Case Study at Nedap N.V.

Developing a financial solution for longer payment conditions

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Date	08-08-2013
Programme	Business Administration: Financial Management

Abstract

During recent years Nedap is facing problems with payment conditions of partners, these payment conditions fluctuate from 30 days to sometimes even 150 days. Especially in Spain and Portugal in the food retail is this problem prevalent. Partners order at Nedap and install the goods at the customers. These customers can be big retailers (H&M, Decathlon) and small retailers with only a few shops. Nedap is demanding from their partners that they pay within 30 days after ordering the products, but due to long payment periods at customers this is not always possible. Even when partners are offering special financial solutions (renting, selling the contract) customers do not pay on time. This means that cash of Nedap is stuck in accounts receivables and it cannot be used to invest in new projects or assets. So for Nedap it is important that the payment conditions are reduced from more than 120 days to the demanded 30 days. In this way Nedap does not have to invest that much in working capital and can undertake new profitable projects, which will benefit both Nedap and their partners. In order to achieve this Nedap should work together with financial institutions because they offer a variety of solutions that could be beneficial for Nedap These solutions range from factoring, renting to leasing and distribution finance.

To develop a solution the requirements of Nedap, partners and financial institutions are revealed with interviews and conversations. For Nedap it is important that partners pay within 30 days and that partners are financed so they can order and sell more products. For partners it is important that a solution is simple and that it has advantages to the previous solution, such as interest advantages. Financial institutions do not only want the "problem" countries Italy and Spain in their portfolio, as these are high-risk countries. These requirements are matched in order to develop a solution that fits all the parties involved. Therefore the advantages and disadvantages of all the solutions for Nedap will be discussed. The most beneficial solution showed to be distribution finance of GE Capital. This financing fits all the requirements of all parties, Nedap gets their cash within 30 days, the partner is financed and can offer the same solutions to customers as they are used to.

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1. Introduction

1.1 Introduction

Trade credit is for most companies an essential part of their operations (Atanasova, 2007). On almost every balance sheet the items accounts receivable and accounts payable are present. The amount mostly differs per industry, and also companies within the same industry have different amounts of accounts receivables and accounts payables. The level of accounts receivables over assets ranges from 39.28 % in Spain to 19.18% in Finland (García-Tereul, Martínez-Solano, 2010)*. The level of accounts payable ranges from 25.18% in France to 13.17% in Finland (García-Tereul, Martinez-Solano, 2010)*. Trade credit enables firms to create operating efficiencies and cost improvements by separating the exchange of goods and their payments. Ferris (1981) argues that this reduces cash uncertainty in payments.

So, trade credit is a natural way of doing business for most companies (Rajan & Zingales, 1995; Kohler, Britton, & Yates, 2000; Guariglia & Mateut, 2006). Companies can time their cash payments more efficiently (Ferris, 1981) and test the quality of the received product (Smith, 1987). It is also used to develop long-term relationship with a buyer/supplier (Cheng & Pike, 2003). By granting trade credit firms show that they have confidence in the creditworthiness of the buyer. Companies prepare contracts to formalize the agreement to grant trade credit. These contracts are most of the time standard and are either "one-part" or "two-part" (Cuñat, 2007). A "two-part" contract consists of three elements: a discount on the price agreed upon if the buyer pays early, the number of days that qualify for early payment, and the maximum number of days for payment. An example of this sort of contract is: "2-10 net 30" which means that the buyer gets a 2% discount if it pays within ten days and the maximum number of days for payment is 30 days. A "one-part" contract does not have an explicit discount for early payment. The 2% discount for the first ten days is equal to an interest rate of 44%, this is of course extremely high. Bank loans do have much lower interest rates. This raises the question why suppliers offer trade credit because it can be very costly.

Another important disadvantage of trade credit is that a company should have more cash to cover their accounts receivable, as $1 of receivables does not cover $1 dollar of payables (Wu, Rui, & Wu, 2012). Cash flows are very important for companies as with internally generated funds bills can be paid and new investments can be undertaken. In this way the company can keep growing and make profits. So trade credit has to be financed in order to keep sufficient cash within the company. This financing can be done with, for example, short-term bank loans or increasing the accounts payable in order to match revenue and expenses. So for a company it is very important to manage trade credit properly.

So for this thesis several objectives were identified and addressed to create a solution to gain the advantages of trade credit and lower the disadvantages of trade credit:

- Identify the (new) markets in which trade credit/longer payment periods are more imbedded in doing business
- Create a (financial) solution that both fits Nedap N.V. and their (future) partners

* In this investigation seven European countries were included in their sample: Belgium, Finland, France, Greece, Spain, Sweden and the UK.

1.2 Company background

The N.V. Nederlandsche Apparatenfabriek "Nedap" was established in 1929 and has been listed on the stock exchange since 1947. Nedap is a manufacturer of intelligent technological solutions for relevant themes (Nedap, 2012). Nowadays Nedap N.V. has more than 700 employees and is active all around the world. Nedap N.V consists of several business units: Security Management, Livestock Management, Retail, Energy Systems, Light Controls, AVI, Healthcare, PEP, Library Solution, Cimpl. Inventi B.V. is a wholly owned subsidiary of Nedap N.V. Inventi produces the products and systems of the other ten business units, so Nedap produces the products itself. The services and production of Inventi are restricted only to Nedap, so other companies cannot produce at Inventi.

The business units at Nedap focus on their own market segment. They are responsible for the development, marketing and sales of their products. Each business unit operates as an independent enterprise. This created several advantages for Nedap and the markets they serve. Every business unit targets a specific market segment. By making smart use of the knowledge and experience of other market groups, products are developed and launched on the market more quickly (Nedap, 2013). According to Nedap this creates their competitive strength. So, knowledge is not restricted to only one business unit but is flowing through the whole organization, this improves efficiency and extra value is created for the customer.

Nedap created a diversified portfolio of technologies and markets. Unforeseen obstacles can be dealt with this diversified portfolio. Some examples of such changes are: technological changes, higher prices or changes in market behaviour (Nedap, 2013). A diversified portfolio can protect Nedap from these changes if one product group faces these difficulties another product group might not and so the changes can be dealt with.

1.2.1 Performance Nedap N.V.

Nedap is one of the companies that despite the difficult economic climate showed growing revenue and also higher profits. Only in 2009 there was a sharp decline in revenue (€143.9 million to €115.9 million) and profit but recovered in 2010 and since then the revenue grew to €171.9 million in 2012. Also the operating profit of the company went up from €13.9 million in 2011 to €16.4 million in 2012. Nedap achieves this growth by keeping their current partners and by attracting new partners. Nedap expects to keep growing in the long-term despite the uncertain economic conditions. To achieve this growth Nedap has to keep investing in innovation and marketing (Nedap, 2013). In this way Nedap can strengthen their position in the various markets they are operating in. So Nedap keeps investing in developing technologies and products for the current markets they serve and also exploring new markets and so the revenue of Nedap keeps growing.

1.3 Problem definition

As suggested above if Nedap has the goal to keep growing, new markets and customers have to be attracted. At the same time Nedap has to satisfy current partners and customers. To do this Nedap has to invest in both current and new markets. Nedap has to generate sufficient funds to undertake these investments, so a high cash flow is important. A high cash flow is important because firms tend to use internal financing rather than external financing (Myers, 1984). This theory is called the pecking order theory. It predicts that firms rather use internally generated funds (cash flow), then debt and then equity and as a last solution trade credit. This is because of the adverse selection problem (Frank & Goyal, 2003). On internally generated funds there is no adverse selection problem. With equity there is a serious adverse selection problem, and debt has only a major adverse selection problem (Frank & Goyal, 2003). If you view this from the perspective of an outside investor equity is riskier than debt. The adverse selection is present at both equity and debt but the premium on equity is much higher (Frank & Goyal, 2003). So the investor demands a higher return on equity, which will make it more expensive for the company. Related to this is information asymmetry. Managers know more than outside investors about the firm's profitability and the future earnings. Firms tend to issue equity when the stock price is overpriced, investors know this and force the stock price down by selling their equity. Firms give away a lot of information about the company, which is not preferable. Therefore equity financing is more expensive. If a firm uses debt as financing it is not obliged to disclose that much information as it only has to disclose some information to banks and that makes it less expensive. So a firm prefers internally generated funds for financing investments.

To stay competitive Nedap has to keep investing in current markets and in new markets. So for Nedap it is very important to generate sufficient internally generated funds (high cash flow) for their investments, as this is cheaper than equity or debt financing. This is important because corporate investment is sensitive to cash flow (Hovakimian & Hovakimian, 2009). Hovakimian & Hovakimian (2009) find that when cash flow is low companies tend to underinvest and when cash flow is high they tend to overinvest. Managers find it costly to delay investments that they would like to undertake in years of binding constraints (low cash flows). In this way profitable new opportunities and markets are missed and the value of the company will decrease. For Nedap Western-Europe generated most revenue in the past, but this is changing to other markets like North America, Asia and South-America. In these markets the payment periods are longer than Nedap is used to with their current customers. These new customers also want to pay more on credit, which in turn increases accounts receivable for Nedap. In return the customer is restricted to use the goods for a certain time period. So Nedap gets a stable cash flow, but this cash flow is too low to finance new investments. The accounts receivable item on the balance sheet will be significantly higher in the future due to entering these new markets and the payment periods in these specific markets. This means that the cash flow will not be that high, and Nedap will have to forego some profitable future investments. Another problem with accounts receivables is that they have to be financed. This can be done with a line of credit or other institutional loans. Nedap wants to be independent on this sort of finance. Nedap wants to use this sort of finance but do not want to be dependent on it, so gain the advantages of this finance but reduce the disadvantages as much as possible.

To solve these problems and reach the formulated goals in section 1.1 the following main question has been developed:

Research question: *Which financial solution is most beneficial for Nedap N.V. and their partners/customers to deal with negative effects of longer payment periods?*

A solution should be developed in a way that the effects of longer payment periods are lowered. Partners should be able to pay Nedap according to the same payment conditions. Nedap has to receive the amount owed in 30 days, as is negotiated with all the partners and not 60 or 90 days as is now used by the partners. The developed financial solution should not affect the customer or the partners and only benefit Nedap. Customers of the partners should be able to use the same payment conditions as they are used to. If these terms will change Nedap will lose clients to rivals, lose market share, revenue, and profit. If all these requirements are met the most beneficial solution for all parties is developed.

To answer this research question two sub questions are developed. The first sub question is determining which business units are of most interest and which markets and products need a solution. The second sub question is about the demands of both Nedap and their partners for a financial solution. An important part is with which banks/leasing companies they have to cooperate to design a financial solution. The legal consequences and the obligations regarding to IFRS are discussed. The two sub questions and their sub questions are given below.

Sub question 1:

- Which market areas (geographically and product oriented) are of most interest for Nedap N.V to develop a (financial) solution?
    - Which markets demand to pay more on credit, and which markets have a bad reputation with paying their bills?
    - Are there specific products that are more sensitive for paying on credit or longer payment periods?
    - Do (new) partners profit from a solution designed by Nedap N.V. and are they then willingly to buy more products from Nedap N.V. and so start a long-term relationship?
    - Which solution use rivals in the same market?

Sub question 2:

- Which financial solution would be most attractive for Nedap N.V and their partners, so that Nedap N.V. keeps a high cash flow to undertake future investments and keeps growing despite the changing market?
    - Which financial solutions are available?
    - How do Nedap N.V., and their partners currently cope with this problem?
    - What are the demands of Nedap N.V., their partners and the customers?
    - Which financial solution prefer the customers and partners?
    - What are the risks associated with this construction
    - With which companies (banks/lease companies) should Nedap N.V. cooperate in developing a solution?
    - What are the legal consequences and the obligations regarding to IFRS (International Financing Reporting Standard)?

1.4 Relevance

There are several reasons why this research is important. Concerning the social relevance it can be stated that it is important for Nedap to keep investing in new technologies. On the website of Nedap and the year (2012) it is stated that Nedap develops technology that matters. They manufacture technological solutions for relevant themes. This ranges from sufficient food for a growing population, clean drinking water throughout the world to smart networks for sustainable energy. The debate about sustainable energy is important as the amount of fossil fuels is running out, this is only one example in which the importance of the technologies of Nedap is shown. To make new investments sufficient cash flow is very important. If this cash flow drops due to entering new markets in which the payment periods are different or paying on credit is more imbedded, investments are delayed or cancelled. If these investments are cancelled or delayed the society cannot profit from the knowledge within Nedap and problems in the society are not solved. With the results of this research Nedap is ensured of sufficient cash flow to finance their future investments in developing technologies that matter. People from all over the world will profit from these technologies.

The above discussion is also related to the practical relevance. With the results of this research Nedap can give a (financial) package to their partners if they buy products. So there will be no discussion about the payment periods or if is even possible for partners to pay on credit. Nedap delivers this package because they are ensured of a sufficient cash flow, because they are able to finance this trade credit. This package should not be modified for every product Nedap has but it should be standardized so time and money can be saved. Keep investing in new products and developing current products further is also important to gain (sustainable) competitive advantage. This is important because then it is possible to keep growing and increasing market share.

At last there is the theoretical relevance. Theoretically this research is important because it gives a valuable insight in how companies use trade credit, and gain the advantages from it. This research will give some insights about why Nedap uses trade credit and these insights will contribute in the debate on why firms use trade credit.

2. Theoretical Framework

In this section the theoretical framework for this research will be developed. First, the importance of sufficient cash flow for companies will be emphasized with evidence from the literature. We begin with cash flow, as it is one of the most important variables in company success. With sufficient cash, new investments can be undertaken and the value of the company will (normally) increase. This is also called working capital, and is essential for the survival of the company. Second, some theories will be summarized why trade credit is used and what the advantages and disadvantages are. Also the impact on cash flow and (future) investments is being researched. Third, different options for financing trade credit are reviewed. Important in reviewing these options are the consequences for the balance sheet and the income statement. Nedap reports their balance sheet and income statement according to the International Financial Reporting Standards (IFRS).

2.1 Cash flow management

Cash is seen in the literature as very important, if a company has low cash holdings it has to sell some marketable securities (Hillier, Ross, Westerfield, Jaffe & Jordan, 2010) thus the trading costs associated with selling these marketable securities will be lower if the cash balance is higher. If the cash flow is too low it may throw budgets into disarray, distract managers from productive work, defer capital expenditure or delay debt repayments (Minton & Schrand, 1999). Also firms with sufficient cash holdings will not have to forego positive net present value projects (Drobetz & Grüninger, 2007). Not only a low cash balance is bad for the performance of a company, also a volatile cash flow is bad for the company. A volatile cash flow is associated with lower investment and higher costs of accessing external capital (Minton & Schrand, 1999).

If companies forego positive net present value projects it damages future profit and affects the value of the company. Not only managers and executives do not like it but also shareholders will notice that the firm is not undertaking new profitable investments. Companies will not be that attractive to (new) shareholders and the market value of the company will decline. Cash flow volatility is also negatively associated with dividend payouts (Minton & Schrand, 1999). Brav, Graham, Harvey & Michaely (2005) describe some "rules of the game" with respect to corporate decisions. They show that there should be expected severe penalties for cutting dividends. This suggests that shareholders prefer stable dividends. So companies with a volatile cash flow should chose to pay out lower dividends, to avoid the costs associated with cutting dividends. Firms only increase dividends after all investments and liquidity needs are met (Brav et al., 2005). At Nedap they pay out 75% of their profit as dividend (Nedap, 2013). This is a great share and this level of 75% has been stable for several years, and is derived from the strategy and the long-term policy of Nedap.

So the consequences of a too low or volatile cash flow means that companies are not performing optimal. So a company should have sufficient cash holdings because there are several benefits. The literature on corporate cash holdings emphasizes two main motives for holding cash: (i) transaction costs motive and (ii) precautionary motive. These motives will be discussed in detail in the next sections.

2.1.1 Transaction cost motive

The transaction cost motive recognizes that raising external funds involves fixed and variable costs (Drobetz & Grüninger, 2007). These cost components imply that there is an optimal amount of cash to be raised and induces firms to hold cash as a buffer (Drobetz & Grüninger, 2007). This buffer of cash means that firms avoid frequent external funds raising (Lee, Lochhead, Ritter & Zhao, 1996) as this increases costs. Important to note is that these costs have to be balanced against the holding costs associated with liquid assets (Kim, Mauer & Sherman, 1998). Kim et al. (1998) also argue that investments in liquidity are costly since liquid assets earn a low rate of return. However, because of uncertain future internally generated funds and costly external financing companies keep a positive amount of liquid assets. Thus there is a trade-off between the holdings costs associated with liquid assets and the benefit of minimizing the need to seek costly external financing if internally generated funds are insufficient to finance future investments (Kim et al., 1998).

This trade-off is important because the cost of capital is as low as possible, in this way future investments will be more profitable. In their empirical analysis Kim et al. (1998) found evidence that firm size is negatively related to liquidity. This result is also supported by Drobetz & Grüninger (2007). They argue that the holding costs of firms with higher leverage tend to hold less cash supports the idea that opportunity costs of holding cash increase with leverage. Large firms hold less cash due to economies of scale in security issuance (Drobetz & Grüninger, 2007). So companies have to seek for a target cash balance in which they can undertake future investments and not frequently accessing external capital markets, but this need is declining as firm size and leverage increase.

2.1.2 Precautionary motive

The second main motive for holding cash is the precautionary motive. The precautionary motive emphasizes two roles: (i) information asymmetries and (ii) agency costs of debt.

Information asymmetry between managers and investors was pointed out by Myers & Majluf (1984). They argue that information asymmetry makes external finance so expensive. Outsiders have less information than management, their discounting may underprice the securities, given management's information (Myers & Majluf, 1984). This makes the use of external finance so expensive, and therefore managers sometimes decide not to undertake a positive net present value if they do not generate sufficient internal funds. The information asymmetry model predicts that the costs of raising funds increases as securities sold are more information sensitive, and as information asymmetries are more important (Opler, Pinkowitz, Stulz & Williamson, 1999). Information asymmetries can change over time, so if it is unimportant at the moment it can become very important later in time (Opler et al., 1999). Companies can make use of the shifting importance of information asymmetry (Myers & Majluf, 1984). Myers & Majluf (1984) argue that companies can build up some slack when information asymmetries are small. In this way when information asymmetries are large companies do not have to access external finance, and do not have to release sensitive information. So the importance of sufficient cash flow is emphasized as it can reduce the cost of capital when information asymmetry is high.

The second role is the precautionary motive and stresses the agency costs of debt. "*Agency costs of debts arise when the interest of shareholders differ from those of debt holders and/or when diverging interest exists between various classes of debt holders" (*Drobetz & Grüninger, 2007, p.297). Because of these costs highly leveraged firms find it difficult and expensive to raise additional funds and/or renegotiate existing debt contract to prevent bankruptcy (Drobetz & Grüninger, 2007). Jensen & Meckling (1976) argue that these companies have incentives to engage in asset substitution, making debt more expensive both in terms of the required yield and in terms of the covenants attached to the debt. So value is transferred from the bondholders to the shareholders. More risk is placed on the debt holders but they do not get compensated for it, as they only get a fixed return. Myers (1977) states that highly leveraged firms suffer from the underinvestment problem. The old shareholders do have little incentive to provide additional equity capital even if the company has profitable investment projects because the cash flows from these investments disproportionally accrue to creditors. In both cases the agency costs of debt can be so high that firms cannot raise funds and thus forego profitable investment projects.

As can be seen from the above discussion an optimal cash flow and cash balance is very important. It stimulates future growth and financing new (profitable) projects is less risky with internal funds than with attracting funds from the external capital market. As discussed in the introduction Nedap is entering new markets, if companies in these markets are more used/demand to pay on credit the cash flow will probably drop and there are fewer options for new investments. In order to develop a solution for this problem first it needs to be clear what trade credit is and why it is used.

2.2 Trade credit

Trade credit arises when a supplier allows a customer to delay payment for goods that are delivered; it can take the form of accounts receivables or account payables. The investments in trade credit (both accounts receivable and payable) are for most companies in Europe an important item on the balance sheet (Rajan & Zingales, 1995; Bartholdy & Mateus, 2008). To extend trade credit responsibilities for several aspects of the credit-administration must be assigned (Mian & Smith, 1992): (i) The credit risk of the of the potential account debtor must be assessed, (ii) the credit granting decision must be made, (iii) the receivable must be financed until maturity, (iiii) the receivable must be collected, and (v) the default risk must be borne. Trade credit arises most of the times with the purchase of intermediate goods (Cuñat, 2007). The credit terms are most of the times formalized in a contract. These contract are either "two-part" or "one-part" (Cuñat, 2007). *A "two part" contract has three elements: a discount on the price agreed upon if the buyer pays early, the number of days that qualify for early payment, and the maximum number of days for payment* (Cuñat, 2007, p.492). An example of a "two-part" contract is "2-10 net 30, this means that the buyer gets a 2% discount if they pay within ten days. If they do not use this opportunity they have to pay within 30 days (Cuñat, 2007). A "one-part" contract does not have a pre-specified discount for early payment. From the "two-part" contract it is obvious that trade credit is very costly compared to, for example, bank loans. The effective interest rate per year in this contract is 44% (Cuñat, 2007), and this interest rate is much higher than bank loans. This is the general consensus of scholars, they all agree that trade credit is very expensive (Cuñat, 2007; Kestens, Cauwenberge & Bauwhede, 2012).

This raises the question why firms grant trade credit to their buyers and also demand it from their suppliers. Scholars make a distinction between two types of firms in their research: constrained and unconstrained firms (Fazzari, Hubbard & Petersen, 1988; Kaplan & Zingales, 1997, 2000). Constrained firms do have little or no access to institutional loans because most of the time it are start-up companies or companies with a low credit rating. Unconstrained firms have easy access to institutional loans to, for example, finance their short-term debt. These are most of the time mature companies with good credit ratings.

2.3 Pecking order theory

In section 2.1.2 the adverse selection problem was already addressed. This term was used by Myers & Majluf (1984). The pecking order theory says that firms prefer internal funds to debt and prefer debt to equity. Firms prefer internal funds to debt because internal funds have no adverse selection problem. Equity, on the other hand, has a serious adverse selection problem and debt only has a minor adverse selection problem. An outside investor therefore demands a higher rate of return on equity than on debt (Frank & Goyal, 2003). Trade credit has an even more adverse selection problem and is as discussed much more expensive than other forms of financing. Unconstrained firms therefore try to avoid the use of trade credit (Atanasova, 2007). This view is challenged by Giannetti, Burkart & Ellingsen (2008), their empirical results show that trade credit is not a last resort for firms that run out of bank credit. In their sample the majority of firms is granted cheap credit, which makes it more attractive to use trade credit. So there are several views on the use of credit, these are developed in different theories that will be discussed in the next section.

2.4 Theories trade credit

As suggested in the previous section there are different theories on why firms use trade credit. Despite that it is very expensive comparing to institutional loans it is widely used by companies. Scholars developed different theories on why firms use trade credit, the most important theories are:

- Financing advantage of trade credit
- Information advantage hypothesis
- Advantage in controlling the buyer
- Price discrimination through trade credit (marketing/competitiveness motive)
- Transaction costs theory

These theories will be discussed briefly in the next few sections.

2.4.1 Financing advantage

As mentioned in previous sections unconstrained firms try to avoid the use of trade credit. Cheng & Pike (2003) observe that trade credit is an important source of finance for firms with limited access to the capital market. Petersen & Rajan (1997) find that the line of credit appears to be directly financing the accounts receivables of unconstrained or mature companies. This does not mean that relationships with financial institutions increase the amount of trade credit offered to a firm (Petersen & Rajan, 1997). Giannetti et al. (2008) find that this relationship works the other way around. Firms who are offered more trade credit are offered lower fees for obtaining a bank loan. This implies that financial institutions are more willing to extend credit to these firms. A consequence of this is that the demand for trade credit decreases with more access to institutional finance (Atanasova, 2007). So unconstrained firms are financing constrained firms so they have access to institutional loans. So unconstrained firms are doing the tasks in which financial companies are specialized. The reason that financial companies are financing constrained firms in a later stage lies in the information advantage hypothesis.

2.4.2 Information advantage hypothesis

That financial companies finance constrained firms after they have received trade credit is because unconstrained firms are granting trade credit to firms who will not be facing financial distress. Suppliers get additional information from the buyer, such as the size and the timing of the orders (Petersen & Rajan, 1997). Suppliers also might have additional information about the creditworthiness that financial companies do not have (Biais & Gollier, 1997). This information is collected more easily by suppliers than by financial institutions as it is obtained in the normal way of doing business (Petersen & Rajan, 1997). The information advantage hypothesis has been empirically tested by McMillan & Woodruff (1999) and Johnson, McMillan & Woodruff (2002). Their results seem to support the information advantage hypothesis as they show that trade credit is granted when: (i) supplier and customer have a long-standing business relation, (ii) the supplier has information about the customer's creditworthiness, and (iii) the supplier belongs to a network of similar firms.

The supplier knows more about the creditworthiness of the buyer and thus based on this creditworthiness extend trade credit to the buyer. This explains why financial institutions are more willing to grant loans. If a supplier grants trade credit it means the creditworthiness is good and the possibility of facing financial distress is low, and thus financial companies are more willing to extend loans because the risk is lower.

2.4.3 Advantage in controlling the buyer

Another important advantage in granting trade credit is that the supplier can more easily control the buyer than financial institutions are capable of. This has to do with the nature of the supplier-customer lending relationship (Menichini, 2011). It is not a normal credit relationship because instead of cash there is an exchange of goods involved. Goods are not that liquid as cash and thus defaulting on the supplier may provide limited benefits to the customer (Burkart & Ellingsen, 2004). There are not only low benefits on defaulting on the supplier it is also costly. This occurs when the client cannot easily and rapidly secure the same good from elsewhere or when the good supplied is tailored to the needs of a single customer (Menichini, 2011). This gives the supplier market power in that he can threaten to stop deliveries should clients fail to pay and thereby enforce debt repayment better than financial institutions (Cuñat, 2007). Suppliers are also better able to liquidate goods in case of customers default (Fabbri & Menichini, 2010). Whether this is a good option depends on the good characteristics that are traded. Not all goods have a liquidation value in the case of a default. So the amount of control exercised depends on the liquidation value of the goods traded. If the liquidation value is low the control exercised will be much lower, than if the liquidation value is high. Giannetti et al., (2008) provided some evidence in support for this motive. Firms that offer differentiated goods offer more trade credit and firms buying a larger proportion of differentiated goods receive more trade credit. Also the position in the value chain is important in trade credit offered (Summers & Wilson, 2003). Firms extend more credit to manufacturers than to wholesalers and retailers (Summers & Wilson, 2003; Ng, Smith & Smith, 1999). They argue that this is because customers with non-salvageable industry specific investment would be deemed more creditworthy. They also argue that manufacturers have a greater demand for credit because they have to finance their production period, while others customer types do not have this.

2.4.4 Marketing/competitiveness motive

Trade credit seems to represent an appropriate marketing mechanism, Garcia-Tereul & Martinez-Solano (2010) found results supporting the price discrimination theory. Trade credit can aid promotional and pricing decisions, and maintain competitiveness and corporate image (Cheng & Pike, 2003). It is often theorized that trade credit is granted by suppliers because of long-term interest in the buyers. Cheng & Pike (2003) tested this proposition and found strong support for it. If a supplier grants trade credit it signals an investment intention to develop an on-going relationship with the buyer. Firms with (high) growth opportunities and are cash-constrained get support from suppliers in the form of trade credit (Petersen & Rajan, 1997). These cash-constrained firms with high growth opportunities are most of the time young and small companies. These companies do not only receive more trade credit, they also “buy” sales by extending more trade credit (Petersen & Rajan, 1997). Suppliers grant trade credit because they foresee that the buyer in the future will have high profits and it could become a valuable customer that will generate significant revenue for the supplier. Because the supplier was supportive in the beginning years it is more likely that the buyer does not switch to a rival for products. So suppliers anticipate that they will benefit from the early-stage relationship with the buyer. Extending trade credit thus depends on the relationship a company wants to develop with their suppliers of clients. Seifert & Seifert (2011) developed a framework in which they developed several questions companies should ask themselves when extending trade credit. Figure 1 shows the credit decision tree companies should follow. The relationship differs if you want to develop a long-term relationship with client. If a long-term relationship should be developed trade credit should be used to give some discount on the products, the supplier signals that he is confident that a good relationship will be developed. If the relationship is transactional, industry standards should be followed or the clients should be “squeezed”. This means direct payment of discount schemes to speed up payment. From these clients you should get the money as quick as possible.

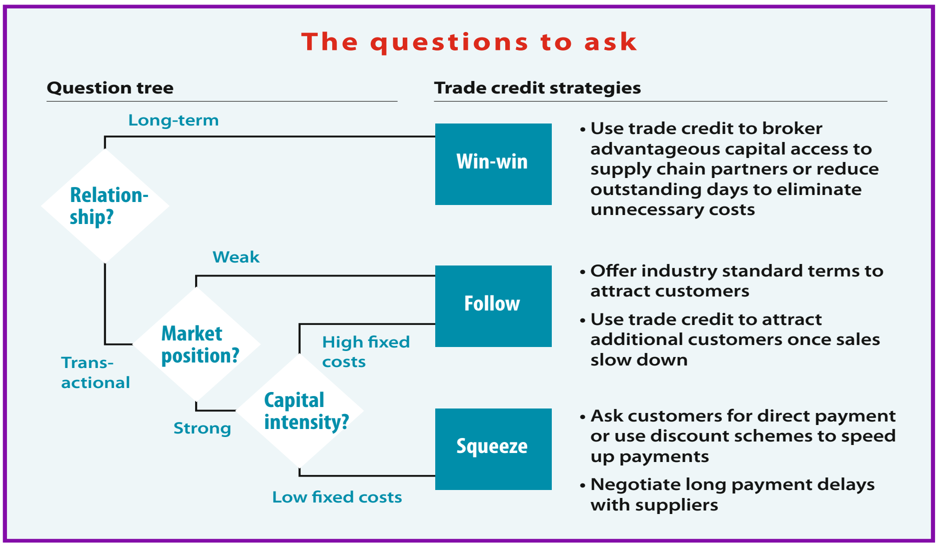

Figure 1: Credit decision tree. Adapted from "Financing the Chain" by Seifert R.W.., & Seifert, D. (2011). *International Commerce Review*

2.4.5 Transaction costs theory

Ferris (1981) coined the term transaction costs theory. Trade credit might reduce the transaction costs of paying bills. The transaction costs theory ties the trade credit use to the variability and uncertainty in the firm's trading flows. Instead of paying bills every time the goods are delivered, firms may centralize payments at the end of the month or quarter and use trade credit to bridge the period between purchase and payment (Huyghebaert, 2006).

Another transaction cost argument is that suppliers may provide trade credit to signal their confidence in product quality (Long, Malitz & Ravid, 1993). Buyers can inspect the quality of the product during the credit period. "*In this manner, trade credit can help to reduce the transaction costs of concluding deals"* (Huyghebaert, 2006). Transaction costs theory thus not only saves cost it is also a marketing tool, and related to the marketing/competitiveness motive.

2.5 Credit policy

As explained above trade credit is widely used by companies. They demand it from their suppliers and grant it to their customers. This is despite the high-implied costs of trade credit, which are very high compared to bank loans. To grant trade credit companies need to finance their granted trade credit. As said before Petersen & Rajan (1997) have found that the line of credit appears to directly finance the accounts receivables of unconstrained firms. This is one of the options for financing the accounts receivables and ensuring that the cash flow is high enough for new investments. Wu, Rui & Wu (2012) argue that account payables and receivables have an asymmetric effect on cash holdings, in that $1 of receivables does not cover $1 of payables. So firms need to finance their receivables because the same amount of payables does not reflect the same value. In this section several options for financing accounts receivables are discussed.

2.5.1 Factoring

"*Factoring is a type of supplier financing in which firms sell their creditworthy accounts receivables at a discount (generally equal to interest plus service fees)* *and receive immediate cash"* (Klapper, 2006). Factoring cannot be seen as a loan and there are no additional liabilities on the balance sheet, although it provides working capital (Klapper, 2006). The discount on the accounts receivables is being paid when the receivables are paid to the factor (Klapper, 2006). This implies that the company that sells their account receivables will have enough cash to undertake new investments. Factoring is thus an important way of financing for businesses. This is illustrated by the fact that the worldwide factoring was $860 billion, this was a 88% growth rate since 1998 (Klapper, 2006). There are two different factoring contracts: recourse and non-recourse contracts (Asselbergh, 1999).

In a non-recourse contract the factor makes the credit-extension decision, monitors and collects the accounts receivables and bears the credit risk (Asselbergh, 1999). In a recourse contract the firm selling on credit retains the risk of non-recovery of the debt (Asselbergh, 1999). There are several reasons to outsource your accounts receivables. These reasons are related to the theories discussed in section 2.4. Asselbergh (1999) finds that suppliers who are using trade credit as a pricing motive do not outsource their control in managing outstanding receivables. He also tested a hypothesis related to the transaction motive. He finds that both older companies and companies with larger of amounts total assets will find it more comfortable to internalize their accounts receivable management. This is because these companies already have proven that they produce and deliver good quality products and do not have to extend that much trade credit to customers. Smith & Schnucker (1994) also confirm this result, that larger firms more internalize their accounts receivables collection. They also found that factoring is more beneficial for sellers with geographically disperse buyers. Sopranzetti (1998) has examined the optimal factoring contract. He finds that the optimal contract to require recourse is governed by three factors: the credit quality of the seller's account receivables, the seller's solvency, and the seller's reputation.

2.5.2 Securitization

Securitization is also called asset securitization. There are a lot of assets which have been securitized, they range from credit card receivables (Dvorak, 2001) to oil and gas reserves (Harrel, Rice & Shearer, 1997). Account receivables are securitized the most of all financial assets(Schwarz, 1994). The focus in this study will be on the accounts receivables. Securitization differs in two ways from factoring (Palia & Sopranzetti, 2004): first, receivables securitization allows firms to sell a portion of the payoffs to any given receivable, while factoring typically constrains firms to sell the entire receivable. Second, the buyer in a receivables securitization arrangement commonly does not have the facilities to perform an on-going monitoring of the underlying receivable, and instead must rely upon the seller to perform the monitoring functions. Factoring companies have highly developed credit management departments and are specialized in assessing the credit quality of the receivables. Due to less specialized credit management involving securitization the seller keeps the riskier accounts receivables and sells the safer accounts receivables. Palia & Sopranzetti (2004) show that the optimal securitization contract is characterized by the seller monitoring at an efficient level and remaining an equity interest in a portion of the accounts receivable sold. This interest in a portion of the accounts receivables gives the seller an incentive to actively collect the accounts receivables and actively monitor the credit quality of the customers. Also important is that they will not supply trade credit to low credit quality companies, as it will not be possible to securitize them.

2.5.3 Leases

The FASB and IASB distinguish two types of leases: financial leases and operating leases. These two types of lease have some distinct characteristics. Therefore they will be discussed in detail below. The main difference between an operating lease and a financial lease is the appearance on the balance sheet. An operating lease does not have to be shown on the balance sheet, whereas a financial lease should be reported on the balance sheet. "*Under current accounting standards (SFAS 13) the differential classification and accounting for leases is based on the retention of ownership risks*" (Dhaliwal, Lee & Neamtiu, 2011, p.156). Thus it is considered that the lessee acquires ownership benefits and the risks associated with the leased assets. Therefore, the lessee treats the lease transaction as if it purchases the assets and thus has to record it on the balance sheet. Compared with operating leases, financial leases increase companies' reported financial leverage and its operating leverage.

Leasing is for Nedap not a solution as this creates the same problem as described in the introduction, they get paid monthly and thus the cash flow stays low. A possible solution might be that they sign a contract with a leasing company/bank in which the name of Nedap is incorporated. The subsidiary can buy the products and lease this to the partners. So Nedap is ensured of enough cash and the partners have been satisfied in their needs, as it is possible to pay on credit. This possible solution for financing trade credit is, although in a different form, discussed in Section 2.5.4 captive finance companies.

2.5.3.1 Operating leases

An operating lease is a lease where the lessee receives an operator along with the equipment (Hillier et al., 2010). An operating lease has some important characteristics. Operating leases are usually not fully amortized, this is because the life of the operating lease is usually less than the economic life. Thus the lessor has to either renew the lease or sell the asset at the residual value (Hillier et al., 2010). Another interesting feature of an operating lease is the cancellation option. The lessee has the right to cancel the lease contract before the expiration date. The importance of operating leases is shown in a report of the Securities and Exchange Commission (2005) that approximately 63% of all U.S. issuers report operating leases, and a total of $1.25 trillion in undiscounted noncancelable future cash flow obligations associated with operating leases that do not appear on the companies' balance sheet.

2.5.3.2 Financial leases

As stated before financial leases have to be reported on the balance sheet. Showing these leases on the balance sheet has some adverse effect on the financial ratios. The lessor also does not have to provide maintenance or service, as the ownership is fully transferred (or at least 75%, SFAS 13) to the lessee. Another important difference is that financial leases are fully amortized, and the lessee has the right to renew the contract at the end of the lease. In SFAS 13 a lease is classified as a capital lease if it meets one of the following four criteria:

I. The lease transfers ownership of the property to the lessee by the end of the lease term.
II. The lease contains a bargain purchase option
III. The lease term is equal to 75 percent or more of the estimated economic life of the leased property. However, if the beginning of the lease term falls within the last 25 percent of the total estimated economic life of the leased property, including earlier years of use, this criterion shall not be used for purposes of classifying the lease.
IV. The present value at the beginning of the lease term of the minimum lease payments, excluding that portion of the payments representing executory costs such as insurance, maintenance, and taxes to be paid by the lessor, including any profit thereon, equals or exceeds 90 percent of the excess of the fair value of the leased property to the lessor at the inception of the lease over any related investment tax credit retained by the lessor and expected to realized by him.

If one of these criteria is met a lease is classified as a financial lease. The critics on these classifications are that lessees can balance around these rules and ensure that a lease is classified as an operating lease. This means that companies do not have to report these assets on the balance sheet, but they generate revenues with these leased assets. With using these techniques the financial ratios can be improved. As there are fewer assets on the balance sheet and more revenues, the consequence is that the Return On Assets (ROA) will be higher.

In IAS 13 it is explained how operating and financial leases should be treated. In operating lease the lease payments are treated as expenses and thus appear on a firm's income statement. With a financial lease the leased asset appears on the balance sheet and is depreciated the same way as the other assets. In contrast, if the lessor leases out an asset as an operating lease the lessor has effective ownership of the asset. The consequence is that the lessor must record it in its balance sheet and must depreciate it the same as other assets. A lessor treats the payments of the financial lease as revenue, and thus it appears on the income statement.

2.5.3.3 Proposed changes in lease accounting

To overcome the problems discussed in the previous section the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) released a discussion paper related to the existing lease accounting rules. This would eliminate the existing off-balance sheet treatment of operating leases (FASB, 2009). The classification between capital and operating leases will disappear. Lessees have to capitalize all leases as assets and liabilities on the balance sheet at the discounted present value of the expected lease payments (Singh, 2012). The leased asset will be depreciated over the shorter term of the lease or the economic life of the asset. The lease payments will be allocated between a reduction in the outstanding principal lease liability and interest expense instead of expensing the entire lease payment (Singh, 2012). Also operating leases have to be shown on the balance sheet. Companies are worried about the consequences of the proposed changes regarding the financial statements (Singh, 2012). "*Companies are concerned that the proposed changes* *will dramatically change the amount of debt and assets that is capitalized on the balance sheet and the location and amount of expenses recognized on the income statement"* (Singh, 2012, p.336).

These changes will have some severe impact on debt-related ratios (leverage, times interest earned), debt-to-equity ratios and other ratios (Singh, 2012). Therefore companies need to assess and plan for the implementation of these new rules. Or else the changes will severely affect the company and the firm might not be able to attract additional financing because the ratios are too bad.

2.5.4 Captive finance companies

"Captive finance companies are subsidiaries that finance the sales of products of their parent manufacturers" (Barron, Chong & Staten, 2008, p.174). Establishing a captive finance company means that the credit-administration process remains within the company. Larger, more creditworthy companies establish captive finance companies. A captive finance company issues debt that is not directly guaranteed by the parent company, it uses this debt to buy the accounts receivables of the parent company (Mian & Smith, 1992). In the literature there is an agreement that captive finance companies weakens the holders of the firm's outstanding debt (Roberts & Viscione, 1981). This is because liquid assets are removed from the books of the parent company, and thus have holders of debt of the company less to claim in case of default. The captive finance company is legally separated from the parent company. This legal separation contains the risk within a subsidiary (Roberts & Viscione, 1981).

There are several advantages to having a captive finance company. A seller with specialized product or customer knowledge and higher repossession value relative to other creditors may be more effective at screening (Banner, 1958). They can reach out more easily to low quality customers (Mian & Smith, 1992; Petersen & Rajan, 1997). Also important is that selling on credit should allow a company to engage effective in price discrimination by coordinating credit terms and output prices (Mian & Smith, 1992). Roberts & Viscione (1981) argue that this legal separation gives another advantage. The legal separation allows the subsidiary to issue bonds backed by a specific source of revenue (account receivables), making it easier for creditors to evaluate the riskiness of the bond and allowing a captive to finance its receivables at a lower rate. Bodnaruk, O'Brien & Simonov (2012) argue that captive finance companies face two conflicting interests: profit maximizing and promotion of merchandize of the parent company. This is related to the previous advantage, because the captive finance subsidiary could potentially offer customers loans below the market rate and/or lower screening standards to help the parent company grab a larger market share (Banner, 1958; Barron et al., 2008). This is not possible if financing is arranged through a third-party lender, as they do not offer loans below the market rate as they have to make a profit.

2.6 Conclusion

In this section the theoretical framework for this research has been developed. It gives an overview of why sufficient cash is important for companies, and what effect trade credit has on cash flow. Trade credit has some advantages and disadvantages and that credit management has to be organized very well. The most relevant options for financing trade credit are summarized and might be implemented at Nedap. So with this framework the remainder of this research can be developed.

3. Methodology

As stated in the introduction the two main research questions for this research are developed. In order to answer these questions satisfactorily several sub-questions were formulated. This section will include a description of the research design. The data collection method will be described and the scope of the study will be determined.

Fig 2: Research design

3.1 Research Method

There are a lot of different research designs. Verschuren & Doorewaard (2007) discuss the five most relevant research strategies: survey research, experiment, case study, theory study, and desk research. This research focuses on one specific organization: Nedap N.V. The results that are found in this study are specific for Nedap N.V and cannot be generalized to another case. For this kind of research a case study is most suitable. This is because a case study is expected to catch the complexity of a single case (Stake, 1995). "*Case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances*" (Stake, 1995, p.xi). A case study is characterized by: small number of observation units, in-depth approach, selective sampling, observations at location, and qualitative data and research methods. Most case studies are practice-oriented and describe the design, implementation, and/or evaluation of some interventions, or illustrate the usefulness of a theory or approach to a specific company or situation (Dul & Hak, 2008). In this thesis a design will be developed that can be implemented at Nedap A financial solution will be developed where both Nedap and the partners can profit from. So the goal of this thesis is:

- Design a financial solution so that Nedap N.V can provide longer payment periods/ grant trade credit to partners, so that the restraints by the partners are taken away for buying products at Nedap and keeping the cash flow of Nedap at a high level for undertaking future investments.

To design such a financial solution the research questions that were formulated in the introduction have to be answered. In figure 1 it can be seen which steps have to be performed to reach the formulated goal. In the next section these steps will be explained more specifically.

3.2 Scope

From Figure one it becomes clear that the scope of this thesis has to be determined more specifically. During the conversations with the mentor at Nedap it became cleat that the problem that was formulated in the introduction is not an issue in all business units. The mentor said that five business units (Retail/Livestock Management/AVI, Security Management/Library Solutions) faced this problem, but that it is not urgent at all of these business units. So to determine at which business units to focus interviews will be held with employees of these four business units. The goal is to determine how urgent a financial solution is for the concerning departments. After conducting the interviews the scope might be narrowed down to one or two departments, depending on how necessary a financial solution is at the moment.

These interviews are not only for determining the definitive scope. In these interviews the markets and products to focus on are defined. This is important because different markets have different needs. The problem defined in the introduction might be more prevalent in certain markets, this could be due financial problems, culture or habit. A more sophisticated solution can be created if the markets are defined.

The part described above is from Nedap point of view. Nedap is the supplier of trade credit and longer payment periods for their products. It is important to know under which conditions Nedap grants trade credit/longer payment periods to their partners. There is also a demand side, these are the partners/customers of Nedap. After having determined the markets in which the problem is most urgent, partners in these markets will be contacted for conducting interviews with employees of these partners. The demand side of extending trade credit is important because demand and supply need to be matched so that the solution fits both parties. The different demands of both the supplier (Nedap) and the receiver (partners) will be matched, and together with the theoretical framework developed in section two a financial solution that is practical relevant and theoretically grounded will be developed.

There is another party that is important in developing a solution. These are the leasing companies that can facilitate in developing a financial solution. They are important because they are specialized in these financial products and have also knowledge about the creditworthiness of specific markets. So specific leasing companies have to be found who are willing to develop a financial solution for Nedap, which can be implemented in these markets. So leasing companies are also included in the scope of this thesis. The main question is if there are leasing companies who can facilitate the special needs of both Nedap and their partners.

3.3 Data Collection

The data will be collected by interviewing employees who are directly involved in extending trade credit. As stated before the scope has to be determined more specifically during interviews with the employees. For this research a semi-structured interview is chosen because if you do not follow the questions listed it is possible to go in-depth about some topics (Babbie, 2010). The second set of interviews will be with partners in the markets in which the problems are of most importance. The markets will be selected after the first set of interviews. After these interviews the importance of trade credit in certain markets/of certain products can be determined. The second set of interviews will also be semi-structured as it probably generates more in-depth information about the different topics.

The questions will be based on the theoretical framework that was developed in section two. In this way a theoretical basis for the interviews is ensured. In section two several motives for granting trade credit were given. The questions developed for the interview are based on these motives that were given in the theoretical framework. The motive for extending trade credit is the most important data that must be retrieved from the employees. The motive affects the proposed solution, as it requires another way of managing accounts receivables. To collect the data properly first the goals for the interviews were determined, this guides the interview in the right direction. From this goal several sub goals were derived which make the goal of the interview even clearer and gives guidelines about what is important.

For the first set of interviews seven employees were selected. These employees represented five business units as mentioned before. These seven employees were selected in consultation with the mentor at Nedap He sent an internal mail to the business units with the question whether there was a need to find a solution for this problem. These five business units responded positively. After these business units were selected the mentor gave the names of seven employees who have the most knowledge about this topic. These employees were approached for conducting an interview. The employees had different tasks and responsibilities within Nedap The details of the employees can be found in the table in Appendix 1. Four employees are selected from the business unit retail, and from the other three business units only one employee was selected.

This is done because the problem was anticipated to be most prevalent at the retail business unit. The questions that were developed for conducting the interview can be found in Appendix 2 The interviews are divided in three parts: *markets*, *products*, and *trade credit*. The category markets is to discover in which markets granting trade credit is embedded in conducting business or in the culture. The problems are more prevalent in these markets and a solution will be more necessary in these countries. Differences in markets are also observed by Summers & Wilson (2003, p.452); *"firm-level decisions on credit extension are moderated by the current dynamics of market competition"*. That market competition affects credit is also confirmed by Cheng & Pike (2003), as firms that operate in competitive markets are 'compelled' to offer normal industry credit terms. Credit extension is also affected by the nature of the suppliers market and the characteristics of the customer base (Summers & Wilson, 2003). So it is dependent on the market in which you are active how much credit is offered. The category products is important as there might be some differences in granting trade credit because of product characteristics. As discussed in Section 2.4.3 Giannetti et al. (2008) found some support for this claim, firms that offer differentiated goods offer more trade credit and firms buying a larger proportion of differentiated goods receive more trade credit. Also firms that buy large proportion of services have a smaller proportion of supplier offering discounts (Giannetti et al., 2008). It is interesting to find out whether the reasons are market or product related for granting trade credit by Nedap, the focus should be on the most important reason. The last category is trade credit, as discussed in the theoretical framework there are several theories on why companies use trade credit. This category will reveal the reasons why Nedap uses trade credit and which theory receives some support. The results can be integrated in the solution so that the solution is theoretically based. With these interviews sub question one can be answered and the foundation for sub question two has been laid.

Sub Question 2 is about the demands of Nedap the partners and the solutions that leasing companies/banks offer. Interviews will take place with partners and these interviews consist of four themes: *segments*, *products*, *current situation*, and *requirements new solution*. The interview for partners can be found in Appendix 3 The category segment is developed because, as shown in the theoretical framework, firms extend more credit to manufacturers than to wholesalers and retailers (Summer & Wilson, 2003; Ng et al., 1999). The segment in which partners operate is important for the solution. To develop the optimal solution the current situation at the partner is important, so it is clear what the problems are and what can be improved. The last category is possible solutions, this is about what the requirements are for the partners for a new solution. Demands from the partners are just as important as the demands of Nedap Holland. Partners of Nedap should not be "squeezed" in the new solution. Combined with the requirements of Nedap and the banks/leasing companies a solution that fits all parties involved will be developed.

The interviews that will be conducted are for collecting the primary data. Second-hand data will also be used. This means using information from the annual reports, internal documentation and observations. This gives a comprehensive view of the problem and an appropriate solution for Nedap can be designed. Important data that is also useful for this research is how rivals of

Nedap coped with this problem. Checkpoint systems, Inc. is a rival of Nedap and is much bigger than Nedap and has coped with this problem years ago. It is interesting to discover what kind of solution they developed. This solution probably will not fit the demands of Nedap and their partners, but it gives an indication in which direction the solution will go.

3.4 Analysis

After conducting this first set of interviews the data that was generated by the interviews will be analysed. As discussed in Section 3.3 the questions of the interview are based on the theoretical framework. This makes the analysis easier as the same topics are grouped together. The interviews will be typed out literally. In this way it is clearer to understand the meaning of what the interviewees say. A more in-depth view of the experiences of employees and the partners will be developed. This analysis will reveal markets and product groups that are of most importance for developing a solution. After this step partners in these markets are contacted and interviews are scheduled with employees of the partners. This way data is collected from the demand point of view. These interviews will also be types out literally for the same reasons as mentioned above. The reasons for demanding trade credit are discovered, and what their demands are for a financial solution. Together with the data and requirements of Nedap, partners and banks/leasing companies an integrated solution can be developed.

The results section will begin with a description of the needs of the five business units, and which problems they experience with longer payment conditions. Which markets it is most prevalent and if there are any products that are more sensitive for long payment conditions. After this section the solution of the rivals will be discussed because they experienced this problem already a few years ago. It is important to look at these rivals as it gives insights about possible solutions. Then the chosen partners of Nedap will be introduced and which markets and products are important for these partners. Also the current financing constructions are discussed, so differences between partners will be discovered. After all the general information has been given the requirements of Nedap, partners, and the banks/leasing companies will be summed up. This will lead to the proposed financial solution, as these requirements should be brought into line with each other. This creates a solution that is beneficial for all the parties involved.

4. Results

In this section the formulated sub questions will be answered. First, the sub questions of research question one will be answered, as this is the first step in developing a financial solution. These sub questions will be answered based on the interviews held with the employees of Nedap. With answering these sub questions the scope will be definitively determined. Second, the sub questions of research question two will be answered. These questions will give an answer which solution is most preferable for the partners and Nedap and also with which corporations Nedap should cooperate in developing a solution.

As stated before the scope of this thesis will be determined by conducting interviews with employees of the different business units. These different business units are: retail, livestock management, library solutions, and AVI/security management. The main findings per business units will be summarized, and after that some conclusions regarding the scope will be drawn. In this way the scope will be determined definitive. To design a solution it is also important to look at rivals and how they coped with these problems, if they have encountered such problems. So this will also be described in this section

4.1 Retail

4.1.1 Retail Markets

The business unit retail is active all around the world. They formulate different goals regarding the markets they want to enter. There are markets that they have to enter, and there are markets they want to enter. The core market of retail is Europe with a strong position in Russia and Turkey, Middle-East especially the Emirates and Saudi and some countries surrounding these countries but their economy is less viable. Retail is also constructing some business in Asia and South-America, they ignore Africa except the French speaking countries Morocco and Tunisia. From the interviews it became clear that the formulated problem statement is most significant in America and Europe. In the long term it is possible that this problem could be faced in Asia because Atradius, their insurance partner, is not represented that much in Asia.

As is stated above the main problem is the most significant in America and Europe. According to one interviewed employee, product characteristics have no influence on the demand to pay on credit or have longer payment periods. This purely depends on the culture in the markets in which Nedap sells these products. The problems are most prevalent in Europe. According to one of the interviewed employees the problem has to be divided in two different problems: partner financing problem, and a leasing problem. The leasing problem is most significant in markets were the food retail is important, so in markets with a lot of supermarkets, hypermarkets and so on. The markets Spain, and Italy are especially of importance regarding the leasing problem, markets like Germany and Scandinavia are not of importance regarding this problem. They sometimes have payment periods up to 200 days after receiving the products. Another employee of retail, who was active in the food retail, also acknowledged this problem, that in Southern Europe the payment periods are very long.

The second problem stated above is the partner-financing problem. The partners are in the middle of Nedap and the customers. Some orders they get directly from Nedap and a great part of the orders the partner has to collect by itself. This partner-financing problem plays an important role in economies that are growing (very) fast, so the current state of the economy differs greatly from where it will be in the future. An important consequence of this is that the partners in these countries are smaller, so they do not have that much financial power. If a client wants to pay on credit and Nedap demands that the partner pays upfront, the partner will be faced with some serious financial problems. All their money is either in accounts payable or receivable, so the liquidity of the company is not good. The probability of default will rise despite the growing options the company has, because the partner has to finance the project upfront. Leasing is a wish to offer to the customer and partner financing is almost a must to offer. So the financing for the partner is more important, but the advantages of the developed solution should be passed on to the customer. On the short-term this is especially the case in Europe and more specific Eastern Europe and Southern Europe.

4.1.2 Retail Products

As stated above the problems at food retail are most significant in the Southern-Europe countries (Italy and Spain), these are also the most important markets for the food retail. Food retail consists of hypermarkets and supermarkets, and are a growth opportunity for Nedap The interviewed employee who was active in the food retail said that the most important product for the food retail is EAS (Electronic Article Surveillance). The normal depreciation time for this product is five years. For this product there is a huge potential market in Germany. In Germany the food retailers do not have that much EAS and thus a big potential market can be served. Important to note here is that almost all food retailers in Germany are franchised. In these franchises the financial power is important. If such a franchise has to pay in one time for EAS it probably will not consider it, as it is too expensive. According to the interviewed employee of food retail if a financial solution was developed so that franchise companies could spread the payments over a longer period than Nedap could develop a strong position in Germany. With a solution you take away a part of the problem and for the franchise in the food retail it is easier to choose for Nedap.

4.2 Livestock Management

The business unit livestock management is active all around the world. The financing issue in this business unit is especially in new markets, markets that are developing fast. Markets that are of most importance regarding this problem are Asia and Eastern Europe. These markets are of most importance because the way of conducting business is changing in these markets. An important future market might be Western Europe, as these solutions are becoming more important.

This change in financing is because the traditional “farmer” is disappearing, and stock farming is more in the hands of (listed) companies. These companies are coping in a different way regarding financing their operations, they are more diversified and can acquire loans at a better rate. Also because of their size they can put pressure on their suppliers to gain longer payment periods or obtaining a lease contract. These companies are more business like than the traditional farmer. At the moment they do not offer a solution to their partners/customers. This is also because the products they sell are integrated in a bigger project, namely a stable. If a company or farmer wants to build a stable they seek finance for the whole project, including the products of Nedap. On the other hand there are some markets in which leasing of stables or stable interior is more usual. Livestock management does not offer a solution but sends the order to the dealer who has to find companies in the market that want to finance the project. So this might create the problem as stated in 4.1.1 that the partner faces liquidity problems and eventually goes in default. So partner financing is, just as in retail, very important. In the end it is important that the advantages of partner financing should be for the end customer, as they create the revenue and should benefit of a solution. If the advantage of the solution is delivered to the end customer the employee is certain that it will boost the sales of Livestock Management.

4.3 Librix

Librix is active all around the world: Europe, South-America, North America, Middle East, Eastern Europe especially Poland, Russia and they are considering to expand further in Asia. According to the interviewed employee nowadays the partners are asking for longer payment periods. This is especially the case in Europe because of the current economic situation, all companies want to keep their cash within the company. Therefore Librix has more discussion with partners about payment periods. The standard payment period applies is 30 days and there are some requests of partners who want to pay in 60 or 90 days, but 99% of the partners pays within 30 days. This also creates clarity to the partners. The employee also notes that because they use 30 days as payment period they probably lose some clients. Rivals use more favourable payment periods and clients might prefer the products of these rivals

Of the above stated markets the problem is most significant in Europe, but the interviewed employee does not think that Librix should facilitate a solution. This is because the products that Librix serves to their partners are part of a bigger project, just as with Livestock Management. He thinks that the partners should find financing for the whole project, and this includes the products of Librix. They also see more partners who offer their project with a leasing construction to the end customer. The partner sells the whole project to a financial company who draws up a leasing contract for the customer. So the problem is present but the products of Librix do not represent a significant value of the total project value to develop a solution. He also notes that if a solution is created in another business unit that they consider implementing it in Librix. This because it is of added value to the partner, but it is not a guarantee that Librix will win more orders.

4.4 AVI/Security Management

Avi and Security Management are two different business unit. They both are active all around the world. There are no specific markets that demand longer payment periods. Both business units use a standard payment period of 30 days. In consultation with the partner payment periods of 45 or 60 days are used. At the moment there is no solution offered to the partners. The interviewed employee suspected that they lost sales because of the absence of a solution. Especially when rivals offered a solution to clients.

The low demand to pay on credit or have longer payment periods has the same reason as in the business units Livestock Management and Librix. Investment in products of AVI/Security Management is low compared to the value of the project. This value is even less than in the other two business units, and represents most of the time only 1-2% of the total project value. Therefore it is not necessary for the partners to seek financing for the products of AVI/Security Management. This relative small investment is most of the time fulfilled within 30 days.

One exception was mentioned during the interview, namely the product group Sensit. With this system it can be seen how much parking spots are taken in a parking garage or parking place. Local authorities are the main customers of this product and they request sometimes longer payment periods or to pay on credit. Sensit also has a higher initial investment than other products of AVI and Security Management and thus more sensitive longer for requests of longer payment periods or paying on credit. So for the product group Sensit a financial solution would be beneficial for Nedap and their partners.

4.5 Rivals

In the previous section it became clear that Nedap has no solution for partners/customers if they want to pay on credit or want to spread their payments over a longer time. Almost all interviewed employees noted that they could loose some sales because of a missing suitable solution. Most business units use a payment period of 30 days, this is short compared to rivals. Competitors most of the time use 45 or 60 days, this could give a boost to the sales of your products. As discussed in the theoretical framework another option is to give a 2-3% discount if clients pay within a certain time period. Therefore it is interesting how some major competitors of Nedap have coped with this problem and what kind of solution they developed.

One of the employees worked at Checkpoint Systems Inc. This is a major competitor of Nedap, especially for the business unit Retail, and is much bigger with a turnover of around $700 million (2012, Checkpoint). They are the main competitors for Nedap Italy and Nedap Spain. This is an American company and they want their money as fast as possible. The employee said that they described this as following: Cash is king. From this sentence it can be seen that they are very strict in collecting their money and develop special constructions for collecting this money. With this money new investment can be undertaken with a higher return than if it is stuck in account receivables. Checkpoint Systems experienced the problems, which Nedap is facing, years ago. The solution that Checkpoint has implemented is possible because they work somewhat different than Nedap.

Nedap works with distributors in the different countries who also have their own name, for example; Nedap Italy is called Omnisint but they use all the logos of Nedap. Checkpoint has their companies in the different countries organised as a branch. They present themselves as a group with their international business. Because they present themselves like a group they can arrange contracts internationally and have the same agreement in all the countries, which is more profitable.

They constructed an international leasing agreement. They sell the product to a bank/leasing company, receive their money from the bank. The bank then leases it for X years in Y terms with an interest rate of Z%. In this way the client has longer payment terms and Checkpoint Systems Inc. has their cash. The bank/leasing company can arrange insurance with a credit insurance company, so that if the client goes in default they still can get a certain percentage of the remaining payments. This is a simple construction, but effective because the cash is collected and the risk has been shifted to the banks/leasing companies. All the subsidiaries in the different countries sign the leasing contracts directly with the customers. If they have a bunch of signed contracts they send them to the headquarters, together with other countries. The headquarters then negotiates the selling of all these contracts to the bank/financial company.

This way of doing business is also called a shared treasury system. Because Checkpoint has big volumes they have good negotiation power over the banks/financial company and can arrange profitable clauses in selling the contracts. They make profit both ways, they make a profit by charging interest to the customer and by selling the contract to the bank. So due to that the subsidiaries are organized as a branch and the good negotiation power they have created a sound revenue model.

Livestock Management also has a rival who uses financing as a tool to enter a market and gain sustained competitive advantage. This rival is the German company: The Big Dutchman. Nowadays they are much bigger than Nedap, they generated a revenue of almost $1.2 billion. This is also because they can build the whole stable including the interior and the building. They almost doubled their revenue from 2007 to 2011 ($660,876 million to $1,154,163 billion). According to the employee from Livestock Management they captured Eastern Europe with very advantageous financing options for their clients. The Big Dutchman collaborated with a German export bank to capture Eastern Europe. This export bank offered them very advantageous terms for offering a leasing contract in Eastern Europe. Competitors could not offer the same options as the Big Dutchman could and so Eastern Europe is for 90% in their hands. The employees of Livestock Management compared the offers of the Big Dutchman and Livestock Management. The conclusion was that they do not have a chance in these markets, because the options of Livestock Management are less favourable. The Big Dutchman is a good example of how (new) financing options can create sustained competitive advantage.

4.6 Conclusion

In the previous sections the sub questions of research question one have been answered. This research question has been developed because the scope of this research had to be determined. Five business units were selected in consultation with the mentor. From these five business units Livestock Management and Retail have the most need for a financial solution. In consultation with the mentor at Nedap the scope was restricted to Retail, as the problem was most significant at this business unit and especially the food retail. This segment is chosen because the food retail is most active in Spain and Italy. These two markets also have the longest payment periods and want to use leasing/renting constructions, so the problem is most prevalent in these markets. A solution would be profitable for both Nedap and their partners in these countries. As suggested in section 4.1.1 Germany is a huge potential market for food retail, and with a solution developed in these two countries Nedap can implement the solution also in Germany. In this way the food retail market in Germany can be captured.

4.7 Partners Nedap N.V.

In the previous sections several employees of Nedap were interviewed to determine the definitive scope of this research. The markets that are most important regarding this problem are the Southern-Europe countries, Spain, France, Italy and Portugal. The findings of the interviews with the partners will be discussed here and also the requirements for developing a new solution for both Nedap Holland and Nedap Italy and Spain.

4.7.1 Nedap Spain

Nedap Spain is located in Madrid and has sixteen employees and a turnover of 3.5-3.7 million euro. They do not only have the business unit retail but also security management, but retail makes up 80% of the turnover. The revenue has been higher in the past but due to the current economic situation it is much harder to achieve the same revenue as in earlier. The company started in Spain in 1997 and never had losses until the economic crisis started. They had losses in 2009 and 2010, but recovered in 2011 with an income of around €120.000. So it is for Nedap Spain hard work to produce a profit at the end of the year. This is also especially due to the high unemployment rate in Spain (30%). People are not buying products and thus shops and chains postpone their investment in new antitheft products. The raise of the VAT from 16% to 21% also had a negative effect on the net income.

The markets that Nedap Spain serves are mainly retail. This can be divided in two different segments: supermarkets and clothes. For Nedap Spain the supermarket segment is not that big and they do not focus that much on this segment. The clothing segment is much bigger for Nedap Spain and the majority of the revenue is generated in this segment. This segment makes up 80% of the revenue of Nedap Spain. According to the controller at Nedap Spain there is some regularity in clothing retail. At the beginning of the year the sales are low at the retailers, this makes up 15% of the total sales of retailers. Then they have the summer sales and the sales are going up, this makes up around 25% of the total sales. After the summer sales the months October, November, and December are coming with all the holidays coming up and the sales get a boost. This makes up around 60% off the sales. This creates some problems for Nedap Spain, because the time to open a shop or invest in new antitheft products is in the second half of the year when the sales get a boost. Shop owners will invest then because a lot of revenue will be generated in these months and bills can be paid more easily. So Nedap Spain will have to pay the cost of goods sold with the low cash flow from the beginning of the year when shop owners do not invest that much. A company with a cash flow like this is harder to manage, but they usually control this, how they do this will be discussed later.

4.7.2 Nedap Italy (Omnisint)

Nedap Italy is since 2001 in the retail market. Omnisint has about twenty employees and a turnover of five million euro. The market share in the last fiscal year was 35% and on the installed products was 20%. This year they will have a big increase because of two one-shot deals with Decathlon and Smart with a total value of about €3.3 million. These markets can also be divided in different segments: food, fashion and DOI (specialities stores). Food makes up 50% of the revenue and the rest is divided between the other two segments. Nedap Italy had also the business unit Librix, but they put al the operations on hold this year. The terms of payment for this kind of operations were so long that they made some calculations, and these showed that they were losing money. It is especially due to the government that the terms of payment are so long. So Nedap Italy is focusing now on the retail market. They are a distributor of Nedap Holland. This does not mean that they are serving whole Italy, they are working with thirteen technical certified partners in Italy. All these partners do business with the smaller firms and Omnisint does the business with the big, international chains. The food market is the most important for Nedap Italy because they keep investing in new antitheft products and the fashion market is not investing that much in new products, because of the economic crisis. Omnisint is verticalizing the market by introducing new goods to the market. In this way they try to beat the competitors and increasing their market share. Also offering more services to the customer is one of the ways to keep customer aboard, an example are the free labels they provide to customers. This is just value added to the customer to make sure that a long-term commitment with this customer is ensured.

4.8 Financing constructions

4.8.1 Financing Spain

As discussed above Nedap Spain had some difficult years the past years. Especially the years 2009 and 2010 were very difficult and were the only years they had losses since the beginning. They not only had losses but also had major cash flow problems, so it were difficult times for Nedap Spain. The reasons for these problems are the different payment terms of Nedap Holland and the customers of Nedap Spain.

Fig 3.: Shipment to cash collection

Nedap Spain normally makes a forecast for the next quarter for the amount of goods they need, they order these goods at Nedap Holland. If Nedap Holland ships the goods they start to invoice, then Nedap Spain has to pay in 30 days. The time from shipping the goods to the actual cash collection can take up to five-six months, as shown in figure 3. This causes of course problems for Nedap Spain, as they have to pay there goods with money they do not have yet. This combined with the regularities in the retail, as explained in section 4.7.1, can create a lot of problems. The controller at Nedap Spain told Nedap that the payment period of 30 days was to short and he needed at least 60 days to pay Nedap Holland. So he arranged that he could pay Nedap Holland in 60 days, in this way he has more time to collect the money and he does not has to ask for delaying payments. He also focused on the other side of the supply chain thus on collecting the money earlier. He used several financial solutions that will be discussed later and he was contacting the customers more. He contacted the customers when their invoices were almost overdue and told them it was important to pay. The increased efforts are paying off since the payment terms in 2011 were 150 days, and in 2012 the payment terms will probably be around 120 days (He did not make the calculations yet). The shorter payment periods are also especially due to renting. This is the most common financing construction for Nedap Spain. As soon as Nedap Spain installs the products they receive the money from the bank, so then the cash is collected in 60-90 days after the shipment. Almost 25% of the customer's uses renting these are especially medium-sized customers. The salespeople always put a footnote in the contract with the client: If you want to use the renting option your monthly fee will be, for example, €200. The big customers they do not use renting but want to buy the products. Nedap Spain does not provide a discount if customers pay within a certain amount of days. This is not useful in Spain, this is in contrast with other European countries like Germany where it is quite normal. Renting is not only very useful for the small- and medium-sized companies, but also for the sales people as they can offer something to the customer. This can be called a sales tool because it is more interesting for the customer to invest in Nedap Spain's products if they have a choice between buying and renting. To offer such a solution Nedap Spain is usually working with a renting brokers or/and banks, it depends on the situation. The company that offers the best contract is chosen to partner with.

If there is a customer who does not want a renting construction the controller asks Atradius how much they cover for this customer. If Atradius does cover this customer, there is no problem and Nedap Spain will sell to this customer. If Atradius does not cover this customer the controller talks with the boss about the best solution. They also ask the opinion of the sales employee, because he deals directly with the customer. He has a clearer picture of the situation and has more feeling about dealing with customer than Atradius. After this consultation they make a decision. If they are selling to this customer it means a greater risk for Nedap Spain as the credit is not covered by Atradius.

To overcome the gap between paying Nedap Holland and the cash collection Nedap Spain uses a revolving credit line. Nedap Spain gets a line of credit with a certain amount as plafond. You can use as many as you want up to that plafond, and over that amount you pay a predetermined interest. This amount is negotiated every year with the bank. Nedap Spain has a revolving credit line of €200000. The line of credit was extensively used in 2010 and 2011, the years after Nedap Spain faced losses. In 2011 the credit line was not sufficient and Nedap Spain asked some money from the group to pay some bills. The use of this credit line also depends on the period of the year. As discussed above the sales in retail are going up in the summer until Christmas time. The company has a lower cash flow at the beginning of the year. If you need to undertake investments or VAT and pension payments in the beginning of the year the credit line is used more extensively. In the second half of the year a part of the credit account will be cancelled. Nedap Spain is working with two banks for this revolving credit line. This revolving credit line is very useful for Nedap Spain to cover the gap.

4.8.2 Financing Italy

At Nedap Italy figure 3 is also applicable. The only difference is the period in which Nedap Italy has to pay Nedap Holland. For the food retail they arranged a 100-day payment period to Nedap Holland, and for the other retail activities 75 days. The payment periods of the clients are now 120 days, and are expected to decrease in the next years. To reduce this Nedap Italy has employees that are working fulltime on collecting the cash from the customers. This is necessary in Italy because the payment periods are so long, and there is no good reason for these long payment periods. For example, H&M started in Italy a few years ago and paid Nedap Italy in fifteen days but this has changed to 60 days nowadays just because they followed the Italian market. So long payment periods are deeply imbedded in the Italian culture. A way to reduce this is to give a 3% discount if customer's pay within a certain amount of days. This is normal in Italy and especially for big customers who want to purchase the goods. To overcome this gap between paying Nedap Holland and getting the cash, Nedap Italy also uses a line of credit at a bank. They have a line of credit of €1000000 euro and most of the time they use 70% of this credit. They anticipate some invoices with the line of credit, so it is a sort of factoring. In 2011 they used it for 100%, because they had major problems with the operating leases, I will come back on that later.

Omnisint is using a different financial construction to reduce the payment periods. It is not a pure operating lease, it is called selling the contract and is typical Italian. The customer signs Omnisint's rental contract, then they sell this rental contract to a financial company and then Omnisint has the mandatory to invoice on behalf of the financial company to the client. If the contract is signed within ten days Nedap Italy has collected the money. Selling of the contract is built on the customer. The financial company/bank checks the customer and checks the equipment. If all of this has been checked the financial company grants a certain plafond to the customer, for which it can invest in products of Nedap Italy. This would normally take a month if Omnisint were a branch, and had a letter of patronage from Nedap Holland. This letter says that it supports the credit facility being sought by the subsidiary. It does not guarantee that the subsidiary will repay the credit, it is merely to give assurance that the parent company is aware of the search of new credit. As explained this is how Checkpoint works.

As suggested earlier Omnisint had some major problems with the operating leases in 2011. Omnisint was selling the contracts to a financial company, but this company went bankrupt from one day on the other. So Nedap Italy had a bunch of contracts they could not sell to the financial company. A new agreement had to be made with BNP Paribas, and this took months. So from March until December they could not invoice on behalf of BNP Paribas. There was a big gap that had to be covered, and this was partly solved due to the line of credit. Another way was to invoice the customers for the months of utilization and ensure that there was some cash inflow to the company. To come to an agreement with BNP Paribas the help of Nedap Holland was necessary, because Omnisint is not a branch but is just a distributor in Italy of Nedap products. Because of this it is harder to obtain finance from financial companies or banks. The differences between Nedap Spain and Italy are summarized in table 1.

	Nedap Spain	Nedap Italy
Payment days food retail, Nedap Holland	60	75
Payment days other retail, Nedap Holland	60	100
Payment days customers (average 2011)	150	150
Financial constructions	Renting	Selling the contract
% of customers uses this construction	25%	60%
Total amount of the line of credit	€200000	€1000000
Cooperation	Renting brokers/banks	BNP Paribas

Table 1: Characteristics Nedap Spain and Nedap Italy

4.9 Requirements

In these sections the different interests of both Nedap and their partners will be discussed. These interest together with the demands of the financial companies a solution will be developed. All these demands have to be brought in line with each other. If all these demands are brought in line with each other problems which occurred at Nedap Spain and Omnisint will not happen again. Also this solution can be implemented at partners when entering new countries, to prevent financing problems.

4.9.1 Requirements Nedap N.V.

An employee of Nedap describes working with partners as a pyramid. As can be seen in figure 4. The figure shows what demands future partners of Nedap should fulfil, for becoming a partner. Nedap wants to work with healthy partners because this gives a greater chance of successful relationship. The bottom layer of the pyramid is the hygiene layer. This layer is necessary if a partner wants to work with Nedap. A partner knows how to order products, the partner has normal payment conditions, normal delivery time and the products are available if it is necessary. If a partner cannot fulfil these terms Nedap does not want to work with this partner. The second layer is the technical layer, this means that the technical employees are familiar with the Nedap products and know how the products work. They can explain to the customers how it works and give technical explanations about the installation and the usage of the products. They need to make the customer confident with the products, so the customer does not need to contact the partner for further explanation. The third layer is the commercial layer. Commercial employees need to know what they are selling and how they can distinguish themselves from rivals. In this way not only in a technical way but also in a commercial way partners can outperform rivals. The last layer, these are the partners Nedap wants to work with, is the independence layer and are the sales partner of Nedap. These partners work independently and do not need the help of Nedap that much. New customers are found by themselves as well as their credit by banks or financial companies. If a new partner satisfies these requirements it can become a partner of Nedap. Also very important in this relationship with partners is trust. If there is a problem with the products or the technical guy does not understand the products that they ask for help. This also counts if the partner has some credit problems and is in financing problems. Trusting each other will lead to a better collaboration between Nedap and partners.

Nedap wants the money as fast as possible. This can be invested in new projects or investments. To get this money fast it is important to give some credit to the partner, or else the middleman will come in trouble and cannot finance their activities anymore. This will damage both Nedap and the partners. If you cannot undertake new project, revenue and profit will be lost.

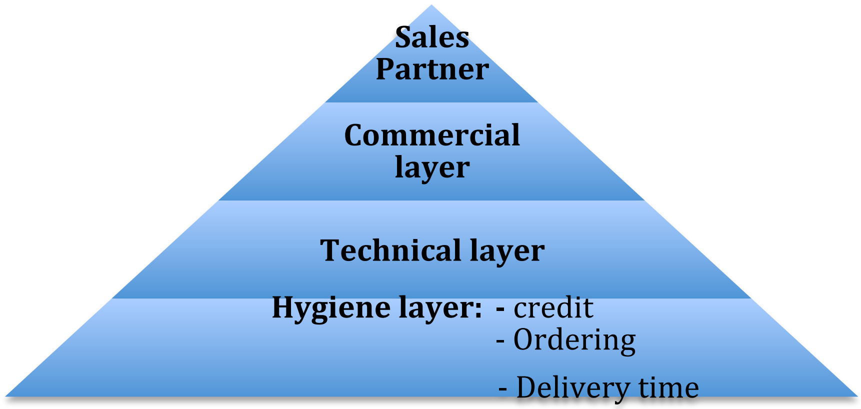

Fig 4: Partner pyramid

4.9.2 Requirements partners

The partners in Spain and Italy did not have specific requirements for a new solution. As explained before Nedap Italy has payment terms of 75 days for fashion retail, 100 days for food retail and Nedap Spain has 60 days for all retail. They do not have specific request or requirements for a new solution, although they both suggest that a solution should be easy to implement. Salespeople should be able to explain it to the customer and that they can convince them to purchase the goods from them. You have to take into account that salespeople are not financial people and therefor the solution must be relatively easy. In this way it can become a sales stool for the products of Nedap. This is also related to the above pyramid, they should be independent partners. Another solution that was mentioned to help collecting the money more quickly is to help the partners to sell products.

As discussed before both Nedap Spain and Italy use different financial constructions. Nedap Spain uses renting and Nedap Italy uses selling the contract. If Nedap can arrange this centrally, and make the process more accessible for all partners it can make profit on this. This is how Checkpoint works, collecting leasing contract/renting contract from all subsidiaries and sell these to a financial company. Nedap can negotiate better interest rates than their partners. Also the credit plafond that can be negotiated for the customers will be much higher. Nedap Spain negotiated €700000 for their customers in 2012, the controller thought that if it was negotiated by Nedap it would be much higher. So if you centralize the sales of the contracts it can be beneficial for both the partner and Nedap. Problem with this is the different legislation in each country. For example, it is really difficult in Spain to get money from a company if they do not pay you. Companies are not really protected by a certain law, if a legal process is started it can take up to several years before you get the money.

So for partners it is important that the process of leasing and renting is arranged less complicated. If this process is arranged centrally receiving credit is more easily. Nedap more easily links relationships with financial companies than a small dealer in a foreign country. The risks for a financial company for financing a dealer are much higher. The probability that a dealer does not pay and eventually goes in default is much higher.

4.9.3 Requirements banks/leasing companies

Financial companies play an important role in developing a solution for Nedap and their partners. They have to facilitate the solution, they offer the leasing constructions to the dealers and bear the risk of non-paying. There are different ways to make sure that a company has enough cash on hand, as explained in section two. Factoring will not be a good solution for the problem that was described in section one. This was also pointed out by the finance companies. Factoring only solves the problem for Nedap and not for the rest of the chain. Nedap will get the money within a specified amount of time but the partners do still have customers who use long payment periods. So a solution for the supply side of the supply chain will be developed with factoring. For the long run this will not be the most optimal solution because partners will be “squeezed”. The partners therefore suggested dealing with this problem on a European level, and not on a local level.

To develop such a solution financial companies are important, as it is their core business. There are several financial companies who support this sort of financing for whole Europe. In consultation with ING Lease they told that the total demand for Europe should be at least €150 million, because of the legal costs involved. Also the structure is somewhat different whereby extra costs have to be made and these costs will be charged on to another party. So ING Lease is not an interesting party for Nedap to cooperate with. The same can be said about De Lage Landen they are especially specialized in factoring and as explained above this is not an optimal solution for Nedap and their partners.

Another Dutch company is ABN AMRO Lease. They told that a good should be movable, unique reference (machine number, serial number), an independent unit, and the value must change in a predictable way. After the lease term has ended the good should still be useful, this also means that there should be re-marketing possibilities if the goods are removed earlier from the customer. For an operational lease the salvage value should be at least 7,5% of the beginning value. The only problem with ABN AMRO Lease is that they offer lease constructions in only in the Netherlands, Germany, Belgium, and the UK. So for Italy and Spain and the rest of Europe ABN AMRO is not an option. As mentioned in Section 4.1.2 the German market is very interesting for Nedap as it is a huge market, but because these shops are most of the time franchised their financial power is not that strong. Important to note is that Nedap will sign the contract with the customer, so the partner does not sign a contract with the customer. This means that the partner will only be for the implementation and installation. To compensate for the profit they are missing the price of the products should be somewhat higher. Offering a lease to these franchises would definitely help capture a big market share in Germany. ABN AMRO can offer this financial construction in Germany.

The problems were most prevalent in Italy in Spain, but these partners mentioned that a European solution would be most beneficial. To arrange this financial companies have some requirements for setting this up. In a conversation with a representative of GE capital these requirements were explained. GE Capital will not only have a solution for Nedap for Italy and Spain. The risks and the payment conditions are too risky for GE Capital. The risks associated with this kind of operations should be diversified, and therefore an all Europe solution is a requirement for GE Capital. In this way the greater risks of the high-risk countries (Italy, Spain) are compensated with countries that have less risk. If GE Capital signs a contract with Nedap then this contract should be at least have a value of €10 million. So all partners in Europe should have a financing need of €10 million. An individual partner can have a financing need of, for example, €500.000 but combined it should be at least €10 million. Partners are checked by GE Capital and give them a credit limit. The partners can order goods up to this limit at the manufacturer (Nedap N.V.). Nedap sends these goods to the partner and sends the invoice to GE Capital, Nedap will have the money in 30 days on their bank account. So on the left side of the supply chain the problem is solved. This means that the credit management is outsourced. The financial company is responsible for the credit collection at the dealers. On the right side the partner can pay, depending on the contract, between 180-360 days. So the partners can, depending on the situation, delay the payments until the clients pay their invoices. So they can have broader inventory levels and grow sales in their country. In order to reduce the risk of non-paying GE Capital also gives some incentive to pay early. So they give a 1% or 2% discount if a partner pays within a certain amount of time. Strong dealers will use this construction and weak partners will not use this. If a partner does not pay within that period interest will be charged above the owed amount. Partners do have an incentive to pay early and not to wait until the payment deadline has been forgone.

GE Capital uses the goods as collateral in case a dealer cannot pay the amount due or goes bankrupt. The goods will then be collected by the financial company and sold to another company. Retail is selling EAS (Electronic Article Surveillance) and is the most important product in retail for Nedap These products are installed after every checkout at super –and hypermarkets and also in the fashion retail. For GE Capital it is important to track the goods. In this way they can see if the good is still in inventory or has been sold to the customer. Every product should have a serial number so once in a while the company can check whether the goods are still in inventory or have been sold. The possibility of fraud with the products will decline, because the financial company can check the whereabouts of the products.

4.10 Conclusion

In sections 4.7 until 4.9 the sub questions of research question two have been answered, and also research question two. The partners in Spain and Italy use different financial constructions, respectively; renting and selling the contract. Both partners do have longer payment periods than Nedap demands, so they are in delay. So financing the partners is very important for Nedap. There are several options to finance the partners such as: factoring, leasing, securitization or a captive finance company. To date Nedap is not using any of these options but demand from the partners they pay in 30 days. The demands from partners in developing a solution are that it should be simple to implement and for all partners in Europe. Nedap can negotiate better terms by a financial company than an individual dealer, because they have a stronger position. Nedap wants the money as quick as possible from the partners and reduce the risk.

There are several companies who offer these solutions. Factoring and securitization are not the most optimal solution as it only solves the problems for Nedap and you do not finance the partners. GE Capital offers capital distribution finance. If a partner orders products, the invoice goes to the financial company and within 30 days the money will be on the bank account. The partner receives the goods in their inventory and, depending on the contract, can pay the invoice in 180-360 days. So both sides of the supply chain are financed. Partner financing is the most important according to employees of Nedap because they can then order and sell more goods.

5. Conclusion

5.1 Conclusion

The goal of this thesis was to develop a (financial) solution for long payment periods of clients of Nedap Partners are being squeezed and come into problems. This goal was achieved by interviewing employees of Nedap, partners and with conversations with banks/leasing companies.

From the interviews with employees of Nedap it became clear that the problem was most prevalent at the business unit Retail. Especially the segment food retail in Italy and Spain faced this problem. The partners in these countries do not pay Nedap in the normal 30 days, but sometimes 60 or even 100 days. These terms arise from the payment conditions of those clients that can go up to 180 days or longer. Partners need to finance this gap and this can be very hard and a line of credit is needed to finance this. For Nedap it is important that the partner is financed properly so they can keep ordering goods without getting "squeezed". A possible solution is distribution finance from GE Capital. This distribution finance ensures that Nedap will get the money within 30 days and, depending on the contract with GE Capital, the partners can pay within 180 to 360 days. GE Capital gives the partner a credit limit and up to that limit the partner can order products from Nedap. A requirement of banks/leasing companies (DLL/ING Lease/GE Capital) is that they do not want to finance only the partners in Spain and Italy. Because of the state of the economy in these two countries it is too risky to only invest in these countries, the risk should be diversified. Therefore only if all activities in Europe of Nedap are in their portfolio, also the total financing need should exceed €10 million throughout Europe. The goods that are ordered by the partners are also used as collateral by the financial company. Therefore the products should have a serial number so that GE Capital can check whether the goods are sold or are still in the inventory, so the possibility of fraud will decline. So for Nedap this distribution finance is very attractive as it not only ensures that the money is collected within 30 days, but also the partner is financed. New markets can be captured with this construction, such as Germany were a lot of food retailers are franchised. Another company that can facilitate capturing the German market is ABN AMRO Lease. They are only active in German, UK, Netherlands, and Belgium so they offer leasing in these countries and can be a good partner to capture the food retail in Germany.

Using these constructions the whole company will profit. There will be more sales, because clients who did not have the financial power to buy the products are considering to buy it because of these constructions.

5.2 Discussion

By answering Sub question 1 it was interesting to see how employees of Nedap stand on trade credit, and what they think about the use of it. Especially how this is related to the existing theories about trade credit. In the interviews almost all employees mentioned that a financial solution would boost the sales of their partners and thus the business unit. Trade credit can aid promotional and pricing decisions, maintain competitiveness, and corporate image (Cheng & Pike, 2003). Extending trade credit to a buyer signals an investment intention to develop an on-going relationship with the buyer (Cheng & Pike, 2003). In interviews with the partners support was found for this proposition. If Atradius does not cover a customer, normally they do not do business with these customers but if the salespeople are confident about this customer they do business with this customer. This gives support for the marketing/competitiveness theory. Salespeople have more knowledge about the customer, and thus have a saying whether to do business with a (new) customer or not. This is especially important if Atradius does not cover this customer because they lack information. Information is collected more easily by suppliers than by financial institutions as it is obtained in the normal way of doing business (Petersen & Rajan, 1997). So the partner and the salespeople do have additional information and based on this information they will do business with these customers. So this gives support for the

The second sub question was about which solution would be most attractive for Nedap, partners, and their customers. Also what the requirements are for developing such a solution. For Nedap partner financing is the most important. In this way the partner can order more goods, and does not have to finance that much upfront. This partner financing can be explained by the financing advantage. Trade credit is an important source of finance for firms with limited access to the capital market (Cheng & Pike, 2003). Partners are small companies, so they have limited access to the capital market and cannot negotiate favourable terms because of size and volume that is traded.

Distribution finance from GE Capital is a good solution for Nedap as it finances the partners and Nedap receives the cash within 30 days. Partners can pay the financial company in 180 or 360 days, depending on the contract, after ordering the goods. The advantage for the partners can be explained by the transaction theory. If the payment terms are 180 or 360 days partners can centralize payments at the end of the quarter and use trade credit to bridge the period between purchase and payment (Huyghebaert, 2006). So transaction costs are used as a tool to finance working capital. Transaction cost theory ties the trade credit use to the variability and uncertainty in the firm's trading flows (Ferris, 1981). Partners can now better match the costs related when buying the products and the cash they receive when selling the products to customers.

5.2.1 Limitations

There are also some limitations to our research. Researcher-bias is one of the limitations for this research. Because the researcher was active within the organization the opinions of the employees could influence this research. Working independently and checking the opinions of employees have lowered this limitation. Related to this researcher-bias is self-selection of the business units. In consultation with the mentor at Nedap five business units were selected where the problems would be most prevalent. So only problems at these business units are recognized and problems at other business units are ignored and so a solution for these business units is not developed. This is done to narrow down the scope and a solution for Retail can be implemented in other business units if it works properly.

During our research only the two partners in Italy and Spain were interviewed. To implement the proposed solution more partners should be involved. When more partners are involved a more comprehensive view can be developed and in this way the solution will be more beneficial for all the parties involved.

As stated in the discussion several motives for extending trade credit can be explained by trade credit theories. So for several theories of trade credit some support has been found. Problem with this support is that this research is a case study and thus only one organization has been included. This means that there are some problems to generalize these results. Especially because there are some mixed results in these theories, and especially regarding the financing advantage. It is not quite clear if companies are offered lower fees for bank loans when they are offered more trade credit (Giannetti et al., 2008) or that they are offered more trade credit when they have good relationships with financial institutions (Petersen & Rajan, 1997). So the results regarding these theories should be interpreted with caution. Also the results are found by interviewing employees and this means that it are opinions of employees and can be subjective. This is a threat to the validity of the results.

5.2.2 Practical recommendations

Neda should set up a solution for all partners in Europe. This is also what partners in Italy and Spain suggested because Nedap can negotiate better contract terms, and interest rates by financial institutions. It should also be done because financial institutions will not finance only the partners in Italy and Spain because of the state of the economy in these countries. Financial institutions want to diversify the risks associated with this construction, so more partners in other countries should be involved. Also the minimum investment that is required by GE Capital should be at least €10 million throughout Europe. Also every product should have a serial number, in this way the financial company can check whether it is has been sold or still in inventory. The possibility of fraud is reduced. So the (financial) solution should not only be offered in the countries where the problems are most prevalent but through whole Europe. This would help partners to keep growing and making the sales of the products easier because customers can choose a financing option that fits their strategy and needs. Also partners can compete better with rivals who already offer these solutions for a number of years. This solution will not only benefit Nedap, but also the partners and the customers.

With this solution new markets can be explored. A big market that is unexplored yet, is the food retail in Germany. This is a big market in which Nedap could become a big player with this financial solution. Because the food retail in Germany is franchised it are small companies with not much financial power and they are interested in this kind of constructions. The financial construction offered by GE Capital is interesting for this market. Another company that is interesting for this market is ABN AMRO Lease. They offer leasing constructions in Germany, Netherlands, Belgium, and the UK. For Germany this would be interesting, this is because 21,4% of overall investments in machinery and equipment are made through leasing agreements (Germany Trade &Invest, 2012). Leasing is very popular in Germany and it would be interesting for Nedap to use this construction in Germany. Important is that Nedap will be the contracting party with the customer, the partner will be for the installation and implementation. Consequence of this is that the prices of the products will be somewhat higher to compensate the partner for losing some of their business because Nedap is now the contracting party with the customer.

If this solution works within the business unit Retail Nedap should consider implementing it at other business units. There were some business units who were interested in a financial solution and who thought that it will be beneficial for their business units, the partner, and the sales of the products. The business units Livestock Management and AVI were interested in such a solution. It would boost their sales and they were currently losing some orders due to that rivals were offering these solutions and Nedap not. So the performance of the implemented solution should be evaluated and then it should be considered to implement it at other business units.

Regarding the legal consequences the solution offered by GE Capital no legal consequences for the balance sheet have to be implemented. So there are no consequences for the balance sheet, income statement, and cash-flow statement. Leasing has some consequences for the balance sheet as explained in Section 2.5.3. There is a difference between operational and capital leases, but if ABN AMRO Lease is chosen to partner with they will make sure that everything is according to IFRS. In 2014 the FASB and IASB will release a new guide for leases. The difference between capital and operating leases will disappear, so all leases will be treated the same. These changes will not have a big influence on the balance sheet of Nedap because they will sell the product to ABN AMRO and they lease it to the customer. So for the customer and ABN AMRO there will be some changes, depending on how they arrange this leasing construction.

5.2.3 Further research

There was found some support for several trade credit theories. For the financing advantage, transaction theory, information advantage, and marketing/competitiveness advantage some support was found. As discussed in the limitation section these results should be treated with caution, as it is a single case study. More research is needed to find definitive support for the theories about trade credit. This can be done by a quantitative study or, just as this study, a qualitative study. It should be a multiple-case study, so more companies should be included in the sample and so the results in this study can be validated. More in-depth research is needed, in this way underlying reasons for granting trade credit are discovered. Also interesting is to see how the trade credit volume has changed the past year, and if the reasons for extending trade credit changed the past few years.

The second stream of further research is more practical oriented. It should be evaluated how the proposed solution actually performs. Retail will be the first business unit where this solution will be implemented. The performance has to be evaluated. How satisfied are the partners with this new construction? How satisfied are the clients? Does the new solution actually boost sales and win orders that else would have gone to rivals? If the overall performance of the solution is positive it should be implemented at other business units. Important is to research which business units would profit from the same solution and which products should be included. Leasing companies/banks have requirements about the characteristics of products. So maybe not all products of other business units are suitable for leasing or another financial solution. This has to be carefully researched by Nedap.

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Appendix

Appendix I: Characteristics Interviewed Employees

Employee	Business Unit	Function
1	Retail	Managing international partner relations
2	Retail	International Sales
3	Retail	Controller
4	Retail	Store !D/RFID solutions
5	Library Solutions	Market group leader
6	Ideas/Security Management/AVI	Controller
7	Livestock Management	International sales

Appendix II: Interview employees Nedap N.V.

Doel: Determine in which markets (products and geographically) are the most important for Nedap N.V. to develop a solution (retail, library solutions, livestock management, AVI, security management). Also determine what the reasons are for granting trade credit to the partners (competitor, competitiveness/marketing, financing)?

Subdoelen:

- ➢ Determine for which current and future markets a solution is most necessary
- ➢ Determine for which products a solution is most necessary
- ➢ Determine the reasons why they grant trade credit, both Nedap N.V. and their partners
- ➢ Determine if (new) partners will buy more products if trade credit is granted.

Markets

- In which markets is retail geographically seen active at this moment?
- How much demand is there on these markets to pay on credit/or spread the payments over a longer time?
- In which markets are these issues the most relevant? Why is it the most relevant in these markets?
- Which markets is this business unit going to enter in the future?
- In which of these future markets is it expected that partners want to spread their payments over a longer time?

Products

- Are there specific products for which is more demand to spread payments over a longer period/pay on credit?
- For which products (growth opportunity/revenue/sell to end users or not) is designing a solution the most important? And why?
- For which products there will be more demand for spreaded payments in the future? And why?

Trade credit

- Which advantages do you experience by the use of spreaded payments/paying on credit?
- Which advantage do you think is the most important?

- Which disadvantages do you experience by the use of spreaded payments/paying on credit?
- Which disadvantage do you think is the most important?
- Are the advantages or the disadvantages more important?
- What do you expect what happens with the sales if a financial solution is created?

Appendix III: Interview partners Nedap N.V.

Goal: Determine the demands of Nedap (Italy, France, Spain) regarding payment periods and how they cope with it, and determine if a solution is necessary.

Sub goals:

- Determine the segment which Nedap (Italy, Spain, France) serves, demand the most to pay on credit/use leasing constructions.
- Determine why these segments (hypermarkets/supermarkets) are more sensitive for paying on credit/using leasing constructions.
- How big is the demand from the clients, do they have specific requests for another payment construction.
- Determine if the demand has changed during recent years.
- Determine if there are specific products who are more sensitive for paying on credit/using lease constructions
- Determine why trade credit/leasing constructions are used
- Determine if Nedap (Italy, France, Spain) facilitates paying on credit/using lease constructions at the moment, and how is this solution currently constructed
- Determine if they experience an advantage in offering this solution
- Determine if they experience some problems (cash flow, non-paying)
- How do they cope with the different interests of Nedap (Italy, Spain, France) their clients and Nedap N.V. (Netherlands)
- Determine if a new solution is necessary
- Determine what kind of solution is most suitable for Nedap (Italy, Spain, France)
- Determine what the bottlenecks are in designing such solution
- Determine what the (dis)advantages are in designing a new solution
- Determine if this solution can be implemented in the markets France/Italy/Spain/Germany

Segments

- Which segments does Nedap (Italy, Spain, France) serve?
- What are the most important segments for Nedap (Italy, Spain, France)?
- Which of these important segments are sensitive for longer payment periods?

- Why are these segments more sensitive for longer payment periods?
- How big is the demand from customers to make use of longer payment periods?
- Do customers have specific request for spreading payments?
- Are other payment constructions in these segments supported by Nedap (Italy, Spain, France)?
- Is the demand for making use of longer payment periods increasing the past years?
- Why is this demand increasing/decreasing/remaining stable these past years?
- In the (near) future will the demand for longer payment periods increase in these markets? Why?

Products

- Are there specific products whereby customers demand to pay more on credit?
- Why is for these products more/less demand to pay on credit?
- Will this demand change in the future?

Payment periods, Current situation.

- What kind Nedap of financing problems does Nedap (Italy, Spain, France) experience due to longer payment periods?
- Did these problems change the few past years? How did these problems change?
- What is the reason for offering longer payment periods to the customer?
- How does Nedap (Italy, Spain, France) currently solve these problems?
- What financial construction does Nedap (Italy, Spain, France) use?
- What role does Nedap N.V. in the Netherlands play in this construction?
- In the current construction how is being coped with the different interest of clients, Nedap N.V., and Nedap (Italy, Spain, France)?
- What kind of problems are being encountered in satisfying these interest of different parties?
- How are these problems resolved between the different parties?

- How are the risks associated with this construction divided among the different parties?
- What are the advantages of this current construction?
- What are the disadvantages of this construction?
- Do the advantages outweigh the benefits?
- How do other companies in Italy/Spain/France deal with this problem?

Possible solutions

- In your opinion, is another solution beneficial for Nedap N.V., Nedap (Italy, Spain, France) and the clients? Why do you think so?
- What are the requirements for Nedap (Italy, Spain, France) if a new solution is developed?
- Which requirement do you think is the most important? And why?
- Should other parties also be involved in developing a solution? Why?
- What are the bottlenecks in developing a financial solution? Why?
- What advantages will it give Nedap (Italy, Spain, France) if a solution is developed?
- What disadvantages do you foresee if a solution is developed?
- If a new solution has been developed will clients of Nedap (Italy, Spain, France) buy more products? And why?
- If a new solution has been developed is it possible that it can be generalized to other countries (Spain, France)? What about Germany or Eastern Europe?