Analysis of payment terms with “Transport Service Providers” along the supply chain

Master Thesis

of

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Abstract

This thesis was conducted in cooperation of the Technical University of Graz with Magna Logistics Europe. The initial situation in the company was that there were so called “Cost Down” projects. In these projects costs were analyzed and tried to be reduced, while maintaining operational and production quality. In course of these programs it came to attention that there is some potential for savings in the extension of payment terms. This potential could not be assessed and so it was decided to conduct this thesis.

It is about analyzing the impact of the extension of payment terms on liquidity and the increase of potential savings through this measure. To be able to perform this research, trainings about Magna specific processes were attained and several expert interviews were conducted to gain practical knowledge.

With this expertise a calculation method was created and tested in a case study. After processing this case study, a methodical approach for future projects was formulated.

In the course of the analysis phase it became clear that Cash Back models influence liquidity as well and show big potential to increase savings. So a closer look was taken there and in the end a comparison between payment term extension and Cash Back models was performed.

This comparison showed that Cash Back models are always more profitable than payment term extensions to 90 days, while providing only minor disadvantages regarding liquidity.

As a conclusion of this thesis it is recommended to focus on a 45 day Cash Back model in a future sourcing process.

Preamble

I would like to use this opportunity to express my gratitude!
First of all I want to thank my family, especially my parents, ...

… for their endless support and the opportunity to follow all my dreams in life, no matter what.
… for building me up, when I was down.
… for understanding me, when I didn't make sense.

I am also very thankful to have had the opportunity to complete my studies at the Technical University of Graz. It was a hell of a ride. I had some successful and inspiring moments, but as well moments that pushed me down and provided my with huge obstacles to overcome. This gave me the chance to grow as a person and to enlarge my horizon! For that I want to thank every single person I came in contact with, during the last eight years.
I made some precious friends and got to know people I'll hopefully never have to meet again.
Regarding this very thesis, there were also a lot of people that supported me, so this thesis could become what it is.
Of course at first I want to give special thanks to Mr. Klaus Iffland, who invested a good share of his time in me to, give me vital input for my thesis. Then all my interview partners, who took some time to answer my questions, shall be mentioned here as well:
Thank you, Mister Schuppich, Mister Resch and Mister Moser for supporting me.
Last but not least: Thank you Marko Kuchar for always being supportive; taking time for me, when you didn't have time for yourself; explaining the same things over and over again, till I understood them completely and for never pressuring me unnecessarily!

But I am also thankful for what I was taught during the past years, not only academically speaking! I think the two most important things that I learned in the course of my studies, are to never give up and to always focus on the solution, not the obvious problem.
To come to a conclusion of this preamble I want to quote one of my favorite movies:

"And why do we fall, Bruce? So we can learn to pick ourselves up."
(Thomas Wayne, Batman Begins)

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1 Introduction

Nowadays it is very difficult for any automotive supplier to stay in black figures. This is due to the rising competition and the aftermath of the economic crisis of 2008. Even though Magna is one of the most diversified suppliers in the automobile business [1], this company still has to work hard to stay on top in its field.

To accomplish that, Magna took several measures: for example Magna Logistics Europe, a branch of Magna International, launched several so called “Cost-Down” projects, to point out potential savings in the field of logistics, while maintaining or even improving operational quality using “smart solutions”, “bundling effects” and their big market power through huge purchasing power.
In the course of these projects became clear that there could be an additional potential of saving costs with the extension of payment terms with transport service providers. That shall be the topic of this thesis.
To show the complexity of this task, a short description of the organizational structure of Magna will be given in the next point.

1.1 Initial situation and company description

This thesis arose in cooperation with the BWL-Institute of the University of Technology Graz and Magna Logistics Europe.
Magna is an automotive supplier that develops and manufactures automotive components. Either Magna assembles these parts itself and sells them in general to an “OEM” (Original Equipment Manufacturer) or sells the components part by part. In 2013 Magna was active in 29 countries around the world, has about 125.000 employees and volumes of sale were about $ 34.84 billion Dollars.[2]
Magna operates in so called groups that each has their specialties. At this point a list of all Magna groups shall be given [3]:

- **Magna Seating** [4]

  This group produces complete Seating Systems, develops Mechanism and Hardware Solutions and “Specialty Mechanism Solutions”. That means they create solutions on how to fold seats for example.
  Their employees are also capable of developing “Seat Structure Solutions” and “Foam & Trim Products”, for improving the comfort of the seats. Additionally, they have their own Design and R&D (Research and Development) facilities.

- **Magna Exteriors/Interiors** [5]

This group has two subgroups: Magna Exteriors and Magna Interiors.

For the Exteriors group the most important fields of business are the Bumper Fascia Systems, where they for example, includes active air management systems. The other important fields are the “Exterior Trim” and “Modular Systems”. There the engineers design spoilers or soft tops, for example. More fields of expertise are the “Class A Body Panels”, “Structural Components”, “Under Hood & Underbody Components” and “Sheet Molding Compound Material”

Considering the Interiors group, the fields of business are “Cockpit Systems”, “Door Panels”, “Overhead Systems”, “Soft Trim & Cargo Management” and “Garnish & Hard Trim”.

- **Magna Mirrors and Closures** [6]

Here obviously all kind of mirrors attached to a car are taken care of and in the closures segment it is all about “Door Modules”, “Window Systems”, “Power Closure Systems”, “Latching Systems”, “Handle Assemblies”, “Engineered Glass” and “Sealing Systems”. So here the focus is also on safety systems, not just functionality.

- **Cosma International** [7]

Cosma specializes in manufacturing technologies such as stamping, hot stamping, hydro forming and roll forming. This group also does research in the fields of advanced high strength steels, assembly technologies and aluminum casting.
With these technologies they manufacture chassis and body systems.

- **Magna Powertrain and Electronics** [8]

In this group all kind of Powertrain solutions are engineered, especially “Driveline Systems”, “Fluid Pressure & Controls”, “Metal-Forming Solutions” and “Engineering Services & System Integration”

- **Magna Steyr** [9]

In this group complete solutions are offered. Their fields of expertise are: “Complete vehicle development and integration”, Development of modules and subprojects”, “Safety engineering”, “prototype and low-volume manufacturing”, “Hybrid and electric vehicles” and “Lightweight technologies”.

Furthermore, Magna International is the holding for all Magna groups, including 312 production facilities and 87 development/engineering and sales centers [1].
In figure 1 an overview of Magna's sites around the world shall be given. Additionally it is shown that Magna International is divided into 3 main organizational regions throughout the world [2]:

1. NA (North America)
2. EU (Europe)
3. AP (Asia Pacific)

Magna Logistics Europe (henceforth referred to as MLE) is responsible for the European sector that stretches from northern Europe to South Africa as is shown in figure 1.

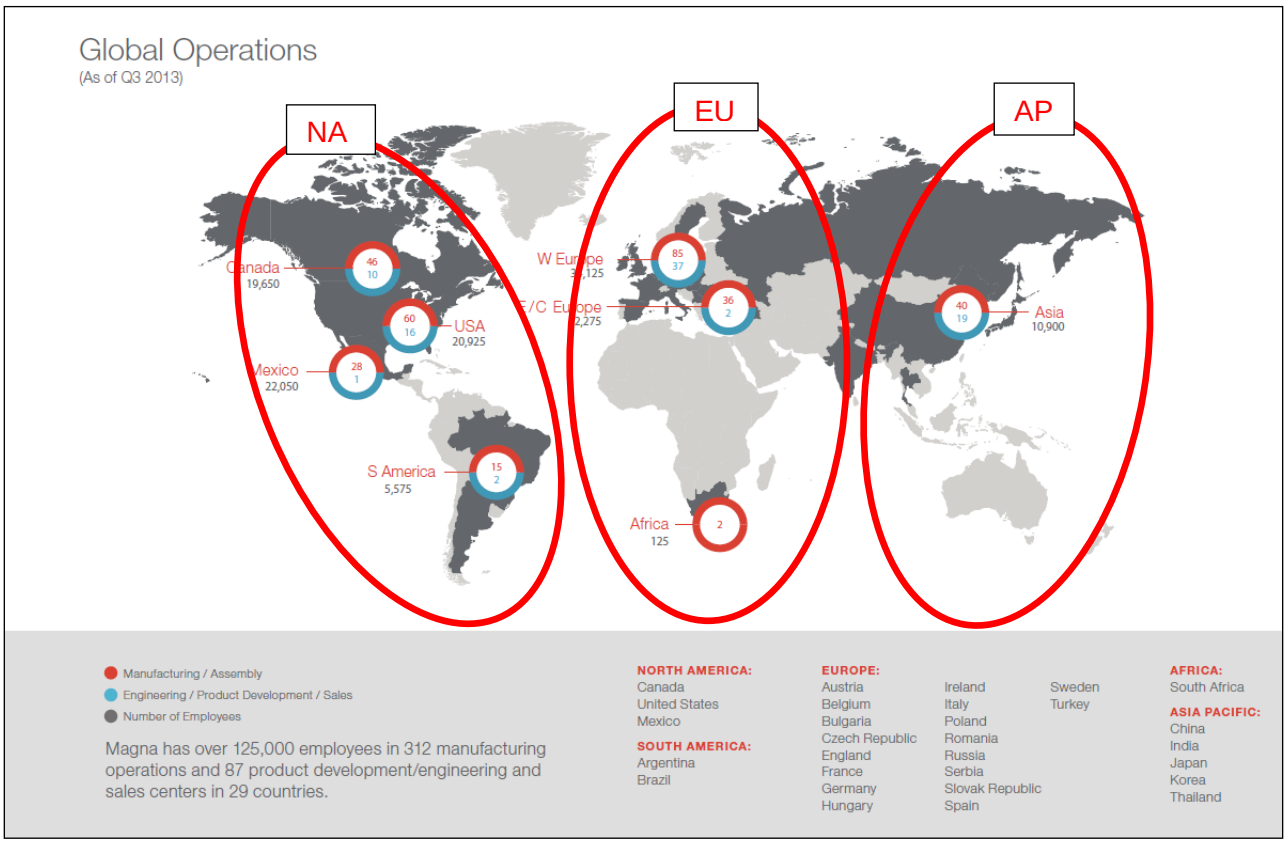


Figure 1: Global Operations of Magna International

The complicated part now concerning organizations becomes clearer, if you take a closer look at the structure of MLE as shown in Figure 2 [10]:

Figure 2: Organizational Chart of Magna Logistics Europe

On top, there is Mister Iffland as Vice President of Global Purchasing and Logistics Europe and Mister Blechinger as Director of MLE.
Then there is a distinction between the corporate level and the group level. This means that all MLE employees report to their superiors on a corporate level and some of them are responsible for a Magna Group and therefore report to another superior on group level.
On MLE corporate level there are different fields of expertise and their managers as listed below:

- Supply Chain Design and Logistics Services
    - Head Karl Martin Lukas
- Procurement Freight and Logistics Services
    - Head Brendan Lenane
- Logistics Controlling and Innovation
    - Senior Manager Marko Kuchar
- New Technologies and Solutions
    - Senior Manager Claudia Moisesbichler
- Processes and Standardization
    - Senior Manager Katrin Troy

Within these fields MLE main tasks are [11]:

- Customer, Supplier and Service Provider Management
- Standardization of logistics systems, operations, processes and logistics controlling.
- Continuous increase of efficiency of logistics systems
- Logistics Network Management
- Transport and Logistics Services
- Best practice sharing activities
- Cost Down programs

1.2 Goals

There are several goals that have to be accomplished at the end of this thesis. Furthermore, a list of these goals shall be given and each of them will be briefly explained:

1. **Analysis of potential cash flow increase due to increase of payment terms**

   How can the cash flow and/or the liquidity of Magna profit from extension of payment terms (a detailed description of the term payment terms will be given in the theory chapter)

2. **Definition of a standard calculation method**

   To have profound values and be able to derive these numbers in future from other projects, it is necessary to formulate a calculation method that is able to give absolute numbers, which can then be compared. To ensure this and determine the basic functions of this model two more points have been declared:

   - Input parameters have to be kept variable
   - Input factors: Amount of monthly / yearly transport costs and payment term extension / reduction in days

3. **Generate negotiation benefits based on payment term quotations of Transport Service Providers within a RFQ process (this process will be explained in the theory chapter)**

   After analyzing all cost and potential of the extension of payment terms, Magna could get good arguments out of it, to use them in future negotiations with Transport Service Providers (henceforth referred to as TSP) within a RFQ process (request for quotation, MLE process to assign TSP's with transport orders).

4. **Evaluation of the benefit (by pointing out potential savings)**

5. **Full documentation of lessons learned and purchasing trainings**

   In order to create this thesis, it was necessary to undergo special trainings to understand the processes within MLE. These shall be documented to get a deeper understanding of the cause. Lessons learned shall be documented as well to avoid any double efforts, concerning improvement of payment terms.

1.3 Objectives / Non objectives

The objectives of this thesis are to get a deeper understanding of a supply chain network, to explore the optimization of such a system and to get an idea of how to find possible fields for potential savings. These objectives should be accomplished by working through the defined goals.
In the course of action the so called soft facts should also be considered. These are facts that cannot really be measured with numbers, but still influence your line of work. For example how do the contract partners react to the increase of payment terms; is it better to abdicate potential savings and form a strategic partnership, etc.
To confine this thesis it was declared that in course of creating the calculation model no programming of Macros would be necessary to implement this model in any Magna processes and further, this thesis shall not serve as a training tool for employees, but instead analyze a certain type of supply chain network and highlight potentials to generate savings.

1.4 Field of examination

As this paper arose from a cooperation of MLE and the BWL Institute of the TU Graz, the supply chain of Magna International shall be scientifically analyzed and under consideration of so called case-studies (especially the Cosma-Cost-Down-Program) potentials to save cost shall be pointed out.
This means that it was necessary to get full access to internal MLE data and validate them.

1.5 Course of action

The methodology is split up into an “Analysis Phase” and an “Implementation Phase”.

In the first phase, necessary know-how has to be build-up. That is accomplished by gathering and reading specialized literature, either provided from the university library or acquired digitally online with special search engines.
It is also agreed upon to receive certain training for Magna specific tools, to be able to understand internal processes and access the needed data.

Furthermore it is planned to conduct expert interviews, to profit from experience and get special insight and maybe a little guidance on how to approach this topic in the best manner.

After that the Case Study (Cosma Cost Down- project) will be analyzed and first calculations done. Deriving from that case study, a general calculation model will be formulated and lessons learned documented.
These lessons learned shall be applied to the “Mirrors and Closures Cost Down”-project in the implementation phase.

To get a better understanding of all the influencing factors of this topic, how a supply chain network should work will be explained, according to specialized literature and compare this to the actual Magna network (for example: what are Incoterms, what kind of supplier-manufacturer relationship has Magna and how do payment terms influence the cash flow).

2 Theory for financial and logistics basics

For a better understanding of the steps taken in the practical approach to solve the given task, some basic information about utilized know-how shall be given in the following chapter.

2.1 Definitions and term explanations

First, general definitions and most profound terms of a supply chain will be explained:

2.1.1 Payment Terms

The most obvious explanation should be what exactly is understood under the term payment terms.
Mister Wilkinson [12], a former CFO and publisher of an online journal called “The strategic CFO” gives following definition that I find quite fitting:

“Payment terms, explained as the terms which dictate when a vendor must be paid, vary in policy. Some businesses accept no payment terms: they receive cash on delivery (cod) or even before the product is given to the customer. Other businesses offer payment terms as a perk of becoming a client. These terms may be pay in 30 days, a 2% discount for paying within 10 days (2/1 net 30), and other terms which allow the customer to pay later.[…] Payment terms are often negotiable[…] [12]*“*

Basically “payment terms” regulate when and under which conditions the contractor has to be paid. In general, these agreements are part of the original contract and can vary of course between different service providers. [13] [14]

Furthermore, they can be used to attract new customers or serve to create a stronger contract-negotiating position. For example: The vendor gives some discount, if he receives the payment earlier.

The strategic usage of cash discount and whether it is better to use the discount or lay more focus on liquidity in the company shall be explained in following chapters.

2.1.2 Incoterms

International Commercial Terms (Incoterms) are general rules that contract partners can agree on. They should build the very foundation of every business relationship between two companies where goods are shipped or transported overland between different countries. [15]

2.1.2.1 Purpose of Incoterms

The basic idea behind these terms is to define basic rules for national and international business relationships to prevent misunderstandings while setting up the contract of purchase, due to different regulations in each country or due simply to different habits of trade.

It is very important to always make sure to refer to the actual version (Incoterms 2010) of the Incoterms because since their first release 1936, they were upgraded several times. [16] Furthermore, these terms apply only on the delivery of goods after they are sold and they determine the rights and duties of the contract partners.

2.1.2.2 Structure of Incoterms

There are two main groups of terms, those applicable to all transport services and those only applicable to ship freight as shown in tables 1 and 2.

Acronym	Name	Description
EXW	Ex works	Seller provides goods at own plant at certain time
FCA	Free carrier	No determination in the contract who will transport goods, only when and where (Most common for Magna)
CPT	Carriage paid to	Seller has to deliver goods or pay for delivery
CIP	Carriage and insurance paid to	Seller is responsible for goods (in case of damage) till they are delivered and unloaded
DAT	Delivered at terminal	Seller has to deliver goods at certain terminal and is responsible for them until they arrive at this point
DAP	Delivered at place	Same as DAT, but a certain place is defined
DDP	Delivered duty paid	Same as DAP, but additionally, seller has to pay all duties in addition

Table 1: Incoterms applicable to all transport services [16], [17]

Acronym	Name	Description
FAS	Free alongside ship	Seller brings goods to dock, then buyer is responsible
FOB	Free on board	Seller brings goods on board, then buyer is responsible
CFR	Cost and freight	Seller has to pay for transport over sea, but buyer is responsible for goods while at sea and has to pay for transport in own country
CIF	Cost, insurance and freight	Similar to CFR, but seller is responsible for goods until they are loaded on a truck at land

Table 2: Incoterms only applicable to ship freight [16], [17]

This is one possibility to structure these terms. Another possibility is to group them according to their definition of risk, cost and transport transition. Whereas the risk transition defines the responsibility in case of damage or loss of goods, the cost transition defines who has to handle which cost. The transport transition defines who has to take care of delivering and picking up the goods.

As it can be seen in tables 1 and 2 there are only four different capital letters, if taking all acronyms into consideration. The Incoterms are structured according to these four groups as stated by transitions[17]:

- Group E (Pick up conditions)

  Only the EXW term is in this group. Cost and Risk transition directly at seller's plant as is shown in figure 3:

Figure 3: Definition of transitions for Group E [17]

- Group F (Main transport not paid by seller)

  FCA, FAS, FOB belong to this group. Here the Risk, Cost and Transport responsibilities transition either at a certain place where a TSP picks up the goods or at a certain dock as is displayed in figure 4.

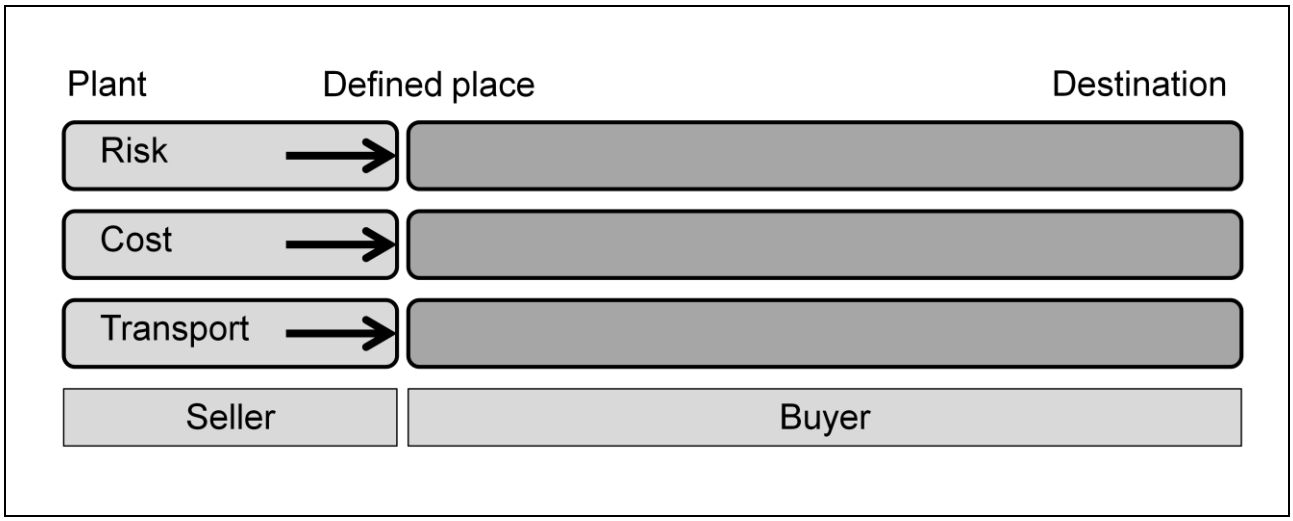


Figure 4: Definition of transitions for Group F [17]

- Group C (Main transport paid by seller)

  To this group belong CFR, CIF, CPT and CIP. In Figure 5 you can see that the cost and transport responsibilities transition first to a TSP and only later to the buyer, where the risk responsibilities transition directly to the buyer.

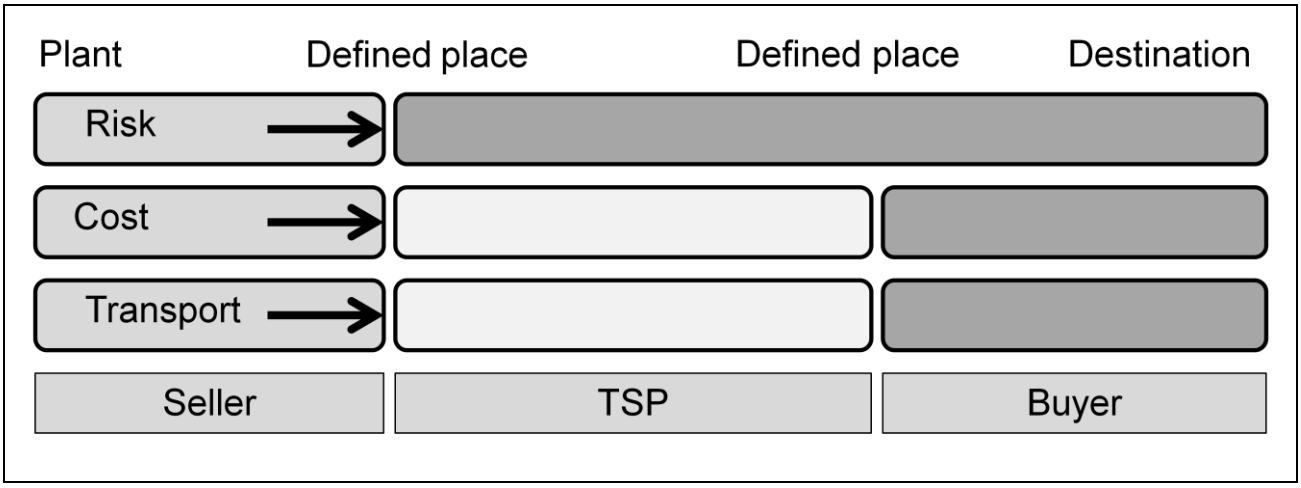


Figure 5: Definition of transitions for Group F [17]

- Group D (Delivery Condition)

  Here are the last terms gathered: DAT, DAP, DDP. In Figure 6 the transitions are displayed for these terms:

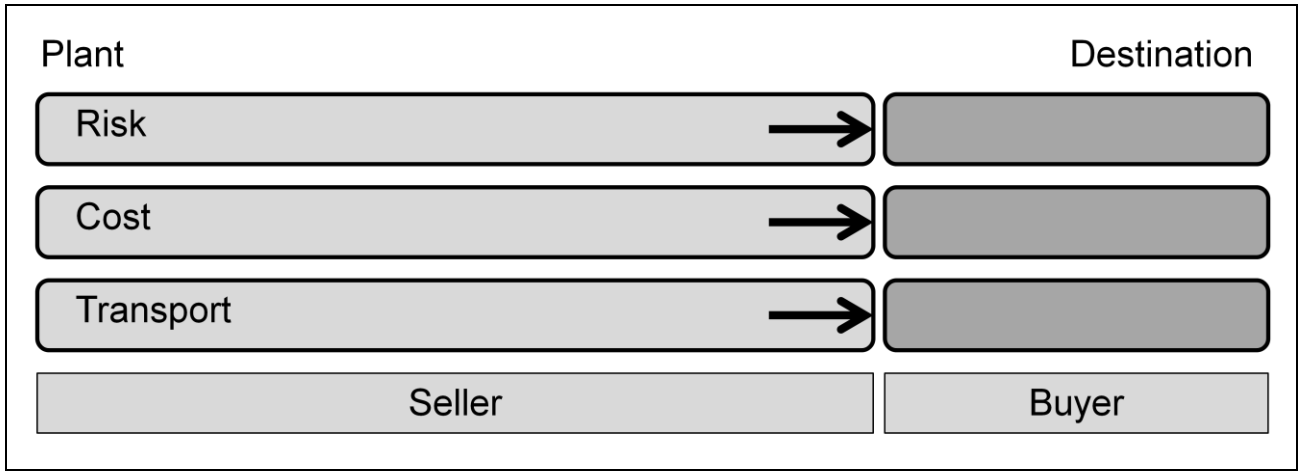


Figure 6: Definition of transitions for Group D

These are the two possibilities to structure the Incoterms. To understand both ways it is crucial to apply and work with them in a correct way, as they build the very foundations of every contract where goods have to be delivered.

2.1.3 Legal basics for payment terms

As this thesis is based on a topic that affects transport routes all over Europe, it is important to clarify some legal aspects as well.

First of all, it should be said that payment term themselves are very inexplicit in legal terms. There are just a few passages in law where they are mentioned, but they are never really defined. [18]

Mostly payment terms are just part of an agreement, when two parties set up a contract. However there is a directive of the European Union that states that private contractors can define payment terms as they wish. It is just necessary that both parties agree on them and that there is no abrasive disadvantage for one party. In any case, such a disadvantage cannot arise from payment terms with an amount of 60 days.[19]

This directive is valid in all countries of the European Union, but countries can choose to apply their own law, so it might be regulated a bit differently. To avoid this, it is always possible for two contractors of different countries to decide which law should be applied to their contract. Meaning, if a German salesman and a Spanish purchaser make a contract, they can choose if they will make the contract based on German or Spanish law.[18]

In the case of Magna, proceeding according to Austrian law would be prefereable because this countries law is in unison with the European law concerning the payment term issue [20] and therefore many problems can be avoided up front.

2.2 Financial management

Due to rising competition, strong growth of international markets and very quick changes on the stock exchanges, it is very important to lay focus on a proper financial management.[21]

But what exactly defines a proper management and what are the main goals? This is illustrated in figure 7:

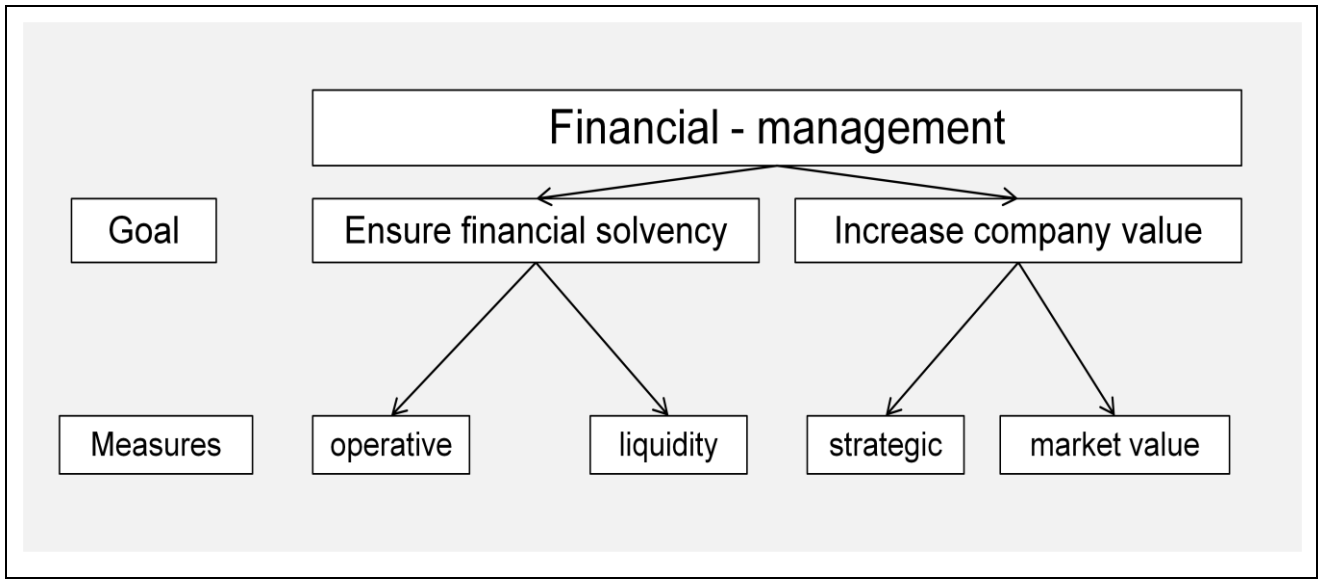


Figure 7: Goals of financial management [21]

First, it is important to ensure that the company is operative on a short term level. That means that the company is able to do business, place orders, produce goods and pay bills.
The next thing to consider is liquidity. It is vital to a corporation to have the financial means to pay extracurricular costs, such as sudden increase in production cost or unplanned repair of machines. [22]

On a long term perspective, the goal is to increase the company's value. This is accomplished by strategic investments and increasing the market value. [22]
The field of financial management is very broad and concerns almost every aspect a business is dealing with.

As this thesis is treating the topic payment terms along the supply chain, only some minor extracts of this huge field will be explained in the following chapters.

2.2.1 Basics of accountancy

To get a feeling for the kind of numbers and key figures financial management is working with, a short introduction to the basics terms of accountancy shall be given.
There are four so called levels of accounting as is shown in figure 8:

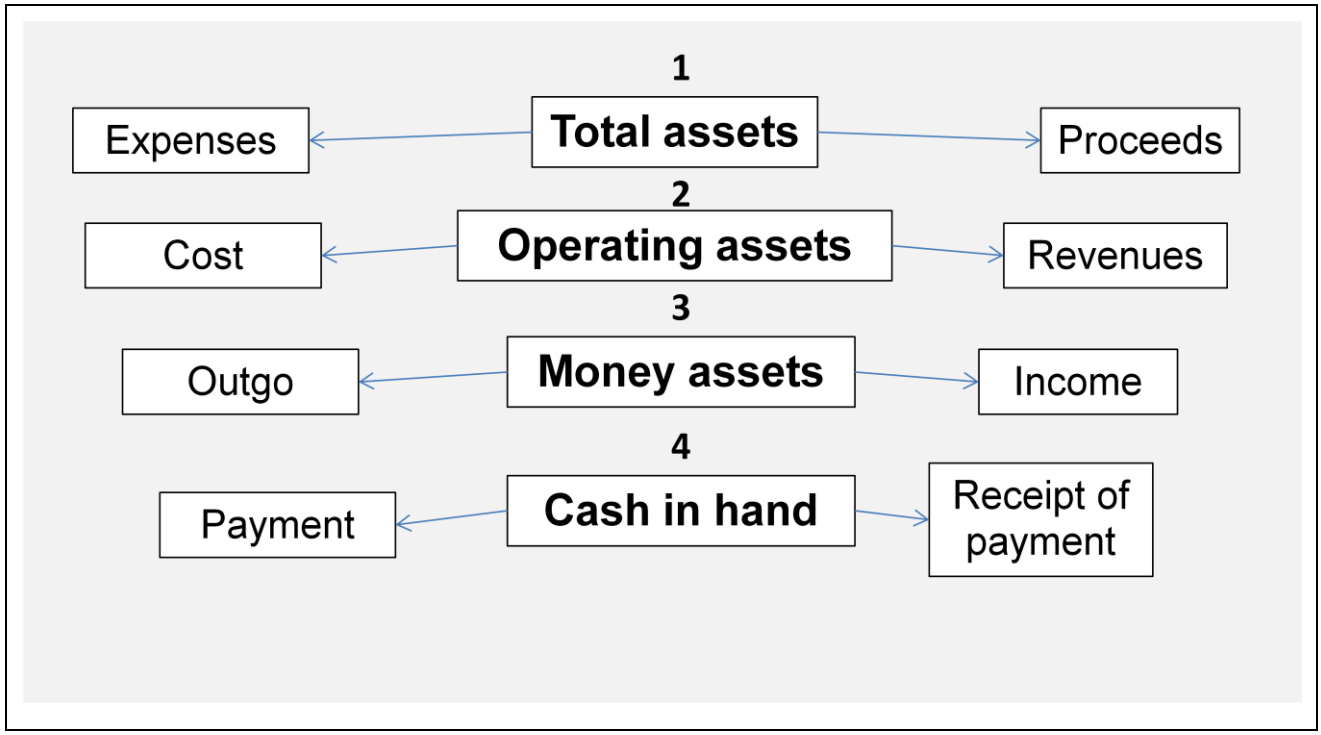


Figure 8: Levels of accountancy values [23]

Explanation of the different levels: [23]

- Level 4: Cash in hand

  This level is very simple to understand. Every time the company receives money or spends money in cash, any financial experts will talk about payments or receipt of payments.

- Level 3 : Money assets

  This level defines every transaction made on behalf of the business, although it is insignificant whether the company has already paid for the transaction or not. So if people talk about outgo, they refer to the value of goods that has left the company, even if the payment is due in the future.
  It is similar with income. Here it is meant, that some sort of value enters the business, not considering the debts deriving from it

- Level 2 : Operating assets

  The operating assets are handled the same that the money assets are handled. The only difference is that they have to be assigned to a very distinct period of accountancy.

- Level 1 : Total assets

  For total assets, not only the period, but also the relation to operations is considered. So expenses, for example, have take place within a certain period of time in direct relation to the common operations of the firm.

For this thesis only level 4 and level 3 are really to be taken under consideration, because the extension of payment terms only influences the so called “cash in hand” level, while the outgo stays the same, because the contract with the Transport Service Provider does not change. This means that the outgo-date doesn’t change, only the date where the payment is due.

2.2.2 Liquidity vs. profitability

As the change in payment terms directly affects the liquidity of a corporation, this topic should be discussed at this point to show why liquidity is so important.

Basically liquidity is the lifeline of every business. It sums up all of the possibilities a company has to pay its bills. This does not just mean cash, but also the money in bank accounts and even the overdraft facilities the bank has granted the firm.[23]

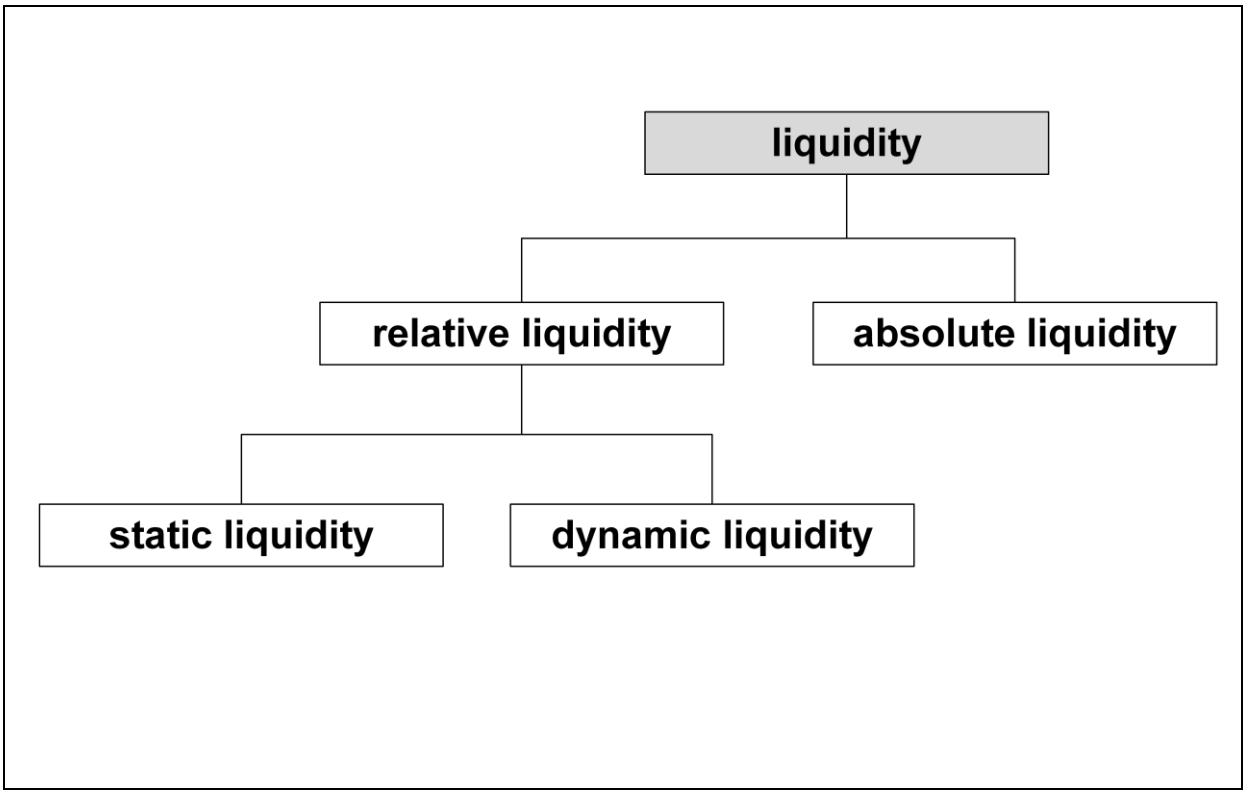


Figure 9: Types of Liquidity [21] , [24]

In figure 9 different types of liquidity are listed and shall be explained at this point: [21]

- **Relative liquidity**:
    - Static liquidity

      This term describes all fluid means on any given day that can be used to pay ones debt.

    - Dynamic liquidity:

      Here liquidity that is expected in the future is described. This is an uncertain number, but it can help steer the company. To determine dynamic liquidity the so called “cash flow” serves as a key figure. This term will be explained in the next section.

- **Absolute liquidity:**

  Absolute liquidity means considering all assets that could be used to pay demands once they are turned into cash or perhaps directly traded. But this is very dangerous,

because there is no guarantee that anybody would really trade your assets or pay for them, when this person is needed to do so.

To be able to measure the degree of liquidity three performance figures have been determined:[23]

- **Liquidity of the 1st degree**

  You can calculate this figure by dividing all cash resources through the short term liabilities (liabilities accountable to one period) , as shown in formula 1.

$$\text{L } 1^{\text{st}} = \frac{\text{Cash ressources}}{\text{Short term liabilities}} \qquad (1)$$

  This key figure should be between 10% and 20 % to ensure stable operation ability of the firm.

- **Liquidity of the 2nd degree**

  This figure can be calculated by dividing all cash resources including all claims through the short term liabilities, as shown in formula 2.

$$\text{L } 2^{\text{nd}} = \frac{\text{Cash ressources+ Claims}}{\text{Short term liabilities}} \qquad (2)$$

  This key figure has a little touch of dynamic liquidity, as it includes claims (future liquidity). If the result of this calculation is below 1, it is necessary to immediately borrow money from the bank; otherwise bankruptcy will be undeniable.

- **Liquidity of the 3rd degree**

  Here all cash resources, claims and stock are added up and divided through all short terms liabilities.

$$\text{L } 3^{\text{rd}} = \frac{\text{Cash ressources+Claims+Stock}}{\text{Short term liabilities}} \qquad (3)$$

The result needs to be over 2 and it has to be considered that this is dynamic liquidity. There were several numbers included that could only serve as cash in the future.

So now that liquidity is explained , it is necessary to take a closer look to the term “Profitability”, because these two expressions are often used together and it is always the question which one is more important.

Profitability describes the means (i.e. money) that are put into a project and the surplus gained from this venture. It is possible to use this key figure as a comparison to other projects or even companies, or define up front what rate should be achieved and then measure the success from it. [21] , [25]
It is calculated quite simple: [23]

$$Profitability = \frac{Results\ (profit\ or\ loss)}{Effort\ spent} \qquad (4)$$

It can be calculated for just one project or for the entire business of the firm; the calculations can be done related to a certain period of business or an entire year.

After knowing what these two indicators are about, the discussion which one is more important can be opened:

It is obvious that the owner of a firm would certainly like to have a big profitability rate before high liquidity, just because that would mean more earnings and at the end of the day, more money in his pocket. On the other side, the creditors and stakeholders would surely prefer a high liquidity rate, so the company will be able to pay its debts and be more certain to stay operational.

This makes it quite easy to understand that the financial management should keep a good balance between these two. Even so, most experts tend to hold the opinion that liquidity becomes more and more important, not only because of the necessity to be very flexible as a company to stay competitive, but also because it is also possible to make money with liquid capital and therefore the profitability would increase. [26]

2.2.3 Cash flow

Cash flow is an indicator for the potentiality of self-financing in a company. When talking about “cash flow” there are three possible ways of understanding this term: [27]

1. General flow of payments (movement of money)
2. Balance between distinct outgoing or incoming payments
3. Key figure derived from the annual balance sheet

In this thesis the focus will lay on option three, therefore basics to this indicator will be explained.
There are two possibilities to define the cash flow: [23]

1. The simple or direct cash flow
2. The extended or indirect cash flow

In both cases the surplus is taken from the “profit and loss statement” (P and L statement). For the simple one you add all amortizations, and for the indirect cash flow you add all “non-cash expenses” und subtract all “non cash income” as shown in figure 10.

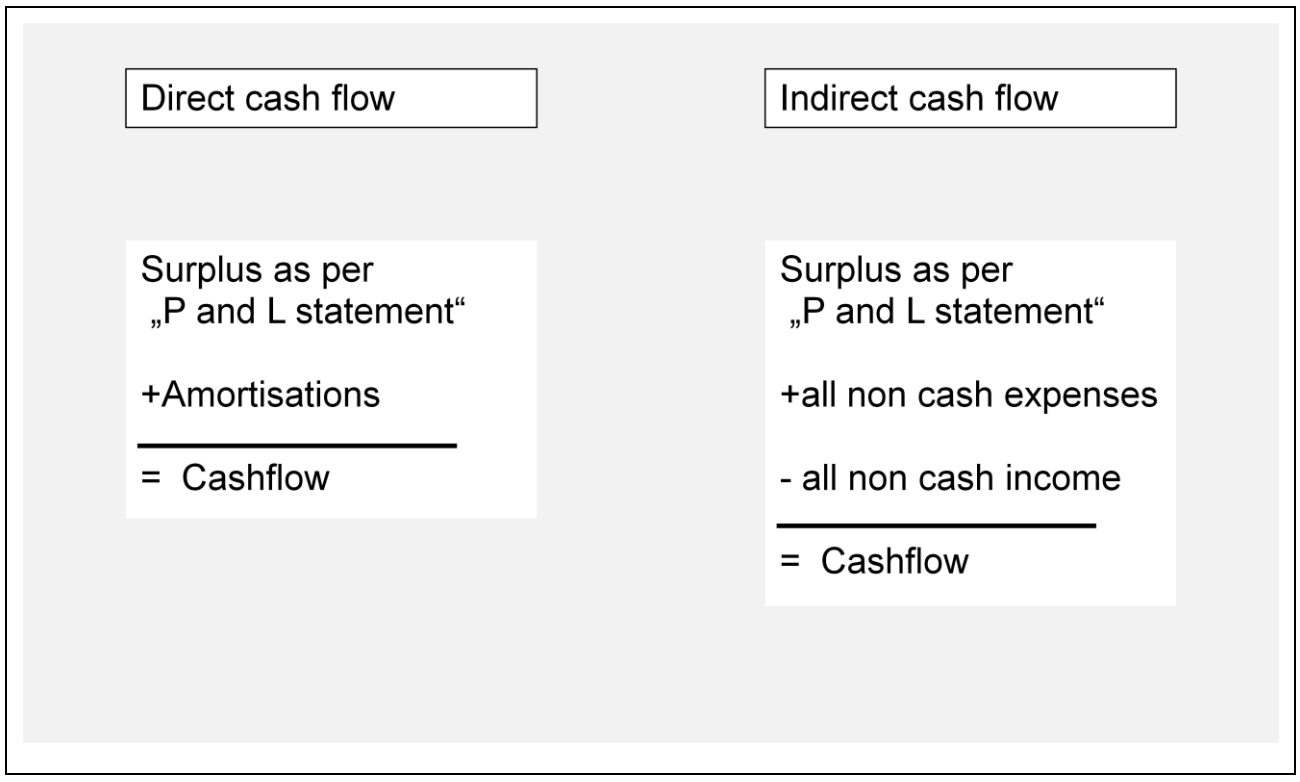


Figure 10: Cash flow calculations [28]

Basically “Cash-flow” shows all assets that are relevant for the liquidity of a company and is therefore an important indicator for supporting financial decisions.

2.2.4 Calculation of interest

To determine the potential savings or additional profits that come from extending certain payment terms, it is also essential to consider imputed cost. More exactly imputed interests that determine how much profit can be gained from the increased liquidity.
Consequently, interests for equity and outside capital are calculated and later on cumulated.

In this particular case only the calculation of the interest for equity will be explained, because Magna is not using any kind of outside capital for the examined operations. [26]

First step to calculate the amount of imputed interest is to subtract the non-operating assets from the list of capital assets. Then the floating assets of bonds are reduced.
The sum of the adjusted capital assets and adjusted floating assets minus the non-interest-bearing liabilities gives you the necessary operating capital as it is illustrated in figure 11: [29]

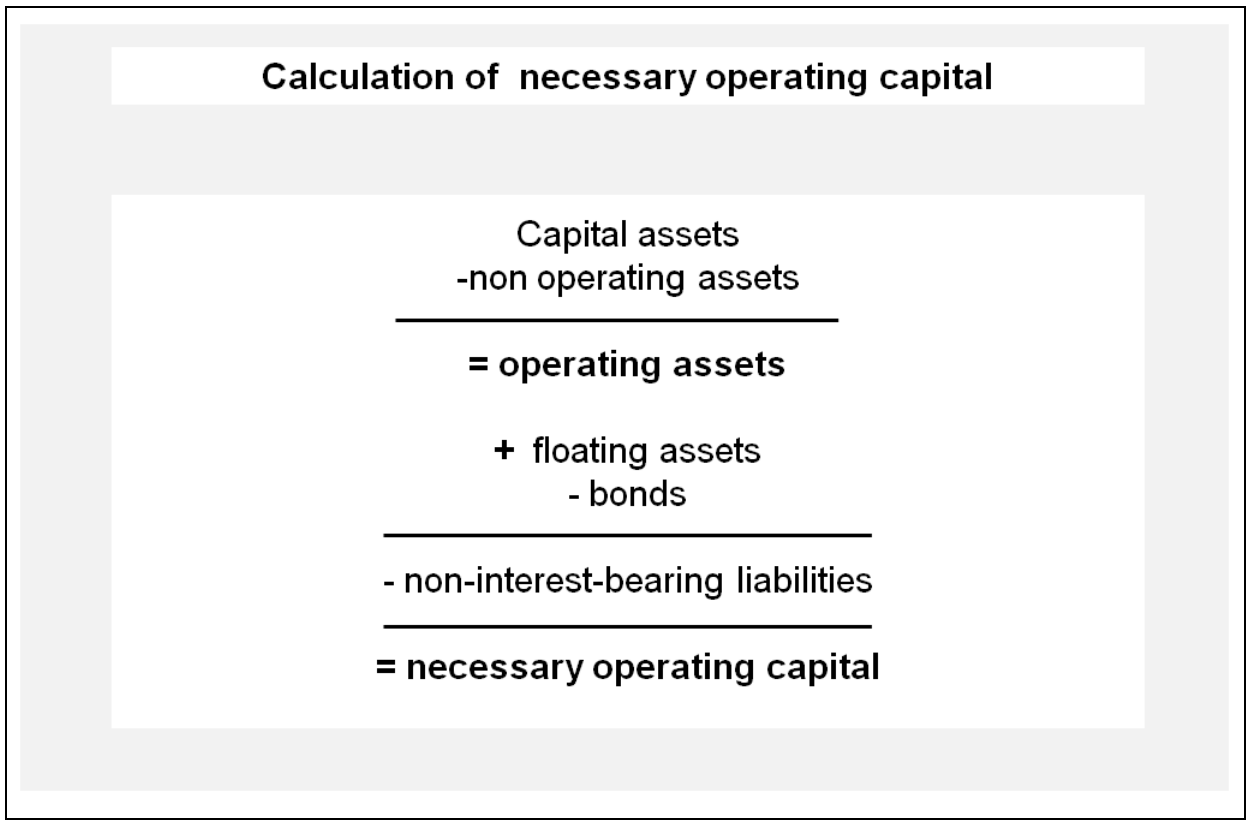


Figure 11: Calculation of necessary operating capital

Once the operating capital is calculated, a reliable interest rate has to be chosen and with formula 5 the interest on equity can be found.

$$Interest = necessary\ operating\ capital\ x\ interest\ rate \quad (5)$$

For the interest rate it is usually recommended to go with the average market interest rate. Concerning the calculation model that is created over the course of this thesis, a special interest rate was used, that was provided by experts of treasury department inside Magna. They stated that in case of calculations concerning liquidity the so called “ROCE” (Return on capital employed) officiates as basis for all further calculations. More detailed explanations will be given in section 2.4

$$ROCE = \frac{net\ operating\ profit\ after\ taxes}{total\ capital - liquid\ assets} \quad (6)$$

Due to data integrity Magna was not able to explain the complete calculation of the interest rate; Magna just explained that is a very complex undertaking due to regional differences. But in the end, the interest rate is cumulated across sites all over Europe and excludes any form of external finances, because Magna’s policy is to finance everything with equity. The cumulated rate used for further calculations is 10%.

2.2.5 “Cash Back” - models

This is a special term that is sometimes part of a contract to motivate the partner to make their payments in a shorter period of time. Usually this term describes the conditions on how much of a discount the buyer gets if he pays the bills in a certain, usually short, period of time.

Cash Back is mentioned at this point because in some cases inside Magna, Cash Back is preferable to extended payment terms. This is because the discount, in addition to quick payments, can positively influence the “EBIT” (earnings before interest and taxes).

The following example will help to understand the difference to extended payment terms a little. Supposing there is a bill of 100.000€ to pay. Either the company pays 30 days after receiving the shipment, profiting from a 3% Cash Back rate or it pays the full amount after 90 days.
So the financial officer can decide whether he likes to save 3% and reduce liquid assets or extend liquidity and try to make a little profit with interests. More detailed explanations will follow in the practical approach.

2.3 Supply chain management

As the topic of this thesis is to analyze payment terms along the supply chain of Magna at this point an insight in the theory of supply chain management shall be given for a better understanding of how the necessary data was acquired to perform the necessary assessments.

First of all it has to be mentioned that there is no coherent definition of Supply Chain Management in literature relating to this field. There are some main fields that are similar in each book, but that there is not one clear big definition of it. Principally the term supply chain management first was used in the USA in the early 1980's and was inherited in Europe about 10 years later.[30], [31]

Research in different papers and books however, a conclusion imposes itself on the reader, that though there is no common definition, the goals of such a system are always the same as shown in table 3:

Field	Goal
End customer benefits	Increase in product availability
	Increase in individuality of customized products
	Improvement of logistics
Cost	Optimization in transport cost
	Reduction in stockings
	Efficient usage of raw materials
	Reduction of administrative cost
	Reduction of transaction-cost
	Reduction of R&D cost
Time	Reduction of lead time
	Reduce timetable in R&D processes
	Reduction of restocking time
	Improve reaction time on demand changes

Quality	Improve quality of product
	Improve innovation rate of products
Flexibility	Improve flexibility on external influences
	Improve flexibility on demand changes
	Improve enhancement of future supply chain

Table 3: General goals of supply chain management [32], [30]

The biggest focus lies here on the end customer benefits, because this is the part where money is made and not just saved. Concerning the field “Cost” the biggest aspects are the costs that are directly linked to the physical process of dealing with raw material. The other categories (time, quality and flexibility) are also important, but they are more influenced by the open market, such as the demand of customers. [32]

One point most authors also agree upon is that two types of Supply Chains exist:

1. Internal supply chains
2. External supply chains

The internal supply chain is defined by processes and transactions along the value chain within one company with different site locations. And when speaking of an external supply chain, the same processes and transactions are defined but there are external suppliers, partners and transport service providers involved. [30],[31]

After describing the goals of a “Supply Chain Management”, the tasks shall be given here and they can be described in three main points:

1. Management of material flow
2. Management of information flow
3. Management of financial flow

These points will be described in the next chapters in detail.

2.3.1 Management of material flow

To master different customer orders with a very high fluctuation in demand (concerning quality or availability) it is necessary to have a very sophisticated system for logistics. [33]
In the following figures (12 to 14) the development of simple and wide spread logistic structures is shown:[34]

Figure 12: 2 Party logistics [34]

In figure 12 the simplest way of a distribution network, a so called 2PL (2 party logistic) - system is shown. Here, one supplier transports the ordered goods to a receiver, for example a plant. The next step is to outsource the transportation to specialists, so called “Transport Service Providers”, to improve the efficiency and so the supplier can concentrate on quality of his products instead of worrying about logistics. This model of a 3PL (3 party logistic) – system is shown in figure 13.

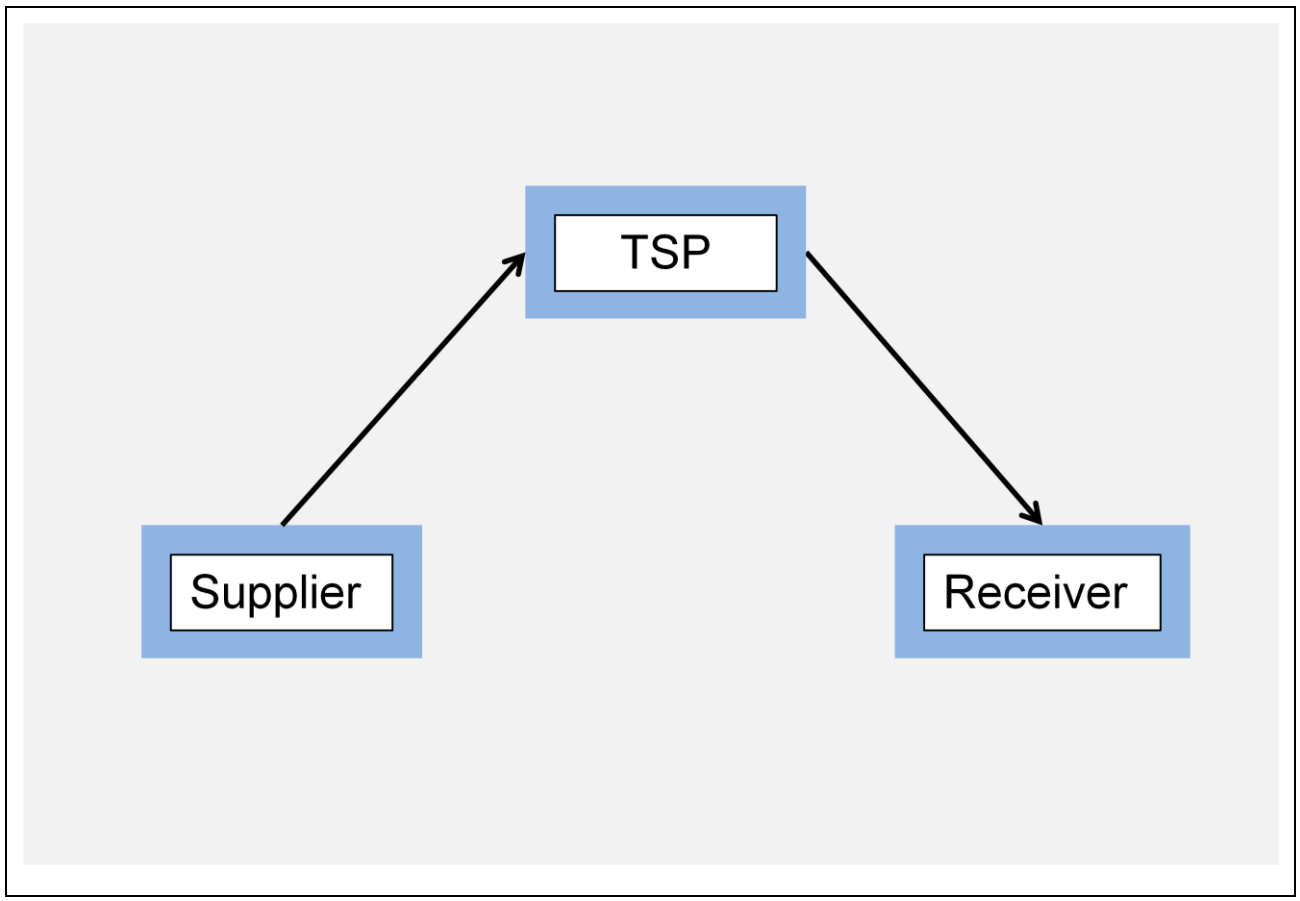


Figure 13: 3 party logistics [34]

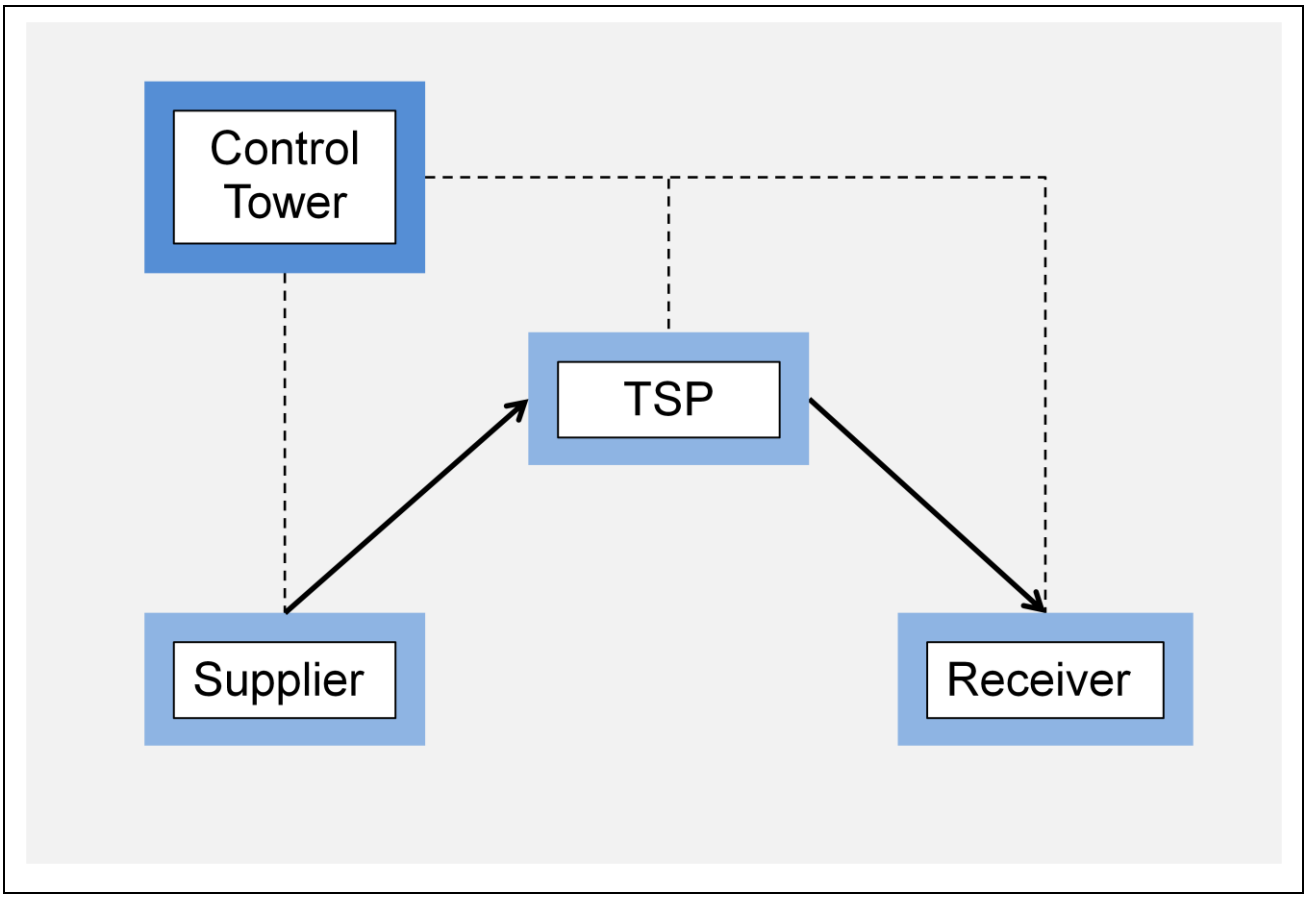


Figure 14: 4 party logistics [34]

Finally in figure 14 a very high sophisticated logistic system is displayed. The 4PL (4 party logistic) system is basically the same as the 3PL-system, but an additional control center improves efficiency of transport routes and frequencies even further.

These systems are applicable if so called FTL's (Full truck loads) are deployed, which means a whole truck can be filled with products and then transports them directly from the supplier to a plant. If on the other hand there are just a few goods to transport, the transport service provider applies so called milk runs. That means that he picks up a few goods at one point and on the way to the end destination, he picks up and delivers other goods at destinations en route as shown in figure 15: [35]

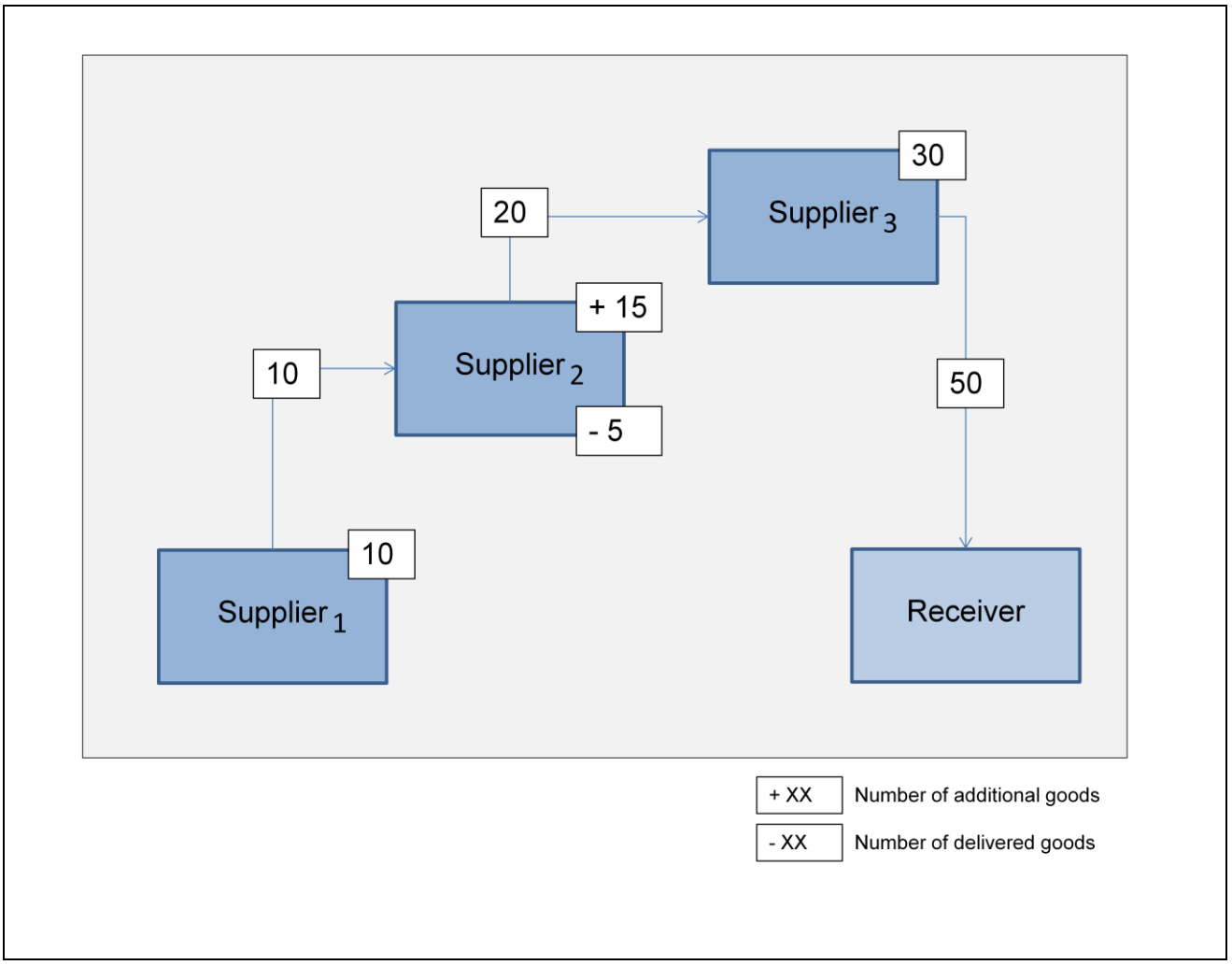


Figure 15: Milk run [34]

But providing a proper logistic system is just one task. Other important tasks are determining, visualizing and analyzing changing material flows to improve the structure of the transport system and to identify all costs.[30]

To ensure a certain quality of the gathered data it is recommended to establish regional and temporal boundaries in the analysis-phase. This gives a distinction between internal, local and global material flows for certain periods. In special cases it is possible to specify this system even further by doing an ABC-analysis of deployed materials, to determine the importance of the single material flows. [30]

Once the system of data acquisition is defined, it can be conducted in two ways:

1. Direct Material flow compilation
2. Indirect Material flow compilation

The first way of data attainment is only used, if there are no sourcing tools inside the company available. This means there is no stored data concerning materials, so it has to be observed, talked to people or tried to do measurements of material flows personally.
The better approach would be the indirect one, where certain IT-Tools are used, like an ERP (Enterprise Resource Planning) –system, where all necessary data is stored.[30]

Once all necessary input is gathered, it is important to conduct a thorough analysis of this data to ensure transparency of cost, flexibility and improvement in the system-design.

2.3.2 Management of information flow

Talking about information along a supply chain, there are 4 important fields, which have to be considered:[30]

1. Information about supplier

   It is obvious that it has many advantages to have a lot of information about suppliers, if a new contract partner shall be developed or the relationship of an existing one deepened.

2. Information about customer

   Most supply chain systems work after a so called pull system, in comparison to a push system. This means that the company serves the existing demand on the market and starts to produce goods after a customer expressed a need for it. (In a push-system the company would produce goods and then try to create a demand) Considering this fact, every company that has detailed information about an existing demand has advantages against their competitors.

3. Information about competitor

   It can be vital to know the strength and weakness of a competitor, not only to get the upper hand in the fight for market share, but also to consider strategic alliances, hostile takeovers or simply to learn from the competitor.

4. Information about internal supply chain

   A very significant part can also be to know your own processes very well, to be able to expose potential for improvement.

To collect and transport all this information there are several systems described in specialist literature. At this point only three of them will be described in order to get a feeling for what is necessary to accomplish the task of gathering information:[30]

1. **ECR (Efficient customer response)**

   This method's title is rather self-explaining. The theory behind the name is that logistics can be combined with marketing. To accomplish this an IT-system is needed that can combine "Marketing Channel Management (MCM) "- with the "Quick Response" – method.
   MCM examines storing and distributing finished goods. With this method new channels of trade or intermediaries could be found. [36]
   The quick response method is most effective if the company's sub-processes work just fine, but when linked together to the main process cases of inefficiency result.
   So in the example of Benetton fine pullovers were produced in the colors their analysts said that there would be a certain demand for. But it took too long to get the finished products in the stores and so their sales lagged. With quick response, they produced the clothes and got them colored shortly before selling them so they could meet the costumers' needs more efficiently and increase their sales.

2. **Benchmarking**

   Benchmarking means that either different companies or departments inside one company are compared to one another. Only similar processes of the companies can be benchmarked and compared. There are three types of benchmarking:

   a. Internal benchmarking

      This means benchmarking inside one company, comparing departments. One big advantage is that sensitive data stays confidential.

   b. Competitor focused benchmarking

      Here processes and products of competitors are compared. It is a huge problem to get reliable data, because most companies don't want to share confidential data. Most of the time, these "benchmarkings" are conducted by neutral third parties, such as consulters.

   c. Functional benchmarking

      Here processes of companies that are active in different industries are compared. This is a new approach, but one advantage is that the companies can share their confidential data because they are not competing with one

another, and the benchmarking can be more significant. However, it is just a challenge to find comparable processes.

3. **Reverse Engineering**

   With this method a competitor's most successful product is picked and deconstructed, while it is tried to gain information of the competitor's processes and adapt one's own accordingly.

With these tools it should be possible to gather enough information to be able to improve one's processes and be more efficient concerning "Supply Chain Management".

2.3.3 Management of financial flow

In modern Supply chain systems, decreasing the opportunity cost is the number one goal. Opportunity costs are potential profits that are not realized. One way to accomplish this is to charge the full amount of money directly after the delivery of a product and not granting an enhanced period of time for payment. Because while waiting for the money, the company has to virtually finance the product in advance and loses money by not being able to collect the interest rates. [30]

2.3.3.1 Key performance indicators

To be able to keep track of the financial flow and ideally improve it, there are several predefined KPI's (Key performance indicators) that will be described below:[30]

i. "Cash Back" rate

This describes the ratio on payment terms that include a "cash back" model and it can be tracked if that "Cash Back" payment was put in use.

$$Cash\ Back\ rate(\%) = \frac{cash\ back\ payments * 100}{all\ payments} \quad (7)$$

ii. Discounted purchasing

Usually companies get discounts if they have a strategic cooperation or if they exceed a certain volume in purchasing and receive a quantity discount. Here the purchasing department has to align their sources of suppliers, so they can maximize the profit of discounted purchasing.

$$Discount\ rate(\%) = \frac{discounted\ purchases * 100}{all\ purchases} \quad (8)$$

iii. Open purchase orders

The company should try and minimize open orders because they are services that have been received but not paid for yet. This means that on the long run their liquidity could be in jeopardy.
To get a better grasp of that, the firm should monitor liquidity of the third degree and the cash flow, as they were described in previous sections.

iv. Working capital

This KPI helps to get a good overview of fixed assets and to realize when it is necessary to liberate capital and turn it into liquidity, or in some cases, if liquidity exceeds a certain ratio bind capital.

$$Working\ capital = \frac{current\ assets}{short\ term\ liabilities} \quad (9)$$

The main goal is to optimize inventory, liabilities and arrears; therefore the “Cash to Cash Cycle” (describing the time span from the first cash outflow till the company receives cash) has to be optimized. This means that the management has to try to keep inventory small, to avoid stocking cost and cash in arrears as soon as possible, while postponing payment for liabilities as far as possible. That would, for example, mean to extend payment terms for a received service.

v. Economic value added

This is an absolute indicator, which points out if the firm has enlarged its market value proposition or reduced. This value can be calculated by subtracting the capital times the WACC (weighted average cost of capital (equity and debts)) from the NOPAT (Net Operating Profit After Taxes):

$$Economic\ Value\ Added = NOPAT - (Capital * WACC) \quad (10)$$

vi. Return on capital employed

The ROCE can be described as an interest yield for the capital. It can be influenced by EBIT (earnings before interests and taxes) and by bound capital. It is a tool to measure the profitability of a company. The following formula states the same as formula (6), but just uses a different terminology:

$$ROCE = \frac{EBIT}{bound\ capital} \quad (11)$$

This is the last KPI that should be significant for assessing the financial flow in a Supply chain network. These could help making the next point, cost tracking, easier to accomplish.

2.3.3.2 Cost tracking

With cost tracking, a tool to observe the effectiveness in financial management is described. It consists of three main parts: [30]

1. **Tracking of material cost**

   Material costs are part of the manufacturing cost, and because of that, they influence directly the “EBIT” in the “Profit and Loss Statement”. So it is vital to keep a close eye on fluctuations or changes. To accomplish this, “actual values” are compared to “outlook values”.
   At this point some major influences are listed:

- Economy of scale: The more you buy, the cheaper it gets
- Stock exchange: Fluctuation of prices for raw material
- Currency rate: If goods are bought in a foreign country, the currency rate has to be considered
- Tooling cost: Abrasion should be avoided as much as possible, because in most cases new tools are very expensive
- “Cash Back” models: A company can also save money through timing of payment

2. Tracking of shipping cost

This cost segment also influences the “EBIT” to 100 % and this is the reason why there is a lot of potential to improve the “Profit and Loss Statement” by saving shipping cost.
These costs divide themselves in following positions:

- Inbound cargo: These are goods delivered to a certain destination
- Outbound cargo: These are goods, that are produced in-house and have to be shipped away
- Premium freight: This includes any products that need special treatment while delivered
- Tolls and taxes: For shipment of goods across borderlines tolls and special taxes have to be paid. Who has to come up for these payments is usually defined in the “Incoterms”, agreed upon in the shipping contract.

3. Tracking of inventory

The costs for inventory influence the current assets and are classified as bound capital. So they potentially cause opportunity cost. It is important to keep inventory as low as possible, but still have some reserves to remain flexible and be able to react to changing demands. If the company fails to accomplish that, a stock-out could happen and a lot of money will be lost. Also in this segment the costs are broken down to their origins to be able to keep track of them:

- Raw material
- Auxiliary material
- Purchased parts
- Manufactured parts
- Work in progress
- Finished products

The most common way of keeping track of these costs is to use special standardized forms, so they can be compared to one another and avoid missing a cost segment.

2.3.4 Sourcing strategies

And finally when speaking about “Supply Chain Management “the modality of ordering goods has to be considered.
The first thing to decide concerning sourcing strategies is whether the firm wants to manage their suppliers on their own or outsource it to a so called “3rd party procurement”-service provider. In this thesis the 3rd party procurement will only be mentioned to uphold integrity and not explained any further, because in most cases it is not fit for strategic purchases and as Magna has a lot of strategic partnerships with suppliers, only the 3 ways of direct procurement will be explicated: [30]

2.3.4.1 Single sourcing

Basically single sourcing means that an entrepreneur decides to buy one type of material from one single supplier. That means that if he produces furniture out of different types of wood, one of these types is always bought from the same source.

This has many advantages:

- Creating a long term partnership and building up trust
- Exchanging know-how and optimizing processes
- High accuracy in demand prognosis for supplier

But of course there are even bigger risks:

- High dependency on one single source
- Risk of quality decrease of supplied goods due to lack of competition

Because of these risks, the single sourcing is a very rare method and is commonly replaced by the following sourcing models:

1. Multiple Sourcing

   The Company tries to gain financial benefits and ensure stability in the supply chain, by comparing and employing different suppliers.
   This is an advantage for production, because the risk of stocking out is very low. But the firm misses out on applying economy of scale, due to little order volumes per supplier.

2. Double Sourcing

   To be able to apply economy of scale and keep the security of supply high, the so called double sourcing method was introduced. Here the enterprise focuses on only two suppliers. With this model the advantages of single sourcing and multiple sourcing are combined, while minimizing their disadvantages.

3. Sole Sourcing

   This model is quite similar to single sourcing with the difference that in this case the company is forced to use only this one supplier, due to a supplier's monopoly position.

2.3.4.2 Modular sourcing

To reduce the interfaces along the supply chain "modular sourcing" comes to use. There is one main supplier that pre-assembles parts, which he got from sub-suppliers as shown in figure 16:

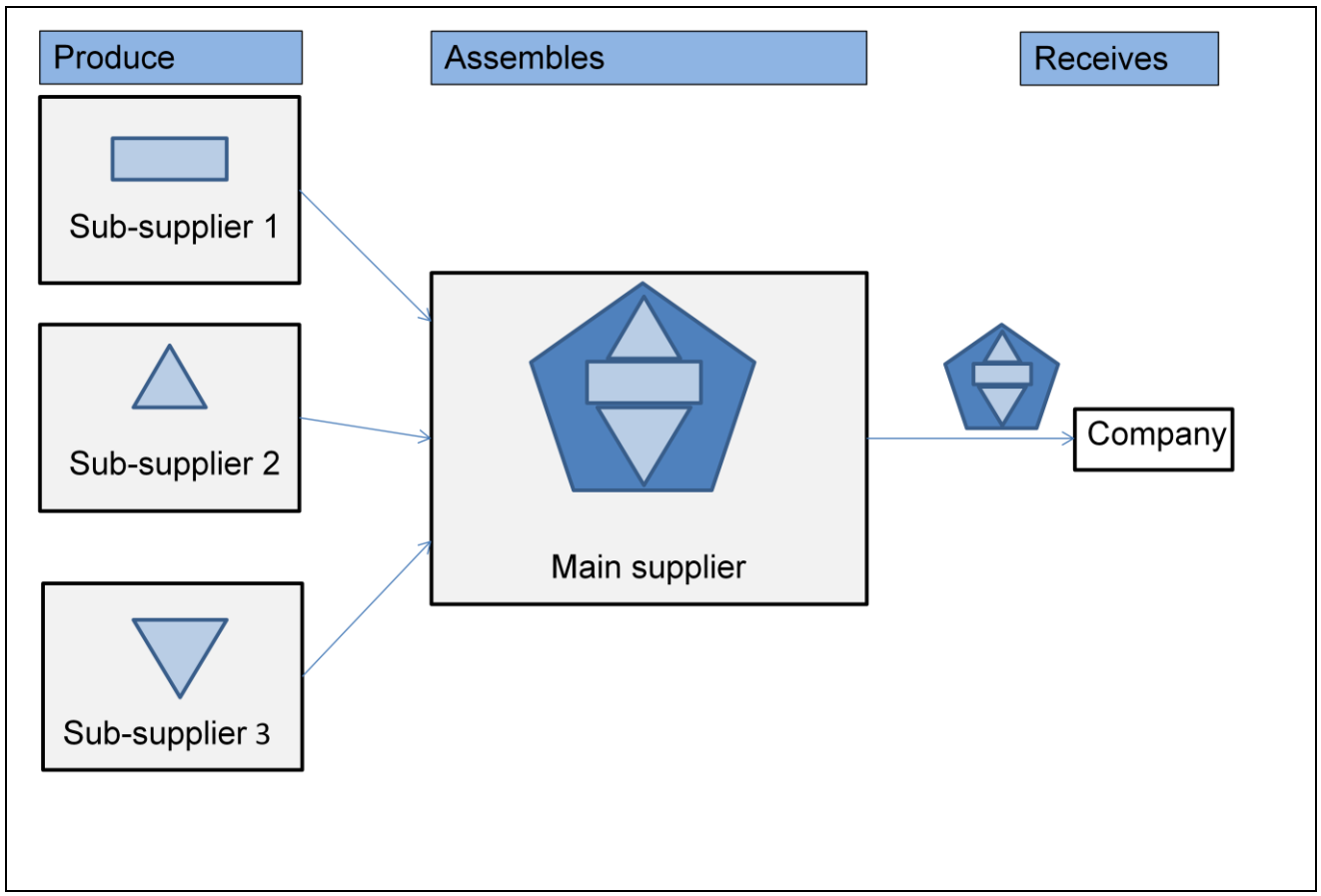


Figure 16: Process of modular sourcing [30]

The company only deals with the main supplier. To handle the sub-suppliers lies in the responsibility of the main supplier.
The modular sourcing process focuses on producing and distributing complete modules of a product. It is even possible to transfer R&D responsibilities from the company to the main supplier, if the specification sheet is properly defined. So the contract partner not only supplies modules, but also specialized knowledge. This intensifies the relationship between the partners dramatically.
Another advantage is, as stated before, the reduction of interfaces. In the example in figure 16 four interfaces (3 parts, 1 Module) get reduced to one interface and the assembly process of the module gets outsourced.
Of course there are also some disadvantages:

- Dependency on main supplier
- Risk of miscommunication between main and sub suppliers
- Difficult to change supplier
- Lack of Innovation-potential, caused by lack of competition

2.3.4.3 Global sourcing

The main goal of global sourcing is to reduce cost. By systematically expanding the sourcing network, it is possible to achieve advantages in transport cost negotiations, simply by increasing the number of competitors. It is also possible to gain time and flexibility benefits from this method. Sometimes companies are simply forced to look for supplier in other countries due to lack of raw materials in their own country or simply because the cost of labor may be much cheaper in foreign countries.
But before committing to this sourcing strategy it is recommended to consider the following aspects:

- Political stability of the supplier country
- Legislation of the contractor's country
- Intense market-research
- Infrastructure for exchanging data
- Language barrier

Even if all these points are taken care of, global sourcing still has some risks. These risks are listed as disadvantages of this sourcing method below:

- Fluctuation in currency rate
- Risk in transportation (longer distance, probably poor road conditions in low cost countries) and quality of the products (different standards in other countries)
- Possible risk of miscommunication, due to distance and probably different languages
- Depending on Incoterms, probably higher transportation cost

2.4 Guideline for expert interviews

For this thesis four interviews were conducted. These were not used to get a cross section of a certain opinion, but rather to get access to specialized knowledge within Magna.

Most rules or guidelines for interviews found in the relevant literature do not apply in this case, but nevertheless they were still interviews which mean a few things have to be considered.
These interviews, like all interviews, were conducted with the purpose of gathering information.[37]
At the beginning it is necessary to decide who has the information you seek and will therefore be invited to the interview. In literature there are several rules given on how to determine a so called "Expert": [38],[39]

- It depends on the focus of research
- This person has to have responsibility (i.e. leader of a project that involves the examined topic) in any way for a potential solution of your problem
- He or she has privileged access to Information you need
- Deeper insight of internal structures and processes

Considering these guidelines four interview partners were invited:

1. Mag. Christian Schuppich, LLM (Legal Counsel of Magna Automotive Europe)
2. Klaus Iffland (Vice President of Global Purchasing and Logistics of Magna International Europe)
3. DI Gernot Resch, MBA (Head of Cost Engineering, Magna Steyr)
4. Mag. Christian Moser (Head of Sales and Marketing, GEFCO Austria)

Mister Schuppich is responsible for exactly the contracts inside the company, where the payment terms, examined in this thesis, are always a topic.

The second interview was conducted to get a better understanding of the money-flow inside the company, and to understand how the interest rates are cumulated for the European equity capital. Furthermore, since Mister Iffland recently launched a similar research project and so could assist with some lessons learned, an invitation was sent to him as well.

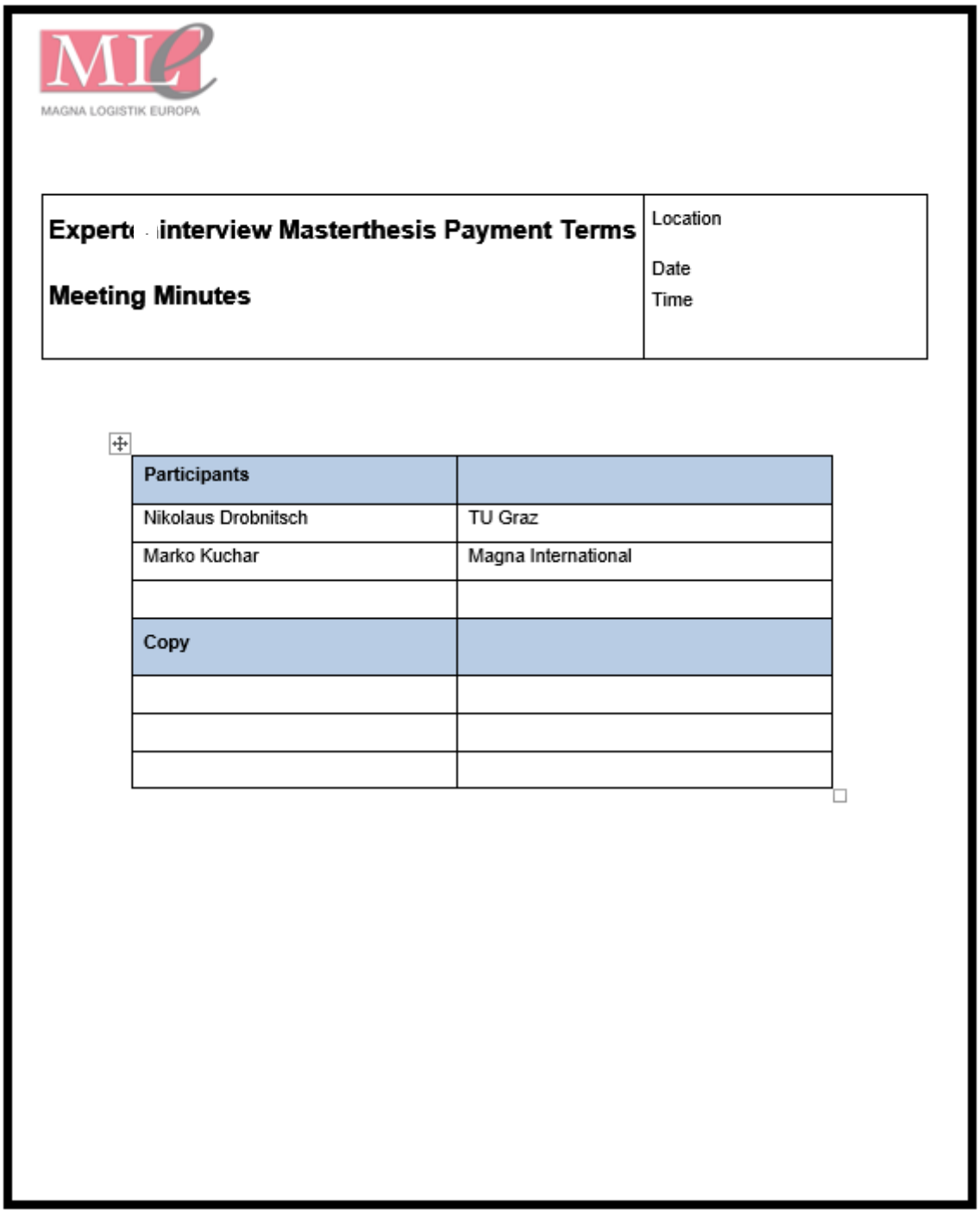
To get some insight from the view of the purchase department, Mister Resch was kind enough to share his experiences with Transport Service Providers and give some insight into what criteria are important when negotiating with them.

And last but not least, Mister Moser, who works for a shipping company, contributed his opinion and expert know-how, so it was possible to examine this matter from an alternative perspective and to understand the position of the Transport Service Providers in this matter.

But just to determine roughly what to ask whom is not enough to get consolidated findings. So a detailed conversation guide was elaborated. Therefore a mix of very clear and structured questions was made, which included some very open questions,(for example one at the beginning of the interview as a warm up-question) [40] so the participants could share their personal experiences. [41]

Then of course the spoken language of the interview had to be determined and the questions presented to the contributors ahead of time so they could prepare themselves.
As all partakers are working in Austria and Germany, it was decided to conduct the meetings in German to avoid any misunderstandings and later on translate them to English.

In figure 17 and figure 18 a draft of the guidelines is given. As the interviews had to be conducted during official meetings, so called “Meeting Minutes”, the Magna-term for proceedings, had to be written and therefore it was necessary to use a Magna template.

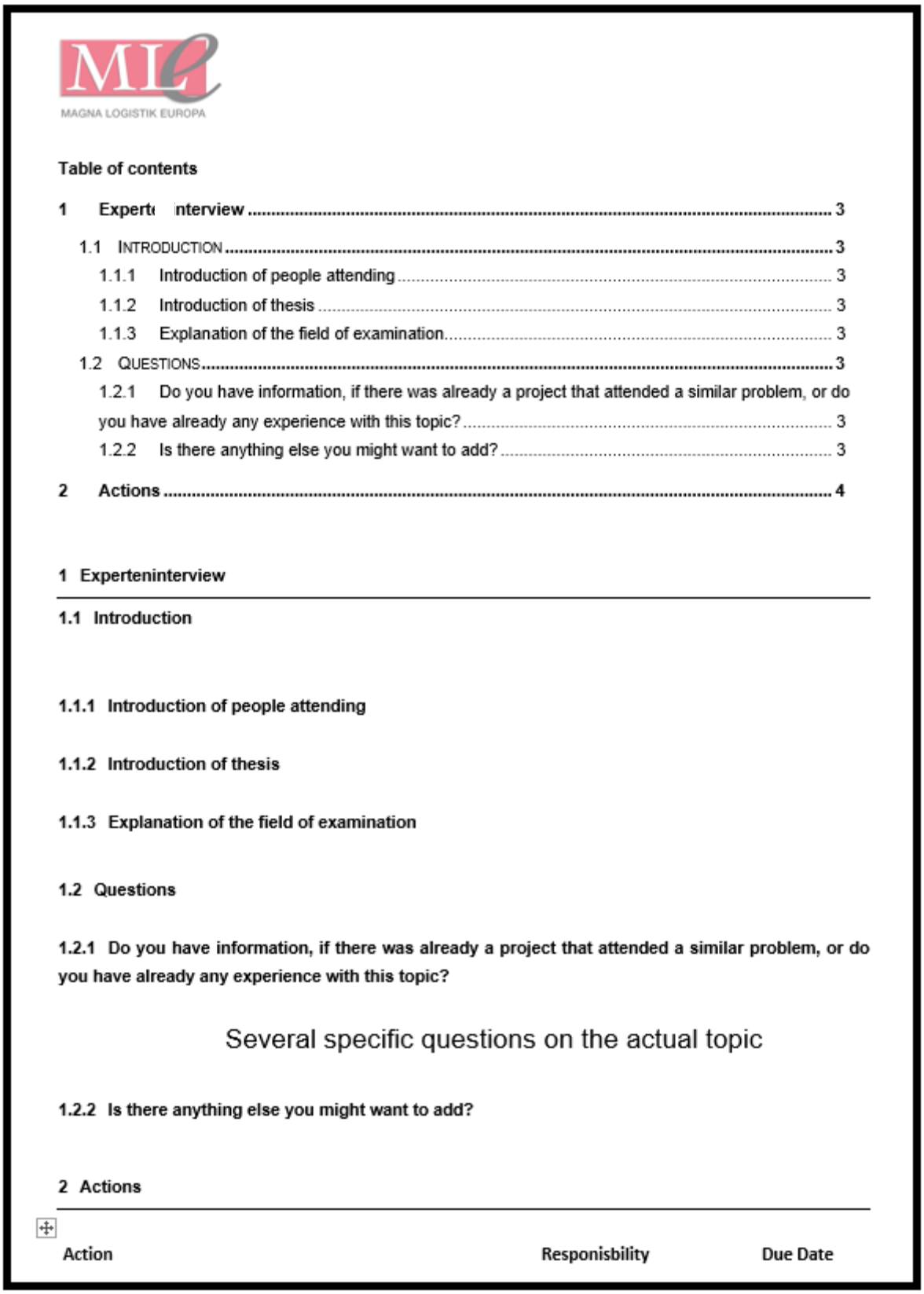


MAGNA LOGISTIK EUROPA

Expert interview Masterthesis Payment Terms **Meeting Minutes**	Location Date Time

Participants	
Nikolaus Drobnitsch	TU Graz
Marko Kuchar	Magna International
Copy	

Figure 17: Cover of interview guidelines



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1.1.2 Introduction of thesis

1.1.3 Explanation of the field of examination

1.2 Questions

1.2.1 Do you have information, if there was already a project that attended a similar problem, or do you have already any experience with this topic?

Several specific questions on the actual topic

1.2.2 Is there anything else you might want to add?

2 Actions

Action	Responisbility	Due Date

Figure 18: Interview Guideline

During the dialogues, notes were taken and after transcribing them, a copy was sent to each attendant, to check them and add possible remarks.
The complete interviews can be found in the appendix.

3 Practical approach

After building up the necessary knowledge about payment terms and logistic systems, the theoretical know-how can be put into practical usage.
To approach the goal of this thesis, the first step was to gather data that can be worked with. In the MLE- division several online sourcing tools exist for cost tracking or resource planning, for this study however there was really only one of them needed, the so called eRFX (electronic Request for X). This tool manages the RFQ-process and was mainly used to gather data for the calculations. So before the case study will be analyzed and discussed the eRFX-tool will be explained:

3.1 Explanation of the eRFX sourcing tool

This is a web based tool that provides access for all suppliers and service providers of Magna plants all over the world. For a company interested in conducting business with any Magna division it is able to self register online, or if any Magna employee, with access to the system, thinks that a certain company could be a promising partner, this person could invite the other party via a standard template.
In figure 19 the online control center of the eRFX is shown, just to get a feeling on how the surface of the tool looks like:

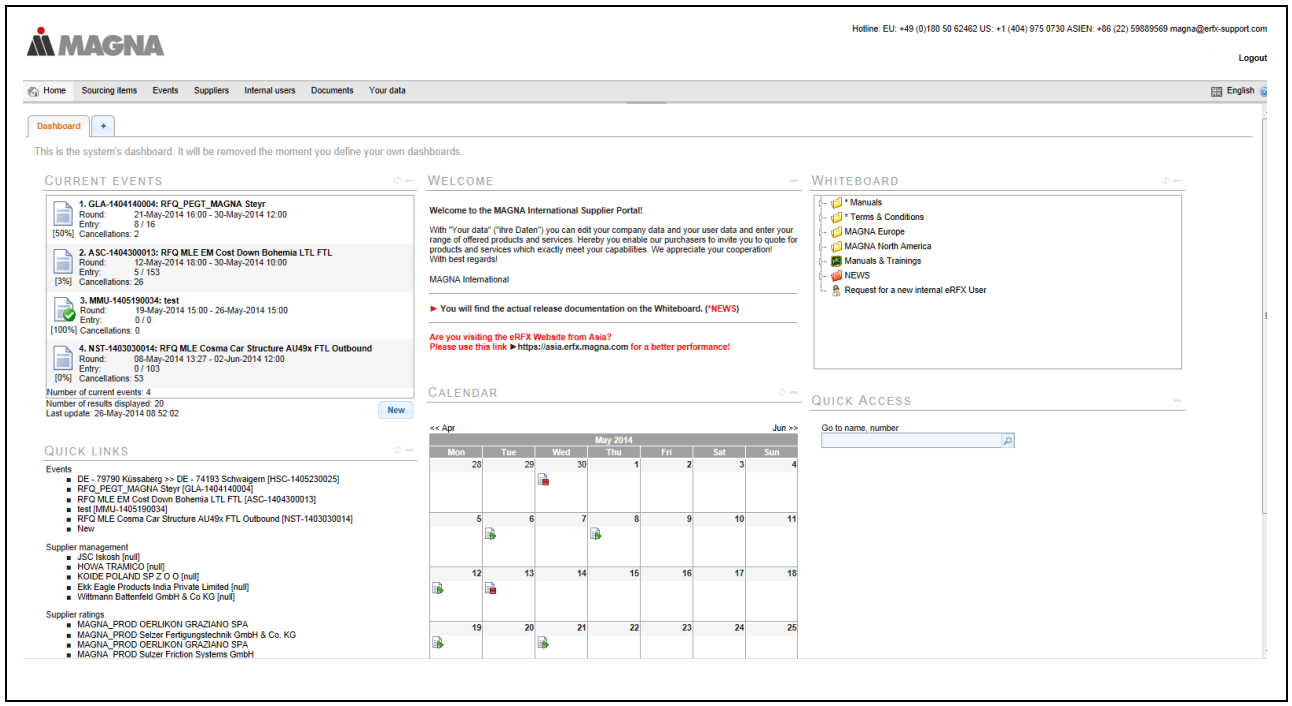


Figure 19: eRFX – surface [42]

The basic functions of this tool however are to handle different types of requests made by Magna employees as shown in figure 20: [43]

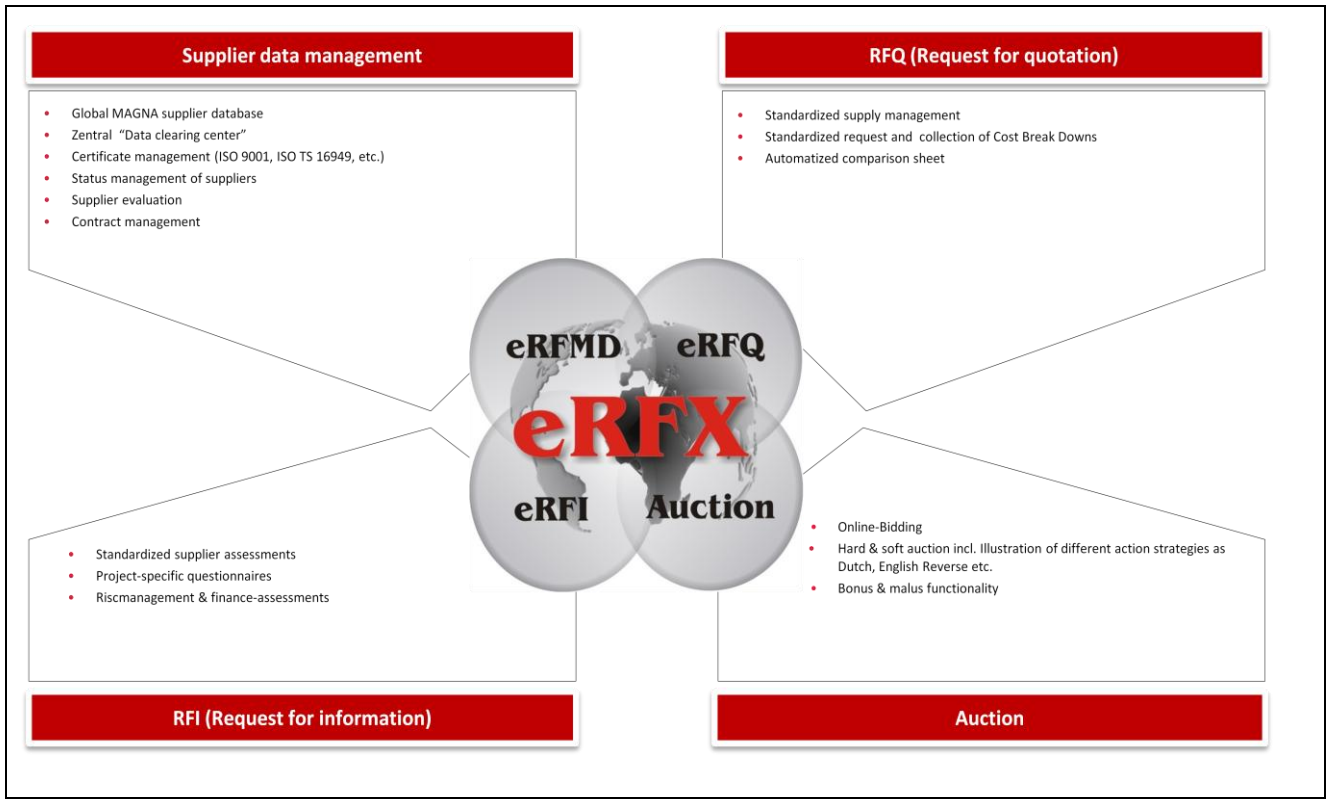


Figure 20: eRFX - Overview of functions

These requests are listed below again and the RFQ process will be described in detail as it was the basis for the gathered data to perform the calculations:

3.1.1 Functions of eRFX

1. **Auction (bidding process)**

With this function of the tool, all people with access rights have the possibility to start a bidding process for almost anything inside the group. They can offer services, machines, goods, etc.
Then the bidding process starts and all participants can place a price online. It works like a very famous online bidding platform.
Additional it is possible to start simultaneously online negotiations with potential buyers.

2. RFI (Request for Information)

This form of request is used especially for new contractors or risk contractors, meaning contractors that have troubles with delivery quality or are close to insolvency. To minimize the risk and get proper information there is the so called “contractor-risk- management”, performed through audits and an early warning system. Then there are “project-specific questionnaires” and the possibility of “individual reporting” that can be requested from the supplier, and of course there is a standardized assessment for all contractors to maintain an overview.

3. RFMD (Request for management data)

The RFMD-tool serves as a general database for all supplier-data. There the employees can find the actual ratings of the different suppliers and their actual status. These statuses can for example indicate that an RFI process would be necessary. In this tool there is also a so called “Data clearing center” that cross checks all suppliers’ data for plausibility, to see if they are up to date and if all necessary data is available, for example a contact person’s number.
This tool is mainly used to share experiences with different contractors between different plant-sites.

4. RFQ – process

The RFQ (Request for quotation) process describes the actions that take place when the MLE procurement department organizes transports from suppliers to plants with consolidated data, which the department receives from the plants themselves.
Consolidated data means that this set of data contains all parts that have to be shipped from one supplier to one plant and form a so called lane, which contains data of size, weight and frequency of usage of all parts.
The so called “shipment data” of this plant is formed, if all lanes of one plant are summed up, The shipment data for all plants gets then published in the eRFX, and on basis of this data, the bidding process of the different suppliers can start. The carriers don’t just give one price for one lane, but quote a so called scale. This means that they state fees for a predefined scale of cubic meters to transport. More information will be given about that, when the upload template is explained.
In figure 21 the whole process is shown and later on, each step is described:

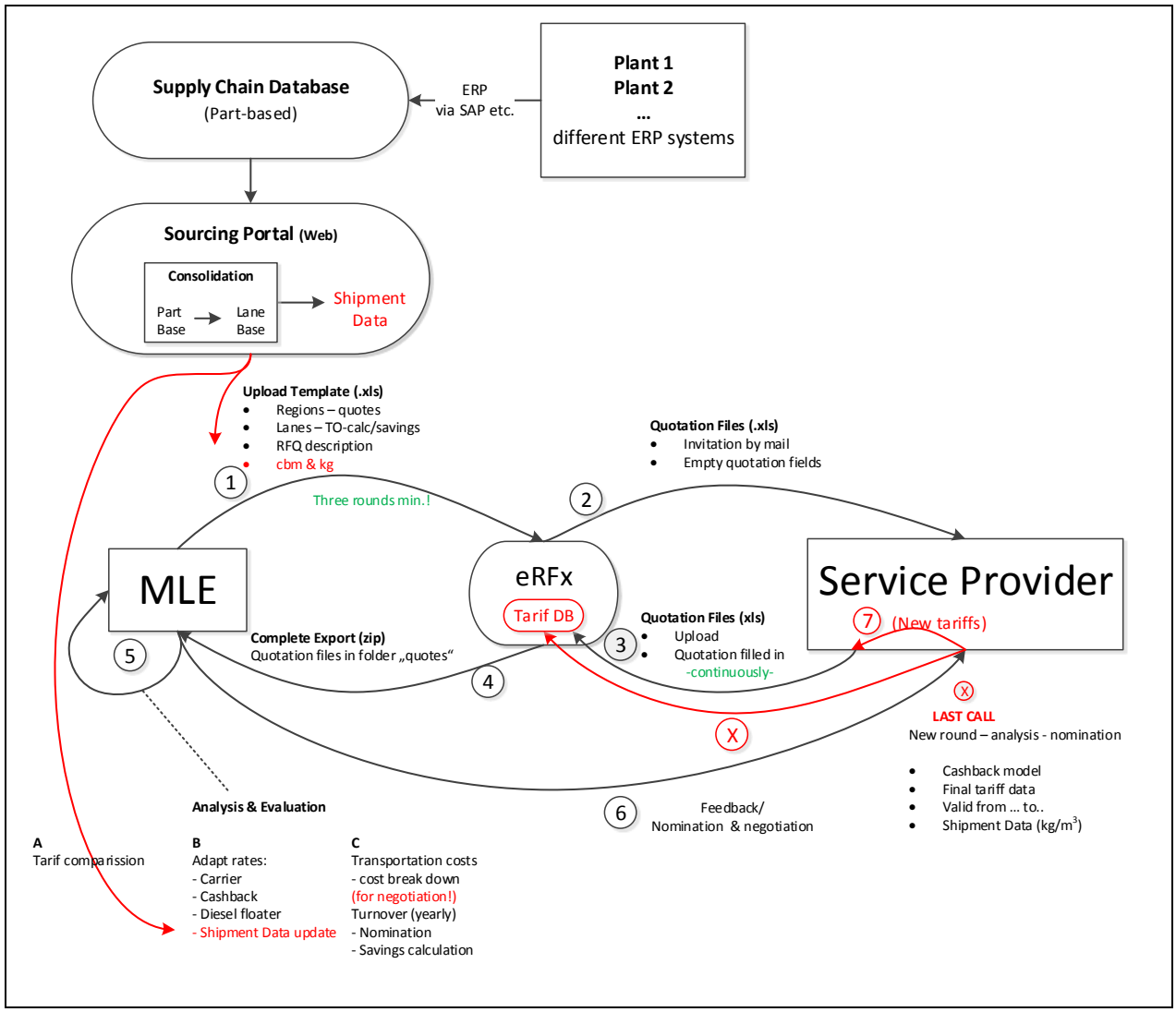


Figure 21: Detailed RFQ process [44]

On the top of figure 21 you can see how the specifics of each part become consolidated data. In the best cases the data is automatically transferred from an ERP-system (Enterprise resource planning), where all data should be stored, to the Supply Chain Database. This is another online tool of Magna, that has lots of functions, but for this thesis it is enough to understand that it should contain all relevant data.

In reality the quality of data is rather poor, due to several different reasons and the person starting an RFQ has to gather these data manually, for example by contacting the plant directly if an upload didn't work.

If all shipment data is gathered, as stated before the process can start:

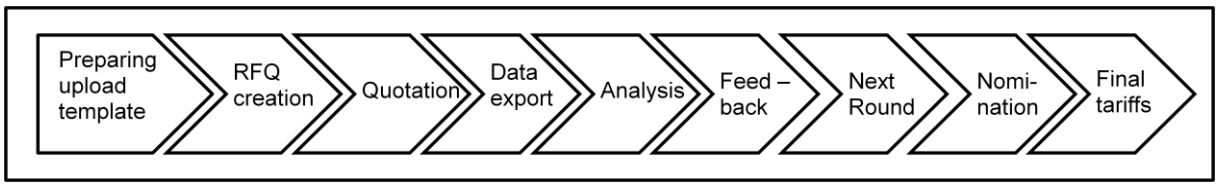
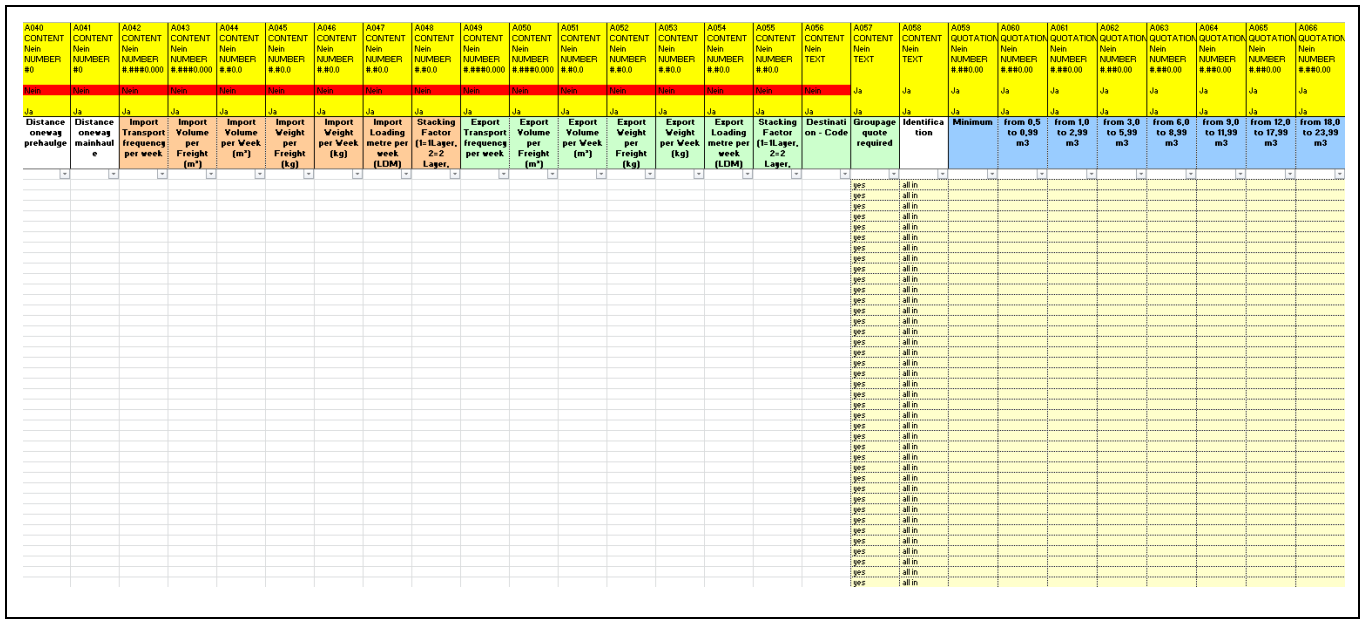


Figure 22 : Steps of a RFQ process

1. Preparing the Upload template

As this process works automatically, it is necessary to use certain templates, so the system can recognize the right data for the upload.
So if a special upload template is used, all the shipment data is put in, the eRFX automatically publishes the data sets that are meant to be published. Of course not all the data is published, due to confidentiality, but the data the “Transport Service Providers” need to give their quotes on (marked yellow in figure 23). A quote describes the prices the service providers offer to operate the different transports. That will be described more in detail in the next points.
So for the first step, the employee has to copy the shipment data into the template and then upload it to the eRFX in the next step.
In figure 23 a small extract of a standard upload template is shown (the fields marked in yellow, are required to be filled out by the carrier):



A040 CONTENT Nein NUMBER #0	A041 CONTENT Nein NUMBER #0	A042 CONTENT Nein NUMBER #.###0.000	A043 CONTENT Nein NUMBER #.###0.000	A044 CONTENT Nein NUMBER #.#0.0	A045 CONTENT Nein NUMBER #.#0.0	A046 CONTENT Nein NUMBER #.#0.0	A047 CONTENT Nein NUMBER #.#0.0	A048 CONTENT Nein NUMBER #.#0.0	A049 CONTENT Nein NUMBER #.###0.000	A050 CONTENT Nein NUMBER #.###0.000	A051 CONTENT Nein NUMBER #.#0.0	A052 CONTENT Nein NUMBER #.#0.0	A053 CONTENT Nein NUMBER #.#0.0	A054 CONTENT Nein NUMBER #.#0.0	A055 CONTENT Nein NUMBER #.#0.0	A056 CONTENT Nein TEXT	A057 CONTENT Nein TEXT	A058 CONTENT Nein TEXT	A059 QUOTATION Nein NUMBER #.##0.00	A060 QUOTATION Nein NUMBER #.##0.00	A061 QUOTATION Nein NUMBER #.##0.00	A062 QUOTATION Nein NUMBER #.##0.00	A063 QUOTATION Nein NUMBER #.##0.00	A064 QUOTATION Nein NUMBER #.##0.00	A065 QUOTATION Nein NUMBER #.##0.00	A066 QUOTATION Nein NUMBER #.##0.00
Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein										
Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja	Ja
Distance oneway prehaulge	Distance oneway mainhaule	Import Transport frequency per week	Import Volume per Freight (m³)	Import Volume per Week (m³)	Import Weight per Freight (kg)	Import Weight per Week (kg)	Import Loading metre per week (LDM)	Stacking Factor (1=1Lager, 2=2 Lager,	Export Transport frequency per week	Export Volume per Freight (m³)	Export Volume per Week (m³)	Export Weight per Freight (kg)	Export Weight per Week (kg)	Export Loading metre per week (LDM)	Stacking Factor (1=1Lager, 2=2 Lager,	Destination - Code	Groupage quote required	Identification	Minimum	from 0,5 to 0,99 m3	from 1,0 to 2,99 m3	from 3,0 to 5,99 m3	from 6,0 to 8,99 m3	from 9,0 to 11,99 m3	from 12,0 to 17,99 m3	from 18,0 to 23,99 m3
																	yes	all in								

Figure 23: Extract of standard upload template [42]

2. RFQ creation

As there are many RFQ’s inside the eRFX, (because most of the time transport services are demanded just for one plant or more plants from one group) a template can’t just be uploaded, but rather, a new RFQ inside the eRFX has to be created first.

The name of the RFQ can be stated and it can be chosen which carriers shall be invited to place their quotes. This is necessary because it would make no sense to ask a Spanish carrier to place quotes on a lane from Germany to Poland. It also makes a difference which type of transport shall be conducted. Shall air freight,

sea freight, overland or groupage transport be used? The first two are rather self-explanatory, but the other two will be described a little further:

- Overland transport:

  Basically this means that a truck is used to deliver goods overland, meaning on the road.

- Groupage transport:

  This type of transport states, that there is a small amount of goods that will not fill an entire truck. So to save cost it is tried to combine lanes of different plants that are close to one another and fill up a truck, so no space is wasted. Of course this type of transport is very complicated to organize and there is a lot more to tell about it, but here just the basic understanding should be enough.

Once it is decided which type of transport is needed, some standard documents (like a standard framework agreement and general conditions, like payment term agreements and information's for the carriers) are added to the RFQ and then it can be put online. Once a carrier has accepted the invitation, he can download an excel quotation file, generated by the system from your upload template and start his bidding/ quotation.

3. Quotation

This refers to the process when the service providers state their prices for the requested transports. They can do it lane by lane and on a cbm (cubic meter)-basis. This means that they state a different price for each lane and according to the amount of cubic meters the system tells them are to transport in one lane. So they don't get to know exactly what parts they will transport, but just the volume they will occupy in their trucks. Of course there is a regulation on how heavy the parts can be per cubic meter. The actual limit is 333 kg per cubic meter.
Then they upload their quotations into the eRFX and can attach some documents or presentations, to explain their prices more in detail for example, if they choose.

4. Data export

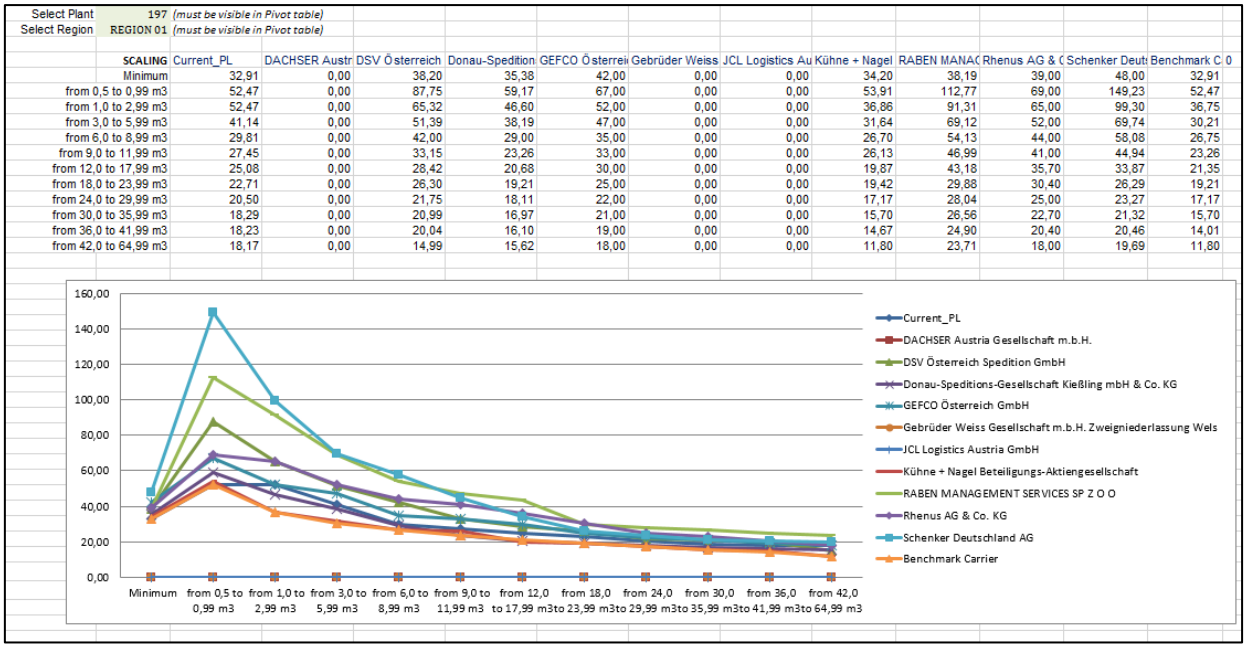
After a certain amount of time, this is always stated at the beginning of an RFQ, so everybody knows how much time they have time to place their quotes, MLE closes the RFQ and performs a complete download of all data from the eRFX for this RFQ.

5. Analysis and evaluation

MLE uses a special developed excel – tool for comparing and visualizing all quotes of all bidders. This tool will not be further explained. It is sufficient to know, that they load the files into it and can compare them with this tool.
The analysis is done in three steps:

A. Tariff comparison:

This is done with the excel tool and there the basic cost for Magna is compared. The tool can visualize all quotes, so the differences can be spotted immediately as shown in figure 24:



Select Plant	197	(must be visible in Pivot table)											
Select Region	REGION 01	(must be visible in Pivot table)											
SCALING	Current_PL	DACHSER Austr	DSV Österreich	Donau-Spedition	GEFCO Österrei	Gebrüder Weiss	JCL Logistics Au	Kühne + Nagel	RABEN MANAG	Rhenus AG & C	Schenker Deut	Benchmark C	0
Minimum	32,91	0,00	38,20	35,38	42,00	0,00	0,00	34,20	38,19	39,00	48,00	32,91	
from 0,5 to 0,99 m3	52,47	0,00	87,75	59,17	67,00	0,00	0,00	53,91	112,77	69,00	149,23	52,47	
from 1,0 to 2,99 m3	52,47	0,00	65,32	46,60	52,00	0,00	0,00	36,86	91,31	65,00	99,30	36,75	
from 3,0 to 5,99 m3	41,14	0,00	51,39	38,19	47,00	0,00	0,00	31,64	69,12	52,00	69,74	30,21	
from 6,0 to 8,99 m3	29,81	0,00	42,00	29,00	35,00	0,00	0,00	26,70	54,13	44,00	58,08	26,75	
from 9,0 to 11,99 m3	27,45	0,00	33,15	23,26	33,00	0,00	0,00	26,13	46,99	41,00	44,94	23,26	
from 12,0 to 17,99 m3	25,08	0,00	28,42	20,68	30,00	0,00	0,00	19,87	43,18	35,70	33,87	21,35	
from 18,0 to 23,99 m3	22,71	0,00	26,30	19,21	25,00	0,00	0,00	19,42	29,88	30,40	26,29	19,21	
from 24,0 to 29,99 m3	20,50	0,00	21,75	18,11	22,00	0,00	0,00	17,17	28,04	25,00	23,27	17,17	
from 30,0 to 35,99 m3	18,29	0,00	20,99	16,97	21,00	0,00	0,00	15,70	26,56	22,70	21,32	15,70	
from 36,0 to 41,99 m3	18,23	0,00	20,04	16,10	19,00	0,00	0,00	14,67	24,90	20,40	20,46	14,01	
from 42,0 to 64,99 m3	18,17	0,00	14,99	15,62	18,00	0,00	0,00	11,80	23,71	18,00	19,69	11,80	

Figure 24: Visualization of quotes

In figure 24 the scale of quotes for different companies is shown and compared in one graph. The gradient of the curves is easily explained: You start with a minimum price (no matter how small the goods are you have to pay). Then there is a peak, because if you transport just a little amount in a big truck, you will still have to pay for the truck and so the costs per cubic meter are rather high and as the volume of goods increase the price sinks and the curve flattens out. Remember to consider that these rates are just an example and no real quotes, but the scale however is a predefined standard.

B. Rate adaption:

With some carriers there might have been special deals up front, or circumstances could have changed during the bidding process (most common is the fuel price, this is called the “diesel floater”) so the rates have to be adapted accordingly, in order to be comparable.
Beside the fuel cost, the most frequent factors for rate adaption are special Cash Back models or payment term agreements with certain carriers.

C. Transportation cost:

To get a feeling of the yearly cost for each lane, the quotations are calculated on a yearly base and then ranked.
If a current carrier for that lane exists, all quotations can be compared to that as well and not just among the new bidders.

6. Feedback

After analyzing all data, MLE gives feedback to all quoting service providers.
This feedback states just the difference from the best offer in percentage.
It doesn’t matter who has given the best offer, whether it is the current carrier or a new one, every participant gets feedback.
This percentage tells you how far you are behind the best offer, starting with 0%. So the bidder, who gets the feedback 0%, for a lane, is the cheapest one for this particular lane. If you get the feedback: 100%, your price is double the best one.

7. Next round / RFQ - Loop

To make sure that the transport companies can react to that, usually there is a minimum 3 bidding rounds. So basically the steps 3 to 6 are repeated at least 2 more times. This makes sure that through competition it is possible to get a better offer from Magna's point of view.
Not only from a financial point of view can these three rounds make sense, but also from the data point of view concerning actuality. As the demands of Magna's customers can change very quickly, it sometimes occurs that during an RFQ - process the shipment data changes and that it needs to be updated. So in the next round the carriers need to quote on the new lanes as well.

8. Nomination

After completing the bidding rounds the best offers will be notified by mail. This can only be one company or any number of competitors depending on who has the best quotes for which lanes. Sometimes it can also occur that the best bidder does not get nominated for a lane, but that only happens if he is the best for other lanes and it makes sense to let him carry an additional one so as to not get too many contractors. For example, if company A is the best for lanes 1,2,3,4 and company B only has a better offer for lane 5, company A could be nominated for all 5 lanes, just to reduce the amount of administration.
But that is not the only reason. Other factors like the plant's preferences and experiences, lead times, concept presentation, etc. influence the nomination process.

9. Final tariffs

For the last step the rates from the nominated carriers are uploaded onto the eRFX Tariff Database, where the plants receive the data to do the freight calculation and freight bill audit (verification of transportation invoices).

Now that it is explained how contracts with transport service providers are closed, analysis phase of the practical approach can be entered:

3.2 Cosma Cost Down project (Case study)

In this section first the general process of a cost down project will be pointed out and then a detailed course of action will be explained on how data was gathered and the calculation model was created.

Generally MLE approaches each Cost Down project the same way:
Implementing a centralized freight and logistics service procurement process to reduce costs is attempted. This process includes:

- Continuous management of implemented rates, conditions and terms
- Standardized sourcing process
- Implementation of a standardized structure for new projects (for example a standardized RFQ – process to get the best prices)
- Full and transparent documentation of tariffs and nominations
- Standardized service provider footprint (Risk assessment and development of service providers)

In Figure 25 main fields of these targeted improvements are shown:

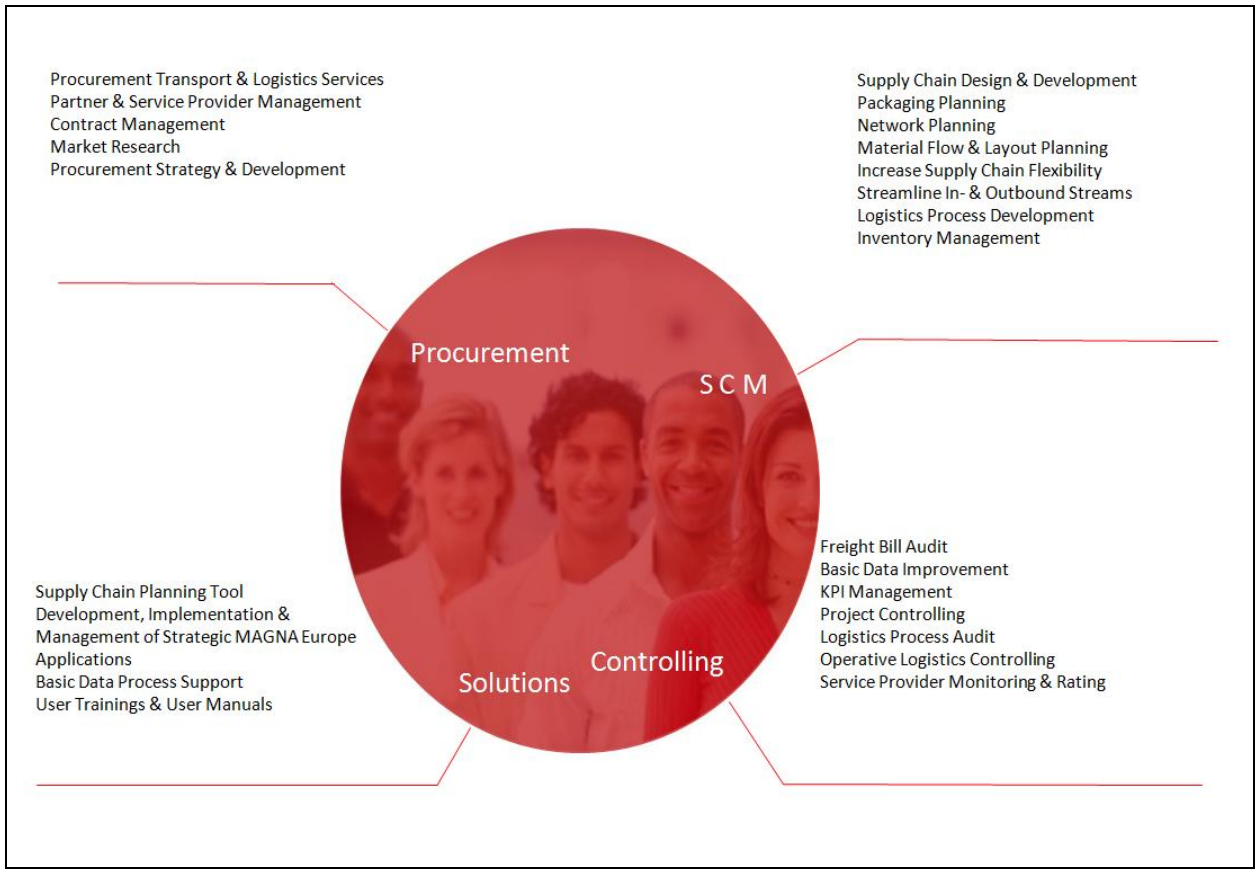


Figure 25: Targeted areas of improvement in a MLE cost down program

Considering all these fields of potential improvement the objective of such a cost down program is always to focus on improve transport and logistical organization costs.
Not considered in the analysis are:

- Standardization of MIE (Magna International Europe) processes (for example service provider contract management, payment terms for framework agreements , intensify best practice sharing, sustainable process stability, insurance standards, optimum use of potential synergies, proactive risk mitigation, etc.)

- Implementation of MIE standard tools and applications

- Decrease of tied-up capital through inventory reductions (for example through days on hand & inventory turn measures)

- Fast reduction of premium freight spend through implementation of eRFX - SFP tool (Simplified Freight Procurement)

When starting the project MLE found the following initial situation in the Cosma group:

- Benchmarking of Cosma plants showed improvement potential for freight rates
- Payment terms showed potential
- Current logistics / transport cost spend were 20,2 Mio Euro per year

The Cosma group consists of 15 plants as listed in table 4 that were all analyzed and benchmarked, then current contracts were examined and the logistic cost summed up. That was the way the analysis phase started for this project.

Nr.	Plant Name	Location
1	Magna Lorraine Emboutissage	Henriville, FR
2	Magna Systeme Chassis	Hambach, FR
3	Magna Cartech	České Velenice, CZ
4	ATH (Automobiltechnik Heiligenstadt)	Heilbad Heiligenstadt, D
5	IHV(Innen-Hochdruckverfahren) Bopfingen	Bopfingen, D
6	Magna Stanztechnik Salzgitter	Salzgitter, D
7	Magna Heavy Stamping	Albersdorf, AT
8	Presstec	Weiz, AT
9	Magna Formpol	Tychy, PL
10	Peterform	St. Petersburg, RU
11	Magna Automobiltechnik Dürbheim	Dürbheim, D
12	Cosma Alu Structures	Székesfehérvár, HU
13	BDW Markt Schwaben	Markt Schwaben, D
14	BDW Soest	Soest, D
15	Nowoczesne Technologie Produkcji S.A.	Kędzierzyn-Koźle, PL

Table 4: Cosma plants

After analyzing these plants, targets were defined and actions derived. The targets were:

- **To get considerable amount of savings (potential after analysis 2,36 Mio per year)**
- **To increase payment terms to 90 days (defined Magna standard)**
- **To align tariff structures, transport rates, contracts, etc.**
- **To map Cosma Europe transport flows and thereby create more transparency**

To reach these targets certain actions were defined and then executed:

- New RFQ's for overland and sea transports
    - Data consolidation and RFQ preparation
    - Start RFQ via eRFX
    - Negotiations with TSP's
    - Nominations
- Additional negotiations
    - Rail transports
    - Warehousing
    - Existing transports

And finally as a result MLE achieved following objects:

- Improved rates and their validity for sea-freight and overland
- Implement Magna standard terms and conditions
- Expand payment terms to 90 days
- New contracts with carriers according to Magna standard

It just has to be mentioned that even though almost every carrier for all Cosma plants adopted the new payment terms it was not possible for MLE to properly asses the savings or positive effects that came with the extension of payment terms.
This was a quick overview of the Cosma Cost Down program, now the positive effects through the payment term extension will be explained as will be the numbers that have been used in course of the research for this thesis.

3.2.1 Analysis phase and data gathering

In this section the approach to first calculations and data collection will be described. It was done with following steps:

- Screening MLE databases for transport-volumes per plant for the Cosma group
- Checking the plausibility of the data
- Check legal specifications
- Sort out plants with insufficient data quality
- Find out the payment terms before the Cost Down project
- Compare and document data of remaining plants

After learning how the processes and tools inside MLE work, the basic data gathering was commenced. Therefore all transport volumes for every Cosma plant were collected and checked for plausibility. This was done in close cooperation with Natalie Steiner, the responsible logistics coordinator of all Cosma plants. The data was obtained from the RFQ – processes that were conducted for the Cosma Cost down project. In this RFQ all costs for every service provider working for any Cosma plant were stored. All these cost together are referred to as transport – volume. These numbers were put in an excel sheet as shown in table 5 and then compared to another MLE intern database (called Scorecard) to check them for plausibility.

Plant name	Transport Volume per year
Cosma Automobiltechnik Duerbheim	245.704 €
Magna Cartech	567.159 €
ATH Heiligenstadt	1.769.362 €
Magna Cosma Formpol	1.798.836 €
Magna Heavy Stamping	8.303.428 €
Magna IHV Bopfingen	1.957.457 €
Magna International Stanztechnik Salzgitter	547.253 €
Magna Système Châssis	681.971 €
Peterform	3.802.294 €

Table 5: Transport volume of Cosma plants

As one might notice, not all Cosma plants are listed in table 5. This is because some of them do not report numbers at MLE at all or report them through different channels, which were not accessible while this thesis was created.

During this procedure it became apparent that there were many different service providers for plants in different countries. As the extension of payment terms is meant to be homogeneous for all plants, it had to be considered whether that was even possible for these plants according to national law.

So the first Expert - Interview was conducted with a legal counsel for Magna to shed some light on this matter. On the 8th of April 2014 Mister Schuppich (CS) was so kind to take some time to answer some questions posed by me (ND):

*"**ND: Do you have any Information if a similar project was already processed inside Magna?***

CS: This is a topic that reoccurs often, but was never examined scientifically. Payment terms are a very important topic inside the standard framework agreement, but are always negotiated individually. Within these negotiations the goal was always to reach payment terms of 90 days […] from a legal point of view this is not a critical topic. An EU directive exists that states that payment terms up to 60 days are never an abrasive disadvantage for the seller. Everything that reaches over this line could get critical.

In Austria this topic is handled in the UGB $459 and states the same things as the EU directive. So basically 90 days payment terms should not be a problem from a legal point of view. The only thing could be that if the seller knows about the directive, he could argument that 90 days are too long, because 60 days are stated there.

ND: Are there any important points I should consider before extending payment terms with contractors?

CS: Legally spoken payment terms are a grey area. Basically you can arrange whatever you like with your contract partner. You would just have to consider if there are any precedents, that in any special cases just this amount of payment terms is applicable.

ND: Are there any local restrictions concerning payment term extensions with service providers?

CS: You have to consider that the EU directive can be applied in every country in Europe, but doesn't have to be. I can't give detailed Information's about local differences. You just have to consider for which transports you agreed on what terms. The best way would be to arrange all framework agreements in Austrian law, because this one is unproblematic concerning payment terms. You just state in the contract that it is concluded after Austrian law.

ND: Are there any ways to avoid local restrictions concerning payment terms?

CS: Like in the question above explained, the parties signing a contract can decide which countries law is applicable. Of course there are some minor exceptions, but in Europe, there shouldn't be a problem.

ND: The topic Cash Back: are there any legal guidelines or is it always negotiable?

CS: I don't know any laws concerning cash back, the rates are always up to negotiations. You can agree on anything there. It is just important that it is stated very clear in the contract."

Summarizing the most important points of this interview, it is very hard to define payment terms legally, because they are a grey area. Generally it there is no real law that binds the contract partners in any way, concerning these terms. The regulations for this topic are more like guidelines. The best way to avoid any complications is to exemplify all contracts in accordance with Austrian law. This is always possible inside the European Union as long as both contract partners agree upon this.

As the payment terms were not altered for all carriers in each plant, some sites were not considered, because proposing a sophisticated assessment of improvement potential it is necessary to compare changes and their impact on the affected volume.

So it was required to access old data in another way, because in the MLE tools only recent data is stored. For that Natalie Steiner was consulted again. Old receipts that had been stored as hardcopies were searched for information on transport volume and payment terms. This research left plants stated in table 6 where either payment terms alone, or transport service providers were changed:

Nr	Plant code	Name of plant
1	ATH Heiligenstadt	ATH Heiligenstadt
2	IHV	IHV Bopfingen
3	MCT	Magna Cartech
4	MSC	Magna Systeme Chassis
5	MSZ	Magna Stanztechnik Salzgitter
6	PFM	Peterform
7	MPT	Presstec

Table 6: Considered plants for calculations

As last step of the analysis phase the data sets for these plants were put into an excel sheet and compared to get a feeling for the amount of money and possible savings as table 7 shows:

Nr:	**Plant**	**TSP**	**Cost/year**	**Actual PT**	**Old PT**
1	ATH Heiligen-stadt	GEODIS LOGISTICS OUEST	134.880 €	90	14
		Trippler Transport GmbH	60.000 €	90	10
2	IHV	Müller	175.392 €	45	14
		TRANS SESE	256.320 €	90	14
3	MCT	EWALS CARGO CARE	434.271 €	90	60
		Donau-Speditions-Gesellschaft Kießling mbH & Co. KG	54.050 €	90	60
4	MSC	REGESTA	122.550 €	90	30
5	MSZ	LEHNKERING Transport GmbH	324.000 €	90	30
		Schenker Deutschland AG	13.440 €	90	30
		TRANS SESE	199.800 €	90	30
6	PFM	GEFCO Österreich GmbH	475.520 €	90	30
		Konvoi	319.000 €	90	30
		Quehenberger	401.000 €	90	30
7	MPT	Herbert Temmel GmbH	540.000 €	90	0
		Frikus	108.000 €	90	0
		GEFCO Österreich GmbH	156.000 €	90	0
		Duvenbeck	134.500,00 €	90	0
Total transport volume of all plants			**3.908.723€**		

Table 7: List of plants with relevant data for calculation

For all plants together an assessed volume of 3.908.723 Euro was calculated.

3.2.2 Payment term clustering

After the field of research was defined, a fitting calculation model had to be found. To be able to ensure the correctness of these calculations and the usability of the results for Magna, the financial regulations inside of Magna had to be understood. To help in that matter Mister Iffland offered his help and took part in the next expert interview:

"ND: Do you have any Information if a similar project was already processed inside Magna?

KI: Yes, there was a project in 2010. The topic was payment terms in the procurement of production material for Magna Steyr. The purchasing Volume was analyzed for all plants, then were the payment terms put into clusters and so called target clusters and actions to reach them defined.

	current suppliers	YTD	End of 2009	End of 2010	Delta YTD	Delta End of 2009	Detla Summe
Cluster 1: <30 days							
Cluster 2: 30-59 days							
Cluster 3: 60-89 days							
Cluster 4: 90-119 days							
Cluster 5: >120 days							

You have to consider, that even though potential savings and increase of liquidity were reached through extension of payment terms, the acceptance of cash back models seems always more profitable for Magna, due to the direct influence on the ebit and the so generated savings regarding taxes.

ND: How strong is the influence of analyzing the potential of payment terms for future negotiations with TSP's?

KI: This topic certainly has a high priority and with a fine organization you can certainly gain profit from it. Here it is the task of MLE to do a good job.

ND: Would you recommend to negotiate a general extension of payment terms up to 90 days or would you prefer an incremental scale of pt (payment terms)?

KI: It is important to analyze every supplier for itself and try to get everywhere the maximum. For that it is necessary to pay close attention in the analysis phase. There are TSP's that are used to extended payment terms. The goal has to be every time to improve the pt to the next higher cluster from a Magna point of view.
For that you should go with the industry standard of clusters and try to accomplish a harmonization.
If a TSP is working for several plants, but has different pt for each of them, that's a good point to start to harmonize his pt for all plants and gain profit from it.

ND: How strong is the factor pt negotiation for development of new TSP's? How cooperative are the new TSP'S?

KI: That depends on the business model. The bigger the transport volume is, the easier the negotiations get.

ND: How does the flow of finances influence this topic?

KI: The financial flow is not so interesting. The main topics are cash flow and ebit (earnings before interest and taxes), of course focus lies also on the working capital.

ND: How does the liquidity management work inside Magna?

KI: Liquid means are transferred to a central cash pool of all plants and the interest rates are calculated on the return of these means.

ND: How exactly is the interest rate calculated on liquid means? Are there local differences or is there a general rate that's used globally?

KI: There is a cumulated internal interest rate (This rate was calculated by Mr. Schiffner, details are confidential). The rates are just considering equity, because it is a Magna principle to just use equity."

The main message from this interview was not as expected on what exactly the financial structure inside of Magna looks like, but that it makes sense to cluster the payment terms to get a quick overview of the actual status and potential for improvement. Of course this brings no hard facts or any numbers on how much potential there is, but for top management and quick information, the clustering of these terms is a very useful tool and will be explained further at this point.

First of all the clusters that shall be used have to be defined. As Mister Iffland stated, it makes sense to go for an industrial standard as this increases the comparability.
Following his example it was decided to use following clusters:

1. **0 till 29 days** as step one
2. **30 till 59 days** as step two
3. **60 till 90 days** as step three

Once the clusters are defined, the actual amounts of the transport volume for the different steps of the payment term clusters can start to be filled in.
Usually it is started with actual payment terms and then tried to shift as much volume as possible far up the clusters. Meaning, if there is a big amount in cluster one, the goal is to shift everything to cluster three.
In the particular case of the Cosma Case study, the improved payment terms were already present and the predecessors had to be recreated.
So the clustering was not used to look for potential improvement, but to compare the amounts and get a feeling for the impact, the cost down project had for the payment terms.
The result of the clustering for the Cosma plants is shown in table 8:

Cluster	Examined Volume	Improved Volume
0-29	1.565.092,00 €	0,00 €
30-59	1.855.310,00 €	175.392,00 €
60-90	488.321,00 €	3.733.331,00 €

Table 8: Payment term cluster for Cosma group

If you look at table 8 the general approach would be to look at the first cluster (0 to 29 days) , examine this data further and make up your mind on how you can shift as much volume as possible into cluster 2 (30 to 59 days), then go to cluster 2 and try to shift volume to cluster two. From a theoretical point of view the best solution would be to shift 100 % into the third cluster, because that would mean high liquidity for a period of ninety days. The following sections will try to show if this would really be the best solution.
As it is easier to get a quick overview of the improvements of clusters in table 9, the volumes shown in table 8 are displayed in percent based on the total volume of all plants to show the movement in percent:

Cluster	Examined Volume in percent	Improved Volume in percent
0-29	40,04%	0,00%
30-59	47,47%	4,49%
60-90	12,49%	95,51%

Table 9: Clusters in percent for the Cosma group

As it is easily to observe, almost 100 % of the transport volume was managed to be shifted into the third cluster. This was done by negotiations with new service suppliers. The 4,49 % are explained through a very strong position of one contract partner that was needed for certain transports and wasn't willing to accept the extended payment terms.

One benefit of these clusters has not been mentioned yet:
It is also possible to cluster the payment terms on the basis of the service providers. Meaning that volumes of one carrier are examined the he has for different plants and then it is tried to put the whole volume in one cluster. Through this harmonization potential savings can be gained and the argument to make him commit to one big payment term instead of many different ones is quite strong.

Even if most of the information provided by Mister Iffland was about clustering, there were still some very helpful insights into the financial management of Magna. These were used to build the basis for the calculation model. This information was:

- Magna uses a cash pool for liquid funds
- For this cash pool a certain imputed interest rate is used
- Magna uses only equity when it comes to funding
- Magna's focus lies mainly on optimizing the ebit
- Magna considers Cash Back models as well, but does not only reinforce payment term extension

3.2.3 Definition of the calculation model

The task of this model is to ensure a quick comparability of different payment term conditions for the same transport volume. This means that the input variables of this model are given:

1. Transport cost
2. Actual payment terms
3. Payment terms to check

The payment terms are given in number of days (#) and the transport cost is usually given in Euro per year (€/a). That these factors are “given” describes the way they are stored in the different MLE databases and will be inserted in this formula.

Another task of this model is that it is possible to do the calculations in both directions. Meaning what potential savings could be gained and how was the situation before something was changed. This task is accomplished rather easy. The actual payment terms become the payment terms to check and vice versa, meaning you just have to enter them in a different order.

The next step is to discover how the imputed interest rate is calculated. With the given information by Mister Iffland, Mister Holger Klier, from the treasury department was contacted and provided his knowledge about this topic.

He stated that there are three possible ways on what the calculations for the Magna groups concerning an imputed interest rate are based on:

1. Additional assessed capital
2. Average profit of total capital
3. Capital employed

As Magna uses so called “cash pools” for any liquid assets and no debts for funding, it was stated that the interest rate best fitting for this special problem is the one based on the capital employed. It is not an interest rate in the traditional sense, but a return of capital employed, the so called ROCE as described in the theory section. For a better understanding, the basic formula will be displayed again:

$$ROCE = \frac{EBIT}{capital\ employed} \qquad (11)$$

In this formula you can see that the ROCE is influenced by the ebit and the capital employed, meaning the liquid funds.
The exact calculations on how this return amounts to a certain number are very complex due to the huge size of the company. There have to be local differences considered, such as the stability of the government, safety of transport routes, different laws, etc.

But this is not the only reason why these calculations are not published here. The simple truth is that you need a certain security clearance to get a look at them and as they do not really matter for the purpose of this thesis, the simple fact that this return is cumulated to 10% shall suffice.
With these factors defined, a simple interest rate calculation that can be found in any literature can be put to use:

$$Positive\ cash\ effect = \frac{Rate * transport\ cost}{365\ days}(pt\ to\ check - actual\ pt) \quad (12)$$

The term positive cash effect (PCE) is a term used inside MLE to determine potential effects on cash that are not savings in the traditional way. This is the matter because with the extension of payment terms, MLE does not save money, but creates more liquidity and "earns" money with the return on the employed capital.
The formula explained in words:

If you multiply the transport cost per year with the rate of the capital employed, you have to divide it through the days of one year to get the positive cash effect for one day. To determine what you gain, it is necessary to multiply it with the difference between the two payment term models.

But this is still not the model used for the calculations. In this formula "Cash Back" models are not considered.
This is rather important because if you negotiated Cash Back scenarios and do not use them, you lose savings, and to be able to compare all different options with each other and see where you get the most positive effect out of it, these scenarios have to be included.

So not only the time the money spends in the cash pool has to be expressed, but also the loss or gain of Cash Back has to be taken care of:

$$PCE = \frac{Rate * transport\ cost}{365\ days}(pt\ to\ check - act\ pt) - (cash\ back\ rate * transport\ cost) \quad (13)$$

If a Cash Back scenario is put to use, the minus before the cash back term turns into a plus and the difference of the payment terms scenarios is changed into 30 days, because of the Cash Back scenario that counts for 30 days. Otherwise it has to be minus because this is the amount of potential savings you lose through extension of payment terms.

The cash back term itself is explained very quickly. As the biggest rate for cash back is always the one for thirty days, you just multiply it with the 30 day rate and the biggest factor for potential savings is taken care of.

Now that the calculation model is explained, one dummy calculation shall be explained and then the calculations for the Cosma Cost Down program displayed in table 11:

Example 1:

Assuming (as displayed in table 10) that a Transport Service Provider ,called Carrier 1, has a transport volume of 100.000 € with the payment due after 45 days and the company wants to check how beneficial it could be to implement a cash back model (2% for 30 days) or to extend the payment terms to 90 days following calculation derives:

Carrier Name	Transport Volume	PT to check	Actual PT	Cash Back rate
Carrier 1	100.000 €	90	45	2 %

Table 10: Specification for dummy calculation

$$\text{Positive Cash Effect} = \frac{\text{Return rate x cost}}{\text{Days of one year}} \text{ X (PT to check – actual PT) } \pm \text{ cash back model}$$

$$= \frac{10\ \% \text{ x } 100.000}{365} \text{ X (90 – 45) } \pm \text{ Cash back rate x } 100.000$$

$$= 27{,}397 \text{ x } 45 \pm 2\% \text{ x } 100.000$$

Now there are two possibilities to check:

- How beneficial is the payment term increase (continue calculations with the "-")

  = 1232,88 – 2000 = - **767,12 €**

  This does not mean that the company is making a loss. This just shows that they miss on potential savings.

- How much impact has the cash back model (continue calculations with the "+" and change the difference of PT to 30 days for the cash back model)

  = 27,397 x 30 + 2% x 100.000

  = 27,397 x 30 + 2000

  = 821,91 + 2000 **= 2821, 91 €**

As a last step the two results need to be compared and conclusions have to be drawn:

1. **– 797,12 €** positive cash effect for the payment term extension
2. **2821,91 €** for using the cash back model

Looking at these numbers, clearly it is more beneficial for the company to go for the cash back model instead of payment term extension, because they would pass on a big amount on potential savings using the first option.

In line with this example all calculations for the Cosma plants were conducted, with the only difference that there was just one cash back model that could have been used, but this had just minor impact on the potential positive cash effect of the whole volume. All detailed numbers are shown in table 11:

Nr:	Plant	TSP	Cost/year	Actual PT	Previous PT	Cash back	PCE
		Geodis	134.880 €	90	14	0,00%	2.816,18 €
1	ATH	Trippler Transport	60.000 €	90	10	0,00%	1.318,68 €
		Müller	175.392 €	45	14	0,00%	1.493,72 €
2	IHV	Trans Seses	256.320€	90	14	0,00%	5.351,74 €
		Ewals Cargo	434.271 €	90	60	0,00%	3.579,16 €
3	MCT	Kießling	54.050 €	90	60	0,00%	445,47 €
4	MSC	Regesta	122.550 €	90	30	0,00%	2.020,05 €
		LEHNKERING Transport	324.000 €	90	30	2,00%	-1139,34€
		Schenker Deutschland	13.440 €	90	30	0,00%	221,54 €
5	MSZ	Trans Sese	199.800 €	90	30	0,00%	3.293,41 €
		Gefco Österreich	475.520 €	90	30	0,00%	7.838,24 €
		Konvoi	319.000 €	90	30	0,00%	5.258,24 €
6	PFM	Quehenberger	401.000 €	90	30	0,00%	6.609,89 €
		Herbert Temmel	540.000 €	90	0	0,00%	13.351,65 €
		Frikus	108.000 €	90	0	0,00%	2.670,33 €
		Gefco Österreich	156.000 €	90	0	0,00%	3.857,14 €
7	MPT	Duvenbeck	134.500 €	90	0	0,00%	3.325,55 €
Total							**62.311,64 €**

Table 11: Calculated PCE for Cosma plants

If all calculated numbers are added up a total amount of 62.311,64 € arises. Once again it shall be pointed out, that these are not “just” potential savings, but a positive cash effect, because this amount of money is not “only” additional cash in the pocket, but also an increase in the liquidity of the company and therefore generates an additional return of capital.

Now the calculation model should be explained in detail. Even though in course of the data gathering it was realized that there are very few existing Cash Back models negotiated with the contract partners, in the next section the topic cash back model shall be illuminated a little further, to check if there is some additional potential in these models.

3.2.4 Cash back vs. liquidity

Basically MLE or even the whole company Magna has standardized Cash Back models, which they should include into their contracts. At this point it is impossible to monitor in how many contracts this Cash Back model is included. During the analysis phase, it became clear that for the Cosma Cost Down project only one carrier had such a model applied into his contract with MLE.

Nonetheless this part of the thesis shall analyze whether it is recommendable to put these models to use or not and how much exactly the Cash Back is influencing Magna’s finances.

Before this topic is discussed, the standardized cash back model shall be pointed out in table 12 and compared to other standards in industry:

Terms of payment	Discount on rates
75 days	- 0,5 %
60 days	- 1,0 %
45 days	- 1,5 %
30 days	- 2,0 %

Table 12: Cash back model of MLE [45]

In this table it is easy to see that the model of Magna is structured very clearly and decreases incremental with increasing amount of days.
Comparing this to an industrial standard is rather tough, due to the fact that no regulations for Cash Back exist. [46], [47]

In different specialist literature however you often find recommendations for Cash Back models as stated in table 13:

Terms of payment	Discount on rates
30 days	- 2,25 %
10 days	- 4%

Table 13: Standard cash back models [46]

The most eye - catching fact is that this model has less incremental steps than MLE's, but the rates are clearly higher, even though the time span is severely shortened.
The only compare able rates are the ones for 30 days. Here the responsible person from MLE should consider raising this rate up to the one recommended in literature.

After comparing the model to the most common one, it shall be put in use at this point.
For that, the example which was introduced in the payment term section shall be used once more. In table 14 the adapted specifications to this example are displayed:

Example 2:

Carrier Name	Transport Volume	Cash-Back rate 30	Cash-Back rate 45	Cash-Back rate 60	Cash-Back rate 75
Carrier 1	100.000 €	2%	1,5%	1 %	0,5%

Table 14: Specification for cash back calculations

In this example only one calculation for the 1.5% rate at 45 days shall be exhibited, because it is enough to understand the basic principle.

$$\text{Savings} = 10\,\% \times 100.000 \times \frac{45}{365} + 1{,}5\,\% \times 100.000$$

In this calculation also the rate of cash return has to be considered, because for 45 days this money can be used as working capital.

= 27,397 x 45 + 1,5% x 100.000

= 27,397 x 45 + 1500

= 2732,86 €

The calculation is really simple and basically the same as already shown in example 1 with the slight difference that here you do not calculate two values to compare them to each other, but calculate one value for each day within the Cash Back model, to be able to tell, when the best time to pay is. The comparison to the payment term extension comes later on. In table 15 all potential savings for each day are listed and later on displayed in a graph.

day	Cash back savings	day	Cash back savings	day	Cash back savings	day	Cash back savings	day	Cash back savings
0	2.000,00 €	12	2.328,77 €	24	2.657,53 €	36	2.486,30 €	48	2.315,07 €
1	2.027,40 €	13	2.356,16 €	25	2.684,93 €	37	2.513,70 €	49	2.342,47 €
2	2.054,79 €	14	2.383,56 €	26	2.712,33 €	38	2.541,10 €	50	2.369,86 €
3	2.082,19 €	15	2.410,96 €	27	2.739,73 €	39	2.568,49 €	51	2.397,26 €
4	2.109,59 €	16	2.438,36 €	28	2.767,12 €	40	2.595,89 €	52	2.424,66 €
5	2.136,99 €	17	2.465,75 €	29	2.794,52 €	41	2.623,29 €	53	2.452,05 €
6	2.164,38 €	18	2.493,15 €	30	2.821,92 €	42	2.650,68 €	54	2.479,45 €
7	2.191,78 €	19	2.520,55 €	31	2.349,32 €	43	2.678,08 €	55	2.506,85 €
8	2.219,18 €	20	2.547,95 €	32	2.376,71 €	44	2.705,48 €	56	2.534,25 €
9	2.246,58 €	21	2.575,34 €	33	2.404,11 €	45	2.732,88 €	57	2.561,64 €
10	2.273,97 €	22	2.602,74 €	34	2.431,51 €	46	2.260,27 €	58	2.589,04 €
11	2.301,37 €	23	2.630,14 €	35	2.458,90 €	47	2.287,67 €	59	2.616,44 €

day	Cash back savings	day	Cash back savings	day	Cash back savings
60	2.143,84 €	66	2.308,22 €	72	2.472,60 €
61	2.171,23 €	67	2.335,62 €	73	2.500,00 €
62	2.198,63 €	68	2.363,01 €	74	2.527,40 €
63	2.226,03 €	69	2.390,41 €	75	2.554,79 €
64	2.253,42 €	70	2.417,81 €		
65	2.280,82 €	71	2.445,21 €		

Table 15: All values for example 2 (i=10%, Transport volume = 100.000 €)

With these values four charts (figure 26 to 29) for the different cash back rates were created:

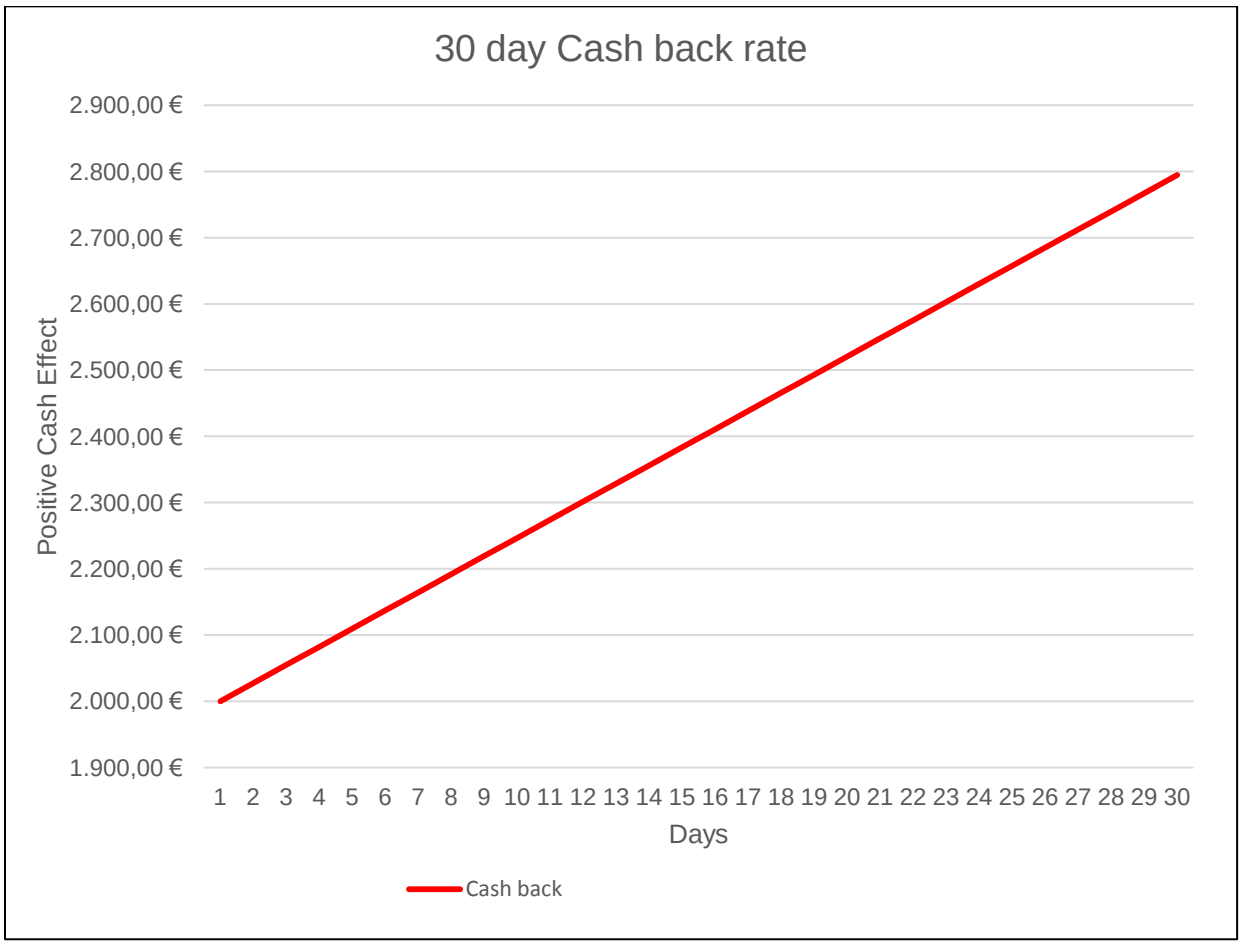


Figure 26: Cash back chart for the 30 day rate

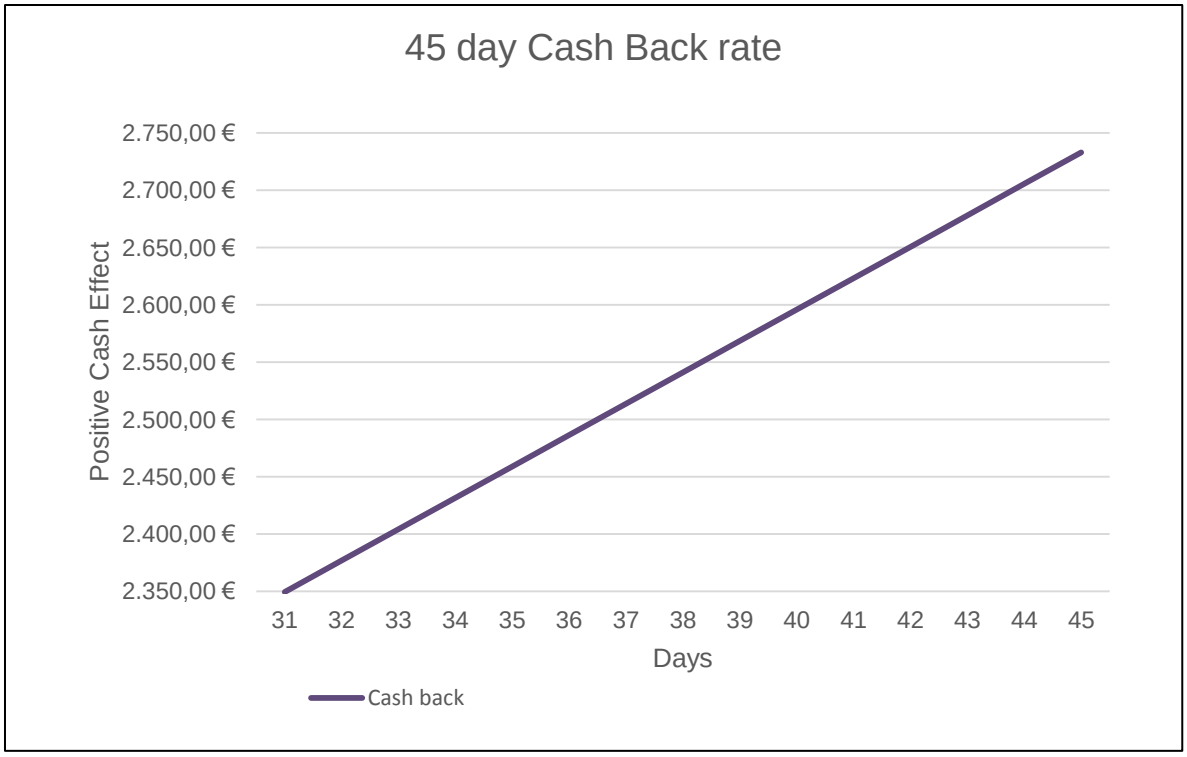


Figure 27:Cash Back chart for the 45 day rate

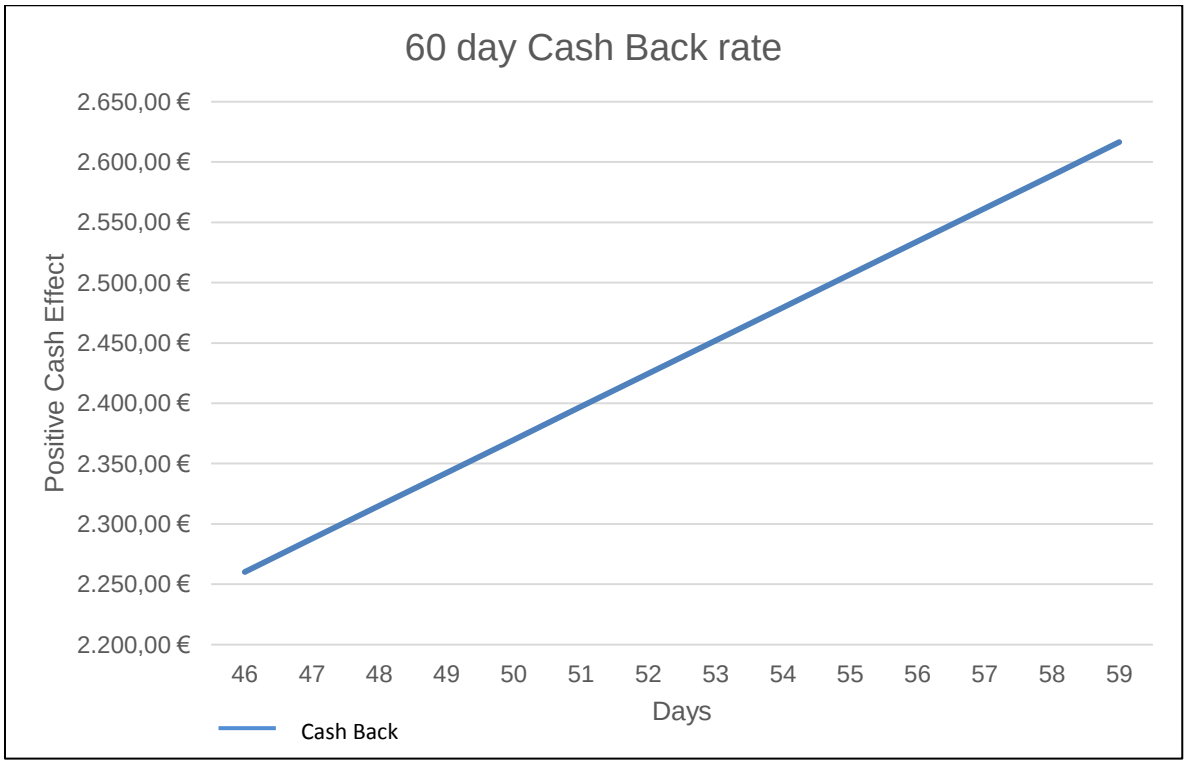


Figure 28: Cash Back chart for the 60 day rate

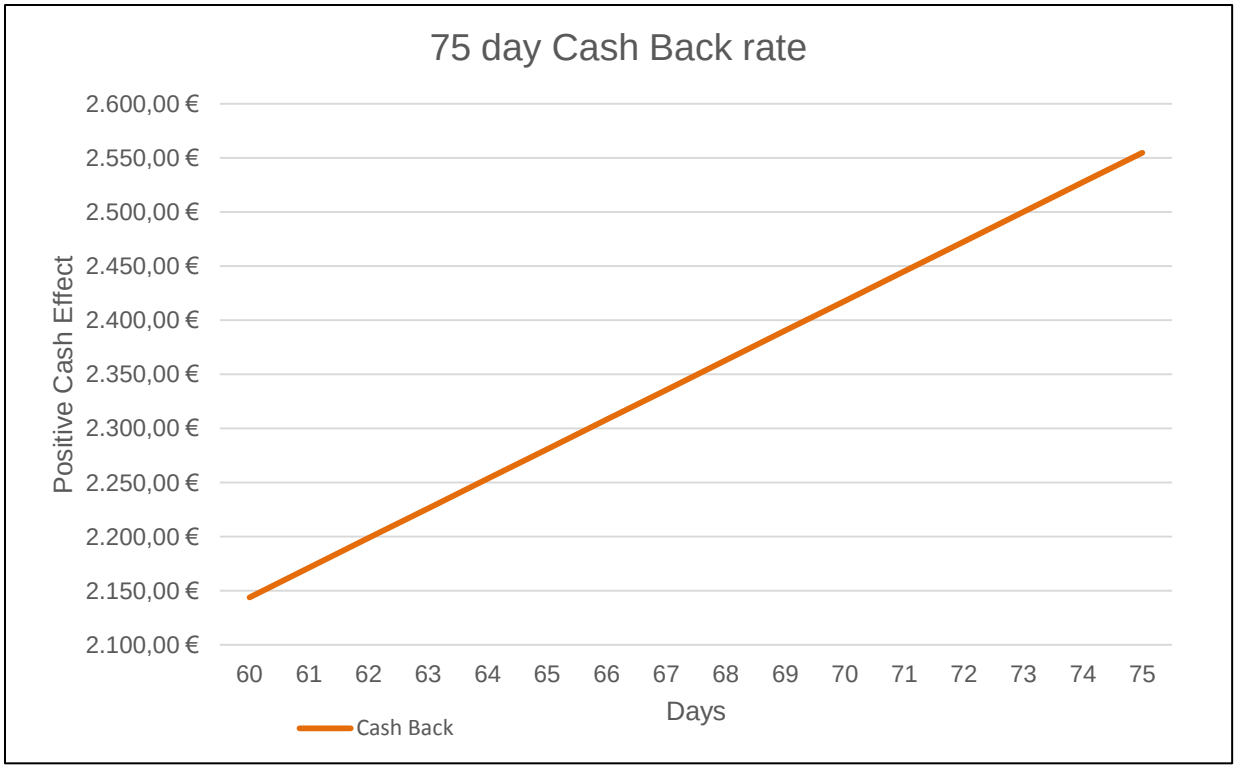


Figure 29: Cash Back chart for the 75 day rate

These four figures show the functions of the different cash back rates. To compare them more easily and show that they all follow the same gradient they all were put together in figure 30:

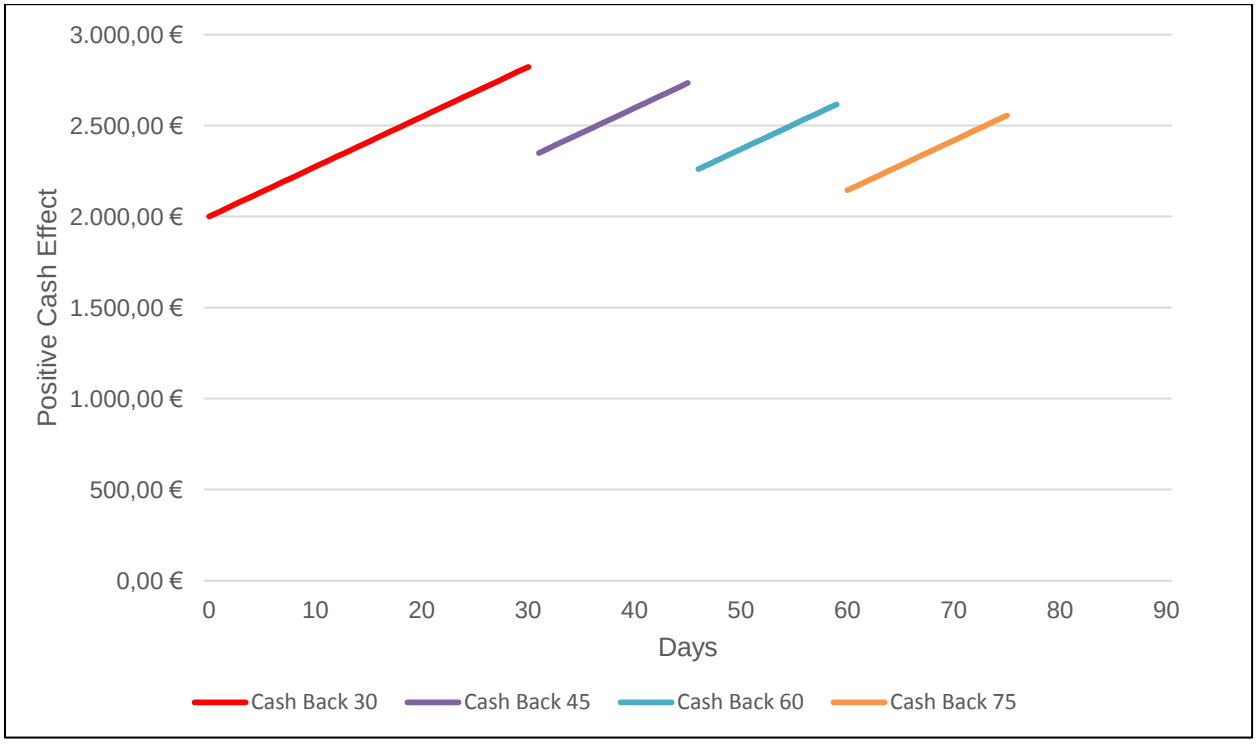


Figure 30: Values of example 2 visualized

This was example 2. To really give a statement however what is more efficient or which model bares more benefit for the company, it is vital to compare the two models to one another. For that reason the two previous examples will be used and combined to form a third example, which shall demonstrate the main differences and give the possibility to draw a conclusion for this matter.

Example 3:

As already explained this is a combination of example 1 and 2 and therefore the specifications are the same, just for simplicity the specifications are pointed out again in table 16:

Carrier Name	**Transport Volume**	**Payment Terms**	**Cash-Back rate 30**	**Cash-Back rate 45**	**Cash-Back rate 60**	**Cash-Back rate 75**
Carrier 1	100.000 €	0 to 90	2%	1,5%	1 %	0,5%

Table 16: Specifications for example 3

At this point there will be no further calculations presented, because they and their results are exactly the same as in the previous examples. The reason for this example is to compare these results and this is done in figure 31:

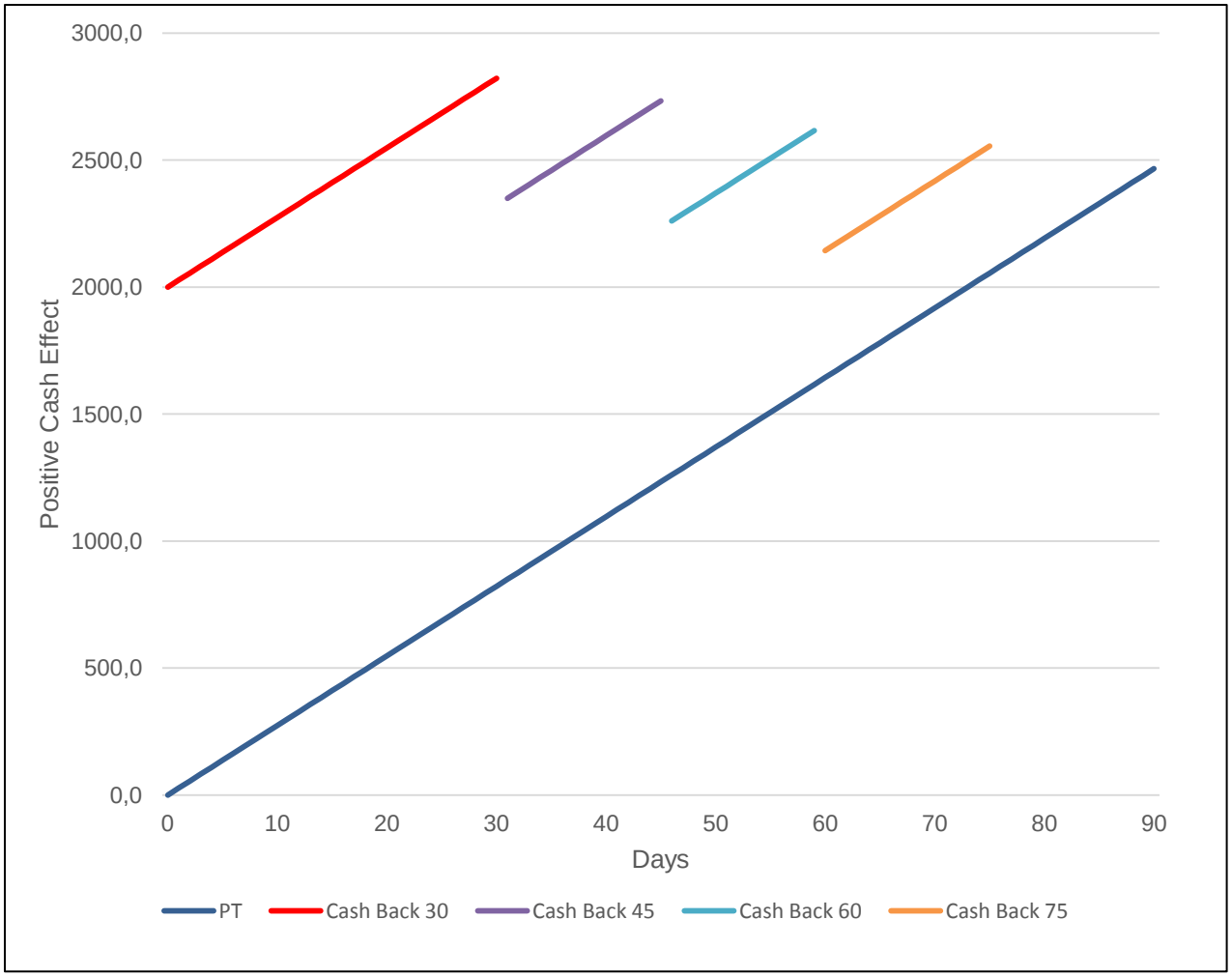


Figure 31: Comparison between Cash back models and payment term extension

Figure 31 makes it obvious that the cash back model is more profitable at any rate or days of payment if compared to a payment term model of 90 days. The best option would be the Cash Back model for payment due on the 30th day after receiving the bill. Of course you don't have the liquid funds as long in your cash pool as if you use the 90 days payment terms, but you get considerably higher positive cash effect.

This comparison also shows very clearly that both functions basically work linearly, meaning the longer the money stays in the company the more profit this firm makes.

So for this example there are two main conclusions:

1. For this specific Cash Back model it is always more beneficial to go for Cash Back rather than for the extension of payment terms. To be more profitable with the payment term extension (in this case the PCE would have to exceed 2822 €, because that amount is gained with the 30 day cash back model) the extension of payment terms would have to be accordingly to the following calculations:

$$\text{PCE (shall bebigger than 2822)} = \frac{10\ \% \times 100.000}{365} \times PT$$

This is the formula for the payment term calculation, with the PCE for the Cash Back model of 30 days. If this equation is transformed in the way that the payment term can be calculated, the result for the targeted value can be found:

$$\text{Target PT} = \frac{(2822) * 365}{100.000 * 10\%} = 104 \text{ days}$$

This value is far above the targeted 90 days of payment terms. This means if a Cash Back model was negotiated, it is always preferable in comparison to 90 days of payment terms with a rate of return of 10%

2. Considering that using Cash Back models influences directly the earnings before interest and taxes (EBIT), this approach can be used if you want to eradicate liquid funds with a maximum possible profit, so the company can save taxes or avoid other complications that can arise due to too much liquidity.

3.2.5 Conclusion

In the course of handling the case study a big amount of data was gathered and analyzed. It became clear that improvements for payment terms proposed by the MLE concerned only a section of the total transport volume.

From a total transport volume, for the whole Cosma group in 2013, of 20, 2 million Euro just for the amount of approximately 3.9 million Euro improvements were implemented. Some of the reasons for that are that some plants didn't want to participate in the new RFQ's. This is their right, if they, for example, have a strategic partnership with a TSP that they want to uphold.

Considering that for the amount of 3.9 million Euro a positive cash effect of 62.311,64 Euro was obtained, at this point an outlook shall be given on how much potential could be generated in the Cosma group, if the conditions found for the analyzed plants could be transmitted in a linear way to all plants, which are part of the group.

To express this outlook in hard facts some minor calculations have to be conducted:

- First the ratio between the analyzed volume and the potential savings has to be determined:

$$\text{Ratio} = \frac{62.311\ €}{3.908.723\ €} = \mathbf{1,6\ \%}$$

- This ratio has to be applied to the total volume and this gives you the total amount of the potential PCE :

$$\text{Total PCE} = 20.200.000\ € \times 1,6\ \% = \mathbf{323.200\ €}$$

- This means if the same conditions (meaning for example similar clusters of payment terms) apply to all plants, that were found for the few analyzed ones and if it would be possible to release all potential of the unity of all Cosma plants, a total positive cash effect of 323.200 € could be generated with the extension of payment terms.

Just to be able to make a comparison at this point, the potential profits for the Cosma group shall be pointed out if 30 day Cash Back (CB) models were applied in each plant for every transport service provider, but first the formula of the positive cash effect for Cash Back calculations will be displayed and then calculations will be performed:

$$PCE\ CB = \frac{return\ rate * cost}{365} * days\ of\ CB + CB\ rate * cost \quad (14)$$

Applying the specific numbers of the 30 day Cash Back model to this formula, following results can be found:

$$\text{PCE CB} = \frac{10\,\% \times 20.200.000}{365} \times 30 + 2\,\% \times 20.200.000$$

$$= \frac{2.020.000}{365} \times 30 + 404.000$$

$$= \frac{2.020.000}{365} \times 30 + 404.000$$

PCE CB = **570.027 €**

So if cash back is used instead of payment term extensions, it is obviously possible to make more profit. In the last calculation in this chapter the ratio shall be given on how much exactly:

$$\text{Ratio of CB/PT} = \frac{570.027\ €}{323.200\ €} = \mathbf{176{,}4\ \%}$$

With this calculation it is displayed that using a Cash Back model instead of payment term extensions would be 76.4 % more profitable for the Cosma group.
That should be a strong indicator to go for the Cash Back models in negotiations.

3.3 Lessons learned and the derived methodical approach

In this implementation part of the thesis it shall be explained, which problems occurred during the Case Study, how they were solved and what knowledge was gained that could be implemented in future Cost Down Programs.

3.3.1 Data gathering out of sourcing tool

Before any analysis can start, profound data are needed. The simplest way to gather them is using the eRFX tool. The only obstacle is that not every employee of Magna has access to this portal. So access to this portal has to be requested, which has to be granted from a supervisor.

Once the access is granted you can access the different information about suppliers and plants. Concerning the transport volume per plant, double checking the numbers with the so called “Scorecard”, a controlling tool for MLE, is recommended.

If in any case it is not possible to access the data electronically, all receipts with carriers should be stored from the responsible logistics coordinator of each group, or in the worst case scenario, each plant has to be contacted and the required data has to be asked for personally.

After having all needed data together it is recommended to store them in an Excel sheet for further processing.

3.3.2 Analyzing of existing payment terms

In this file all analyzed plants and their contracted carriers should be listed. It should be possible to find a transport volume spent for each plant and carrier. If these data were acquired it should be rather easy to allocate the payment terms in use with the different service suppliers.

Usually the payment terms are part of the standard framework agreement of Magna. If for some reason, no payment terms are listed, it is recommended to check actual receipts for any information. If no information can be found, the analysis of this carrier has to stop at this point, because the data is not exploitable.

For transport volumes where all data is available, first estimations, like what was the highest number of days payment terms were negotiated or does the amount of transport volume has made any impact on the payment terms, can be made. And first comparisons can be made between the different carriers.

3.3.3 Clustering of payment terms and estimate potential

After this first quick overview of the data further analysis is required. The next step should be to form payment term clusters as described in a chapter above.
With this method a very good overview of the actual payment terms can be gained. In table 17 an example for such clusters is shown:

PT [days]	Examined transport Volume [assessed amount of cost]	Industrial standard	Goal [defined traget of company]
0-29	X €	A €	K €
30-59	Y €	B €	L €
60-90	Z €	C €	M €

Table 17: Example for a cluster of payment terms

It is recommended to form one column for the analyzed volume, where all gathered data is put. Then, if it is possible, another column is formed with payment terms that are most common in the specific branch of industry (for example in automotive industry payment terms of 50 days are most common [48]). So it is possible to have a direct comparison and you can easily estimate your position compared to other companies in your field of expertise.
As a last step, after assessing the potential savings and improvements, certain goals can be defined and put into a third column.

3.3.4 Harmonize all payment terms of one TSP for all receiving plants

The method of payment terms clustering can not only be used to get a quick overview of all payment terms or compare them to other companies, but also to generate a negotiation benefit.
If, for example, one service provider has several contracts with different Magna plants, the payment term clusters can be used to convince him to harmonize them and, in the best case, even extend them as demonstrated in table 18:

Cluster	Examined Transport Volume	Negotiated target
0-29	1.000 €	0 €
30-59	20.000 €	0 €
60-90	15.000 €	36.000 €

Table 18: Cluster for one service provider

In Table 18 some fictional numbers shall illustrate an example, where one carrier has different payment terms negotiated with Magna and the goal from MLE point of view is to get all volume in the 3rd cluster.
If you show these clusters during negotiations it should be rather easy to convince the other party to harmonize their payment terms or at least give some beneficial if that is not possible. Because it would be rather hard for the service provider to explain, why it is possible for him to have a big amount of volume paid 90 days after sending the bill and the rest after a different amount of days.
Without this cluster method these irregularities could have been overlooked, where they so can be pointed out very clearly.

3.3.5 Calculate potential positive cash effect

Now that all payment terms are documented and clustered, some calculations should be carried out, so the potentials are not only estimated, but expressed in hard facts.

At this point the calculation models are once more listed for the reader's convenience:

1. As this thesis is about analyzing payment terms, this is of course the first step in the calculations. To check what the company can gain by extending their payment terms the following formula can be used:

$$PCE = \frac{rate * transport\ cost}{365\ days}(pt\ to\ check - actual\ pt) \quad (12)$$

2. If there should already be any cash back models in place, but not used due to the focus on payment term extensions the potential savings out of these models has to be subtracted, because these are savings that have to be treated like alternative costs.

$$PCE = \frac{rate * transport\ cost}{365\ days}(pt\ to\ check - act\ pt) - (cash\ back\ rate * transport\ cost) \quad (13)$$

3. As a last step if all calculations regarding payment terms are finalized it is recommended to always check, how much potential is to find in Cash Back models, because as shown in previous explanations, even with such a strong rate of return, as 10%, using a 30 day cash back model is always more beneficial:

$$Cash\ back\ PCE = \frac{rate * transport\ cost}{365\ days} * (30\ days\ cb\ limit) + (cb\ rate * transport\ cost) \quad (14)$$

The calculated CB PCE has to be compared to the PCE that is the result of the payment term extensions, just to be sure which one brings the better result for the company and after defining these hard facts, the focus should also be put on soft facts that are influencing this topic:

3.3.6 Weighting of soft facts

In course of acquiring inside know-how of the MLE processes, financial structure and policies two interviews were conducted with experts that were meant to shed light on facts that cannot be measured in numbers but still influence the topic payment terms. These interviews were performed with Mister Gernot Resch, who is Head of Purchasing for Magna Steyr and Mister Christian Moser, a Sales Representative of the Transport Service Provider GEFCO.
These two people were selected because they sit at negotiation tables all the time, although they work for different sides.
They were asked about their experiences and opinions as exhibited in the following transcripts of their interviews. The first one was conducted with Mister Resch: [49]

"ND: Do you have any information if a similar project compared to this actual one was already processed inside Magna?

GR: No

ND: How strong is the influence of analyzing the potential of payment terms for future negotiations with TSP?

GR: This is a pure funding topic. The supplier has to talk to his bank and ask for possibilities of pre-funding (for example a current account).You have to consider the overall cost concept, who is cheaper and who can get better conditions on pre funding. The best way is to take a close look on the funding costs of the supplier and decide then what they can "take".

ND: Would you recommend to negotiate a general extension of payment terms up to 90 days or would you prefer an incremental scale of pt (payment terms)?

GR: While developing strategic partners the basics are the same as in the question before. Even if the supplier gets better conditions, you have to consider who is doing the funding, or who is capable of do what kind of funding. For that you should look at the detailed cost break down.
Further these agreements can never be static; they depend on the economic climate and amount of orders. The one year it can be possible to have payment terms of 90 days and the next year it is better to shorten the terms to protect the supplier from possible insolvency. In general you should asses every supplier individually and then negotiate payment terms.
The only thing you have to consider that the supplier could use the risk of insolvency in negotiations to pressure you for lower payment terms. But that should be handled by the risk management department of the company.

ND: Liquidity vs. Cash Back: generate liquidity or get savings with Cash Back models? Are there general rules inside of Magna? What is your opinion on that topic?

GR: There is no yes or no solution for this topic. It depends on the financial state of the company. If you have too many liquid means then get rid of them and take the cash back model.
In general rules for this topic vary very much with different projects. In many cases you also adept your payment terms with the supplier on your customer. For example, if your customer pays after 60 days you try to pay your supplier after 90 days to gain profit from it.

ND: How strong is the factor pt negotiation for development of new TSP's? How cooperative are the new TSP?

GR: I think this factor is rather weak. Big suppliers don't even negotiate that topic. (For example the powerful position of Bosch: "You can order from us, or leave it be. The price gets negotiated later on") Most suppliers however are willing to negotiate. Usually they just add the difference to the end-price, also depending on the form and kind of demand.

ND: Any further remarks?

GR: Money doesn't lie on the street. If you change the framework, you have to expect that the price changes. Speaking from experience it is often better to let the supplier make his cut and try to optimize the costs. For example bundle purchasing volume to get better rates.

There is no point in increase savings on the back of a supplier to the point where he gets bankrupt.
The only effect is that he gets bought from another supplier and many small ones become one or two big suppliers. These big ones don't deal with small volumes anymore, just big ones, where they make big profits and then a problem for magna arises.
To try to get the best of you contract partner is always very short-sighted. The best way is always to play with open cards."

After receiving this information Mister Moser was so kind as to offer his time: [50]

"ND: What is your experience with the topic payment terms?

CM: There is a general tendency to agree on payment terms of 60 days. The OEM's have generally about 30 days, except for FIAT, they have 60 days. There is however a difference between actual payment terms and negotiated ones.

ND: What is your opinion in an extension of payment terms to 90 days?

CM: First of all you have to differentiate between sea freight and overland-transports. For sea freight it is only a maximum of 30 days possible and for overland-transports it should be 45. If payment terms are extended beyond these numbers, the usual approach from a supplier is just to add the difference deriving from the extension to the final price using imputed interest rates.

ND: How would you negotiate payment terms?

CM: Well, the gap between customer and supplier has to be financed by somebody in any case and the shorter the payment terms, the bigger is the willingness to cooperate, in terms of a price reduction or a goodwill solution for special transports. With payment terms around 90 days the supplier would also have some additional cost: There would be financial checks and risk assessment needed. These would only be charged to the customer and so the final price would go up. I would wish payments terms that are about 60 days long with a negotiable discount as a bonus."

Reading these interviews some influencing factors become very clear, that are not possible to express in numbers, as listed below:

- **Payment term agreements should never be static, but adapted to the individual situation of a contract partner**

  That means that for a company it can be more beneficial to meet the carrier half way during negotiations and protect them from insolvency for example, just to keep his business running and profit from this contract partner in the long run as a strategic partner.

- **Potential strain in relationship with TSP**

  As the payment terms in automotive industry are something like common knowledge to the suppliers and they tend to be around 50 days, the contract partner could ask with legitimate cause, why he should agree to 90 days with Magna. To enforce this amount of payment terms could be a potential strain in the relationship with a TSP.

- **Never try to get too much out of a negotiation, it might backfire**

  As Mister Resch stated, it could ruin a small supplier, if a big company asks too much from him. The result is, that this small one gets bought by a bigger one and if there are no small ones left, suddenly the company that was in a strong negotiation position is depended on the good will of the supplier.

- **TSP adapts rate accordingly to payment term extension**

  If you deal with an experienced carrier, he would just add the financing cost to the total price in advance and Magna would not get anything out of the extension of payment terms. Usually transport service providers accept payment terms around 45 days and for everything above that number they just add the percentage difference to their rate.

- **Difference between negotiated payment terms and real payment terms**

  Then of course there is a problem for the suppliers that should not occur, but still does. In some countries the negotiated payment terms are not the payment terms that they have to deal with. This means that they have to wait longer for their money as they had negotiated. This is very threatening to the carriers, because they can hardly calculate that in advance and they are at risk of losing liquidity. Of course this makes them cautious when payment term extensions are demanded by contract partners.

- **The lower the payment terms the bigger the willingness for a goodwill solution**

  Considering that the calculations showed that the Cash Back models are creating more profit than the payment term extensions, it should always be considered that if the carrier is given the benefit of lower payment terms, he might agree to a Cash Back model and so both parties could profit from this good will solution.

Considering previous calculations and the listed soft facts, all influencing factors should be clear and a fitting RFQ strategy can be formulated for the next project.

3.3.7 Implement findings in RFQ strategy

So after all these steps finally the start of a new RFQ is reached. Considering all findings of these methodical steps it should be possible to form an effective strategy that fetched the utmost potential of the improvement possibilities.

To reach that three points have to be considered carefully:

1. **Define goals and determine the potential to achieve them**

   Considering all input from the found hard and soft facts, it should be possible to define realistic goals for the next RFQ.
   With these goals stated also the potential of reaching them can be determined. Of course a lot of experience in controlling and negotiations is needed for that, but all the conducted calculations should help with that process.

2. **Decide if a Cash Back model or payment term extension is more preferable**

   This point would also fit into the first one, but as the importance of the difference of these two approaches during the course of this thesis became clear, the decision between these two gets an extra point to exemplify their importance.

3. **Determine a negotiation strategy**

   After deciding on which model should lay the focus during negotiations with the future contract partner a strategy can be formulated on how to reach one's goals the easiest way.

   For example:

   If it was decided to go for a 30 day Cash Back model, pushing the 90 days payment terms at first could be attempted. Normally the contract partner would say that this is a burden too big to bear. Then as a sign of good will, payment terms of 30 days could be offered, but with a 2% Cash Back rate as a sign of the carrier's good will, because you gave him the courtesy of reducing the payment terms.
   And this is the way both parties are happy, because the company got their very profitable Cash Back model and the transport service provider avoided a long period without payment.

3.3.8 Conclusion

Basically the two most important realizations of this thesis are on the one hand the calculations of payment terms and that cash back models are usually more beneficial than the extension of the payment terms, and on the other hand the definition of the methodical approach for future projects.

This approach nevertheless is nothing that should be seen as a static law engraved in stone. It is more like a common thread that states some guidelines. But as the thread can be bent, these guidelines should be adjusted to every new situation individually. This means especially the soft facts are customized on the negotiation process with service providers for the Cosma group. It is possible that other service providers in other countries could think completely differently.

Furthermore it has to be considered that the Cash Back model of 30 days with 2 % is just more beneficial, if the rate of return is about 10 % and the amount of days do not exceed 104 days.
Even if it is very unlikely that this number of days could be reached, it still has to be kept in mind, because in some countries such payment terms really exist.

Keeping all was said above in mind, this chapter gives a very detailed description and the needed tools to guide a person through the process of analyzing and probably extending payment terms in accordance of a new RFQ.

3.4 Implementation in Mirrors and Closures Cost Down Program

For this section it was intended to implement the findings of this thesis in an ongoing Cost Down Program.
As the Mirrors and Closures (MMC) Cost Down Program is at this time on hold, due to various reasons, the results cannot be inserted in an ongoing process, but just a recommendation, or an outlook can be given, with the data, that were accessible.

So as long it was possible the steps of the previously explained approach were followed:

3.4.1 Data collecting and checking their quality

The first thing to do was to check how many plants there are in the Mirrors and Closures group (MMC), how they are called and where they are situated.
This first overview is shown in table 19:

Nr.	Plant Name	Plant location
1	Automotive Poland	Poland
2	Closures Motrol Division	Italy
3	Sealing & Glass Langres	France
4	Auteca	Austria
5	Mirrors Dorfprozelten	Germany
6	Mirrors Espana	Spain
7	Mirrors South Africa	South Africa
8	Mirrors Schleiz	Germany
9	Mirrors Turkey	Turkey
10	Slovteca	Slovakia
11	Spiegelsysteme Assamstadt	Germany

Table 19: List of Mirrors and Closures plants

The next step is to check the Magna sourcing tools for detailed information about the transport volume for each plant.
Of course there will be fewer plants, for which this data is accessible, due to reasons that were already explained in earlier chapters. Nonetheless this data has to be stored and analyzed as displayed in table 20:

Nr.	Plant Name	Transport Volume 2013
1	Magna Automotive Poland	2.450.028,00 €
2	Magna Closures Motrol Division	1.716.771,00 €
3	Magna Sealing & Glass Langres	336.092,00 €
4	Magna Auteca	1.478.419,00 €
5	Magna Mirrors Dorfprozelten	871.793,00 €
6	Magna Mirrors Espana	2.488.985,00 €
7	Magna Mirrors Schleiz	472.122,00 €
8	Magna Mirrors Turkey	145.151,00 €
9	Magna Slovteca	1.919.851,00 €
10	Magna Spiegelsysteme	2.566.050,00 €
Total		**14.445.262,00 €**

Table 20: Transport Volume for MMC plants

Analyzing the data of table 20 it becomes clear that only a fraction of the whole group provided proper data to look for potential savings. So it is necessary to keep in mind that the potential for the whole group could be even bigger as any findings of this process might imply.

The last step in the data gathering phase would be check every plant for their payment term agreements or negotiated Cash Back models with their individual transport service providers. In this special case this data was not accessible, because the Cost Down Program was on hold.

So at this point no real improvements can be revealed, but only an outlook of what could be possible in the best case. To be able to perform certain calculations to provide this outlook certain conditions were assumed:

- For all plants the actual payment terms are 0 days
- There are no Cash Back models whatsoever in place

Of course these assumptions are very unrealistic, but in this way there will be no mix up with actual data and the maximum potential will be pointed out.

3.4.2 Clustering of payment terms

As there are no reliable data concerning payment terms, there is no point in forming clusters. Considering this, all steps of the outlined approach, concerning clusters of payment terms, will be skipped.

3.4.3 Calculate potential positive cash effect

To perform the calculations the formulas (12, 13, 14) that were previously explained were put to use and following results were found:

$$Positive\ cash\ effect = \frac{Rate * transport\ cost}{365\ days}(pt\ to\ check - actual\ pt) \quad (12)$$

$$PCE = \frac{Rate * transport\ cost}{365\ days}(pt\ to\ check - act\ pt) - (cash\ back\ rate * transport\ cost) \quad (13)$$

$$Cash\ back\ PCE = \frac{rate * transport\ cost}{365\ days} * (30\ days\ cb\ limit) + (cb\ rate * transport\ cost) \quad (14)$$

- Results for payment term extension displayed in table 21
- Results for using Cash Back models pointed out in table 22

Nr.	Plant	PCE due to PT extension
1	Magna Automotive Poland	60.577,62 €
2	Magna Closures Motrol Division	42.447,63 €
3	Magna Sealing & Glass Langres	8.309,97 €
4	Magna Auteca	36.554,32 €
5	Magna Mirrors Dorfprozelten	21.555,32 €
6	Magna Mirrors Espana	61.540,84 €
7	Magna Mirrors Schleiz	11.673,35 €
8	Magna Mirrors Turkey	3.588,90 €
9	Magna Slovteca	47.468,84 €
10	Magna Spiegelsysteme	63.446,29 €
Total		**357.163 €**

Table 21: Results of PT extension for MMC plants based on values of 2013

These were the results of the extension of payment terms from 0 to 90 days and in the following table the PCE for putting a Cash Back model in place will be shown:

Nr.	Plant	PCE for 30 day CB model
1	Magna Automotive Poland	69.137,78 €
2	Magna Closures Motrol Division	48.445,87 €
3	Magna Sealing & Glass Langres	9.484,24 €
4	Magna Auteca	41.719,77 €
5	Magna Mirrors Dorfprozelten	24.601,28 €
6	Magna Mirrors Espana	70.237,11 €
7	Magna Mirrors Schleiz	13.322,89 €

8	Magna Mirrors Turkey	4.096,04 €
9	Magna Slovteca	54.176,62 €
10	Magna Spiegelsysteme	72.411,82 €
Total		**407.633,42 €**

Table 22: Results for 30 day Cash Back model for MMC plants

At this point it makes no more sense to pursue the defined guidelines for handling payment term analysis any further, because with the conducted calculations and the lack of clusters it is not possible to form a proper RFQ strategy and because it was not possible to get information about any service providers of the MMC plants, it makes no sense to talk about soft facts.

3.4.4 Pointing out potential for the whole group

In the previous chapter some figures for every single plant were presented. At this point a potential for the whole MMC group shall be given.
To be able to perform this, it is necessary to calculate the ratio of the transport volume that was analyzed and the improvements that were made:

$$\text{Ratio MMC} = \frac{\text{Assesed Volume}}{\text{Total Volume of group}} = \frac{357.163\ €}{14.445.262\ €} = \mathbf{2,47\ \%}$$

This number is applied to the total transport volume of the MMC and so the total potential could be assumed, considering again that this ratio can only be used, if similar conditions for the remaining plants apply:

$$\text{Total Potential MMC} = 14.445.262\ € \times 2,47\ \% = \mathbf{356.797\ €}$$

3.4.5 Conclusion

The implementation of the methodical approach for the MMC Cost Down Program is very superficial, but under the given circumstances it was not possible to generate better output.
The best way to see this chapter is to look at it as a “hands on” example, to be able to understand the outlined process better, even if it was just a small part of the whole methodical approach.

4 Summary and Conclusion

In this final chapter the main elements of this thesis will be recapitulated and then an outlook will be given.

4.1 Summary of findings

The two main points of this thesis were to create a calculation model and to define a methodical approach for future projects.

The calculation model was found rather quickly. Basically all research that was necessary to create this model was conducted the way the interest rate is calculated inside Magna. After talking to some financial experts, it became clear that this was not a basic interest rate, but a rate of return, because Magna is funding everything through a cash pool for all plants and for this huge amount of equity the imputed rate of return on the basis of the ROCE is 10 %.
Having this problem solved, it was necessary to consider opportunity costs and subtract them from the results. So the following formula was created:

$$PCE = \frac{rate * transport\ cost}{365\ days}(pt\ to\ check - act\ pt) - (cash\ back\ rate * transport\ cost) \quad (13)$$

In this formula the term covering the Cash Back rate stands for the opportunity costs, because if you go for a payment term extension you disclaim the savings, which you would get from using the Cash Back model.

Then of course the derived approach for future projects was defined. This guideline was carefully thought through and adapted to the special sourcing process of Magna. The main steps are listed below:

1. Lessons learned and the derived methodical approach
2. Analyzing of existing payment terms
3. Clustering of payment terms and estimate potential
4. Harmonize all payment terms of one „TSP“ for all receiving plants
5. Calculate potential positive cash effect

6. Weigh soft facts before re-negotiating payment terms

7. Implement findings in RFQ strategy

With these tools it should be possible to analyze every payment term scenario in an objective way and get reliable results to make decisions on whether it is profitable to go for an extension or maybe go for another solution.

4.2 Pointing out the potential for all Magna groups

During the creation of this thesis a lot of input was kindly given from a lot of financial experts inside the company.

One of these courtesies was the hint that I could give an estimation of the potential savings for all Magna plants in Europe. As all input was very vital for creating this thesis in an orderly fashion, in this section the whole potential shall be displayed.

In table 23 every Magna group is listed and the total transport volume for one year is displayed. Of course it was not possible to analyze every payment term agreement and the potential benefit of the extensions of these agreements. So the ratio, defined for the Cosma Cost Down – Case Study was used to give an indication of what could be possible.
It is very important to keep in mind that this is not a realistic assessment of the potential, but just an implied possibility if, by any chance, the payment term clusters of all groups follow approximately the distribution of the Cosma clusters and the same improvements could be made.

Magna Group	Transport Volume 2013
Magna Cosma Europe	25.230.969 €
Magna Electronics Europe	1.667.721 €
Exteriors	20.316.793 €
Interiors	20.401.364 €
Magna Ext. and Int. Emerging Markets	14.318.648 €
Magna Exteriors and Interiors UK	5.803.475 €
Magna Closures Europe	3.876.618 €
Magna Mirrors Europe	7.387.162 €
Magna Powertrain Europe	18.243.495 €
Magna Seating Europe	28.319.714 €
Magna Car Top Systems Europe	5.434.738 €
MS Contract Manufacturing EU	35.453.585 €
MS Fuel and Battery Systems EU	4.136.152 €
TOTAL	**190.590.435 €**

Table 23: Transport Volume for all Magna plants in Europe for 2013

With this total amount of transport volume it is possible to give a statement about the potential. The ratio that was defined in the Cosma Case study (ratio = 1,6%) gets applied to the total amount of transport cost spent. That way the total potential can be calculated:

Total Potential Magna = Total Trasport Volume x CCD ratio

Total Potential Magna = 190.590.435 € x 1,6 % = **3.049.446 €**

That way a possible total potential for the Magna group can be found with the amount of 3,05 million Euro. This is an enormous sum that can be saved, just by extending payment term agreements.

Nevertheless that might not be the best solution to rout for, as shall be pointed out in the very last section of this thesis.

4.3 Recommendation in the question of going for liquidity or cash back models

The common thought in industry is to enforce liquidity over profitability, because liquidity is the air a company has to fill its lungs with.
Basically this approach is right and it would mean to go for payment term extension every time. The reason for that is that it makes no sense to generate profits, if you are not able to pay your bills. It does not matter how rich you could be in the future if you are not able to pay your bills in the present and never reach those golden times.

This thinking might apply to small companies, that have problems with their funding or companies that have a big ratio of debts.

In the case of Magna International however, the case is a slightly different one. Only equity is used for funding projects or paying bills. This equity is stored in a huge cash pool, where all plants transfer their liquid means. Of course this does not mean that Magna should stop caring about their liquidity, but that it is not a pressing issue.

Considering that and looking at the positive cash effect that can be generated through Cash Back models, my personal recommendation would be to focus on negotiating a lot of Cash Back models instead of trying to extend the payment terms at all costs.
This has two reasons I would like to point out:

1. Even with a Cash Back model in place, it is possible to increase liquidity a bit, by passing on a part of potential savings

   In earlier sections it was pointed out that using a 30 day Cash Back model with a 2% rate would be the most benefiting, because the biggest amount of savings would be generated. On the other side it would mean also that liquidity was shortened with 60 days compared to 90 days of payment term extension.

   At this point the figure 30 shall be displayed again, so it is easier to follow the line of arguments that will be presented:

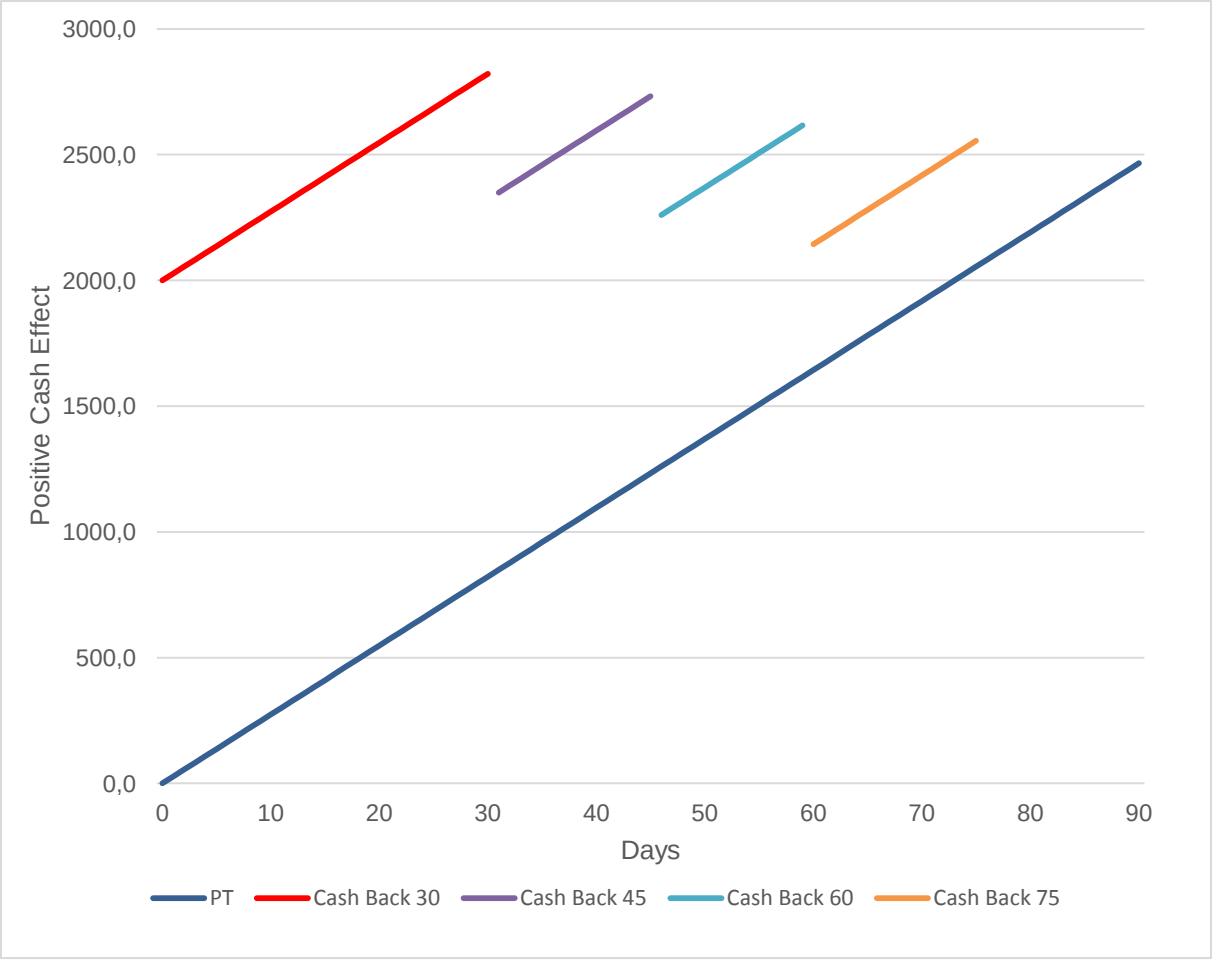


Figure 32: Comparison between Cash back models and payment term extension

In figure 32 it can be seen that the Cash Back model is the best solution in terms of savings, but the worst for extending liquidity as discussed before.
But if a closer look is taken, it can be realized that every Cash Back model generates more savings as the payment terms extension.

So my recommendation would be to go for a 45 day Cash Back model, because there the relation between generating savings and increasing liquidity is the best. With the standard Cash Back model of Magna it would still be possible to get a 1.5% rate on the transport cost and an extension of liquidity would have been achieved as well. Of course this extension is only minor, but with such a huge volume as Magna has one, such minor improvements can have big impacts.

2. Cash Back models are far easier to negotiate and agree upon

   As it was discovered during the research phase, most transport service providers have a huge problems with their funding if payment terms exceed the amount of 45 days. So their solution is either to decline the contract or simply raise their price, so they won't have any disadvantage, if agreeing to the payment term extensions. Knowing that, the total amount of payment terms should be 45 days in contracts, because otherwise Magna is paying more for services than they should have to.
   This is also a good opportunity to reach the mutual beneficial situation:

   Magna says that they would abandon their interest for payment term extension to 90 days and just go for 45 days, if the contract partner can agree to their Cash Back model.

   This could be a win-win situation:

   The carrier avoids the long period without payment and Magna gets their profitable Cash Back model as pointed out in the first argument.

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List of abbreviations

cod	Cash on delivery
EBIT	Earnings before interest and taxes
eRFX	Electronic Request for X
EU	European Union
Incoterms	International Commercial Terms
L 1st	Liquidity 1st degree
L2nd	Liquidity 2nddegree
L3rd	Liquidity3rd degree
MCM	Marketing Channel Management
MLE	Magna Logistics Europe
MMC	Magna Mirrors and Closures
NOPAT	Net operating Profit after taxes
OEM	Original Equipment Manufacturer
PCE	Positive Cash Effect
PT	Payment Terms
R & D	Research and Development
RFI	Request for Information
RFMD	Request for management data
RFQ	Request For Quotation
ROCE	Return on capital employed
SC	Supply Chain
SCM	Supply Chain Management
TSP	Transport Service Provider

Appendix

Appendix 1: Manual for the Expert Interview for “Legal requirements”

MAGNA LOGISTIK EUROPA

Experteninterview Masterthesis Payment Terms **Meeting Minutes**	Location: Vienna, Graz (webex) Date: 08.04.2014 Time: 15.00

Participants	
Nikolaus Drobnitsch (ND)	TU Graz
Marko Kuchar (MK)	Magna International
Mag. Schuppich Christian (CS)	Magna International Legal Counsil
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1 Experteninterview

1.1 Vorstellung

Die Teilnehmer wählen sich in die Webex-Konferenz ein und werden von M. Kuchar begrüßt.

1.1.1 Vorstellung Personen

M.Kuchar stellt die Interviewpartner (Mag.Schuppich und Drobnitsch) einander vor

1.1.2 Vorstellung Diplomarbeit

Mit Hilfe des definierten „Project Description Letters“ und einer kurzen Powerpoint Präsentation wird der Hintergrund und das Zustande kommen der Diplomarbeit erklärt.

1.1.3 Erklärung der Problemstellung

Im Zuge der Vorstellung der Diplomarbeit, wird gleichzeitig auch die spezielle Problemstellung erklärt und direkt auf die vorbereiteten Fragen eingegangen.

1.2 Fragen

1.2.1 ND: Haben Sie Informationen ob dieses oder ein ähnliches Problem bereits berarbeitet wurden?

CS: Das Thema ist schon öfter vorgekommen, wurde aber noch nicht in irgendeiner Weise wissenschaftlich bearbeitet. Payment Terms sind bei Rahmenfrachtvertägen immer ein wichtiger Punkt, wurden aber immer individuell mit den Vertragspartnern verhandelt. Dabei wurde immer versucht auf die 90 Tage Zahlungsziel zu kommen. […] Aus juristischer Sicht is dieses Thema kein Knackpunkt. Es gibt dazu eine EU Richtlinie(Zahlungsverzugsrichtlinie) , die besagt , dass bis zu 60 Tage Zahlungsziel auf keinen Fall grob Nachteilig für den Verkäufer sind.
Alles was darüber hinausgeht, beginnt man sich in einem kritischen Bereich zu bewegen.
In Österreich wird dieses Thema im UGB §459 behandelt und deckt sich mit der Aussage der Eu Richtlinie. Also sollten 90 Tage Zahlungsziel kein Problem sein. Es kann nur sein, dass auf Grund dieser Richtlinie, dann Richtung 60 Tage argumentiert wird, da 90 Tage zu lang seien.

1.2.2 ND: Gibt es generell, aus Ihrer Sicht, wichtige Punkte die wir berücksichtigen müssen bevor Zahlungsziele erweitert werden?

CS: Rechtlich gesehen sind Zahlungsziele eine Grauzone. Ansich kann man vereinbaren was man möchte. Man müsste allerdings auf die Rechtssprechung achten, ob es irgendwo ein vorangegangenes Urteil gibt, dass in dem und dem Fall, das Zahlungsziel nur so und so aussehen darf.

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1.2.3 ND:Gibt es gesetzlich gebundene lokale Einschränkungen bezüglich der Erweiterung der Zalungs- ziele mit Dienstleistern?

CS: Hier muss man in Betracht ziehen, dass die EU Richtlinie hierzu jedes Land in deren jeweilige Rechtssprechung aufnehmen kann, aber nicht muss. Genaue Information zu lokalen Unterschieden kann ich somit nicht geben. Man muss jedoch genau schauen für welche Transporte was ausgemacht wurde. Am besten sollte man Rahmenfrachtverträge nach österreichischem Recht abschließen, da dies am unproblematischten ist.

Man kann in den Vertrag schreiben, dass dieser nach österreichischem Recht aufgesetzt wurde.

1.2.4 ND: Gibt es Möglichkeiten solche Bestimmungen zu umgehen (z.B.: Ort oder Art der Vergabe des Auftrags)?

CS: Wenn mehrere Parteien einen Vertrag aufsetzten oder unterschreiben, können diese entscheiden welchem länderspezifischen Recht dieser unterliegt. Gibt natürlich ein paar Ausnahmen, aber generell, vor allem innerhalb Europas sollte das kein Problem sein.

1.2.5 ND: Zum Thema Skonto: gibt es hierfür gesetzliche Richtlinien oder ist Skonto immer Bestand eines Vertrages?

CS: Für Skonto sind mir keine gesetzlichen Vorgaben bekannt, das ist reine Vereinbarungssache zwischen den Vertragspartnern. Die können da vereinbaren was sie wollen. Es ist nur wichtig, dass man es klar in den Vertrag hineinschreibt.

1.2.6 ND:Weitere Anmwerkungen zu diesem Thema?

CS: Keine weiteren Anmerkungen.

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2 Actions

Action	Responisbility	Due Date

Appendix 2: Manual for the Expert Interview for “Financial backgrounds”

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Experteninterview Masterthesis Payment Terms **Meeting Minutes**	Location: Graz Date: 08.04.2014 Time: 15.00

Participants	
Nikolaus Drobnitsch (ND)	TU Graz
Marko Kuchar (MK)	Magna International
Klaus Iffland (KI)	Magna International
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1 Experteninterview

1.1 Vorstellung

Die Teilnehmer werden von M. Kuchar begrüßt.

1.1.1 Vorstellung Personen

M.Kuchar stellt die Interviewpartner (Mag.Schuppich und Drobnitsch) einander vor

1.1.2 Vorstellung Diplomarbeit

Mit Hilfe des definierten „Project Description Letters“ und einer kurzen Powerpoint Präsentation wird der Hintergrund und das Zustande kommen der Diplomarbeit erklärt.

1.1.3 Erklärung der Problemstellung

Im Zuge der Vorstellung der Diplomarbeit, wird gleichzeitig auch die spezielle Problemstellung erklärt und direkt auf die vorbereiteten Fragen eingegangen.

1.2 Fragen

1.2.1 Haben Sie Informationen ob dieses oder ein ähnliches Problem bereits berarbeitet wurden?

KI: Ja, 2010 wurde ein ähnliches Projekt durchgeführt. Damals ging es um Zahlungsziele bei der Beschaffung von Produktionsmaterial innerhalb der Magna Steyr. Purchasing Volume wurde in allen Werken erfasst. Aktuelle Zahlungsziele wurden geclustert und Ziele für target cluster definiert.

	current suppliers	YTD	End of 2009	End of 2010	Delta YTD	Delta End of 2009	Delta Summe
Cluster 1: <30 days							
Cluster 2: 30-59 days							
Cluster 3: 60-89 days							
Cluster 4: 90-119 days							
Cluster 5: >120 days							

Hierbei muss man aber beachten, dass trotz möglicher Einsparungen und Liquiditätsgewinn durch PT extension, trotzdem die In-Anspruch nahme einer Skonto Zahlung immer wertvoller für Magna ist, da Skonto direkt das EBIT beeinflusst ,weil es die Zahlungsmittelbestände reduziert.

1.2.2 Wie stark kann durch dieses Thema, Ihrer Meinung nach, Magnas Position in zukünftige Verhandlungen mit Lieferanten positiv beeinflusst werden?

Dieses Thema hat auf jeden Fall hohe Priorität. Bei guter Organisiation kann man sicher eine positiven Effekt erzielen.Liegt bei MLE hier einen guten Weg zu finden(einen guten Job zu machen).

1.2.3 Macht es Sinn mit strategischen Lieferanten generell Zahlungsziele von 90 Tagen zu vereinbaren oder sollte man die Zahlungsziele einzelner Lieferanten eher stufenweise staffeln?

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Man muss jeden Lieferanten gesondert betrachten und bei jedem versuchen das Max. zu holen.Hierbei ist eine genaue Ist-Analyse sehr wichtig. Gibt Lieferanten die durchwegs sehr lange Zahlungsziele gewohnt sind. Ziel muss es sein, immer mindestens 1 Cluster besser zu werden aus Magna Sicht.

Hierbei sollte man sich an Branchenübliche Cluster halten und eine Harmonisierung anstreben. Wenn ein Dienstleister für mehrere Werke tätig ist, aber unterschiedliche Zahlungsziele verlangt, kann man ihn so zu einer Vereinheitlichung bewegen.

1.2.4 Liquidität vs. Skonto: Liquididät generieren oder mit Skontozahlung Einsparungen generieren. Ihr Meinung? Gibt es dazu Vorgaben?

Siehe 1.Frage*(Hierbei muss man aber beachten, dass trotz möglicher Einsparungen und Liquiditätsgewinn durch PT extension, trotzdem die In-Anspruch nahme einer Skonto Zahlung immer wertvoller für Magna ist, da Skonto direkt das EBIT beeinflusst ,weil es die Zahlungsmittelbestände reduziert.)*

1.2.5 Wie stark ist der Faktor Zahlungszielvereinbarung bei der Entwicklung von Lieferanten? Wie kooperationsbereit geben sich die meisten?

Das ist stark vom Geschäftsmodell abhängig. Je größer das Volumen oder Partner, desto leichter die Verhandlungen.

1.2.6 Wie beeinflusst der Finanzfluss der Magna die erläuterte Problemstellung?

Finanzfluss ist allerdings nicht so interessant. Wert wird nur auf Cashflow und Ebit gelegt.Fokus liegt nat auch auf working capital.

1.2.7 Haben Sie Informationen zum Liquiditätsmanagement innerhalb der Magna?

Liquide Mittel fließen alle in einen zentralen Cash pool.Zinssatz errechnet sich dann aus Rendite auf diese Mittel.

1.2.8 Wie berechnet sich der Zinssatz auf liquide Mittel? Werden lokale Unterschiede gemacht oder wird ein genereller Zinssatz kalkuliert und pauschal verwendet?

Gibt einen kumulierten internen kalk Zinssatz(Wird von schiffner nachgereicht,komplexe Berechnung, da für jedes Land unterschiedlich). Zinssatz gibt es nur für Eigenkapital, Fremdkapital wird in der Magna aus Prinzip nicht verwendet.

1.2.9 Weitere Anmwerkungen zu diesem Thema?

nein

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2 Actions

Action	Responisbility	Due Date

Appendix 3: Manual for the Expert Interview for “Purchasing strategies”

MAGNA LOGISTIK EUROPA

Experteninterview Masterthesis Payment Terms **Meeting Minutes**	Location: Graz Date: 05.05.2014 Time: 08.30

Participants	
Nikolaus Drobnitsch (ND)	TU Graz
Marko Kuchar (MK)	Magna International
Gernot Resch (GR)	Magna Steyr
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1 Experteninterview

1.1 Vorstellung

Die Teilnehmer werden von M. Kuchar begrüßt.

1.1.1 Vorstellung Personen

M.Kuchar stellt die Interviewpartner einander vor

1.1.2 Vorstellung Diplomarbeit

Hintergrund und das Zustande kommen der Diplomarbeit erklärt MK in kurzen Worten

1.1.3 Erklärung der Problemstellung

Im Zuge der Vorstellung der Diplomarbeit, wird gleichzeitig auch die spezielle Problemstellung erklärt und direkt auf die vorbereiteten Fragen eingegangen.

1.2 Fragen

1.2.1 Haben Sie Informationen ob dieses oder ein ähnliches Problem bereits berarbeitet wurden?

GR:Nein

1.2.2 Wie stark kann durch dieses Thema, Ihrer Meinung nach, Magnas Position in zukünftige Verhandlungen mit Lieferanten positiv beeinflusst werden?

GR: Ist ein reines Finanzierungsthema. Lieferant muss zu seiner Bank gehen und Möglichkeiten der Vorfinanzierung prüfen(Kontokorrent,..) . Man muss das Gesamtkostenkonzept berücksichtigen, wer ist hier günstiger, bzw wer kann bessere Finanzierungsmöglichkeiten generieren. Am Besten man schaut sich Finanzierungskosen der Lieferanten im Detail an und entscheidet danach was sie „vertragen“.

1.2.3 Macht es Sinn mit strategischen Lieferanten generell Zahlungsziele von 90 Tagen zu vereinbaren oder sollte man die Zahlungsziele einzelner Lieferanten eher stufenweise staffeln?

GR: Bei der Entwicklung strategischer Partner ist die Quintessenz die gleiche wie bei Frage 2. Selbst wenn dieser Lieferant irgendwelche Benefizien oder bessere Bedingungen bekommt, muss man berücksichtigen wer finanziert, bzw. wer wie finanzieren kann. Hier ist es ratsam den Cost break down anzuschauen.

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Weiters können solche Vereinbarungen nicht statisch sein. Hängt von wirtschaftslage, Auftrgen etc. ab. Kann ein Jahr lang besser sein, Lieferant finanziert(sprich 90 Tage) und dann um Lieferant vor Insolvenz zu bewahren ,wieder vernünftiger sein, wenn magna finanziert.
Generell sollte man jeden Lieferanten extra bewerten und dann payment terms festlegen.
Man muss aber auch aufpassen, da Lieferanten Insolvenz als Druckmittel einsetzen um bessere Konditionen zu bekommen. Damit befasst sich im Normalfall das Risikomanagement der Firma.

1.2.4 Liquidität vs. Skonto: Liquididät generieren oder mit Skontozahlung Einsparungen generieren. Ihr Meinung? Gibt es dazu Vorgaben?

GR: Dazu gibt es keine Ja oder Nein Lösung. Hängt von finanziellem Status des Unternehmens ab. Wenn zu viele liqude Mittel, dann raus damit, also Skonto in Anspruch nehmen.
Generell sind Vorgaben dazu sehr stark projektabhängig. Oft ist auch so,dass man Zahlunsziele mit Lieferant an Kunden anpasst. Wenn zb Kunde nach 60 Tagen zahlt, versucht man Lieferanten erst nach 90 Tagen zu zahlen um sich selbst hier einen kleinen Vorteil zu erwirtschaften.

1.2.5 Wie stark ist der Faktor Zahlungszielvereinbarung bei der Entwicklung von Lieferanten? Wie kooperationsbereit geben sich die meisten?

GR: Sehr schwacher Faktor. Große Lieferanten verhandeln über soetwas garnicht (Machtposition von Bosch: Bestell oder lass es sein. Preis verhandeln wir später) Meisten Lieferanten geben sich aber kooperationsbereit. Im Normalfall kalkulieren sie das dann einfach in den Preis rein. Hängt auch von der Art der Nachfrage ab.

1.2.6 Wie beeinflusst der Finanzfluss der Magna die erläuterte Problemstellung?

GR: Zu diesen Thema keine Informationen.

1.2.7 Haben Sie Informationen zum Liquiditätsmanagement innerhalb der Magna?

GR: Zu diesen Thema keine Informationen. Eventuell Fr. Briante kontaktieren, verantwortlich für Liquiditätsmanagement.

1.2.8 Wie berechnet sich der Zinssatz auf liquide Mittel? Werden lokale Unterschiede gemacht oder wird ein genereller Zinssatz kalkuliert und pauschal verwendet?

GR: Zu diesen Thema keine Informationen. Eventuell Fr. Briante kontaktieren, verantwortlich für Liquiditätsmanagement.

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1.2.9 Weitere Anmwerkungen zu diesem Thema?

GR: Geld liegt nicht herum. Wenn man Rahmenbedingungen ändert , muss man damit rechnen dass sich der Preis ändert.
Aus der Erfahrung heraus ist es besser dem Lieferanten seinen Gewinn zuzugestehen und zu versuchen gemeinsam die Kosten zu optimieren. Zb.: Einkaufsvolumen mit Lieferanten bündeln um bessere Preise zu erzielen.
Es bringt nix, die Lieferanten tot zu sparen. Die schlucken sich dann im Normalfall gegenseitig, bis es nurmehr ein zwei große gibt. Diese großen Lieferanten fahren dann keine kleinen Volumen mehr und das wird dann zum Problem für Magna.
Kostenwahheit holt dich immer ein. Wenn man versucht den Vertragspartner über den Tisch zu ziehen ist das immer sehr kurzsichtig. Am besten man spielt fair und mit offenen Karten.

Actions

Action	Responisbility	Due Date

Appendix 4: Manual for the Expert Interview with a supplier

MAGNA LOGISTIK EUROPA

Experteninterview Masterthesis Payment Terms **Meeting Minutes**	Location: Graz Date: 28.04.2014 Time: 14.00

Participants	
Nikolaus Drobnitsch (ND)	TU Graz
Marko Kuchar (MK)	Magna International
Christian Moser(CM)	GEFCO
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1 Experteninterview

1.1 Vorstellung

Die Teilnehmer werden von M. Kuchar begrüßt.

1.1.1 Vorstellung Personen

M.Kuchar stellt die Interviewpartner (Mag.Moser und Drobnitsch) einander vor

1.1.2 Vorstellung Diplomarbeit

Mit Hilfe des definierten „Project Description Letters" und einer kurzen Powerpoint Präsentation wird der Hintergrund und das Zustande kommen der Diplomarbeit erklärt.

1.1.3 Erklärung der Problemstellung

Im Zuge der Vorstellung der Diplomarbeit, wird gleichzeitig auch die spezielle Problemstellung erklärt und direkt auf die vorbereiteten Fragen eingegangen.

1.2 Fragen

1.2.1 Wie ist Ihre Erfahrung mit dem Thema Zahlungsziele?

Prinzipiell gibt es generell die Tendenz Zahlungsziele auf 60 Tage zu vereinbaren. Die OEM's haben alle 30 Tage, bis auf Fiat, da sind es 60. Jedoch gibt es Unterschiede zwischen vereinbarten und tatsächlichen Zahlungszielen.

1.2.2 Wie sehen Sie die Erweiterung der Zahlungsziele auf 90 Tage?

Zunächst muss man zwischen Seefracht und Overland-transporten unterscheiden. Bei Seefracht ist gewöhnlich das maximum 30Tage und bei Overland-transporten sollten es maximal 45 Tage sein die gewöhnlich vereinbart werden.Falls Zahlungsziele weiter verlängert werden, ist es Brauch einfach die Differenz, die drch die Vorfinanzierung entsteht, vorab mit Hilfe eines kalkulatorischen Zinssatzes in die Rate miteinzurechnen.

1.2.3 Wie würden Sie Zahlungsziele gestalten?

Der Gap zwischen Kunde und Lieferant muss ja immer irgendwie von irgendwem finanziert werden und je geringer da die Zahlungsziele sind, desto kooperationsbereiter würden denke ich die meisten Dienstleister sein. Sprich eher einen Preisnachlass oder eine Kulanzlösung für spezielle Transporte anbieten.Mit einem Zahlungsziel von 90 Tagen würde ja auch ein Mehraufwand entstehen: Es müssten Finanzchecks gemacht werden, ob wir das überhaupt überleben würden, bzw. auch eine Risiko-

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bewertung gemacht werden. Diese Dinge müssten auch bezahlt werden und das würde dann den Endpreis erhöhen.
Mein Wunsch wäre ein Zahlungsziel von 60 Tagen dafür mit einem verhandelbarer Preisnachlass als Bonus.

1.2.4 Weitere Anmwerkungen zu diesem Thema?

nein

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2 Actions

Action	Responisbility	Due Date