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# CASH FLOW MANAGEMENT

– Case AINA Wireless



BACHELOR'S THESIS | ABSTRACT

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## CASH FLOW MANAGEMENT

- Case Aina-Wireless

The thesis was carried out as a request by a small technology company located in Salo. The work was carried out in a general level and all the private and company specific information was removed from the thesis. The issue of the company was their management of the funds during the supply chain process, from purchasing of components to the sale of the product. The goal was to create information, options and solutions for the company to help their cash flow management.

The theoretical framework focuses on the basics of the cash flow and the financing options of that are common for SMEs in Finland. It focuses on the cash flow was in the formation of it and the common issue of cash flow, introduces the basic cash flow calculations and gets into liquidity and how that affects cash flow. On financing, the focus on was different tools and services to bridge the gap caused by cash flow issues. It also gets into the difficulties and the more difficult financing options.

The empirical part of the thesis presents the data of the company, which we got from the CEO of the company and the goals they wished to establish with the thesis. After this a tool for the direct cashflow was created, which is used as the main tool making changes and suggestions regarding the cash flow. In the end of the thesis, suggestions and possible scenarios are presented for the company to improve their business model, some of which has already become reality.

KEYWORDS:

Cash flow, liquidity, finance

Tekijät: Shaun Duncan & Antton Helmi

## KASSAVIRRRAN HALLINTA

Case Aina-Wireless Oy

Opinnäytetyö kirjoitettiin pienen salolaisen teknologiayrityksen pyynnöstä. Työtä tehtiin yleisellä tasolla ja kaikki yritykseen viittaava, salainen tieto poistettiin julkaisusta. Yrityksen toiveena oli löytää ratkaisuja kassavirran hallintaan. Aikaväli komponenttien hankinnan ja valmiin tuotteen myynnin välillä ei ollut kestäväää ja aiheutti yrityksen johdolle valtavaa päänvaivaa. Tavoitteemme oli luoda informaatiota, ratkaisuja ja mielipiteitä yrityksen kassavirran parantamiseksi.

Tutkimuksen teoriaosassa keskityimme kassavirran perusteisiin ja pienten ja keskisuurten suomalaisten yritysten yleisimpiin rahoituksen ratkaisuihin. Kassavirran painopisteenä oli kassavirran muodostuminen ja yleisimmät kassavirta ongelmat. Lisäksi teoriaosa esittelee yleisimmät kassavirran laskentamallit ja likviditeetin vaikutuksen kassavirtaan. Rahoituksen painopisteenä oli taas erilaiset työkalut, palvelut ja palveluntarjoajat, jotka olisivat voineet auttaa ratkaisemaan hetkellisiä kassavirrasta johtuvia taloushuolia. Toimme esiin myös pienten yritysten kohtaamat rahoituksen haasteet ja joitain haastavampia rahoitusratkaisuja.

Tutkimuksen empiirinen osa keskittyy yrityksen tietojen käsittelyyn. Saimme tiedot ja kävimme läpi tutkimuksemme tavoitteet yrityksen toimitusjohtajan kanssa. Tämän jälkeen kehitimme erilaisia työkaluja kassavirran hallintaan ja sen parantamiseksi. Näiden työkalujen avulla esitimme yritykselle erialisia ehdotuksia kassavirran parantamiseksi. Ehdotimme myös erilaisia ratkaisuja liiketoimintasuunnitelman parantamiseksi, joista osa on jo käymässä toteen.

.

ASIASANAT:

Kassavirta, maksuvalmius, rahavirrat, rahoitus

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# 1 INTRODUCTION

The purpose of this thesis is to analyse and improve the cash flow management of Aina Wireless Oy. The aim is to investigate different options a company has to manage its income and spending of capital. The reason for choosing this subject for a thesis is the common interest in the topic by the writers and the company Aina Wireless. Aina Wireless has a clear need to gain a broader base of knowledge in the topic in order to tackle the challenges they are facing. On our side, the advantage of this thesis is the possibility to offer our assistance to a company and make a difference.

The main research objective is to improve the company's financial management. At the moment, Aina Wireless is struggling with this, since their capital is tied to the product for too long. As they are a small and growing company, they would like to invest more into research and product development, but the capital is held up to the inventory. The suppliers of components require payment at an early stage, yet AINA Wireless has to offer a long term of payment. This means that in the worst case the money is out of commission for up to half a year.

Cash inflow comes largely from the buyers, who generally want the product fast but pay considerably later. The normal term of payment is between two and three months after delivery, which results in a deficit of capital for the said time. Because Aina Wireless is still a small company, they cannot dictate the terms as they like without damaging customer relations. Consequently, they need to buy the components several months before delivery, so they can provide the product to the customer quickly. The company must pay for the orders soon after ordering the parts due to their size. In order to receive the components at a competitive price, Aina Wireless must place orders of vast quantities. This results in the company having to store the components for a long time before covering the costs.

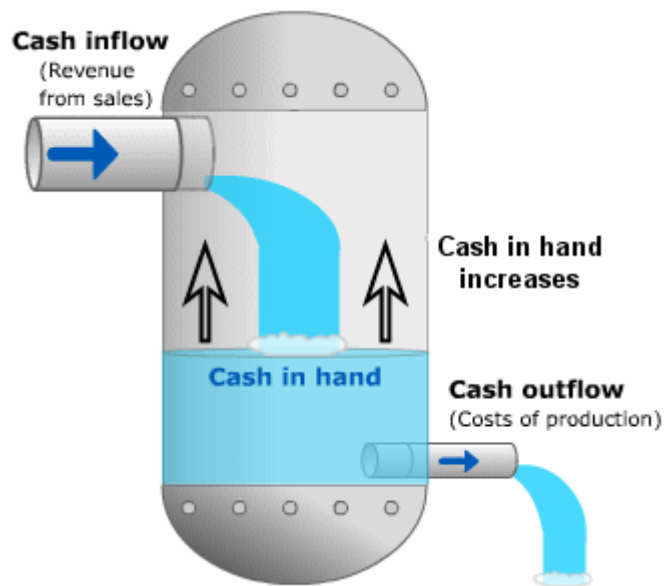
In order to fill the gap between costs and income, Aina Wireless must rely on third party finance. The challenge with is that it is difficult to receive finance without having orders, but if they only get finance upon receiving an order, the delivery time becomes too long. Our task is to come up solutions and financial instruments, that could help with receiving finance before ordering components. In order to get finance, the company needs to show something which makes the company trustworthy. Finding out how a small company could do this is one of our tasks.

## 2 BASICS OF CASH FLOW MANAGEMENT

Cash flow is the net flow of money into or out of the proposed project - the algebraic sum in any time period of all cash receipts, expenses, and investments (Fredendall and Hill, 2001, 35). In simple terms, cash flow is like a physical event effecting the amount of coins in a money chest; a stream of coins going into the chest and being taken from it. The registered events are those that are direct money going in or out of the money chest leaving information of the level of coins in the chest. (Puhakka 2012.)

Another similar flow of funds will affect the equity of the company. The events presented in the Income statement show the money flowing in and the expenses that the money gets spent on. At the same time, you are keeping an eye on the equity numbers. This abstract cash flow is not the actual cash flow of the company at any given time. As this information is gathered from the accounting data, it is already out dated and is meant to showcase the changes of equity in the company. (Puhakka 2012.)

Cash flow as a term is a general term which can be used in different ways in different context. The values for Cash flow can be calculated using formal or informal methods and there are several theoretical methods to calculate values for cash flow. When calculating cash flow using the formal methods, it is important to have double-entry bookkeeping systems and do the calculations within the principles of it. (Puhakka 2012.)



Picture 1. Cash flow mechanics (Puhakka 2012).

The main function of cash flow is to ensure that the company has the required funds to pay their bills, payroll and invest into new projects. Cash flow should be watched carefully by the financial management as it is possible for a company to make profit on paper but still go bankrupt if they do not have the money needed to pay their bills. This makes predicting the future income and expenses extremely important. If a company decides to invest into a new project, they need to ensure that they will still have the cash in pocket to survive their payments. This is done by period-by-period forecasts to estimate when a company receives money and when the payments are due. In this particular case, the payments are easy to predict but the overhang from the long delivery times of the components and the possibly long storage times is not easily predictable. (Fredendall & Hill 2001, 35.)

## 2.1 Cash flow calculations

Cash flow is an important tool for any company to keep track of their business and their possibilities to deal with their necessary payments in time. Forecasting the cash flow is usually done annually and broken down into monthly figures. The most important thing is to always record the event of money being spent or received to the month when it physically happens from the company account. (QLG 2017.) It is relatively common to see negative cash flow in new companies during the first few business months or years.

Short term negative cash flow can be supported by debt or equity funding, but long-term negative cash flow is likely to be a sign of a failing business which will eventually go bankrupt or get sold. The exception to this is a case where investors would be willing to pour more money into the company regardless of the negative cash flow. This is often a sign of poorly ran companies or companies with a bad business plan. (AccountingTools 2017.)

The importance of cash flow management comes in the form of managing the equity of the company and making sure there is always something at the bottom of the barrel to cover up any unexpected expenses. Deciding the amount of equity needed by a company varies on a case-by-case basis. The business might have pressure to direct money into future investments or keep some in the bank to prepare for possible changes in the industry or the general economy of its business area. The important thing is to use the cash flow calculations to make sure that the equity is where the company needs it to be at any given time. The cash flow calculations can be formal or informal. Table 1 displays an example of formal cash flow calculation. The calculation gets split into three different cash flows. Combining the three results will result in the combined change of the equity of the company. (Sandelin & Walden 2012.)

Table 1. Dividing the cash flow by the generating action (Edilex 2007).

Cash flow of the business activity	Shows the cash flow the company has been able to generate from its general business activities to cover the operational costs, paying dividend for the owners, investing into new products and paying back debt. All of the cash flow generated must be from the business activity and may not be from external financing.
Cash flow of the investments	Displays the actions a company has taken to increase their future cash flow in the future.
Cash flow of Financing	Financing cash flow shows the changes in equity and financial capital over the fiscal year

Cash flow calculations provide better and more accurate information for the management of the company than the income statement or balance sheet can provide them. This is under the assumption that the cash flow calculations are done in a way where they only count in events that have already happened on the company banks' balance sheet. This removes the effect of change of the monetary values of items or currency changes like they would affect the annual financial statement of the company. Also, cash flow calculations are often done monthly whereas the financial statements are made annually. (Sandelin & Walden 2012.)

According to the "Accounting law" of Finland, certain bigger companies are required to make the cash flow statement as part of the annual financial statement of the company. This is to present the receiving and spending of the company funds. A Finnish company is required to present a cash flow statement as part of their financial statement if the company is a public limited company or if a private limited company or cooperative has fulfilled two of the three following terms within the last fiscal year (Edilex 2007).

- 1) The company has an average of 250 employers over the fiscal year.
- 2) The overall amount on the Balance sheet exceeds 43 million euro.
- 3) The overall revenue over the fiscal year exceeds 50 million euro. (Finlex 2011.)

The cash flow statement must include the different cash flow types as shown in table 1. The law does not state any more specific rules for the information that must be displayed in the cash flow statement. A company can produce a cash flow statement that provides them the best value, as long as it includes and separates the details shown in table 1. The information might be displayed in great detail under the specific types of cash flow or offer as little detail as possible.

The goal of the cash flow statement is to provide the government offices and financing establishments with the necessary information about the capabilities of the company. Even though the law only states that bigger companies must include a cash flow statement in their financial statement, it is common that smaller companies are forced to do so too. This is due to the fact that banks and other financing agencies require companies to produce cash flow information in order to get a loan or some financial capital. (Edilex 2007.)

## Indirect cash flow

When calculating the cash flow there are generally two ways to do it. The company can do indirect or direct cash flow calculations, which quite frankly do not vary too much from each other. The minor differences that they have do make them fairly different and therefore they perform better in different scenarios. The end results should be the same regardless of the method though as the overall cash flow of the company should not change no matter how you calculate it. (Tim Berry 2018.)

Indirect cash flow is calculated is by using net income and adjusting the sources and uses of cash that are not part of the income calculation. The way you would do that is by using the information from the financial statement and use the “profit/loss” and adjust it accordingly using the change in inventory, the receivable income or bills, the planned depreciation which does not include a payment of any sorts and the dividend pay-outs which would be included in the investment cash flow report. (Edilex 2007.)

Table 2. Indirect cash flow statement (Koski 2010).

Indirect cash flow
<b>Profit/Loss</b>
+ Depreciation
+/- Financial items
+/- Contingencies
-Taxes
<b>= (1) Economic profit</b>
+/- Change in Inventory
+/- Change in receivable accounts

+/- Changes in interest free loans
<b>= (2) Changes in working capital</b>
<b>= (3) Operational cashflow (1+2)</b>
-Investments
<b>= (4) Cash flow before financing</b>
+/- Changes in equity
-Changes in long term financial fundings
+Changes in long term financial loans
-Dividends
<b>= (5) Changes in liquid funds</b>

The indirect and direct cash flow statements only differ from the first part. The part that changes is the operational part of the actual business activity. In another words, the method does not affect the financial or investment cash flow. Indirect cash flow is calculated as shown in table 2 above.

### **Direct cash flow**

The direct cash flow is different to the indirect cash flow in the sense that it displays how money leaves and comes into the company. It can be made to track as much or as little different features as the company wants. In this sense, it is more informative than the indirect method even though both ways will give the same result. They both display the amount of money the company has at their use. In general, the indirect cash flow statement is better suited for calculations that are done from outside of the company whereas the direct cash flow statement is better suited for the internal calculation and management of the company. (Koski 2010.)

Table 3. Direct cash flow statement (Koski 2010).

	January	February	March	April	
Opening balance					
<b>+ Operational revenue</b>					
revenue from sales					
other revenue					
<b>-Operational expenses</b>					
<b>= Operational cash flow</b>					
<b>-Investments</b>					
<b>Equity and financial loans</b>					
+ Equity capital investments					
+ Equity loans					
+Loans from financial institutions					
-loan amortizations					
+/- interests					
+/- others					
<b>= Changes in the balance</b>					
<b>Closing balance (opening balance- change)</b>					

The information and form of the cash flow statements does and should vary case-by-case. The important part is that the main expenses and revenue streams are clearly

displayed and handled at the time they effect the company. Especially the monthly direct cash flow statement is an excellent tool for the management of the company.

### Free cash flow

Free cash flow generally means the cash reserve that is left after the investment cash flow gets removed from the operational cash flow. In another word the free cash flow is the amount of surplus the company has produced over the period. This surplus is something that could be removed from the company without disabling the necessary operations of the company. The use of the free cash flow is to be decided by the company and as it is surplus funds, the management can decide the way they want to use them as they best see fit. If the company does not produce any free cash flow, the calculations for free cash flow will also display the demand for extra financing. (Sandelin & Walden 2012.) The calculations for free cash flow are shown in table 4 below.

Table 4. Free cash flow (Sandelin & Walden 2012).

Sales during the last period
x (1 + Forecasted increase in revenue-%)
<b>= Forecasted revenue</b>
x forecasted profit-%
<b>= Forecasted profit</b>
x (1 - tax-%)
<b>= Forecasted profit after taxes</b>
-Forecasted increase in investment
-Forecasted increase in working capital
<b>= Forecasted free cash flow</b>

The meaning of the free cash flow is an important term in the sense of valuating the net worth of a company. It is the overall value of the funds that can be withdrawn from the company in the future. The money tied into the equity and investments means lower value of the company unless they manage to bring in bigger revenue streams in the future (Sandelin & Walden 2012).

## 2.2 Liquidity

One of the key functions of Cash flow management is to get an overview of the liquid funds of the company. These funds can be stored in different ways. For example, they can be stored as physical cash or have them in a bank account. The liquid funds can also be invested into goods or services which are easily sold at the same or similar value. A good example of a good liquidity way of storing money would be investing it into stocks or other generally traded goods, such as gold for instance. This kind of goods can generally be sold within days at or close to the exact value of the item. If a company decides to store their liquid funds by investing it, it opens the possibility for a loss at the exchange rate if it is forced to sell it at an inopportune time. (Roger Wohlner 2017.)

Liquidity of the company is also a key number when an investor is looking to invest into the company as it displays its ability to meet its short-term financial obligations. A company with a low liquidity ratio should raise red flags with investors as it means that the company is having difficulties meeting its day to day payments. This furthermore means that the company is struggling with running its daily business and may need to compromise investing into inventory or business units. (Victoria Duff 2018.) This might often mean less profit for the company which might snowball into a downward spiral which is difficult to get in control without an influx of external financing.

## **Inventory**

“Inventory is the stocks or items used to support production, supporting activities, and customer service. Demand for inventory may be dependent or independent. Inventory functions are anticipation, transportation, and service parts. In theory of constraints, inventory is defined as those items purchased for resale and includes finished goods, work in process and raw materials. Inventory is always valued at purchase price and includes no value-added costs, as opposed to the traditional cost accounting practise of

adding direct labour and allocating overhead as work in process progresses through the production process.”

– APICS Dictionary, 9th Edition, 1998. (Fredendall and Hill 2001, 39.)

For a lot of small and medium sized companies that design and produce their own products, the stocking of inventory might be a major deal in the liquidity of the company. Especially in the field of technology products, the delivery times for parts and components might be a major concern and tie the liquid funds into the inventory for a long time. A common situation is having to tie in a significant amount of funds into products weeks or months before the finished product is sold. This causes a bigger liquidity and therefore cash flow issue as the liquid funds are tied into the product long before the product is sold and therefore the liquid funds used to invest into the inventory are replaced. (Investopedia 2018b.)

The level of supply into the inventory is always a compromise valuated case-by-case in the company, which is based on the expenses it brings and the level of service the company wants or needs to provide. The turnover ratio of the inventory is one of the easiest tools to help understand the efficiency of the business' inventory. The turnover provides the business owners with the information of how many times the same products change within the inventory during a period. The turnover is generally calculated in the unit that the company uses to keep tally of the stock, but it can be done in any unit that suits their needs the best. Turnover can be calculated using the following formula: (Ritvanen & Koivisto 2006, 36.)

$$\text{Turnover of the inventory} = \frac{\textit{The used or sold inventory over a period}}{\textit{The average inventory}}$$

Equation 1. Calculating turnover (Ritvanen & Koivisto 2006).

It is also good to know that the most equity saved will be reached, when the turnover ratio has been very slow (1-2) and the new turnover ratio would be in the range of 4-8. After this, changing the turnover ratio upwards by a step or two will not produce significant equity or cashflow changes. (Bonnier Pro 2018, 5.)

## 3 FINANCES

Financing is what you will need if you find yourself in a situation where the cash flow calculations show that your usable money will not be enough to cover the overhang from your investments or operation costs. It is natural for a business to rely on financing if they need to invest into new facilities or machines. This also might be needed if the turnover ratio of the inventory is too small and the money tied into the inventory takes a significant part of the working capital. There are several different establishments that provide services to get more money into the companies in the form of financing.

### 3.1 Banks and financing establishments

Banks have a necessary role in providing financial services and they are an important part of the financial markets and the public economy (Finanssiala 2017). Banks generally provide a few services for the companies including investment loans, bank accounts on credit, factoring investments and leasing services. The prices for the financing services do vary due to the following factors: (Aktia 2018.)

- Credit standing
- Solvency
- Outlook of the future
- Age of the company
- Industry of business
- Collateral
- Maturity
- Record of previous loans

Due to the close relation between a company and a bank, they are often the most natural source of external finance, but they are not the only possibility. Financing institutions are the other main party, including regular commercial banks, that offer financial services. The services and their price do vary a lot between the different types of financial institutions. Generally, commercial and investment banks are the most reliable with their services as all the banks are heavily monitored. Insurance companies are generally extremely reliable too for the same reason. (Finanssivalvonta 2017.)

### 3.2 Investment loans

For most companies, borrowing money is often necessary to finance major investments. The event of taking a debt from a financial institution should be evaluated with great care. You should request quotes from several lenders and pick the deal that is the most appropriate for your circumstances. Banks require the applicants to supply them with evidence of their ability to service the loan. Applicants are generally asked to provide such details as income, expenses, assets and other loans. Usually the financial statement of the company will have all that information already available. The applicant is responsible for the accuracy of the information they hand in. Provision of misleading information can constitute grounds for revoking the loan.

The investment loans are an act of borrowing of money from some financial institution. The interest of the loan usually includes a reference rate and the margin of the bank. The loan amortizations and the length of the loan can be discussed case-by-case according to the terms mentioned earlier. (Aktia 2018.)

### 3.3 Bank accounts on credit

A bank account with the possibility to credit is a bank account which will allow the balance of said account to become negative if the money owned by the company runs out. It is a great tool if the company is in a field of business with seasonal revenue streams or when they are starting a new business. The credit feature on the bank account is easy and flexible, which does not require you to have the collateral available like you would for any other loan, but instead of paying interest and amortizations for the loan all the time, with the bank account you only pay those when the account is on the negative. You can also use it without separate loan negotiations after every term. (Aktia 2018.) Credit on bank accounts is the most common way to increase working capital of a company. The issue on it is that it does require real collateral, which means that it cannot be tied into other loans that the business might need. (Yritystulkki 2018a.)

### 3.4 Factoring

Factoring is the form of financing receivables from sales. The basic principle of factoring is to change the invoices that have not been capitalized yet into currency that you can use to

cover your operational costs. Factoring is especially useful as a tool to allow the company to offer competitive terms of payment without sacrificing their cash flow. (Aktia 2018.)

In practice, a financial institution will give its factoring partner 70-90% of the receivable from an invoice after two or three days from sending the invoice and the rest after the payment for the invoice has been received. The financing institution will charge interest and fees for the short-term loan. The benefit of the factoring is in the lines of business where the terms of payment are long, leaving the gap from sale to receive the money too long to cover. The other benefit is that if the credit rating of the billed customer is good, factoring does not require any collateral for the loan. The downside to factoring is, that generally it requires the company to move all of its receivable revenues to be passed through a financial institution. (Yritystulkki 2018.)

### 3.5 Leasing

Leasing is the act of renting equipment, furniture or almost any goods from a financial institution. The benefits for this that the business gets the equipment that they need, and only have to pay a monthly or annual amount for the service. They are especially good when the company knows that it does not need the equipment or furniture after the leasing time is over. The benefit of leasing also is that it does not stress out the balance sheet of the company. (Aktia 2018.)

### 3.6 Loans from government backed organizations

Loans and grants can also be acquired from government backed organizations instead of commercial financing providers. Such organizations include Finnvera and BusinessFinland.

#### **Finnvera loans for SMEs**

Finnvera is a specialized financing company owned by the State of Finland. It is the official Export Credit Agency of Finland. Its operations are steered by the industrial and ownership policies, which are put in place by the State. It provides financing for starting, growing and internationalizing of companies. Finnvera also shares the risks included in the financing with the other providers of the financing. (Finnvera, 2018.)

Typically, Finnvera loans for starting or growing enterprises require 10-20% of self-financing. The share of financing provided by Finnvera is evaluated on case-by-case basis. The typical share will be 50%, but it can be up to 80% of the loan and guarantees are provided. This is most common in growing and internationally oriented innovative enterprises, in which category Aina Wireless would also be qualified. (Finnvera 2018.)

Finnvera provides a growth loan for company mergers and other similar activities, where the self-financed portion needs to be 20% of the loan and the share of the other financiers must be more than 50% of the total loan amount (Finnvera 2018).

The regular repayment plan for Finnvera loans are also assessed on case-by-case basis, but the most common arrangement is 1+4 years. This means that in the first year, only interest and other charges are paid, and the regular payments of instalments begin in the second year. Something to pay special attention to is that the instalments for Finnvera loans are paid every three months, rather than monthly. This is an important factor when making liquidity plans. (Finnvera 2018.)

### **BusinessFinland**

BusinessFinland, previously known as Tekes, provides funding for SMEs that desire to expand to the export markets. They also need to have the know-how of how to do the expansion and they must be registered in Finland. BusinessFinland provides grants for companies expanding and focusing on innovation and offers loans for enterprises. (BusinessFinland 2018.)

BusinessFinland provides several different kind of financing services. The amount can change between 3 000€ and 200 000€. The process for getting financing from BusinessFinland is more tedious than it would be for Finnvera. Even though both of them require a number of financial documentation and plans for the financing, BusinessFinland also requires the entrepreneur to report the usage of the funds for the project. (BusinessFinland 2018.)

### 3.7 Other financing options for limited companies

There are also other options worth considering for the sake of financing. Two good and somewhat common alternatives are to look for investors or strategic partners.

#### **Investors**

Investors can be defined under two main groups, the first of which are the general investors, who usually invest at a later stage and invest someone else's money. The other group are Angel investors, who generally invest their own money in the early stages of the growth of the business.

Investors generally get into investing in a company in the same way regardless of when and whose money they invest. The investment can be done as a loan, equity take or the combination of the two. It is also important to understand that most of the time the investors are in the company only for a certain period of time, rather than for the whole lifespan of the company. (Yritystulkki 2018b.)

#### **Strategic partners**

A strategic partner is a business that is willing to enter into a partnership with your business. These partnerships are equally beneficial for both sides of the partnership. These partnerships can generally be divided into four different classes; strategic marketing partners, strategic financial partners, strategic suppliers and strategic technology partners. (David Lavinsky 2013.)

Strategic marketing partners are in a mutually beneficial relationship between each other. Out of the all of the strategic partners, marketing partners are probably the most common kind, as in general, the marketing business generates traffic and sales for the other side, which it in return gets paid for. This also can be beneficial in the form of referring clients to one and other. Therefore, the marketing business might also get marketing benefit from being in the partnership. (James Nichols 2018.)

The important things to consider with strategic marketing partners are the scale and incrementality of the marketer and of the producing business. There needs to be a matching amount of traffic created and work being done between the companies. It is also important that the market alignments and values of the companies match, so the

marketing can be efficient and be aimed at the people who share similar interests. (James Nichols 2018.)

Strategic financial partners can mean anything from accountants to bankers and financial advisors. Especially for the smaller companies, these kind of partners are a regular occurrence and do provide increased value for the money and transactions of the company. It is the partner's job to help you manage your finances and cash flow. (David Lavinsky 2013.) Technically, even a partnership between a company and a student could be a financial partnership, if the student provides extra value for the company whilst the company provides them with an opportunity to gain credits.

A strategic supplier is one of the main means for modern multi-national companies to gain competitive advantage. Like all the other partnerships, partnering with the supplier is supposed to be beneficial for both parties. This might mean that the supplier takes a larger role in the buyers supply chain and in return, the buyer can share their knowledge in manufacturing and testing or use their contacts to give the partner more work. (Jonathan Webb 2018.)

Strategic technology partners are people or businesses that help provide their counterpart with the technology necessary to excel in a business. These partners work in very similar ways as the ones above. Generally speaking, a technology partner helps their pier to boost production by setting up better software and better ways of making a product. The producer on the other hand usually pays the technologic partner or provides them with enough business to make it worthwhile. In these kinds of partnerships, it is extremely important that the developers of the technology have accurate understanding of the specific needs for the technology. (David Lavinsky 2013.)

### 3.8 Difficulties of financing

Difficulties of financing do appear mostly when the company does not have a strong base of cash flow, the industry is weakening or there are strong economic concerns for the company. In general, the following points will play factor in getting funds from banks (David Goldin 2014.):

- Lack of consistent cash flow
- Insufficient collateral
- Debt-to-income ratio

- Customer concentrations
- Insufficient credit
- Personal guarantees
- Insufficient operating history
- Insufficient management team
- Weakening industry

In simple terms, banks and investors generally do not want to take unnecessary risks. Therefore, if you red flag a handful of the points above, you will have a hard time getting a loan - no matter the size. In a business where their orders are not predictable and you operate in a highly competitive industry, this can turn out to be a massive challenge. (David Goldin 2014.)

## 4 CASE AINA WIRELESS

Aina Wireless is a Finnish limited company, which produces technical push-to-talk solutions that communicate with other devices via smart phones. They allow the user to use their phone as a one-way radio, while keeping their device in a safe place.

The main issue in their business plan was the time it took for them to receive money from the beginning of the production to the sold goods. The cash income was not able to support all the expenses that the company had during the manufacturing and distributing of the new orders. There was no clear pattern with the orders either, as they are selling products to different companies. Therefore their operating system at the time was not sustainable.

This would mean that the main issue they were dealing with was their cash flow. From the time Aina Wireless ordered components to be made into products, they would have to pay for the products 30-90 days before being able to have their hands on the components. After the product has been made and sold, they were usually forced to give 30-60 days for the payment to be made. In average this left the business with a four to five-month gap between the first payment for getting components and receiving money for the sold products.

The production and storage were outsourced to a different continent to make the supply chain run more efficiently, as their customer base is global and most of the component manufacturing and assembly were already located overseas as well. In Finland they housed all management, testing, quality control and development.

That itself would be sustainable if the other costs in the company would be small, but Aina Wireless does invest a lot into production and testing. Their goal is not to compete with the cheapest products in the market. This means focusing on the quality of the product, which requires excessive testing of components and quality control of production. Testing of the components requires both personnel and stock, both of which require continuous funding during the long sales process.

The priority of this thesis was to try come up with ways to come up with solutions to shorten the turnover ratio of the company. In short, this means narrowing the gap between the expenses and the income of the sold product. One plan of attack is usually

not enough to solve a cash flow issue; we were also asked to investigate the financing tools that are available for SME's and when and how you can get them.

Since starting our journey with the thesis, a lot of things have changed for Aina Wireless. They ended up getting an investor, moving to a new location and hiring new personnel. This has provided a significant change to the cashflow requirements and the cost structure of the company. Their focus remains in the market of producing high quality solutions for wireless audio transmitting. Their market is still extremely hard to predict, as the regular customers still work the same way, expecting products fast and usually in a high quantity.

They have gained a strategic partner during the year, from a company who oversaw assembly in the past. Now their partnership has deepened, and the partner is going to be taking over the component stocking. This will provide a great decrease in the cash flow requirements of Aina Wireless, as we will see in the cash flow assessments.

A continuing issue with the company is the sales margin; more precisely the lack of it. The segment is highly competitive especially with lower quality products flooding the market and potential buyers not realizing the advantages or disadvantages of the quality of the products. This requires the company to sell more products to cover the overhead of the business. Even though Aina Wireless has hired more sales personnel, this remains to be one of the bigger challenges of the business.

#### 4.1 Cash flow analysis

Cash flow analysis is an important tool for assessing the financial capabilities of a company. As a business could make profit in the terms of fiscal year, but still be bankrupt in between if it cannot pay its bills. It is important to make sure the company has enough cash to cover the overhead costs of doing business. This is why many companies do keep an eye out for their cash flow status.

Calculating indirect cashflow is a great place to start for a basic overview of the cash flow capacity of the business. Doing this in a period of a fiscal year does provide the business owners a general idea of the strength of the cash flow. Using the same figures as a baseline for the direct cash flow is also useful, as the will be the same regardless. As such, direct cash flow can be used to see the seasonal fluctuations in the cash flow and the times when the company is struggling financially.

We opted against doing the calculations for indirect cash flow though, as we did not have the data for the complete fiscal year, but the data we had was excellent for direct cash flow. As we are still in the middle of the current fiscal year but at the end of the calendar year, it makes very little sense to calculate indirect cash flow with outdated 2017 data.

The direct cashflow as shown in the table 5 shows the current system of cash flow management. It is well visible, that material and consumables are one of the biggest negative effect on the cash flow calculations. In reference, materials and consumables are indeed the materials that are used to make new products and that are stored in the inventory. In the case of Aina Wireless, the suppliers of the components do require them to pay the supplies beforehand, which creates the biggest issue for the cash flow as it stretches the gap between paying for the product and getting money through sales.

The same table also shows the other big expense, which would be salaries and the related expenses. But for a business that wants to push their design and innovations, those cannot be affected much.

The biggest issue visible on table 5 would be the fluctuations of the sales. Aina Wireless does not currently have a solution to produce constant, predictable sales. The lack of so called "bread and butter" -products would be partially a cause for the cash flow issues, but those are extremely difficult to come by in a highly competitive market. Especially with Aina Wireless pushing high end, high quality products on the segment.

The inventory of Aina Wireless is difficult to judge, as a big part of the inventory is also used for product development and testing of the product. It could be marked as separate, but the test products are also used as samples or the components in them may be recycled for new prototypes. Aina Wireless is also pushing to improve the manufacturing of the products and uses part of their inventory for that. That is important in a way, as it does not help the issue with cash flow but will throw the turnover ratio calculations off a bit.

The big issue Aina Wireless faced with their inventory was the large quantities they were forced to buy of each component for them to be cost-efficient. In the business of tech-components, the segment is dominated by a handful of large manufacturers, who know their status and are not afraid to use it. This in practice means that they can afford to tell the companies wanting to do business with them, that they will only sell you in massive quantities, if you want the product in a competitive price and often they will also want you to pay the bill months prior to actually receiving the product. For a small company the

effects of this might be absolutely staggering, unless you are able to sell products constantly and keep the stock circulation constant.

In the case of Aina wireless, this generally was not possible and even though all the component manufacturers they dealt with didn't create quite the same issues, all you need is a few to cause your inventory management big troubles. The best ways to try to reduce these effects, would be to either partner up with a supplier to get better deals for the components or try to unload part of the large quantity order immediately to another local business. These actions could free up some money and time into the cashflow of the business, making the day to day life easier.

The possible ways to start getting into fixing these problems without extra investments would be by using three main ways; supply chain integration, product and business model changes or trying to size down some of the components to other businesses.

The easiest way would be to investigate the business model of the company and see if something can be done with that to make income and expenses more predictable. In the case of Aina Wireless, this would be something to investigate, as the sales are not predictable enough as it is. Part of that issue would be general brand knowledge and the high quality, high price trend of their market. This would often mean making products that are cheaper or easier to sell or changing the way of selling the products.

A common way of dealing with said issue is getting into product-as-a-service business. This way the seller is a bigger part of the buyer's business. In practice, this means creating custom solutions and support for the customers or leasing the products to the customer with full support. As Aina Wireless is dealing with a field of business with rapidly changing and developing products, working under the product as a service –model could also help establishing long term partnerships by offering the opportunity to have quick access to the newest technology.

For the case of Aina Wireless, producing Bluetooth audio gadgets, leasing would be a sustainable option, as it would be likely to help both sides of the business with predictable income and expenses and tighten the interaction between the two companies. Like said in the financing part, leasing is a good way to help finance new instalments of tech or machinery to your business.

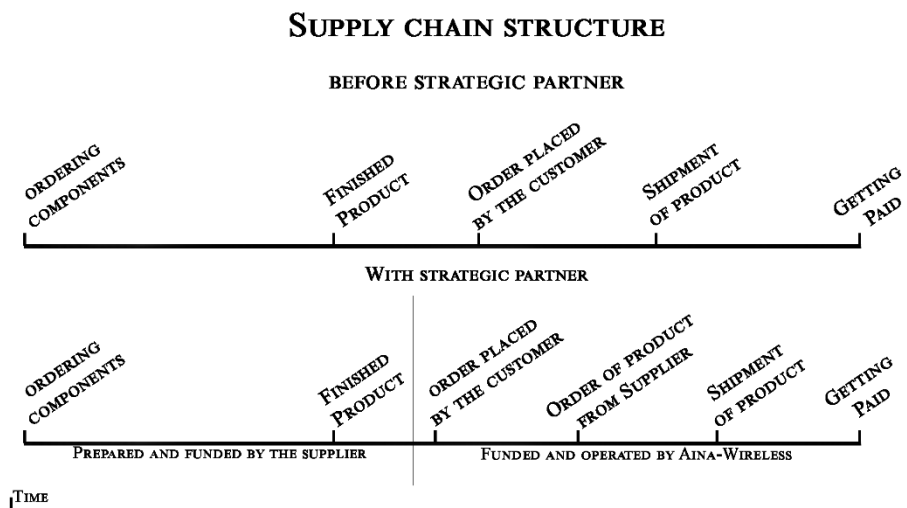
Leasing is also a great business model, as if business and the products work as they are intended, it is an easy way to tie down the buyer into reinvesting into the products after

the agreed term ends. Often it is an expense that is easier to find acceptable, if it's in monthly instalments rather as one large sum at the beginning of the term.

Selling components to other local businesses could also be a great deal but finding a business that needs the same components in the correct quantities would be extremely difficult. The location and quantity are both important, as the partner company would need to be small enough not to grant them ordering the components by themselves, but big enough for them to be able to take a decent part of the order. From all the three options, this would be the most difficult of the options available.

Supply chain integration can be done in a few ways. You can take the whole supply chain from the first company you must order components for your business, to the potential customers and smoothen that process. Usually the smoother process takes less time, creating less stress for the financing of the business.

Generally, this would mean becoming a partner as a supplier or with a supplier. As a supplier, Aina Wireless would rely on a buyer to be reliable and provide the company with regular orders. The partner could also refer the supplier some new business and give feedback on how to improve their process and products.



Picture 2. Supply chain interaction with and without a supplier

The other option, and the option Aina Wireless has been able to secure, is partnering with the supplier. As seen in picture 2, the supplier will be taking charge of the production stock of the components. This means that instead of using money before even having

the product for the components, now they can directly purchase the product from the supplier, with better terms for the payment of the product. This will mean that the time their money is tied into their product will be almost halved.

This will shorten the gap from spending the money for components to getting paid by the buyers. Table 6 shows the same cash flow chart as the table 5, with the inventory order part removed. This a good but not perfect representation of how gaining a strategic supplier will change the cash flow changes. As the company will still have some expenses for the production, but now the cost of having that inventory is reduced to the bare minimum. The same thing has happened with the gap of the payment. Prior to the supplier coming along, the gap from first payment for the components to the payments from four to six months to two months at maximum. The effect of that on a cash flow chat is massive, as you cut down the overhead in between the orders into a third of what it was. This means that the sales margin will be able to support covering the overhead costs of running the business better.

#### 4.2 Financing analysis

In general, Aina Wireless has taken many of the right steps a young company can take with financing. Bank loans are in a key position as they should be, but they have been somewhat costly as the company has not been at a strong position for negotiations. They have been forced to accept unfavourable terms, which often basically mean short loan periods and high interest rates. These high rates have had a severe impact on the company's profitability so far, but it has been an investment and risk necessary to open new opportunities. Based on the company's financial statements they are heading in the right direction as they have managed to shift most liabilities from short term to long term liabilities. This does not automatically mean the loans are fundamentally better, but it does indicate a sign of trust and a better opportunity for long term planning.

Going forward Aina Wireless should have the opportunity to get better terms, since with a bit of maturity they have more concrete figures to show and a developed operative history ought to back this up. Future loan negotiations can be smoothed by working on a clear marketing image and a clear vision, although this may not be easy to create. Sustainability and consistency should also go together with the company's progressive maturity, which helps getting better quality loans further enhancing stability. Should Aina

Wireless be able to secure better loan deals, they will end up having more capital and other resources to be allocated to development and sales.

As the company is showing a drive for growth and quality there is a chance for venture capital financing. Again, Aina Wireless should be able to offer an attractive and potential plan to support the numbers, but this should be achieved with relative ease. Venture capital would offer secure financing and further enhance the image of the company.

The main issue Aina Wireless has faced with the financing, comes down to the basic principle of loaning money. Most companies want to lend out in a situation, which has minimal risk. Generally increasing cash flow will also make it easier to get financing from the banks. But if the cash flow is better, there should be less reasons to negotiate for finances too.

## 5 CONCLUSIONS

The purpose of this thesis was to analyse and provide tips and tricks for improving of the cash flow management of Aina Wireless Oy. The aim was to investigate the way they manage their supply chain and finances and try to provide ways to improve those things. At the start of the project Aina Wireless had a basic knowledge of the issues but were interested in finding out different solutions for the issue, as it was something they were dealing with in daily basis.

The main research objective was to improve on the general financial management of Aina wireless. More specifically, to find out, how would it be efficient to shorten the time money spent on the supply chain. Another research question was, how the company could help getting financing for other establishments to cover the overhead during the money is tied in the supply chain.

The critique towards the references used to gather the information for the theory part of this thesis was important. Generally, the source material was written by well credited authors or business leaders. We also preferred to use information directly from the source for financing. In practice, using banks and other organizations that are ran by the State of Finland, such as Finnvera, as sources was favourable.

We tried to use sources that were no more than 10 years old, as especially in the world of financing, any information older than that would probably be outdated. The practises used by banks to issue loans have changed a lot before 2010, partly due to the financial crash of 2008. The government and EU guidelines do change on said things regularly, which is why we felt that it was best to use the information that the banks and financial established provided to us. On the supply chain side, basics do not change as much as they do on the financing side. The basic structure of the supply chain cannot change too much and even though there are new practices and new innovative ways to improve that, the basics of the subject do stay regular. Therefore, we did let one source slide past our screening, as it provided excellent description of the basics of supply chain.

For the operational side of the thesis, we got basic supply chain and cash flow information from the CEO of Aina Wireless. We also got the income statement and the balance sheets from the beginning of the year to the end of quarter 3. We analysed the information we got and equated conclusions according to our background information from the theory part of the thesis.

From the get beginning, we decided to look into the matter in two totally separate ways. For the cash flow management, we decided to focus less on the supply chain itself and focus on the inventory. This was mostly done for the reason, that Aina Wireless gained a partner that was agreeing to help them with said issue, making it relevant to them. We focused more effort on that, and doing two separate cash flow calculations, with and without the heavy effects of the inventory expenses. We did go into the main issues of cash flow and what causes them as well, including some alternative solutions.

In the case of Aina Wireless, the Inventory was the most demanding factor in the cash flow. The solution that is also playing out for them, that being the strategic partner was found out to shorten the time between paying for production expenses to getting paid for the sold product the most. Other relatively good solutions were found to be, selling some of the inventory to another business or getting more finances to cover the overhead and to be used as a buffer.

The cheapest and the most efficient part is to outsource the storage and buy ready products just to sell them. For many companies this causes issues as the quality control and production might not be up to their standard, which could make it worthwhile to deal with it, especially if the products are high quality products. Issues with getting a partner or finding a company to sell part of the inventory are in the logistics. It is extremely difficult to find a strategic partner like that as you are required to be able to rely on them doing what they promised.

The financial side also provides a lot of information that could be useful for most SMEs who are looking to get financing from banks or other establishments. This might be used to make investment into new technology, or in our case to keep the business afloat. It is important to note that if a business is struggling with their cash flow and have already loaned money for investments, it will not be easy to get any good terms for loans. As those are part of the things that might red flag a company for banks or at least seem like external risk for the business.

The option that would be best for any possible company, would depend case-by-case basis, as there are no two similar companies or entrepreneurs. For some, having a financial buffer would be better when one would want to spend as much as possible in creating new products and doing research.

As an additional study to this thesis there could be an interesting topic in the inventory management of SMEs and how that could boost their business. Another interesting study

would be to do case studies of the difficulties of getting loans from banks with different kind of financial documents and background data.

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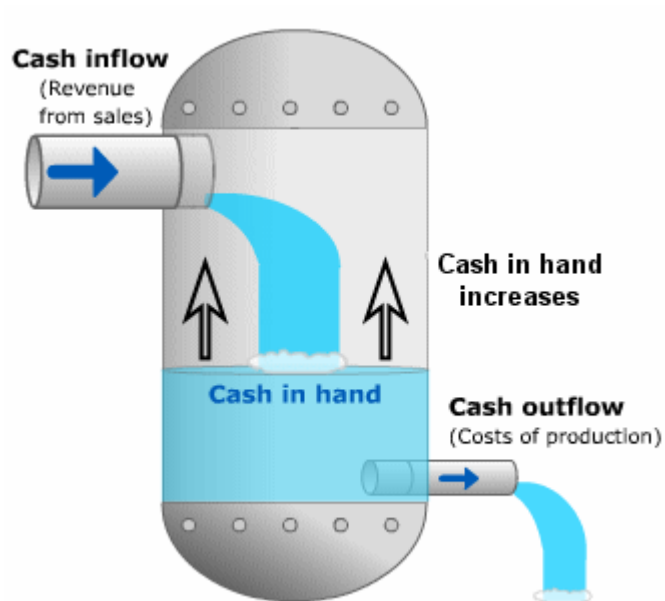
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## TABLES



Picture 1. (Puhakka 2012)

Cash flow of the business activity	Shows the cash flow the company has been able to generate from its general business activities to cover the operational costs, paying dividend for the owners, investing into new products and paying back debt. All of the cash flow generated must be from the business activity and may not be from external financing.
Cash flow of the investments	Displays the actions a company has taken to increase their future cash flow in the future.
Cash flow of Financing	Financing cash flow shows the changes in equity and financial capital over the fiscal year

Table 1 Dividing the cash flow by the generating action (Edilex 2007)

Indirect cash flow
<b>Profit/Loss</b>
+ Depreciation
+/- Financial items
+/- Contingencies
-Taxes
<b>= (1) Economic profit</b>
+/- Change in Inventory
+/- Change in receivable accounts
+/- Changes in interest free loans
<b>= (2) Changes in working capital</b>
<b>= (3) Operational cashflow (1+2)</b>
-Investments
<b>= (4) Cash flow before financing</b>
+/- Changes in equity
-Changes in long term financial fundings
+Changes in long term financial loans
-Dividends
<b>= (5) Changes in liquid funds</b>

Table 2 Indirect cash flow statement (Koski 2010).

	January	February	March	April	
Opening balance					
<b>+ Operational revenue</b>					
revenue from sales					
other revenue					
<b>-Operational expenses</b>					
<b>= Operational cash flow</b>					
<b>-Investments</b>					
<b>Equity and financial loans</b>					
+ Equity capital investments					
+ Equity loans					
+Loans from financial institutions					
-loan amortizations					
+/- interests					
+/- others					
<b>= Changes in the balance</b>					
<b>Closing balance (opening balance- change)</b>					

Table 3 Direct cash flow statement (Koski 2010)

Sales during the last period
------------------------------

$x (1 + \text{Forecasted increase in revenue-\%})$
<b>= Forecasted revenue</b>
$x \text{ forecasted profit-\%}$
<b>= Forecasted profit</b>
$x (1 - \text{tax-\%})$
<b>= Forecasted profit after taxes</b>
-Forecasted increase in investment
-Forecasted increase in working capital
<b>= Forecasted free cash flow</b>

Table 4 Free cash flow (Sandelin & Walden 2012.)

Picture 3. Aina Wireless Tulos

AINA Wireless Finland Oy 25.10.2018 9:24:25

**Tase**

Laajenna kaikki  
Kopioi leikpöydälle

**Hakuehdot**

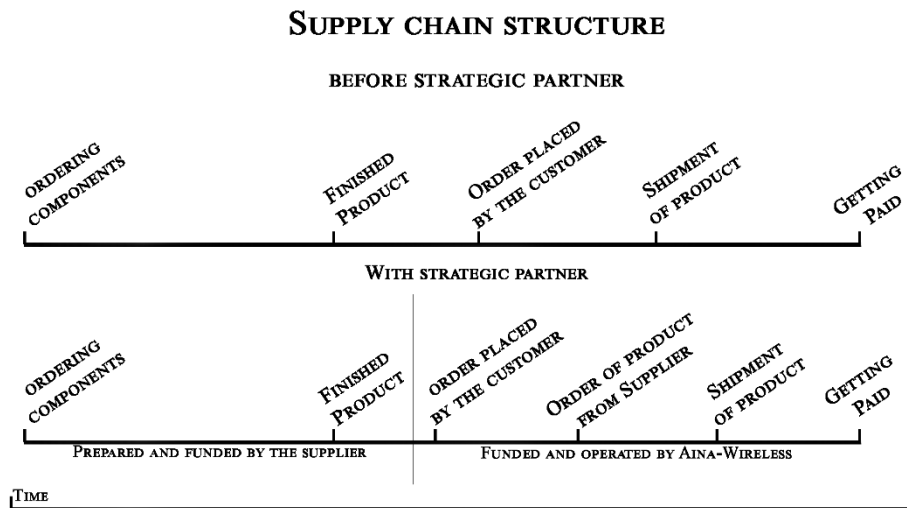
Päivämääräväli: 1.1.2018 - 30.9.2018

**AINA Wireless Finland Oy**

	<b>Alkusaldo</b>	<b>Muutos</b>	<b>Loppusaldo</b>	<b>Muutos-%</b>
<b>Vastaavaa</b>	<b>1 722 593,67</b>	<b>696 620,98</b>	<b>2 419 214,65</b>	<b>40,4 %</b>
<b>PYSYVÄT VASTAAVAT</b>	<b>1 350 599,89</b>	<b>324 691,38</b>	<b>1 675 291,27</b>	<b>24,0 %</b>
Aineettomat hyödykkeet	1 349 334,26	314 433,33	1 663 767,59	23,3 %
Aineelliset hyödykkeet	1 265,63	10 258,05	11 523,68	810,5 %
<b>VAIHTUVAT VASTAAVAT</b>	<b>371 993,78</b>	<b>371 929,60</b>	<b>743 923,38</b>	<b>100,0 %</b>
Vaihto-omaisuus	117 362,62	337 334,06	454 696,68	287,4 %
Pitkäaikaiset saamiset	0,00	7 850,31	7 850,31	-
Lyhytaikaiset saamiset	201 852,76	-56 928,51	144 924,25	-28,2 %
Rahat ja pankkisaamiset	52 778,40	83 673,74	136 452,14	158,5 %
<b>Vastattavaa</b>	<b>1 722 593,67</b>	<b>696 620,98</b>	<b>2 419 214,65</b>	<b>40,4 %</b>
<b>OMA PÄÄOMA</b>	<b>8 531,99</b>	<b>748 434,74</b>	<b>756 966,73</b>	<b>8 772,1 %</b>
Osakepääoma	377 500,00	150 000,00	527 500,00	39,7 %
Edellisten tilikausien voitto (tappio)	-368 968,01	0,00	-368 968,01	-0,0 %
Tilikauden voitto (tappio)	0,00	-401 565,26	-401 565,26	-
Pääomalainat	0,00	1 000 000,00	1 000 000,00	-
<b>VIERAS PÄÄOMA</b>	<b>1 714 061,68</b>	<b>-51 813,76</b>	<b>1 662 247,92</b>	<b>-3,0 %</b>
Pitkäaikainen vieras pääoma	644 766,64	390 053,75	1 034 820,39	60,5 %
Lyhytaikainen vieras pääoma	1 069 295,04	-441 867,51	627 427,53	-41,3 %

**Taseen laskennallinen voitto: -401 565,26**

Picture 4. Aina Wireless Tase



Picture 2. Supply chain interaction with and without supplier