from the financial accounting system. If a term is not yet paid, an expected payment date can be entered that allows the cash flow forecasting system to accurately place the payment correctly on a timeline.

Name	Year ▾	Contract State	Taxation Style	Commission Style	Ledger	Term Date	Amount	Paid	Date paid /expected
Pitch Fees	2017	Final	No VAT	No Commission	Pitch Fees Europe	2017-05-03	€2500	<input checked="" type="checkbox"/>	2017-05-02
Pitch Fees	2016	Processed	No VAT	No Commission	Pitch Fees Europe	2017-06-03	€2500	<input checked="" type="checkbox"/>	2017-06-07
						2017-07-03	€5000	<input checked="" type="checkbox"/>	2017-07-01
						2017-08-03	€7500	<input type="checkbox"/>	2017-08-15
						2017-09-03	€10000	<input type="checkbox"/>	

Figure 17 – Wireframe of a user application for entry of commitments

The developed interface allows entry and management of all data regarding payments. It was designed as a drop-in module that can be easily integrated by adding a foreign key<sup>3</sup> to a (My-)SQL database table, and configuring which columns are relevant for the newly bound entity. To give an example of the applicability of this model in practice, this structural design allowed the prototype to be deployed for a variety of process entities within the researched company, including campsites, storage facilities, sales channels, purchase channels, and maintenance crews.

There is no need to register every single expense in this system: purchases for relatively small amounts that do not significantly influence cash flow can be handled by financial accounting only.

<sup>3</sup> A foreign key is a field in a database table that uniquely identifies an entity in another table.

## 4.6 Comparing expected costs to prognoses

Based on the expression from figure 16 defined in the previous section, a comparison can be made between expected costs and payment dates that have been registered in the commitment system. This step is crucial: any projected cash flow curve that does not account for all costs will be inaccurate and thus unusable. Figure 18 combines the expression from figure 16 with the current totals booked for the ledgers in the ‘*VariableCostDistribution*’ matrix, resulting in a table containing the ledger, the amount to be expected based on the predicted total revenue, and the amount currently registered on that ledger in the commitment system. The entries from the commitment registration system are aggregated into a database view ‘*Commitments*’.

```
SELECT
    ledger,
    expectedAmount,
    bookedAmount

FROM (
    SELECT
        ledger,
        SUM((multiplier / 100) * (share / 100) * prediction_2017)
            AS expectedAmount
    FROM VariableCostDistribution
    GROUP BY
        ledger
) a

JOIN (
    SELECT
        ledger,
        SUM(amount) AS bookedAmount
    FROM Commitments
    WHERE
        fiscalYear = 2017
    GROUP BY
        ledger
) b

ON a.ledger = b.ledger
```

Figure 18 – Combining Figure 16 with current commitments for a ledger

## 4.7 Combining the parts of the model

With the individual parts established, a full view of a model for predicting and managing cash flows in small seasonal businesses can be presented.

At the core of the proposed model are the '*TrendAdaptionFunction*', which is the foundation for the predictive system based on accumulative percentages of cash flow throughout the year, and the '*VariableCostDistribution*' matrix, which establishes the expected mapping between receivables and resulting expenses. Figure 19 shows how these methods fit together with the conceptual model for the registration of commitments in a company.

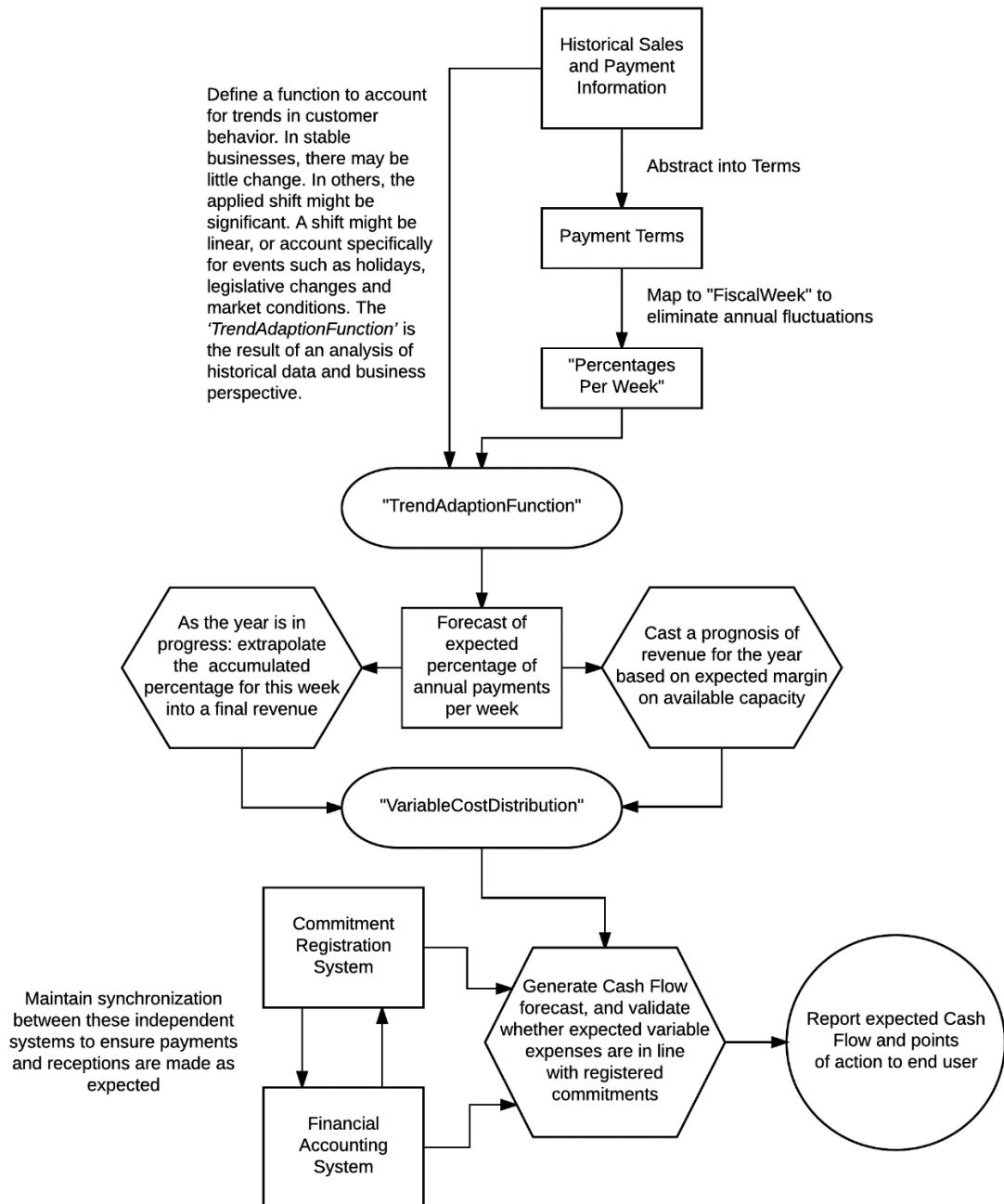


Figure 19 –The proposed model for prediction and management of cash flows in small seasonal businesses.

## 4.8 Applying the model to generate a cash flow forecast

With a full outline of the proposed model for the creation of a cash flow forecast in small season companies, the model can be applied to the sample company.

### 4.8.1 Credit/Debit Cash Flow graph

Figure 20 shows a cash flow prediction for an entire year. The red line represents all credit transactions registered in the commitment system, as well as the expected revenue from the sales forecast. The green line represents the debit transactions from the registration system, which also contains any expected payments of variable costs resulting from the sales forecast. This graph was generated based on randomly generated test data<sup>4</sup> to protect the commercial interests of the company that served as the research sample. The resulting graph shows a company that has a large amount of ‘negative’ cash during the season that will have to be supported by (external) financing. When such a situation is considered at the start of a season, a company’s management should have a thorough look at its strategy and make any required changes, such as attempting to eliminate costs.

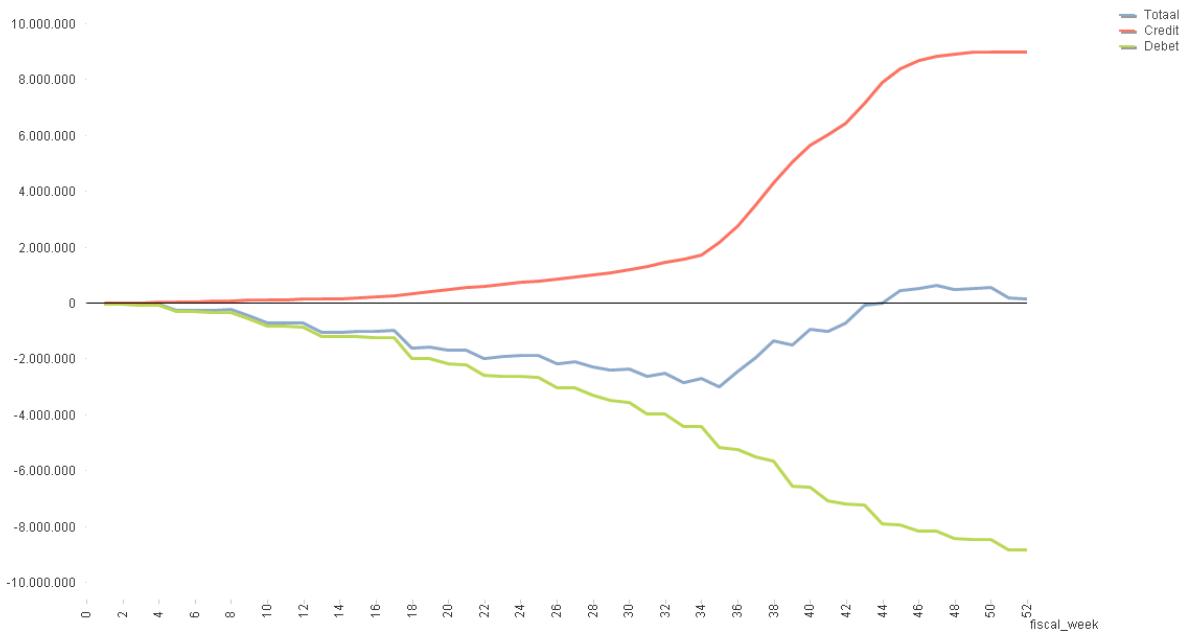


Figure 20 – A cash flow forecast using the proposed model, generated for a set of mock-data.

### 4.8.2 Current cash flow registration

Other than the final cash flow prediction, the system needs to give the end user insight into the underlying mechanics. To such an extent, the current cash payments registered in the accumulated percentage model should be compared against the prediction that was made on historical data.

By adding this graph, as displayed in figure 21, to the cash flow reporting, the end user can validate whether the data reported by the cash flow prediction system still follows reality. Only data up to the vertical line marking ‘today’ is final: cash flow from further sales is yet to be registered.

<sup>4</sup> Data was generated using Mockaroo (<https://mockaroo.com/>), a service for generating “realistic” test data.

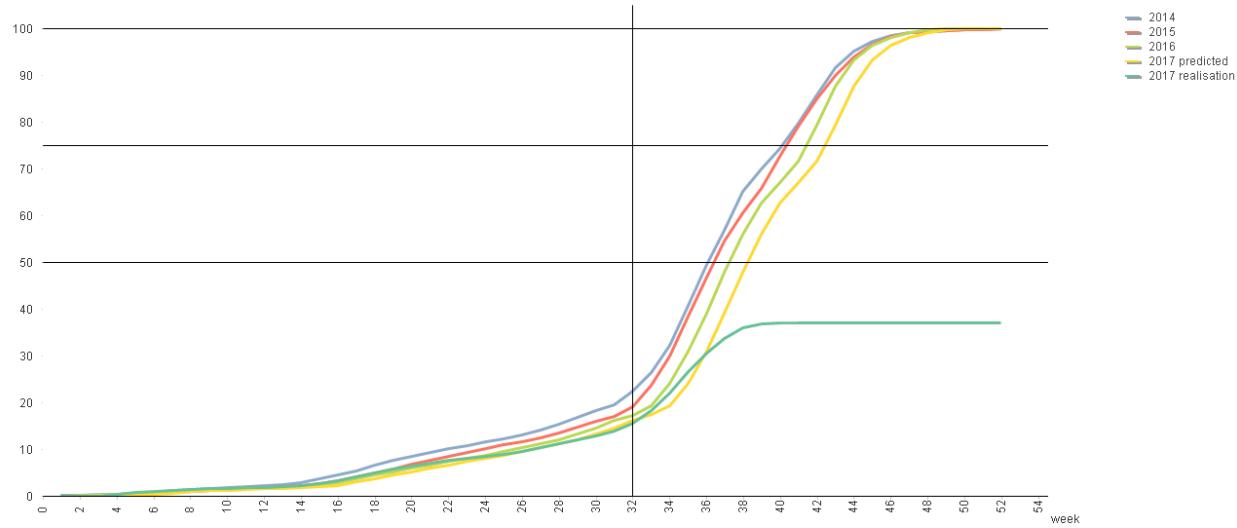


Figure 21 – Realization of currently registered cash flow versus prediction

#### 4.8.3 Comparison of prognosis to reality

While the comparison of the current income against the prediction offers insight into the credit side of the balance, this leaves the debit side unattended. To provide insights into this side of the equation, a comparison between the prognosis up to the current week and the currently registered costs in the financial accounting system should be made. Figure 22 presents a wireframe of the user interface for this part of the prognosis report. This table contains all ledgers that have transactions in the financial accounting system, regardless whether they have been equipped with a prognosis. This allows any oversights in the initial prognosis to be noticed and corrected.

The comparison also contains, in the ‘total amount’ column, all variable costs that result from the income forecast. This allows the end user(s) of the system to continuously allot budget for these costs as the prediction or realized revenues change.

Prognosis Comparison		
Ledger	Amount per prognosis	Total amount
Pitch fees	€7500000	€7610241
Local Taxes	€200000	€198560
Rent	€125000	€125000
***	***	***

Figure 22 – Wireframe of the user interface comparing the current prognosis to the registered costs in the financial accounting system.

## 5 Discussion

In this research, we establish that prediction of cash flow based on historical revenues is not reliable enough for small companies with relatively heavily fluctuating statistics. As an alternative method, we've introduced a method using an accumulated percentage of total revenue to estimated cash flow. The model is fed by historical data, as well as an estimated or derived trend for payment behavior. The prediction model was validated using data for the years 2012 to 2015 to generate a prediction. A non-adjusted version of the prediction algorithm managed to predict cash flow in 2016 accurately, correlating at  $r = 98$  to the actual data. While this method does not "magically" provide an accurate prediction for weekly receivables, the transformation into the accumulated percentage domain acts as an error adjustment.

Additionally, we've introduced a conceptual model for registration of commitments in a small to medium sized company. This model attempts to capture the realities of small businesses by registering the expenses from every department of the company. The model offers a layer of abstraction between business processes and management of payments. With such an approach, this model could be broadly applied across industries. The suggested model for commitment registration is a high-level abstraction: It doesn't need to be literally implemented, as long as the core principle of adhering to the same ledgers as the accounting system is maintained.

This adherence to a company-wide standard of categorizing expenses allows for utilization by various departments in the company, such as accounting and marketing. An additional benefit of this centralization is that it introduces verifiability: registered commitments can be compared to the reality of the accounting system. A cash flow prediction that does not include all actual expenses loses synchronicity with reality and becomes useless.

There is a large human aspect to this process. The accounting system serves as the "truth" in a company, both to determine a profit and loss statement internally as for the justification to the revenue service. As such, actual expenses will certainly be entered and processed by the accounting system, while entry into a predictive system is much less guaranteed. The cooperation of various managers in the company must be sought to ensure everyone follows the two fundamentals of a new process. First, any new commitment should be registered as soon as any notion of an amount or date is known. This allows the company to immediately adapt its cash flow management to the newly expected expense. If the payment date or the cash amount of this commitment shifts in time, or negotiation of the contract falls through all together, the adaption can be repeated. This additional registration makes sure two independently acting processes do not agree to mutually impossible payment conditions. It is naive to think such a shift in behavior will be immediate: any new system will first have to prove its worth. A cash flow management system can prove its worth by smoothing operations in a cash-strapped company, preventing overdue payments, frustrated calls by suppliers and other unpleasantness that can stem from cash flow issues. Second, before agreeing to a new purchase or committing to a contract, a manager should check the cash flow position at the purchasing moment, and consider shifting the new or other payments well before they are due, rather than at the last moment.

A better insight in the predicted cash flow of a seasonal business can help attract new forms of financing. A visualization of temporary cash needs allows a potential financer to gain better insight into the dynamics of the company, as confirmed by an interview with regional managers of ING bank.

To validate a cash flow prognosis that is based on historical data, a provision must be made to ensure the current situation has not changed significantly compared to the past. To that end, we propose an independent validation mechanism: a comparison of occupancy rate. Comparing occupancy rates aids in validating that a company has not gained a lead on the previous year by selling out much more quickly, for example by offering unsustainably high discounts. Likewise, if revenue from sales is behind compared to previous years, the occupancy rate tooling can help ensure capacity was not sold at too low a price.

Research within larger companies offer a valuable foundation for cash flow prediction in smaller businesses. Kenley and Wilson show that there is no standard cash flow curve that holds true between companies, meaning every company must find its specific curve to base forecasts on. Daley's step based model for plotting cash flows proved useful within the expenses section. While income is not fixed, but rather based on day to day decisions of customers, expenses are determined earlier and lie under control of the company. Income is thus better plotted as a curve, carrying a certain degree of uncertainty, while a visualization of expenses is clearer when projected as a step function.

From the results of this study, answers to the initial research questions can be formulated.

***What data points and processes do seasonal SMEs require to create an accurate and actionable cash flow projection?***

The data points required to create a cash flow project fall in two basic categories: income and expenses. On the income side, a company needs to have accurate historical records of its progression of cash flow. As shown in this study, revenue in small seasonal companies is not a stable enough data point to base a prediction on, nor are payments when they are solely considered as cash transactions. Instead, historical payments should be transformed into a domain of accumulating percentages, abstracting changes in strategy and product mix that occur year over year. On the expenses side, a canonical method of registering commitments and prognoses throughout the company that is useable by all departments is needed. This is particularly important: if a segment of expenses is missing, a cash flow prediction generated by an automated system will be incorrect and thus have little value.

On the process side, a company needs to organize its operations in such a way that cash flow is considered before making financial commitments. The management of a business should strive to involve everyone in the company with the operations purchasing process, promoting the benefits of interdepartmental discussion regarding payment terms. This enables a company to plan expenses with due consideration for the company's liquidity position. All departments in a company should register commitments or expected purchases as early as possible to enable others in the company to consider their information. Before making agreements that have large financial consequences, people need to look at the current state of the cash flow curve before planning expenses in a certain week. Top management needs to use the forecast to direct operational staff to move expenses to moments that fit within the company's liquidity, as well as making sure to attract outside financing when any negative cash moments are predicted.

***What data sources regarding cash flow are available within a small seasonal business?***

As companies are legally forced to maintain a proper financial accounting, data on expenses and incomes are commonly available. This was confirmed by the situation within the studied company, as

well as by interviews with financers. Their answers can be considered reliable: they constantly request such information when assessing whether to loan a company money or not. To enable efficient and correct communication between systems and processes, businesses need to center their data on a company-wide standard of costing. As the use of financial accounting software is all but required by the Dutch revenue service (Belastingdienst, 2017), it is a reasonable expectation to assume its presence. As such, using such software as a starting point for designing a cash flow forecasting system is a logical step. Financial accounting systems base their registration around ledgers, which is a well solidified concept that can be built on. By basing expense and income predictions on the same (or a subset of) ledgers, a clear overview can be maintained.

Apart from financial accounting, the most important 'data sources' are company's employees: often, plans and preliminary contracts are locked within the minds (or email-inboxes, for that matter) of department leaders. This data should be extracted and centralized, so a low friction software solution must be designed. It is important to make sure this solution offers something 'in return' for entry of data, in order to entice managers to actually use it. In the prototype developed for the sample company, this enticement came from synchronization with financial accounting. Automatic and correct re-processing and booking of contracts as they are finalized offers a significant reduction of a rather mundane subset of administrative duties, and was embraced surprisingly easily. Such easy adaption may not be the case in every company; care should be taken to involve impacted employees in transactions to such systems to prevent it from being dismissed.

***How can cash flow information be presented to purchasing, advertising and sales departments to influence their operations in an effective way?***

The implementation of the proposed model for the sample company in this study contains two different subsystems: a management module for registration of financial commitments, and a forecasting module that combined a generated income forecast and the registered commitments into a graphical report. The reporting is split in three modules that serve different segments of the company. The first is the overall cash flow curve. This curve, based on an addition/subtraction of the debit and credit curves in the company, shows where any potential 'negative cash' situations occur. The second graph provided is the current realization of cash flow, compared to history and the prediction for the current year. This tooling aids in validating the results of the cash flow forecast, and ensures end users do not overestimate the cash flow available should the company underperform. Additionally, if the company is performing above expectations, payments could be moved forward to attract a discount or avoid interest on loans or bank funds. For example, in Denmark, where interest rates are currently negative, holding cash can be a disadvantage (Campbell & Levring, 2016). Finally, a table containing currently expected variable costs and revenues is compared to the prognoses entered. This allows a company's management to ensure they are not 'forgetting' about upcoming expenses that originate from sales.

***What are the requirements for an actionable representation of cash flows over time?***

In order for the results of the cash flow forecast to be actionable, it needs to offer discussion points and insights to end users. The comparison table in the prognosis proved a valuable tool within the sample company, as it allowed the company's management to better forecast when expenses and income can be expected. For the prognosis to remain actionable, the primary requirement is that it remains accurate. This requires the full width of the company to maintain internal communication about agreements made, potentially increasing syndication between separate departments.

## 6 Conclusion

In this research, we've shown that even in small businesses, it is possible to generate a reliable and actionable real-time cash flow prediction based on data that is already present in the company. Companies must weigh investment in IT projects against real and perceived benefits, so for small companies it is important to reduce the scale of projects. This research and its results have shown that is important to have a strategy for utilizing data and applying it in a way that allows the company to gain additional insights. By providing a framework for transforming existing data in a company into a cash flow forecast that is based on both historical data and realistic expectations about the company's future, small businesses can better organize their cash flow requirements.

The applicability of the proposed model is not limited to companies that have issues managing their liquidity. Interest was also expressed by analysts from an alternative financing company (alternative from bank-based financing historically common in the Netherlands). Their assessment of a company's ability to repay a loan is based mostly on a study of cash flows, rather than a more traditional risk assessment. A standardized and easily implemented model to transform a seasonal company's data into a cash flow and liquidity prognosis can allow companies in supporting industries, such as financing or accountancy to analyze their (potential) partners. In the implementation of the conceptual model by Rent a Tent, the abstraction created in the model between business logic entities and the commitment registration system proved invaluable. Suddenly, all business segments and departments could instantaneously use the contract synchronization features and have insight into the company's ability to pay their envisioned expenses in time. This spurred use of the newly developed software even during the trial and prototyping phases, which in turn offered valuable feedback to the development process. Had every department been individually integrated into the cash flow forecast, the software development burden on the company would undoubtedly have been much larger, while adoption would have been slower.

### 6.1 Limitations

The methodology proposed in this study was tested in a sample company, where it provided very promising results. To verify the broader applicability of the model, a study testing its implementation across industries and company sizes would be valuable. Furthermore, by design the proposed model is aimed at seasonal companies, which is reflected in the model used. Extending the income forecasting side of the model to non-seasonal businesses would likely be non-trivial.

### 6.2 Future work

While this research in its current form has shown that it is possible to create an actionable real-time cash flow prognosis based on sales and purchasing data, there are an abundance of other data sources available in (small) companies. For companies that primarily sell through the internet, visitor tracking software could provide data that could form a valuable addition to the short term predictive ability of the model. Further research could consider extending the model by studying correlation between a company's cash flow and visitor numbers, conversion rates and time-on-website. Additionally, the model could be extended by adding a suggestion system that offers hint on which payments could be most effectively renegotiated to maintain a liquid position. Such an addition would require extension of the data model to include more hints about the commitment relations. Examples of suggestions could be offering discounts for receiving payments earlier, or inversely, decide to accept a penalty for belated contract payments.

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## 8 Appendixes

### 8.1 Appendix A

*Summary of unrecorded interview with Casper Gockel and Niels Jansen of KredietVooruit.nl.*

#### **Hoe is de financieringsvorm van KredietVooruit anders dan die van een traditionele bank?**

Banken zijn heel erg bezig met risicobeheersing, iedereen moet precies zijn balans verantwoorden en aan riskante gevallen kan niet worden uitgeleend. KredietVooruit richt zich veel meer op geldstromen, dus wij vragen: wanneer ontvangt een bedrijf weer geld en wanneer kan het een lening terugbetalen. Voor die periode kan het bedrijf dan geld lenen. Dat is een heel andere manier van kijken dan een traditionele bank gebruikt. Het is voor onze financieringsvorm veel belangrijker om te kijken naar liquiditeit, naar kasstroom en instroom, en hoe er terugbetaald kan worden, dan om te kijken naar schulden en balans etc.

#### **Voor hoe lang kan KredietVooruit ondernemingen financieren?**

We maken gebruik van een afroom-constructie op basis van pinautomaten, waar er van elke transactie een bepaald percentage wordt gebruikt om de lening terug te betalen. Sinds kort hanteren we ook een constructie op basis van automatische incasso, waarbij dagelijks een deel wordt geïncasseerd. Voor de kleine drogist is het veel geschikter om betalingen af te romen via zijn pinsysteem, zodat zijn omzet er in betrokken blijft, terwijl voor een wat groter bedrijf met een constanter kasstroom (e.g. Rent-a-Tent) de automatische incasso optie ook wel geschikt is, zeker als er geen pinsysteem gebruikt wordt.

We hanteren nu termijnen van drie tot zes maanden, maar we willen ook negen maanden gaan aanbieden. Als je kijkt naar bedrijven die seizoens-financiering zoeken helpt een lening van zes maanden ze net niet de winter door, die hebben net wat langer nodig. Negen maanden is dan eigenlijk veel geschikter.

#### **Hoe vinden jullie ondernemingen?**

Banken zijn niet meer bereid om bepaalde financieringsvormen te vervullen, ze willen bijvoorbeeld geen voorraadfinanciering meer doen. Dat weten bedrijven inmiddels uit ervaringen, en zij zoeken ook niet meer naar dit type krediet. KredietVooruit moet dus op zoek: dit type klant, hoe vinden en benaderen we die?

We sturen bijvoorbeeld een brochure naar ondernemingen met daarop een bedrag wat we ze kunnen lenen op basis van gegevens van de Kamer van Koophandel. Dat is natuurlijk lang niet genoeg informatie om een correcte voorspelling te geven, dus het bedrag betekent niet echt iets. We zijn op zoek naar een bedrag wat bedrijven triggered, dus niet te weinig, want dan hebben ze geen interesse, en niet te veel, want klinkt het voorstel niet reëel en bovendien kunnen we dat bedrag dan ook niet uitlenen.

#### **Wat zijn de risico's voor deze financieringsvorm?**

Er wordt nu door ieder bedrijf een MT940 aangeleverd, uitgelezen en geanalyseerd, om leningen te bekijken en uitgaven in kaart te brengen. We willen natuurlijk ook voorkomen dat we voor een onderneming een financierings-gat vullen, om ze vervolgens door de terugbetaling opnieuw in de problemen te brengen. Het analyseren van deze gegevens is arbeidsintensief, we willen graag een groter

volume aan leningen uitzetten, maar we moeten dit deel van het proces wel stroomlijnen en automatiseren om dat te kunnen doen.

Het enige waar we bij de klant voor moeten waken is dat er niet ergens een schuld over het hoofd gezien is waar geen rekening mee gehouden wordt, en dat een faillissement wordt aangevraagd, dan hebben we een probleem. Buiten dat zijn we niet zo geïnteresseerd in het vangen van 'boeven' die bijvoorbeeld proberen het systeem te ontduiken door bijvoorbeeld aan te sturen op contante betalingen in plaats van pin (zodat er niet afgeroomd wordt). Dat komt bij onze klanten eigenlijk niet voor. Bij de kleinere bedragen die we uit lenen zijn *defaults* niet zo'n probleem, ook doordat we voor kortere periodes uitlenen en terugbetaling meteen begint.

## 8.2 Appendix B

*Transcript of interview with Dik Wegen, accountmanager for ING Grootbedrijf Zwolle and Justin Rudolf, advisor for ING MKB Hengelo*

**Gersen:** Ik ben met een opdracht bezig om de liquiditeit en met name de cashflow hier wat beter inzichtelijk te maken. Met name door de seizoensinvloeden is dat natuurlijk heel lastig in te zien maken. Als je aan het begin van het seizoen staat: goh, wat gaat er gebeuren. Er is veel literatuur die dit onderzoekt in andere hele seizoensgebonden, hele cyclische bedrijven, met name de constructie industrie, die hebben met veel projectwerk van doen. Daar moet je eerst heel erg de put in voordat je op een gegeven moment weer cash gaat binnen halen. Alleen het onderzoek dat daarnaar gedaan is veel in de echt hele grote bedrijven met projecten van honderden miljoenen. Het ontbreekt daar een beetje aan in de SME's, de kleine/midden bedrijven. Dus daar probeer ik in een gat te springen. Ik ben daar met een dashboarding achtige oplossing bezig. Ik heb met tot nu toe met name gefocust op uitgaven. Hoe leg ik nou over het jaar vast wat ik verwacht uit te geven. En, wie weet dat, van welke mensen moet ik dat vandaan halen. Om dat dan vervolgens te generaliseren naar het gemiddelde bedrijf. Wie moet ik nog gaan vragen, wat geef je dit jaar uit, zodat ik niet ergens een grote uitgave over het hoofd zie die ik niet gepland heb.

**Gersen:** Dat is de ene kant van de medaille, de andere kant is de inkomsten. Omdat ik me dus focus op seizoens-bedrijven, waar de vakantie industrie een goed voorbeeld van is, maar wellicht ook de uitzend industrie. Geld komt op een heel ander moment binnen dan wanneer er kosten gemaakt worden. Ik heb het even afgedrukt, een stukje uit m'n verslag. Dit zijn bijvoorbeeld de seizoens-pieken dat klantbetalingen hier binnenkomen. Dat gaat alleen over de reserveringen die hier gemaakt worden. Dan zie je dat dat enorme pieken zijn. Als je op basis daarvan wil zeggen: wat gaat het in het komende jaar nou worden, dan kom je niet zo ver.

**Wegen:** Dus even voor mijn beeldvorming, dan heb je het hier over weken, denk ik?

**Gersen:** Ja, dat zijn weeknummers. Het begint in 2012. Daar zie je dat je hele piekerige bewegingen hebt, maar je kunt er niet zo snel een trend uit halen. Je kunt niet zeggen, waar beweegt de industrie nou naar toe. Ik heb het wat verder uitgesplitst, bijvoorbeeld hier: dit laat beter zien wat er eigenlijk gebeurd. In dit geval is de blauwe lijn betalingen die in 1 keer gedaan worden, door klanten die echt last minute boeken. De oranje lijn is de restant betaling, je hebt het grijze piekje, dat zijn mensen die een aanbetaling doen, dat is een redelijk constante beweging, terwijl de blauwe lijn oploopt ten koste van de oranje lijn. Dat zie je ook in de volgende grafiek, waarin een gewogen gemiddelde van wanneer de vakanties in Nederland zijn is opgenomen, bouwvak en schoolvakanties. Je ziet dan dat de blauwe lijn steeds meer de groene gaat raken. Een dergelijke dynamiek, denk ik, is wel een goed inzicht in waar het bedrijf naar toe gaat.

**Wegen:** Dit zijn gegevens van vakantieplezier.

**Gersen:** Ja.

**Rudolf:** Dus de trend hier is, er wordt steeds later en steeds korter op de vakantie betaald. De markt wordt grilliger, omdat er steeds een later piekmoment zit. Hoe ga je daar mee om?

**Gersen:** Ik denk dat daar een deelvraag aan jullie ligt, vanuit een bank, als naar een bedrijfsprofiel kijkt en je kijkt hoe je dat gaat financieren, hoe kun je daar mee omgaan. Kun je daar nog mee overweg? Dat

je pas heel erg laat in een seizoen pas weet of het nog goed komt? Is dat voor een bank nog te overzien? Wat jullie normaal gesproken krijgen zijn alleen de financiële resultaten, en die zijn al geweest. Wat wij proberen is een systeem te bouwen wat vooruitkijkt.

**Rudolf:** De trends zijn hier wel uit te halen. De trend is dat er steeds later betaald wordt. In principe zou je veel meer moeten reserveren om in de mindere tijd je cash flow op orde te houden.

**Wegen:** Vanuit puur financiering is het natuurlijk wel ingewikkeld om te zeggen: komt dat moment x, ja of nee? Fingers crossed. We hopen maar dat het op die manier gaat vallen, dus als je kijkt naar bedrijfsmodel, als financier wil je helemaal aan de andere kant van het spectrum zitten. We willen het liefst een stabiele, maandelijks terugkerende omzet in het financieringsmodel dat ook nog het liefst met contracten vast zit en wat we kunnen aantonen op basis van meerdere jaren. dan zijn we even helemaal in de zekerheid geschoten, maar dat is een beetje wat haaks staat op die verhaal. In de basis is het best ingewikkeld om dit qua financiering te doen. Dat dat zo is, is voor de genen hier om tafel geen geheim. Ik ben wel benieuwd, wat zijn KPI's die maken dat je comfort hebt bij het geld dat eventueel nog gaat komen. Welke KPI's zou je kunnen bedenken -en aan een financier verstrekken in dashboard form- die maken dat je een financier comfort kunt geven hoe de gang van zaken is.

**Gersen:** Daar heb ik een begin van een antwoord op. Deze grafiek is een verloop van hoe de omzet binnen gekomen is over de jaren. De blauwe lijn is 2012, uiteindelijk de onderste is 2016. Dit is een accumulatie van het percentage per genormaliseerde week, platgeslagen naar een standaard jaar. Vanaf 2012 is het elk jaar steeds later gekomen. Hiervan is het best lastig te zien wat het effect van die verschuiving is. Je ziet hier dat de 50% lijn tussen 2012 en 2016, het moment dat je 50% van je jaaromzet binnen hebt, steeds verschuift, dat dat maar liefst 12 weken later is. Als ik dat vertaal naar wanneer de klantbetalingen binnen komen, wat mensen die aanbetalen gaan niet alvast aan het begin van het jaar hun hele vakantie betalen. Ze weten ook dat dat enige risico voor zichzelf heeft. Als je kijkt naar wat dat met de klant betaling doet zie je dat dat iets uit vlakt, en uiteindelijk naar een week per jaar verschuift. Ik heb op dit moment een model gemaakt, en als ik dat valideer tegen voorgaande jaren kan ik op basis hiervan verder plotten wat ik verwacht dat die curve gaan doen voor 2017. Dus ik heb de data die ik heb voor 2012-15 losgelaten op een voorspelling voor 2016, en als ik die tegen de daadwerkelijk lijn voor 2016 aanleg zie ik dat dat tot op 98% accuraat is. Met dat gegeven in de hand denk ik dat een goede voorspelling voor 2017 kan doen. Het enige wat ik mis is dat als je in de vakantieweken komt: je kunt niet later betalen dan dat je vakantie begint, dus op een gegeven moment zie je een helling in de grafiek. Dus als je vraagt naar KPI's: een progressielijn is een aardige om mee te beginnen.

**Wegen:** Ja. Hier blijkt het ook uit, je hebt op basis van het verleden voorspeld en met 2016 vergeleken, dus het klopt, zeg maar. Zou je nog andere KPI's - ik vind dit wel een mooie, want je kunt hier een projectie maken van wat je aan kasstroom verwacht in het komende jaar. Kun je daar nog andere KPI's aan koppelen, kasstroom matig?

**Gersen:** Je kunt vanuit statistisch oogpunt redelijk goed vaststellen dat er een sterk verband is tussen de cash flow op dit moment en het uiteindelijke eindresultaat. Als ik nu na 24 weken in mijn seizoen, ik heb nu dit bedrag, dat moet om en nabij dit percentage van het eindbedrag.

**Wegen:** Er vanuit gaande dat het bedrijf zo is zoals het de afgelopen vier jaar in de markt geweest is.

**Gersen:** Mijn kosten kant ligt al vast, en die kun je plotten. Dan is het  $a - b = \text{cash behoeft}$ . Ik ben dus nu al bezig, waar moet ik de kosten vandaan halen, en hoe kan ik de inkomsten voorspellen?

**Rudolf:** Mag ik de vraag stellen, wanneer reserveert men? Betaalt men direct aan als men reserveert of is het reserveren met de optie, ik betaal later.

**Gersen:** We hebben twee typen betaaltermijnen, mensen die echt vroeg boeken doen een aanbetaling direct, en doen dan 8 weken voor vakantie de restant betaling. Dat zie je ook in deze grafiek. De mensen die binnen 8 weken voor vertrek boeken betalen binnen een week hun vakantie. Daar zie je dus dat het effect van mensen die echt 3 dagen voor vakantie boeken, die betalen dus ook pas 3 dagen voor ze op vakantie gaan. Terwijl ze in het verleden tot wel acht weken eerder deden.

**Rudolf:** Als ik kijk naar de data, hoeveel is recurring? Wie komen er allemaal terug. Ik denk dat dat wel een hele goede is. Als jij weet dat die families Jansen en Klaassen in januari boeken, dat die ook terug gaan komen. Als er 60% recurring omzet is kun je daar wel een voorproject starten. Je ziet dan, er vloeit elk jaar 40% af. Waarom is dat zo, dan ga je meer op je data-analyse zitten. Ik denk dat dat voor het verdienmodel een beter voorspelbare waarde is.

**Wegen:** Dan weet je of klanten terugkomen of juist niet.

**Rudolf:** En hoe is de gezinssamenstelling, dan ga je nog veel dieper, wellicht buiten het verdien model, maar dan heb je een idee. Die families met kinderen van een bepaalde leeftijd, laten dit patroon zien, zoeken steeds meer ruimere campings...

**Wegen:** Daar kun je dan je marketing op loslaten.

**Gersen:** Dan zit ik natuurlijk: hoe generaliseer je dat naar het seizoenbedrijf over het algemeen. Het ene bedrijf heeft veel meer vaste klanten dan het andere. De ijsscoboer heeft wellicht veel meer klanten die in die stad of straat wonen die terugkomen. Wellicht kan hij dat wel of niet meten. Maar een ander bedrijfstype zal maar een keer ergens behoeft aan hebben.

**Rudolf:** Ik denk dat zoekgedrag, op jullie website, als je nu een piek hebt in januari, als je mensen nu kunt volgen, en je weet dat die uiteindelijk gaan boeken, kun je die dan een tool geven waardoor ze nu alvast gaan betalen, of wellicht in termijnen te gaan betalen zodat je vroegtijdig je cashflow op gang krijgt. Je kunt dus een lijn opzetten: hoeveel mensen zijn er recurring, en hoe is hun zoekgedrag.

**Gersen:** En kun je hun betalingen niet naar voren halen.

**Wegen:** Ik weet niet hoe je dat generalistisch haalbaar maakt. Dit zal sector gericht afwijken. Zeker bij internet bedrijven kun je zeker zien, wie is je klant, wat voor gedrag vertoont die. Je zou het wel kunnen koppelen aan meerdere bedrijven.

**Rudolf:** KPI's, wat is je conversie? Die zou natuurlijk perfect zijn.

**Wegen:** hoeveel mensen, kijken, en hoeveel sluiten aan.

**Gersen:** Deze plots zijn natuurlijk historische betalingen, maar je kunt ook kijken, wat veroorzaakt nou dat ik deze betalingen ook echt ga registreren. En dan kom je uit aan de andere kant.

**Wegen:** Precies, stel dat je kijkt naar je financiering, als je kunt zeggen dat je op basis van historische gegevens komen m'n inkomsten er ongeveer zo uit te zien. Nou, leuk, zeggen wij dan als bank. We

geloven je ook nog. Maar hoe krijgen wij dan toch grip op wat op dit moment gaande is. De markt waar vakantieplezier zit is best wel een dynamische markt. Je kunt er niet helemaal gevoel achter krijgen dat de afgelopen jaren representatief zijn voor vandaag. Dus wij zullen altijd KPI's blijven bevragen. Dan kom je op dit soort thema's uit. Als je er ook aan kunt toevoegen dat je een aantal jaren achtereenvolgens, recurring, zoekgedrag, conversie, hebt. Als je die ervaring opbouwt kun je aan een aantal knoppen wel zien, het gaat ongeveer die kant op. Dat zou zeker heel verhelderend zijn.

**Rudolf:** Ik denk dat het zeker de moeite waard is dat te onderzoeken, dat datagedrag. Dat is bepalend voor je resultaat. Hoe vaak kun je die ene boeker aan je koppelen. Als er iemand tevreden is over jullie dienstverlening, hoe vaak komt ie dan terug? Boekt ie in het voorjaar, in het najaar? Als je dat in beeld hebt kun je je verdien model weer aanpassen.

**Wegen:** Ik denk dat daar enorme waarde voor de financier zit. Maar puur ook als waarde voor je bedrijf. Als je als bedrijf inzichtelijk hebt wat je klantgedrag, zoekgedrag is en wat het effect is op je betaalgedrag dan ben je wel behoorlijk in control ook al heb je een seizoenbedrijf. Dan vind ik het als bankier nog steeds lastig dat ik niet weet of dat geld op moment X wel of niet binnen komt, maar zijn wel al een stuk verder dan dat je nu nog in een black box kijkt.

**Gersen:** Ik denk wel dat ik inmiddels kan zeggen: je kiest liever, als je de keuze hebt, om een bedrijf te financieren dat een simpele rechte lijn heeft over het hele seizoen dan echt een golf. Maar wat voor type gegeven, je hebt een aantal bedrijfsspecifieke gegevens genoemd, maar welk type statistiek of, misschien helemaal geen statistiek maar juist praktische KPI's. Is er op een geven moment nog wel genoeg data aan te dragen om je toch nog te overtuigen? Of is een seizoenbedrijf toch te moeilijk, zodat het geen zin meer heeft?

**Wegen:** Dat zit hem heel erg in: je kunt recurring op twee manieren uitleggen, op basis van contract: dat is de meest zekere vorm. dan praat je over een patroon, het liefst nog gespreid, zodat je niet alle risico's hebt op 1 moment. En als financier kijken we ook naar 'recurring by nature', dus hoe is het over de jaren heen gegaan met dit bedrijf, en onderliggend met klantgroepen en gedrag. Dan heb je een redelijke mate van een voorspelling. Maar jou vraag: is dat overtuigend genoeg? Dat vind ik vooral helpend. Op het moment dat je dat in beeld hebt vind ik dat goed voor het bedrijf. Vind ik dat overtuigend, dat is ook afhankelijk van wat er op dit moment in de markt gaande is. We hebben ook te maken met grote consolidatieslagen, prijs vechten, met heel veel druk van grotere partijen. Hoe is die ontwikkeling. Los van het feit dat je op basis van historie een lijn kunt trekken naar de toekomst. Dat is geen rechte lijn, dat blijkt wel, maar wel een patroon. Dat is mooi, maar wel maar 1 dimensie van een beoordeling van een financiering. Op het moment dat je die dimensie hebt, zitten daar ook andere facetten in? Dan zeg ik ja, want we zien ook de consolidatieslagen in de markt toenemen. Dat er bedrijven enorm investeren in marketing waar een klein bedrijf bijna niet tegenop kan. En als dat met groot geweld gaat, weet ik niet of het patroon dat je schetst wel echt gaat gebeuren. Het blijft een voorspelling. Het dubbele van bankier zijn is: We vragen om prognoses, en daar vragen we ook op door. Als je geen prognose hebt vragen we om een prognose, en als je een prognose hebt: het is maar een prognose. We willen vooral trackrecord hebben. Een prognose is nooit overtuigend genoeg, het is een totaalplaatje. De meerdere dimensies maken of het overtuigend is, maar dit is wel een mooie.

**Gersen:** Als je een industrie breed belangrijkste meetpunt zou moeten noemen, zou je dan zeggen de recurring klant?

**Wegen:** Dat is wel een hele belangrijke.

**Rudolf:** Natuurlijk ook het aantal boekingen. Wat is het gemiddelde bedrag van een boeking, gaat dat om hoog? Voor mij is data-analyse essentieel voor een bedrijf als dat van jullie. Hoeveel boekingen hebben jullie per jaar.

**Gersen:** 10000, om en nabij.

**Rufolf:** Dus 10000 klanten, die zijn enorm geld waard, als je die inzichtelijk hebt. Als je dat in beeld hebt, en je kunt ook zien wat de historie is van een klant, dan heb je wel een heel inzichtelijk model, ook als bank. Dit heb ik aan data, dit komt er aan omzet uit. Wat kunnen jullie hiermee doen. Als bank moeten wij cijfermatig sturen. Als jij kunt overtuigen dat 60% van klanten terugkomt, is dat wel van belang.

**Wegen:** Als je dat inzichtelijk maakt, een taartdiagram, de doelgroep is 30-35+ met jonge kinderen, en dat stijgt langzamerhand door, dan heb je het helemaal in beeld. Daar kijken we steeds meer naar, recurring by contract, maar ook recurring by nature. Stel nou dat je straks inzichtelijk hebt dat je een bestaande klantengroep hebt, en dat die door de jaren heen groter is geworden in de afname. Dat is een andere trend dan dat je zegt: ik moet elk jaar zoveel nieuwe dingen zien te realiseren om maar aan dezelfde omzet te kunnen komen. Dat zijn allemaal inzichten die belangrijk zijn bij het beoordelen van financiering.

**Gersen:** Hoe zou je dat aanleggen tegen industrie brede cijfers? Dus bijvoorbeeld een ANVR, als die zeggen: het wordt minder, mensen gaan elk jaar wat anders doen. Zou je dat dan meenemen, of zou je dat een bedrijf zelf aanrekenen? Is het per definitie een negatieve trend als je ziet dat het minder vaste klanten worden?

**Wegen:** We zetten een markttrend tegen een bedrijfstrend aan, en als de bedrijfstrend anders is dan de markttrend hebben we in ieder geval een gesprek. Of het nou positief of negatief is. En als het positief is, wat maakt nou dat jij een uniek aanbod van producten hebt waardoor die mensen wel terugkomen. Uiteindelijk zijn cijfers ook niet anders, maar het geeft wel gespreksstof. Op die manier gaan we er mee om, met die data. Met name op het gebied van data-analyse zou je deze nog kunnen uitwerken. Nog 1 ding dan nog: is het overtuigend genoeg voor financiering, dan hebben we het over 1 dimensie, niet over alle. De ene dimensie van het voorspellende karakter vind ik wel een mooie.

**Gersen:** Dat zal dan gelden voor alle data punten die je aan kunt dragen? Als je een trend kunt laten zijn. Je begon er mee: cyclisch past niet in bancair.

**Wegen:** Dat ik inderdaad zwart wit neergezet, om het scherp te maken, natuurlijk zitten wij ook in seizoenbedrijven. Het is niet zo dat we helemaal geen seizoenbedrijven doen, alleen het maakt het wel wat ingewikkelder op het moment dat je helemaal moet gaan uitleggen dat er pas op enig moment geld binnenkomt. En dan moet je hele goede andere kwalitatieve KPI's hebben op basis waarvan toch een zeker comfort ontleend kan worden. Daar moeten wij ons comfortabel bij voelen.

**Gersen:** Dat vind ik wel een antwoord op de vraag "welk van de punten is overtuigend": het geheel.

**Wegen:** Absoluut, de paradox van het bankieren is heel erg: als we geen prognose hebben vragen we er om en als we hem hebben zeggen we: het is maar een prognose. Daar zit echt een paradox waar ik niet het laatste antwoord op heb, maar dat neemt niet weg dat ik kan zeggen zorg voor een goede prognose

die je ook kunt onderbouwen met dit soort data, met recurring klant informatie, en zelfs met data-analyse op detail niveau. Dat zijn mooie dingen om toe te voegen.

**Gersen:** Dat geeft me wel ideeën om dit toe te passen, met name omdat je zegt: dat is iets waar ik altijd naar zou kijken, naar welke klanten komen terug. Dat geeft me een aangrijppingspunt. Je probeert uit je boekhoud pakket los te komen. Een alternatieve financier, bijvoorbeeld, zegt: de boekhouding, de balans, het zal wel, het gaat mij puur om de cashflow. Ik kan me voorstellen dat de bank daar anders instaat, die is er langer bij betrokken. Als je de voorspellende waarde van een boekhoud pakket zou moeten aangeven, hoe zou je dat schetsen?

**Wegen:** Uiteindelijk is balans ook wel een kasstroom, dus een verlies/winst vind ik wel echt een resultante van datgene dat er aan onderliggende business is.

**Gersen:** Terwijl die voor een seizoenbedrijf in 10 van de 12 maanden weinig zegt.

**Wegen:** Daarom. Dus uiteindelijk, ik zal niet zeggen dat balans en verlies/winst niet meer belangrijk zijn. Dan zit ik te liegen. Ik vind dit soort kwaliteiten drivers van je kasstromen heel waardevol. Als het erop aankomt natuurlijk waardevoller dan een plusje/minnetje in je boekhouding. Als ik je zou mogen tippen: wat je nu hebt is mooi, de rest zal resultante zijn. Uiteindelijk moet het ook binnenkomen. Uiteindelijk is dit het essentiële, het is mooi om er op in te zoomen, want veel bedrijven hebben dit niet paraat. Drivers achter kasstromen zijn de knoppen waaraan gedraaid moet worden. Kun je die dan, dat is de vervolgsvraag, inzichtelijk maken, maar kun je die ook ergens beïnvloeden of overkomt het je. Je hebt vooral heel veel gespreksstof. Wat wel aardig is, vanuit ING zijn heel erg bezig, ook met data, waar gaan we gegevens, ook van betaalsystemen, inzetten. Allemaal nog in ontwikkeling, dat zijn wel dingen die we willen. In die zin loop je dus wel voorop.

**Gersen:** Vanuit de ING is afgelopen maand jullie hoofd security in Leiden langs geweest, om zijn proces uit een te zetten. Die zegt ook, we zitten heel erg op de data en ook de meta-analyse van wat er gebeurd. Dat is wel een trend die heel hard gaat.

**Rudolf:** Big data is wel hartstikke mooi, maar je moet er relevante informatie uithalen die impact heeft op je bedrijf. Big data heeft iedereen, maar hoe kun je dat relevant maken. Met name je recurring cashflow, als je dat kunt meten, heb je een goed deel van je onderzoek.

**Gersen:** Dat is nog wel een aangrijppingspunt: hoe valideer jij, als financier op een gegeven moment nog, dat wat ik jou vertel, dat dat nog klopt? Hele andere invalshoek, zeker als je het over big data hebt en je hebt modellen die niet met terugwerkende kracht na te rekenen zijn, hoe weet je dan nog dat bijvoorbeeld een machine learning toepassing, dat het resultaat dat dat geeft, ook daadwerkelijk van mijn data afkomstig is, of een beetje is opgepoetst?

**Rudolf:** Op zich komt dat terug in de cijfers.

**Gersen:** Ja, maar dan weer achteraf? Als ik een forecast doe met een bepaalde trend, die je later pas dat dat niet klopt.

**Rudolf:** Als jij een forecast maakt die niet uit komt, hebben we ook een probleem.

**Wegen:** Dan kun je inderdaad wel zeggen dat we het in de aanvang oppakken. Stel dat je als nieuwe klant binnen komt met data en je wilt daar een aanvraag omheen bouwen, zullen we wel het gesprek

zoeken, en het vergelijken met kasstroom bijvoorbeeld. We zullen een gesprek hebben, je gaat een relatie aan, en dan ga je kijken: klopt het. Als het dan een keer helemaal mis gaat geloof je het ook niet meer.

**Gersen:** Om het terug te koppelen aan het verhaal over beveiliging, je wilt ook terugkoppelen dat wat je hebt aan statistieken ook klopt.

**Wegen:** Wij zullen niet, als je kijkt naar financieringsvragen die binnen komen, voor bestaande relaties zouden we met een rekening verloop een toets kunnen maken. Dat kan niet voor nieuwe relaties.

**Gersen:** Als een nieuw seizoen bedrag zich dan meldt met een prognose voor het jaar, moet je die dan naast je neerleggen omdat je die dan niet kunt valideren.

**Wegen:** Nee, die validatie is ook een gesprek. Dat is doorvragen en een gevoel krijgen bij een bedrijf. En ja, het is ook zoals een nieuwe klant binnen komt met een goed verhaal, of je hebt een goed verhaal van een bestaande relatie, die tweede heeft dan meer comfort. Dat wil niet zeggen dat we geen nieuwe klanten meer doen, maar in de beleving van een gesprek en het ontmoeten van een klant en het gefiatteerd krijgen speelt het wel mee. Heeft een relatie een track record opgebouwd? Dat wordt wel meegenomen.

**Gersen:** Zou ik dan kunnen zeggen dat het voor een nieuw seizoenbedrijf bijna onmogelijk wordt om binnen het huidige financieringsklimaat nog geld los te krijgen? Of is dat te kort door de bocht.

**Wegen:** Wij hebben het ook weleens gehad over aspecten als marktpositie, wat is je plek in de markt, wat is je schaalgrootte. Die gaan dan heel erg meespelen. Of wordt je uit de markt gedrukt. Er zitten wel een aantal dingen aan die meer zeggen dan is het een seizoenbedrijf ja of nee. Dan gaan dat soort krachten ook spelen. Om bij de reisbranche te blijven, wat voor schaalgrootte heb je. Dat wil niet zeggen, als het groot is dan is het goed, maar er gaan wel andere factoren spelen. Dus het is een optelsom van meerdere dimensies.