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Operations management in a full service leasing company

Helsinki Metropolia University of Applied Sciences

Bachelor of Business Administration

International Business & Logistics

Thesis

05.05.2016

Helsinki Metropolia University of Applied Sciences

Author(s) Title Number of Pages Date	Riku Niemi Operations management in a full service leasing company 28 pages + 1 appendices 5 May 2016
Degree	Bachelor of Business Administration
Degree Programme	International Business & Logistics
Specialisation option	Sales and marketing
Instructor(s)	David Clifford, Lecturer

The aim of this thesis is to provide essential information on how to execute and run operations management in a leasing company. Although this thesis focuses on automotive leasing business, it should give new point of views for leasing companies dealing with different equipment as well as current and future operations managers.

As the whole leasing business in general is not widely talked about nor studied, the author feels that providing tried and tested solutions that are used at the moment in a large leasing company, will help the reader understand more about the daily operations of a leasing company rather than trying to read through huge amounts of magazine and internet articles that, at most, only provide general directions and concepts of certain aspects of leasing business.

Main points in this thesis are mostly related to purchasing and the usage of purchasing power as it is very crucial for a leasing company to maintain its competitive advantage. Also, the text will explain the elements of a leasing contract and how supplier contacts have a large part in those elements as well as in the whole full service leasing service.

Thesis will also include an example calculation of a full service leasing contract and go into detail about remarketing of used assets.

Keywords	operations management, car leasing, purchasing, remarketing

Contents

1 Introduction

The aim of this thesis is to provide essential information on how to execute and run operations management in a leasing company. Although this thesis focuses on automotive leasing business, it should give new point of views for leasing companies dealing with different equipment as well as current and future operations managers.

Most of the knowledge and sources in this text is a result of two years of personal working experience in one of the world's largest leasing company's operations department. Theoretical references are applied where applicable.

As the whole leasing business in general is not widely talked about nor studied, the author feels that providing tried and tested solutions that are used at the moment in a large leasing company, will help the reader understand more about the daily operations of a leasing company rather than trying to read through huge amounts of magazine and internet articles that, at most, only provide general directions and concepts of certain aspects of leasing business.

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2 Leasing

Leasing is very common procedure used in all kinds of business. In general, it provides companies several benefits (Boobyer, C. (2003: 2) :

- It does not tie up working capital.
- Possibility of 100 per cent financing.
- Reduction of risk that equipment becomes unusable.
- Steady and predictable payments.
- Up-to-date equipment.

Most companies usually lease something, especially medium and large businesses. It can be a printer, a car, service equipment, property or a computer. By leasing, they do not have to tie up capital to purchase the equipment nor hire people to handle the purchasing, maintaining and disposing of the equipment. It saves time and a company can focus their know-how to their core business.

Leasing is an agreement whereby the lessor conveys to the lessee, in return for a payment or series of payments, the right to use an asset for an agreed period of time. (IAS 17 – Leases, 2010).

2.1 Types of leasing

The main types of leasing are operational lease and financial lease. The difference between the two are strictly governed by International Accounting Standards (IAS). The type depends on the substance of the agreement, rather than form.

Table 3. Differences between finance and operating leasing

	Finance lease	**Operating lease**
Ownership	After the lease term, it is possible to transfer the ownership to the lessee.	It is not possible to transfer the ownership to the lessee after the lease term.
Purchase option at low price	The contract can include an option for the lessee to acquire the equipment below market price.	The contract cannot include a purchase option.
Life cycle	The lease period equals or exceeds the majority (75%) of the estimated product life cycle.	The lease period is less than 75% of the estimated life cycle.
Value	Lease payments are equal or more than 90% of the investment price of the equipment.	Lease payments are less than 90% of the investment price of the equipment.
Risk	Lessee assumes all of the risk.	Lessor assumes most of the risk.
Taxation	Lessee is responsible for depreciation and interest expense.	Lessor is renting the equipment to the lessee, so payments are considered as a rental cost.

In this research, the focus will be on operating lease as full service car leasing fulfils the requirements set by IAS of operating lease and is the most convenient option for most companies due to non-existent or low initial investment and predictable future costs.

2.2 Full service car leasing (Operating lease)

A typical full service car leasing service includes a chosen car for the agreed time (usually between two and five years), service costs for maintenance and technical repair, relief vehicle during maintenance and tyres for the lease period. Optional services may include insurance, fuel cards and vehicle tax management. Regardless of the package a lessee chooses, the monthly lease price will remain the same for the duration of the lease period.

- ‘’ An operating lease is a contract that allows for the use of an asset, but does not convey rights of ownership of the asset. An operating lease is not capitalized; it is accounted for as a rental expense in what is known as "off balance sheet financing." For the lessor, the asset being leased is accounted for as an asset and is depreciated as such. Operating leases have tax incentives and do not result in assets or liabilities being recorded on the lessee's balance sheet, which can improve the lessee's financial ratios.’’ (Investopedia – Operating Lease)

3 Management

According to Merriam-Webster dictionary, management is *''the people who make decisions about a business, department, sports team, etc.''*.

Management functions are typically divided into five key functions (Heizer, J. and Render, B. (2011: 39) :

- Planning
- Organising
- Staffing
- Leading/Motivating
- Controlling

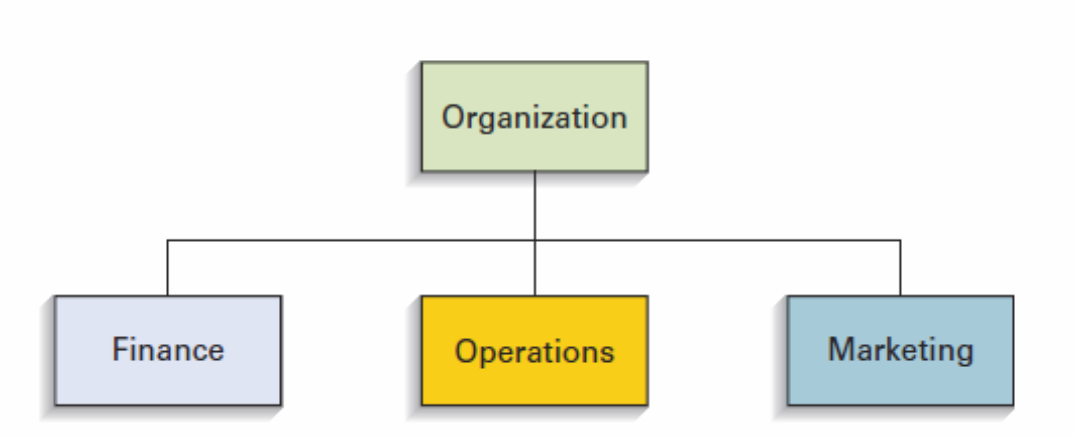
Management **plans** objectives that are in line with the overall business strategy. These objectives need to be teamed up with actions that are needed to achieve objectives. Management determines and **organises** tasks and divide them across the company and **staff**. Management also **controls** tasks, resources and actions to ensure that the set objectives are met. With **leading** and motivating subordinates, the management can meet these objectives and successfully reach the original objectives.

3.1 Operations management

Operations is a department in a company that is responsible for producing goods and/or services. Operations management is about managing the processes or systems that deliver services or produces goods. This means that operations department needs support and input from other departments. Business organisations usually have three basic departments: Marketing, finance and operations.

Examples of services are found in everyone's daily life. Morning news, lunch at a local restaurant, sending an e-mail or leasing a car. Every one of these services are provided by a company or multiple companies together. And the service every one receives is a work planned and executed by operations function (Stevenson, W. (2011: 4).

Figure 1. The three basic functions of business organisations.



4 Elements of a leasing contract

A full service leasing contract is a bundle, consisting of a car and different car related services for a certain mileage and duration. Full term leasing contract usually means that a contract duration is between two and five years, however longer contracts have been made in special cases.

It all begins with a chosen car, mileage at the end of the contract and duration. These three variables are the most important when calculating the monthly leasing price. After these are determined, a need for each service is evaluated and calculated accordingly. Below is a list of all leasing contract elements and how operations management can achieve better prices to make a leasing price more attractive.

4.1 Purchase price

Since purchasing thousands of vehicles every year, it would be irrational not to utilise this kind of buying power and negotiate heavy discounts for each model. However, the purchase discount cannot be turned into straight profit because the purchase price is needed to determine the monthly price of leasing car. If one leasing company quotes prices without the known purchase discounts and another leasing company quotes the price with the discount included, the latter will win the contract every time.

A leasing company can also try to negotiate performance bonus based on the amount of purchases per year from a certain dealer. For example, if a leasing company buys a one million worth of cars a year, the dealership will reward the leasing company with a 5% bonus payment, which can then be spread over the cars that were bought from the said dealership. This option would be viable in a situation where the leasing company feels that their discounts are already very competitive or if there are more than one dealerships in the area selling the same cars and one of them wants to make sure that those cars are bought from that dealership.

4.2 Residual value (depreciation)

Residual value (the value a car holds after certain mileage and age) is the most ‘’expensive’’ element in the leasing contract. When the car is purchased, its value starts to depreciate immediately. So, the difference between the original investment and residual value of the car at the end of the contract should be invoiced from the client.

Residual value is dictated by the used car market and it is quite impossible to find any real discounts for this process. The key here is to have reliable data from the near past that can predict the future residual value as accurately as possible.

- ‘’ How much a fixed asset is worth at the end of its lease, or at the end of its useful life. If you lease a car for three years, its residual value is how much it is worth after three years.’’ (Investopedia – Residual value)

4.3 Tires

Amount of tires needed per car depends on a variety of factors. Kilometres driven during the contract, driving style, weather, surface and the car itself (two wheel drive or four wheel drive) will impact the life cycle of a tire. Because of this, the amount of tires a car needs during the leasing period varies. Punctured, misused or otherwise damaged tires are always on the lessee’s risk. Full service leasing usually includes tires and tire related services like tire storage.

A new car will always include the first set of summer tires, but the leasing company has to buy at least one set of winter tyres even in the shortest contracts. A normal leasing contract of three years and 120000 kilometres will need at least one new set of each tire at some point of the contract. This means that an average leasing car needs at least 12 tires, all paid by the leasing company. This means that a leasing company that has 1000 vehicles, buys around 12000 tires during the three years. With this kind of buying power, again, it is only natural to negotiate heavy discounts.

It is also vital in a country as large as Finland, to partner with a tire company or two that have nation-wide operations. This is because of a leasing company can direct all of their customers easily to correct companies when they list only one or two tire partners and

customers don’t have to travel far to get service. Also, when using two large service partners the first set of winter tires can directly be bought from a certain partner, preferably from the one who offers the best purchase price and quality product. The purchase price can also be partnered with a performance reward, based on the amount of yearly purchases (new tires and related services).

All tire partners usually offer a variety of tire brands. A leasing company can decide which brands are used in their cars. This offers the possibility to negotiate a performance reward with the tyre brand/importer as well.

If all these performance rewards would be turned into a straight discount on the purchase price, so that the monthly leasing price would be more competitive, the effect is less significant. An extra 5% discount on a 500€ set of tires is 25€. Three sets of tires during three years would decrease the leasing price by 2.08€ per month. Very few leasing contracts are lost because of that amount. By keeping the discount, the leasing company can divide the bonuses for the whole fleet.

4.4 Maintenance

Every car needs maintenance and technical repairs. The amount of maintenance premium calculated on a leasing price depends on the car, mileage, contract duration, usage type (personal or general) and a premium for unseen breakdowns. Different cars/models have different maintenance programs at different milestones so every model has to be calculated separately. Brands also have different warranty programs and lately some manufacturers have offered free maintenance for the first three years, especially to attract leasing companies and drivers.

Since warranty is valid usually for only the first two years and certain mileage, it is very difficult to estimate the maintenance and technical repair cost for three years or more. During warranty, it is better to service the cars in a certified service provider, since they are the only ones who can execute warranty repair and software updates for cars. However, since certified dealers are also more expensive than uncertified ones (in general), it is a viable strategy to service the cars in uncertified ones after the warranty is void.

Also, the buying power should be utilised to negotiate discounts on services. Garages have different profit margin on different parts and are usually willing to give percentages

according to that margin. For example, all fluids carry a higher profit margin, so it is a good starting place for negotiating.

There are also other ways to generate revenue from maintenance sector. A leasing company could provide mileage information of their cars to garages for a fee. This could be done without consent of drivers, since providing the license plate number of a car to a garage, the leasing company is not providing any personal information. Garage can then look up the license plate number from Trafi-registry and, if the driver has not blocked his information to be available to others than government officials, they are free to contact the driver about upcoming service. This information would be very valuable especially in the larger cities, where there are many garages that are certified the service the same brands. There is still the ethical side of this sort of business, which needs to be thought through.

If a client is purchasing only fleet management services from the leasing company (the client owns the vehicles and pays only for fleet management and invoicing), the leasing company could agree with garages that discounts for this clients vehicles are void, and performance bonus is applied instead at the end of the year.

4.5 Fuel

Every car needs fuel and leasing cars are no exception. By providing fuel cards to clients, the leasing company will handle the fuel invoicing for the client, which, in a large company, can save a lot of time for the client.

Since this is a straight forward invoicing process based on the fuel costs, the fee of this service is based on the time of leasing company employees. Leasing company could also negotiate with the fuel company for a small percentage of the purchases made on their cards.

4.6 Replacement vehicle

Replacement vehicle is a service that provides a replacement car for a driver for the duration of a maintenance or technical repair. This service is also difficult to estimate accurately since the amount of garage visits varies with every car. A leasing contract determines the size of the car that the driver is allowed to rent. The size determines the monthly price of this service.

Since the need for replacement vehicles is not accurate and the cost of this service is rather low, the most viable option is to negotiate discounts. A performance reward would not be worth the trouble, since the rental market is spread over many service providers and the yearly amounts are rather low (50-150€ per year per car).

Leasing company could, however, benefit from the rental provider services, such as picking up the car for service and leaving a rental vehicle for the day for the driver. This way, the leasing company could easily direct the car to a correct garage, which would increase negotiating power with that garage.

4.7 Insurance

Most leasing companies in Finland have their ‘’own’’ insurance. For example, ALD Automotive has AXA Insurance, Leaseplan has Euro Insurance and Arval has Greenval Insurance. This means that the leasing companies are acting as an insurance agent for the insurance company.

In practice, this means that the leasing company will take care of the damage caused to the vehicle, when the damage is caused by the driver of the vehicle (MOD/CASCO insurance). In this case the client pays a deductible set in the contract. All damages caused by the driver to another car, property or individual person is handled by the insurance partner of the leasing company. In these cases the leasing company usually have their own deductible, a percentage of the total claim amount that is invoiced by the insurance company.

By handling the casco cases by itself, a leasing company can direct their own vehicles to a certain body repair partners in exchange for discount. Even vehicles that are not under the leasing company’s insurance can be directed to a certain partner. In this case,

it would be beneficial to process the invoice from the body repair partner as well, and invoice the same amount from the insurance company to build up the yearly invoicing from the partner to further negotiate better pricing in future.

4.8 Interest

Interest is usually a standard fee involved in all financing activities and leasing is no different. Whether the leasing company purchases the cars with their own money or borrowed money, the interest is always present. Whether the money is own or borrowed, it affects the leasing company's profit.

The interest charged from the client can be a bundle of the market interest rate, liquidity cost and the interest leasing company charges from the client, or only the latter. Typically the interest charged from the client would be identical in both cases, just the leasing company's own profit changes.

- '' A fee paid for the use of another party's money. To the borrower it is the cost of renting money, to the lender the income from lending it.'' (Business Dictionary - Interest)

4.9 Profit per car

Since the leasing service has many different services bundled together and cost for those services are never exact for the duration of a leasing contract, a profit of a car can never be determined when a contract is signed. For example, maintenance costs are usually quite straight forward for the first two years because the warranty is valid. But when the warranty is void, all technical repair costs are on the leasing company. These costs can rise to thousands of euros, ruining the profit margin for a car. If the leasing company would include a safety margin for such repairs on every car, the company would not be competitive in the market. The same goes for every element of service leasing.

To avoid raising the leasing price, operations department has to optimise every element that is included in the leasing contract.

5 Pricing the contract elements

In this chapter the different leasing elements (mentioned in chapter 4) are priced and an example calculation is made by using 2013 Audi A4 2,0TDI (88kW) sedan as the calculated product. The contract is calculated for four years (48 months) and 120000 kilometres (30000 kilometres per year). All prices have 0% VAT (Value Added Tax).

5.1 Purchase price

The list price for the vehicle is 23 508,06€. The price does not include the Finnish car tax which is based on the amount of Co2 the car produces (2013 Audi A4 2,0TDI (88kW) sedan produces 117g Co2/km). Car tax for this car 6 612,07€. The price also does not include delivery cost, which in Finland, is a standard 483,87€ for new cars.

Before we can calculate the total investment for the vehicle, we have to calculate the first set of winter tires and the potential discount. The first set of winter tires is 725,81€. Depending on the discount the leasing company has negotiated with the dealer, the end investment varies. In this example, a seven per cent discount is used. The discount and car tax are always calculated from the list price of the vehicle.

Table 4. Total investment calculation

Vehicle Price	23 508,06
Delivery cost	483,87
Options & Accessories	0,00
Winter tyres	725,81
Discount 7%	-1 645,56
Investment before car tax	**23072,18**
Car tax	6 612,07
Total Investment	**29 684,25**

5.2 Residual value (depreciation)

Residual value is never fully accurate and it is based on predictions and sales data from the near past. It is also the most expensive element on a leasing contract. Residual value is dictated by the used car market and it varies by country a lot.

Below is a list of other factors that have an effect on the residual value:

- Car maker
    - Each manufacturer has a different brand perception which affects all of their models. This differs in every country. (Car-Brand Perception Survey: 2014)

- Car model
    - As for the brand, also models have different perceptions amongst consumers. In general, the better the model sells, the better the residual value.

- Contract kilometres
    - The more the car is driven, lower the residual value.

- Contract age
    - Older the car, lower the residual value.

- Co2 emission
    - Co2 emission affects the yearly vehicle tax. Higher the emission, higher the tax. Tax affects the overall running costs of a vehicle throughout its life.

- List price of the car
    - If the selected model is from the upper price range of that model, the residual value curve is steeper than with a lower price range version, which means that residual value of the more expensive model after the same period and same mileage has decreased more in terms of monetary value than with the lower price range model of the same car.

- Body type
    - Finland is a land of estate cars, so they have a higher residual value than coupé versions of the same model. (Soisalon-Soininen, J. (2014)

- Fuel type
    - Fuel type affects the running costs of the vehicle throughout its whole life in terms of fuel consumption and vehicle tax, since diesel powered cars have higher vehicle tax than petrol powered cars.

- Transmission
    - Type of transmission affects the residual value of the car especially today, since the automatic transmission is getting more and more popular because the quality of automatic transmissions have increased and price decreased. Car buyers are willing to pay more for an automatic transmission.

- Legislation
    - A good example of legislation effect on residual value is the recent decision by the Finnish government to lower the car tax of new cars and increase of yearly vehicle tax in 2016 and gradually to continue through 2019. This change affects the residual value of cars that were bought three years ago with the higher tax and calculated with a certain residual that is not valid after the tax changes.

- Unseen changes in brand image
    - A valid example of change in brand image is the recent Volkswagen, Audi, Skoda and Seat emission scandal. For the period between the emission scandal becoming public knowledge and Volkswagen Group issuing the instructions to fix the situation, the residual value of certain VAG (Volkswagen Group) cars with certain motors plummeted.

With these factors in mind, the residual curve can be adjusted, but only slightly, to match the market situation in a given country. Since it is clear that the residual value can change unexpectedly and is never fully accurate, it is only wise to have a clear margin for error in the pricing for residual value.

For the Audi, the residual value calculation is for 120000km and 48 months and it is calculated in the following way:

(Vehicle price + car tax) * (Residual value % / 100) = Residual value
(23508,06€ + 6612,07€) * (48,8 / 100) = 14698,62€

Monthly depreciation is calculated in the following way:
(Total investment – Residual value) / Contract months = Monthly depreciation
(29684,25€ – 14698,62€) / 48 = 312,20€

Table 1. Residual value (percentage) after certain age and mileage.

Residual values of: Audi A4 2,0 TDI 88 kW 4d

	6	12	18	24	30	36	42	48	54	60
10000	79,0	76,9	74,8	72,7	70,6	68,4	66,2	64,0	61,7	59,4
20000	77,7	75,6	73,6	71,4	69,3	67,1	64,9	62,7	60,4	58,1
30000	76,4	74,3	72,3	70,1	68,0	65,8	63,6	61,4	59,1	56,8
40000	75,1	73,0	70,9	68,8	66,7	64,5	62,3	60,1	57,8	55,5
50000	73,7	71,7	69,6	67,5	65,3	63,2	61,0	58,7	56,4	54,1
60000	72,4	70,3	68,2	66,1	64,0	61,8	59,6	57,4	55,1	52,8
70000	71,0	68,9	66,9	64,7	62,6	60,4	58,2	56,0	53,7	51,4
80000	69,6	67,5	65,5	63,4	61,2	59,0	56,8	54,6	52,3	50,0
90000	68,2	66,1	64,0	61,9	59,8	57,6	55,4	53,2	50,9	48,6
100000	66,7	64,7	62,6	60,5	58,4	56,2	54,0	51,7	49,5	47,2
110000	65,3	63,2	61,2	59,0	56,9	54,7	52,5	50,3	48,0	45,7
120000	63,8	61,8	59,7	57,6	55,4	53,2	51,0	48,8	46,5	44,2
130000	62,3	60,3	58,2	56,1	53,9	51,7	49,5	47,3	45,0	42,7
140000	60,8	58,7	56,7	54,5	52,4	50,2	48,0	45,8	43,5	41,2
150000	59,3	57,2	55,1	53,0	50,9	48,7	46,5	44,2	42,0	39,7
160000	57,7	55,6	53,6	51,5	49,3	47,1	44,9	42,7	40,4	38,1
170000	56,1	54,1	52,0	49,9	47,7	45,6	43,4	41,1	38,8	36,5
180000	54,5	52,5	50,4	48,3	46,1	44,0	41,8	39,5	37,2	34,9
190000	52,9	50,9	48,8	46,7	44,5	42,3	40,1	37,9	35,6	33,3
200000	51,3	49,2	47,1	45,0	42,9	40,7	38,5	36,3	34,0	31,7

5.3 Tires

Calculating tire prices is also never entirely accurate, mainly because different drivers have different driving styles. A common tire (summer and winter tire) in general should last 45000 kilometres. However some drivers manage to wear out a set of tyres every 20000 kilometres and some manage to survive 60000 kilometres with a single set. Based on this knowledge, the operations manager should input a safety margin on tire pricing.

For tire pricing, the content of the contract has an effect whether the clients want to include tire storage and change or not. For this calculation, the storage and change is included. For the Audi, tire size is 225 / 50 – 17.

First, it is essential to calculate tire price per kilometre, which is done in the following way:

Price of one tire * 4 / Estimated lifetime of tire * (1 – Discount %) * (1 + Safety/inflation margin) = €/km.
315,50€ * 4 / 45000km * (1 – 43%) * (1 + 12%) = 0,01790 €/km.

After this, the calculation for monthly tire price (without storage and change) is calculated in the following way:

Tire cost €/km * Contract mileage / Contract months = Monthly tire price
0,01790 €/km * 120000km / 48 months = 44,75€ per month.

To include the storage and change (which is needed twice a year), the calculation is done in the following way:

Price of storage and change * (2 * Contract years) / Contract months = Storage per month
65 * (2 * 4 years) / 48 months = 10,83€ per month.

10,83€ + 44,75€ = 55,58€ per month for tires, storage and change.

5.4 Maintenance

A full service leasing contract includes the normal yearly/mileage services according to manufactures instructions and technical repairs for the duration of the contract. After certain years and mileage, the warranty for technical repairs is void and calculating the costs accurately after that period is impossible, since breakdowns are also subject to driving style, upkeep and luck.

There are many ways to calculate the potential maintenance and repair costs for a certain contract. Starting a new leasing business, there aren't any past data of service prices or breakdown history, so in this case the best option is to inquire prices from the authorised dealers for services, but breakdown history is almost impossible to find for all potential models. When leasing business is in a more mature stage, it is useful to gather data about maintenance and repairs and adjust the pricing according to that data.

A very simple calculation for the Audi is done by finding out the amount of services for the leasing period and inquiring prices for those. For 120000 kilometres, Audi needs service every 30000 kilometres. Also a margin for technical repairs after warranty is needed.

Since the contract is for 120000 kilometres and 48 months, it is very likely that the leasing contract will end before the 120000 kilometre service, which means that the last service will not performed and the leasing company keeps the allocated money for that service.

Table 2. Service schedule for Audi A4

Service calculation	2013 Audi A4 2,0TDI (88kW) sedan
30.000km service	350€
60.000km service	400€
90.000km service	350€
120.000km service	600€
Margin for technical repairs	1000€
TOTAL	**2700€**
Per month (2700€ / 48 months)	56,25€ per month

5.5 Interest

Calculating interest for a loan is a straight forward calculation that is used in finance all the time and leasing interest is no different. As explained before (Chapter 4.8.), the interest in this example is a bundle of market interest rate, liquidity cost and interest margin, with the following rates:

- Market interest rate: 0,76 %
- Liquidity cost: 1,50 %
- Interest margin: 2,00 %
- Total interest: 4,26 %

The starting point is to figure out the amount of the loan. Since the client is not paying for the whole investment, the loan amount is the difference between the total investment and residual value, which is (29684,25€ – 14698,62€) 14985,63€.

After determining the loan amount, the next step is to determine the interest per payment rate. This done by dividing the interest by 12, since the leasing payments are done on a monthly basis:
0,0426 / 12 = 0,00355 %

Next step is to determine the total number of payments. The leasing contract is for four years:
4 x 12 = 48 payments.

With all the essentials determined, the calculation for monthly interest amount can be calculated using the following formula (WikiHow - Calculating your Payment by Hand):

Formula 1. Monthly loan payment formula

$$Payment = Principal * \frac{i(1+i)^n}{(1+i)^n - 1}$$

Monthly interest amount equals *i* and *n* equals the amount of payments. The calculation is following:
14698,6 * (0,00355 * (1,00355)^48) / (1,00355)^48 – 1 = 51,18003 ~ 51,18€ interest per month.

5.6 Management fee

Management fee per car is a nominal amount for the service that should cover the tasks of managing the leased cars. Tasks include the usual operational tasks that are required to run the leasing business, such as invoicing and customer service. Also vehicle tax (completely on leasing company's responsible) administration and payment should be covered by this fee. Vehicle tax is subject to the cars Co2 emission (Appendix 1).

Management fee of 15 euros is used in this example.

5.7 Relief vehicle

The amount calculated for relief vehicle per contract depends on the total mileage, contract length and the amount of services and repairs needed during the contract. Also the relief vehicle class should be determined on the contract, since the cost of a relief vehicle varies a lot depending on the class the driver wants.

In this example, the Audi needs four services and three possible technical repairs after warranty period. In this example, the relief vehicle costs 60 euros per day, so the calculation should be:
60 euros * 7 services / 48 months = 8,75 euros per month.

5.8 Total lease

Now that every element has been calculated, only thing left to do is the calculation. Adding up all the elements (depreciation, interest, management fee, maintenance costs, tire costs, relief vehicle), the monthly lease price is determined.

Table 5. Total lease calculation

VEHICLE	**Audi A4 2,0 TDI 88 kW 4d**
120000km / 48 months	VAT 0%
Vehicle Price	23 508,06
Car tax of the vehicle	6 612,07
Delivery cost	483,87
Options & Accessories	0
Winter tyres	725,81
Discount 7%	-1 645,56
Car tax	6 612,07
Total investment	**29 684,25**
Depriciation	312,20
Interest	51,18
Management fee	15,00
Maintenance costs	56,25
Tire costs	55,58
Relief car (1 day)	8,75
Total lease per month	**498,96**

6 Disposing of assets (remarketing)

Relating to residual value calculations, operations management have to have a solid supply chain process and operations for disposing the assets. When the contract ends, the car has to be returned, inspected and sold. This process needs to be very cost efficient since every euro spent here, will decrease the potential profit.

If a leasing company is using a third party service provider for the process, it would be wise to select a partner who can pick-up, inspect and repair cars. This way the cost are most likely lower per action and it provides a single contact for the leasing company for the whole remarketing process.

When considering the remarketing process, it has to be acknowledged that there are new stakeholders involved in the process who need to be educated about the expectations of the process and what it requires, so that the leasing company will be closer or over the set residual value target.

Photo 1. SE Mäkinen logistics centre in Vantaa

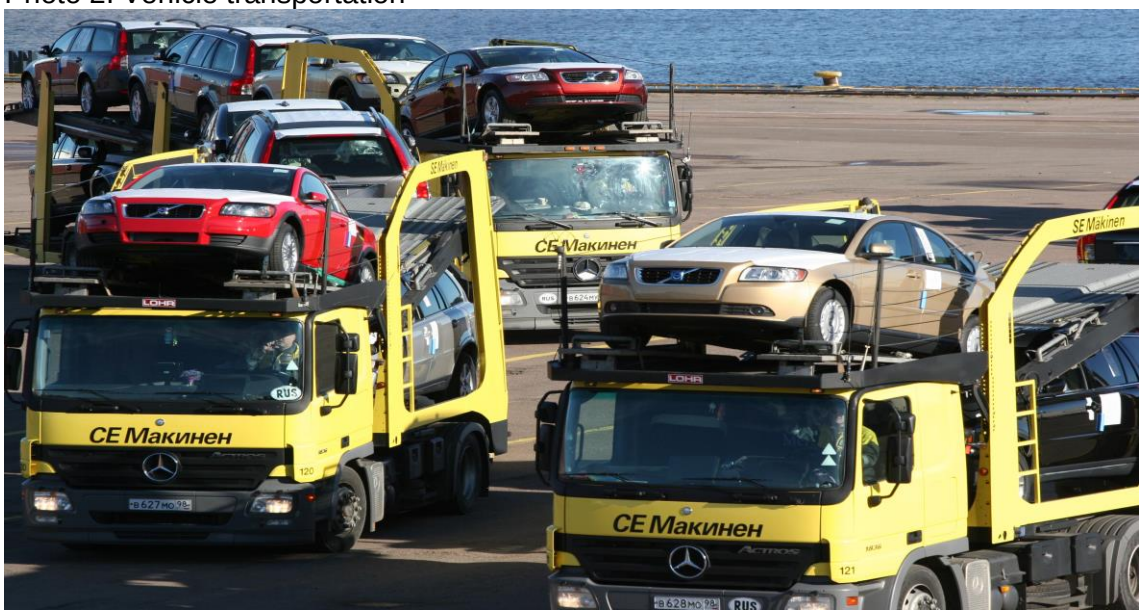
6.1 Returning the vehicle

Finland is a large country, which makes the returning process that much more difficult. But at the same time a leasing company cannot ask the drivers to return the car to a single point in the country because of the distances. That would be very bad customer service.

The key here is to have one or two logistics centres in the country (own or third party owned), preferably in Helsinki metropolitan region and other larger city, and have a pick-up service from any dealership in Finland. This way the drivers do not have to return their cars to remote locations. This can be also utilised for customer retention in a way that if the new car is also leased from the same leasing company, the logistics cost are not charged for the old car.

It is also essential to provide inspection service when drivers return their cars. With this service, the inspector and the driver inspect the car for possible damages and missing optional extras together. This keeps the process transparent and the amount of complaints low. At the start of the leasing contract, is it useful to provide the drivers guidelines what damages are considered as a normal wear and tear and what is not. This also provides transparency to the process and decreases the amount of complaints.

Photo 2. Vehicle transportation



6.2 Inspection and repair

When inspecting the vehicle (with or without the driver), it is important to document the findings, especially when using a third party service provider for it. Based on these findings, the leasing company can decide whether the damage is normal wear and tear or not and whether to repair the damage or not.

If the damaged part is not considered to be normal wear and tear, but inflicted by misusing the vehicle, the leasing company will get an estimate on the repair costs. If these repair costs are higher than the potential negative effect on the resale value of the car, the leasing company could charge the estimate on the client, but leave the damaged part as it is.

When the cars are repaired, they do not need to be repaired to look like new cars. Even if the client has to pay for the repairs, they would not be pleased with high repair costs, so it would be an easy way to get rid of a client by charging excessive amounts for repairs after contract ends.

6.3 Selling the car

When it comes to selling the cars that have been returned from clients, leasing companies have basically two choices. Either selling it to a reseller or straight to end consumer. Both options have their pros and cons and the choice usually depends on the volume and willingness to take risk.

By selling the car to a reseller, the leasing company is basically relieved from all liability, assuming the car matches the description when sold to the reseller. By using modern e-platforms, a leasing company can easily and cost efficiently get rid of the vehicles. They do not need to have own employees showcasing the vehicles to potential buyers, arranging test drives, answering questions and negotiate on the prices, which normally take a lot of time in car sales. A good e-platform to sell used vehicles is an auction.

If the leasing company is using a logistics service provider, they can store the car after inspection and repair, and the buyer is responsible of picking up the car after the deal is done. This way the service provider can sell more transportation services to the buyers and the leasing company does not have to worry about transport schedule or costs.

The downside to this method is simple: Money. When the buying party intends to re-sell the vehicle, they are not going to pay premium price for a car, because they need to make profit as well. On average, the reseller is looking to achieve at least 10% profit on each car.

The leasing company can also sell the vehicles straight to end consumer. This way it is possible to achieve the best price possible, but also increase the operating costs (premises, staff, marketing, inventory etc.) and in the end make less profit than with selling to a reseller. The risk of residual values decreasing is also present. The leasing company is also liable for possible defects when selling to an end consumer.

In the end, the best possible solution usually is a mixture of both (selling to resellers and end consumers). Vehicles that are easy to sell, turnover is fast and profit is good should be sold to consumers, whereas vehicles that are harder to sell, turnover is slow and unsure and the potential profit is poor, it is wise to get rid of these vehicles fast by selling them in auction. This solution should only work well when the turnover of leased vehicles is fast and the amounts are large. Only then the economies of scale is met.

7 Conclusion

The goal of this thesis was to find out the responsibilities of operations management and how to successfully price profitable car leasing contracts and how to affect each element.

All the tasks, processes and optimisations mentioned above are the operations management's responsibility in a full service car leasing company. One should not forget the day-to-day team management that goes with every management function.

All leasing companies should be on their toes to meet the next generation challenges and opportunities.

- '' Control costs and manage other income. At this point in the argument, it is assumed that any leasing organisation is already (i) identifying new income sources in the form of lease extensions, service fees and other added value services such as insurance; (ii) remarketing based on e-platforms; and (iii) enhancing productivity through smarter processes and enhanced IT automation.'' (Schneider, B. (2014: 35)

Although many of the points, if not all, mentioned above are utilised already, there is no reason to keep optimising them and seeking better results in every area. Also risk should be identified and making sure the level of risk is within comfort zone of the company. Potential risks that have to be controlled in today's market and in the near future, according to ALD Automotive (ALD Automotive – Annual Report 2013):

- Residual value
    - The risk that the residual value may differ from the future market value of the car at the end of the contract.
- Maintenance
    - The risk that the actual costs of maintenance incurred during the contract life are different to those forecasted and budgeted within the quotation issued at the inception of the contract.
- Credit
    - The risk that a customer is not able to fulfil its obligations towards the leasing company.

- Insurance
    - The risk of damage to vehicles within leasing company's fleet and also to liability to third parties arising from accident involving vehicles in its fleet. This risk can take the form of third party liability (TPL) legal defence, material damage or passenger indemnity.
- Treasury
    - Comprises interest rate, currency and liquidity risk. Interest rate risk is the risk that the profitability of the company is affected by movements in interest rates. Liquidity risk is the risk that the company is not able to meet its cash flow obligations when they fall due, because of a mismatch between the financing of its assets and liabilities. Foreign exchange risk is the risk that profitability is affected by currency fluctuations.
- Operational
    - Operational risk is defined as the risk of loss coming from an inadequacy or a failure of a procedure an employee or an external event such as disaster, fire or flood (force majeure).
- Compliance
    - Risk of legal sanctions, material financial loss, or loss to the reputation of the company as a whole may suffer as a result of its failure to comply with laws, its own regulations, code of conduct, and standards of best practice.

Identifying the risks and understanding the current and near future possibilities provided by constant development in technology, a modern operations manager and management should have all the tools needed to survive, develop and achieve set targets. It is in the sales managers hands now.

References

Boobyer, C. (2003). *Leasing and asset finance*. London: Euromoney Books.

Heizer, J. and Render, B. (2011). *Operations Management*. 10th ed. Pearson.

Stevenson, W. (2011). *Operations Management.* 11th ed. McGraw-Hill/Irwin.

Schneider, B. (2014). *World Leasing Yearbook 2014*.

ALD Automotive (2013) *Annual Report 2013*

http://www.businessdictionary.com/definition/interest.html

http://www.consumerreports.org/cro/2014/02/2014-car-brand-perception-survey/index.htm

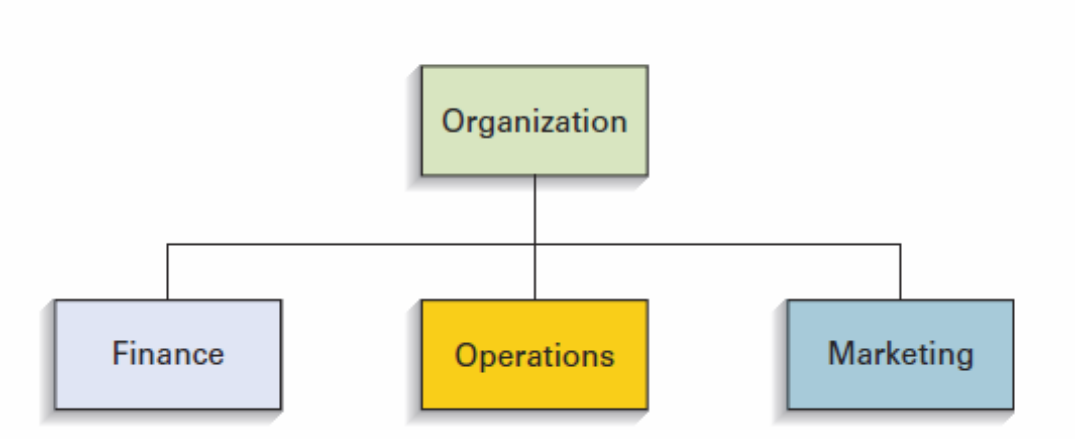
http://www.taloussanomat.fi/autot/2014/07/15/farmarit-hallitsevat-suomea-katsojattikartta/20149648/304

http://www.investopedia.com/terms/r/residual-value.asp

http://www.wikihow.com/Calculate-Interest-Payments

http://www.investopedia.com/terms/o/operatinglease.asp

The three basic functions of business organisations



Residual value (percentage) after certain age and mileage.

Residual values of: Audi A4 2,0 TDI 88 kW 4d

	6	12	18	24	30	36	42	48	54	60
10000	79,0	76,9	74,8	72,7	70,6	68,4	66,2	64,0	61,7	59,4
20000	77,7	75,6	73,6	71,4	69,3	67,1	64,9	62,7	60,4	58,1
30000	76,4	74,3	72,3	70,1	68,0	65,8	63,6	61,4	59,1	56,8
40000	75,1	73,0	70,9	68,8	66,7	64,5	62,3	60,1	57,8	55,5
50000	73,7	71,7	69,6	67,5	65,3	63,2	61,0	58,7	56,4	54,1
60000	72,4	70,3	68,2	66,1	64,0	61,8	59,6	57,4	55,1	52,8
70000	71,0	68,9	66,9	64,7	62,6	60,4	58,2	56,0	53,7	51,4
80000	69,6	67,5	65,5	63,4	61,2	59,0	56,8	54,6	52,3	50,0
90000	68,2	66,1	64,0	61,9	59,8	57,6	55,4	53,2	50,9	48,6
100000	66,7	64,7	62,6	60,5	58,4	56,2	54,0	51,7	49,5	47,2
110000	65,3	63,2	61,2	59,0	56,9	54,7	52,5	50,3	48,0	45,7
120000	63,8	61,8	59,7	57,6	55,4	53,2	51,0	48,8	46,5	44,2
130000	62,3	60,3	58,2	56,1	53,9	51,7	49,5	47,3	45,0	42,7
140000	60,8	58,7	56,7	54,5	52,4	50,2	48,0	45,8	43,5	41,2
150000	59,3	57,2	55,1	53,0	50,9	48,7	46,5	44,2	42,0	39,7
160000	57,7	55,6	53,6	51,5	49,3	47,1	44,9	42,7	40,4	38,1
170000	56,1	54,1	52,0	49,9	47,7	45,6	43,4	41,1	38,8	36,5
180000	54,5	52,5	50,4	48,3	46,1	44,0	41,8	39,5	37,2	34,9
190000	52,9	50,9	48,8	46,7	44,5	42,3	40,1	37,9	35,6	33,3
200000	51,3	49,2	47,1	45,0	42,9	40,7	38,5	36,3	34,0	31,7

Service schedule for Audi A4

Service calculation	2013 Audi A4 2,0TDI (88kW) sedan
30.000km service	350€
60.000km service	400€
90.000km service	350€
120.000km service	600€
Margin for technical repairs	1000€
TOTAL	**2700€**
Per month (2700€ / 48 months)	56,25€ per month

Differences between finance and operating leasing

	Finance lease	Operating lease
Ownership	After the lease term, it is possible to transfer the ownership to the lessee.	It is not possible to transfer the ownership to the lessee after the lease term.
Purchase option at low price	The contract can include an option for the lessee to acquire the equipment below market price.	The contract cannot include a purchase option.
Life cycle	The lease period equals or exceeds the majority (75%) of the estimated product life cycle.	The lease period is less than 75% of the estimated life cycle.
Value	Lease payments are equal or more than 90% of the investment price of the equipment.	Lease payments are less than 90% of the investment price of the equipment.
Risk	Lessee assumes all of the risk.	Lessor assumes most of the risk.
Taxation	Lessee is responsible for depreciation and interest expense.	Lessor is renting the equipment to the lessee, so payments are considered as a rental cost.

Total investment calculation

Vehicle Price	23 508,06
Delivery cost	483,87
Options & Accessories	0,00
Winter tyres	725,81
Discount 7%	-1 645,56
Investment before car tax	**23072,18**
Car tax	6 612,07
Total Investment	**29 684,25**

Vehicle tax amounts 2013

Co2	Vehicle tax		Co2	Vehicle tax		Co2	Vehicle tax	
g/km	Cent/day	Euro/year	g/km	Cent/day	Euro/year	g/km	Cent/day	Euro/year
0	11,8	43,07	**44**	15,2	55,48	**88**	21,1	77,015
1	11,9	43,435	**45**	15,3	55,845	**89**	21,3	77,745
2	11,9	43,435	**46**	15,4	56,21	**90**	21,4	78,11
3	12	43,8	**47**	15,5	56,575	**91**	21,6	78,84
4	12	43,8	**48**	15,6	56,94	**92**	21,8	79,57
5	12,1	44,165	**49**	15,7	57,305	**93**	22	80,3
6	12,2	44,53	**50**	15,8	57,67	**94**	22,2	81,03
7	12,2	44,53	**51**	15,9	58,035	**95**	22,4	81,76
8	12,3	44,895	**52**	16	58,4	**96**	22,6	82,49
9	12,3	44,895	**53**	16,1	58,765	**97**	22,8	83,22
10	12,4	45,26	**54**	16,2	59,13	**98**	22,9	83,585
11	12,5	45,625	**55**	16,3	59,495	**99**	23,1	84,315
12	12,5	45,625	**56**	16,5	60,225	**100**	23,3	85,045
13	12,6	45,99	**57**	16,6	60,59	**101**	23,6	86,14
14	12,7	46,355	**58**	16,7	60,955	**102**	23,8	86,87
15	12,7	46,355	**59**	16,8	61,32	**103**	24	87,6
16	12,8	46,72	**60**	16,9	61,685	**104**	24,2	88,33
17	12,9	47,085	**61**	17,1	62,415	**105**	24,4	89,06
18	12,9	47,085	**62**	17,2	62,78	**106**	24,6	89,79
19	13	47,45	**63**	17,3	63,145	**107**	24,8	90,52
20	13,1	47,815	**64**	17,5	63,875	**108**	25	91,25
21	13,2	48,18	**65**	17,6	64,24	**109**	25,3	92,345
22	13,2	48,18	**66**	17,7	64,605	**110**	25,5	93,075
23	13,3	48,545	**67**	17,8	64,97	**111**	25,7	93,805
24	13,4	48,91	**68**	18	65,7	**112**	25,9	94,535
25	13,5	49,275	**69**	18,1	66,065	**113**	26,2	95,63
26	13,5	49,275	**70**	18,3	66,795	**114**	26,4	96,36
27	13,6	49,64	**71**	18,4	67,16	**115**	26,7	97,455
28	13,7	50,005	**72**	18,5	67,525	**116**	26,9	98,185
29	13,8	50,37	**73**	18,7	68,255	**117**	27,1	98,915
30	13,9	50,735	**74**	18,8	68,62	**118**	27,4	100,01
31	14	51,1	**75**	19	69,35	**119**	27,6	100,74
32	14	51,1	**76**	19,1	69,715	**120**	27,9	101,835
33	14,1	51,465	**77**	19,3	70,445	**121**	28,1	102,565
34	14,2	51,83	**78**	19,4	70,81	**122**	28,4	103,66
35	14,3	52,195	**79**	19,6	71,54	**123**	28,7	104,755
36	14,4	52,56	**80**	19,8	72,27	**124**	28,9	105,485
37	14,5	52,925	**81**	19,9	72,635	**125**	29,2	106,58
38	14,6	53,29	**82**	20,1	73,365	**126**	29,5	107,675
39	14,7	53,655	**83**	20,2	73,73	**127**	29,7	108,405
40	14,8	54,02	**84**	20,4	74,46	**128**	30	109,5
41	14,9	54,385	**85**	20,6	75,19	**129**	30,3	110,595
42	15	54,75	**86**	20,7	75,555	**130**	30,6	111,69
43	15,1	55,115	**87**	20,9	76,285	**131**	30,9	112,785

Co2	Vehicle tax		Co2	Vehicle tax		Co2	Vehicle tax	
g/km	Cent/day	Euro/year	g/km	Cent/day	Euro/year	g/km	Cent/day	Euro/year
132	31,1	113,515	**176**	47,1	171,915	**220**	69,6	254,04
133	31,4	114,61	**177**	47,5	173,375	**221**	70,2	256,23
134	31,7	115,705	**178**	47,9	174,835	**222**	70,7	258,055
135	32	116,8	**179**	48,4	176,66	**223**	71,3	260,245
136	32,3	117,895	**180**	48,8	178,12	**224**	71,9	262,435
137	32,6	118,99	**181**	49,3	179,945	**225**	72,5	264,625
138	32,9	120,085	**182**	49,7	181,405	**226**	73,1	266,815
139	33,2	121,18	**183**	50,2	183,23	**227**	73,7	269,005
140	33,6	122,64	**184**	50,7	185,055	**228**	74,3	271,195
141	33,9	123,735	**185**	51,1	186,515	**229**	74,9	273,385
142	34,2	124,83	**186**	51,6	188,34	**230**	75,5	275,575
143	34,5	125,925	**187**	52,1	190,165	**231**	76,1	277,765
144	34,8	127,02	**188**	52,6	191,99	**232**	76,7	279,955
145	35,2	128,48	**189**	53	193,45	**233**	77,3	282,145
146	35,5	129,575	**190**	53,5	195,275	**234**	77,9	284,335
147	35,8	130,67	**191**	54	197,1	**235**	78,5	286,525
148	36,2	132,13	**192**	54,5	198,925	**236**	79,2	289,08
149	36,5	133,225	**193**	55	200,75	**237**	79,8	291,27
150	36,9	134,685	**194**	55,5	202,575	**238**	80,4	293,46
151	37,2	135,78	**195**	56	204,4	**239**	81	295,65
152	37,6	137,24	**196**	56,5	206,225	**240**	81,6	297,84
153	37,9	138,335	**197**	57	208,05	**241**	82,3	300,395
154	38,3	139,795	**198**	57,5	209,875	**242**	82,9	302,585
155	38,6	140,89	**199**	58	211,7	**243**	83,5	304,775
156	39	142,35	**200**	58,6	213,89	**244**	84,1	306,965
157	39,4	143,81	**201**	59,1	215,715	**245**	84,8	309,52
158	39,8	145,27	**202**	59,6	217,54	**246**	85,4	311,71
159	40,1	146,365	**203**	60,1	219,365	**247**	86	313,9
160	40,5	147,825	**204**	60,7	221,555	**248**	86,7	316,455
161	40,9	149,285	**205**	61,2	223,38	**249**	87,3	318,645
162	41,3	150,745	**206**	61,7	225,205	**250**	88	321,2
163	41,7	152,205	**207**	62,3	227,395	**251**	88,6	323,39
164	42,1	153,665	**208**	62,8	229,22	**252**	89,2	325,58
165	42,5	155,125	**209**	63,4	231,41	**253**	89,9	328,135
166	42,9	156,585	**210**	63,9	233,235	**254**	90,5	330,325
167	43,3	158,045	**211**	64,5	235,425	**255**	91,2	332,88
168	43,7	159,505	**212**	65	237,25	**256**	91,8	335,07
169	44,1	160,965	**213**	65,6	239,44	**257**	92,4	337,26
170	44,5	162,425	**214**	66,1	241,265	**258**	93,1	339,815
171	44,9	163,885	**215**	66,7	243,455	**259**	93,7	342,005
172	45,3	165,345	**216**	67,3	245,645	**260**	94,4	344,56
173	45,8	167,17	**217**	67,8	247,47	**261**	95	346,75
174	46,2	168,63	**218**	68,4	249,66	**262**	95,7	349,305
175	46,6	170,09	**219**	69	251,85	**263**	96,3	351,495

Co2	Vehicle tax		**Co2**	Vehicle tax		**Co2**	Vehicle tax	
g/km	Cent/day	Euro/year	**g/km**	Cent/day	Euro/year	**g/km**	Cent/day	Euro/year
264	97	354,05	**310**	125,9	459,535	**356**	149,9	547,135
265	97,6	356,24	**311**	126,5	461,725	**357**	150,3	548,595
266	98,2	358,43	**312**	127,1	463,915	**358**	150,7	550,055
267	98,9	360,985	**313**	127,6	465,74	**359**	151,2	551,88
268	99,5	363,175	**314**	128,2	467,93	**360**	151,6	553,34
269	100,2	365,73	**315**	128,8	470,12	**361**	152	554,8
270	100,8	367,92	**316**	129,4	472,31	**362**	152,5	556,625
271	101,5	370,475	**317**	129,9	474,135	**363**	152,9	558,085
272	102,1	372,665	**318**	130,5	476,325	**364**	153,3	559,545
273	102,8	375,22	**319**	131,1	478,515	**365**	153,7	561,005
274	103,4	377,41	**320**	131,6	480,34	**366**	154,1	562,465
275	104,1	379,965	**321**	132,2	482,53	**367**	154,5	563,925
276	104,7	382,155	**322**	132,8	484,72	**368**	154,9	565,385
277	105,4	384,71	**323**	133,3	486,545	**369**	155,3	566,845
278	106	386,9	**324**	133,9	488,735	**370**	155,7	568,305
279	106,6	389,09	**325**	134,4	490,56	**371**	156,1	569,765
280	107,3	391,645	**326**	135	492,75	**372**	156,5	571,225
281	107,9	393,835	**327**	135,5	494,575	**373**	156,9	572,685
282	108,6	396,39	**328**	136,1	496,765	**374**	157,3	574,145
283	109,2	398,58	**329**	136,6	498,59	**375**	157,7	575,605
284	109,8	400,77	**330**	137,1	500,415	**376**	158	576,7
285	110,5	403,325	**331**	137,7	502,605	**377**	158,4	578,16
286	111,1	405,515	**332**	138,2	504,43	**378**	158,8	579,62
287	111,7	407,705	**333**	138,7	506,255	**379**	159,1	580,715
288	112,4	410,26	**334**	139,2	508,08	**380**	159,5	582,175
289	113	412,45	**335**	139,8	510,27	**381**	159,9	583,635
290	113,6	414,64	**336**	140,3	512,095	**382**	160,2	584,73
291	114,3	417,195	**337**	140,8	513,92	**383**	160,6	586,19
292	114,9	419,385	**338**	141,3	515,745	**384**	160,9	587,285
293	115,5	421,575	**339**	141,8	517,57	**385**	161,3	588,745
294	116,1	423,765	**340**	142,3	519,395	**386**	161,6	589,84
295	116,8	426,32	**341**	142,8	521,22	**387**	161,9	590,935
296	117,4	428,51	**342**	143,3	523,045	**388**	162,3	592,395
297	118	430,7	**343**	143,8	524,87	**389**	162,6	593,49
298	118,6	432,89	**344**	144,3	526,695	**390**	162,9	594,585
299	119,2	435,08	**345**	144,8	528,52	**391**	163,3	596,045
300	119,9	437,635	**346**	145,2	529,98	**392**	163,6	597,14
301	120,5	439,825	**347**	145,7	531,805	**393**	163,9	598,235
302	121,1	442,015	**348**	146,2	533,63	**394**	164,2	599,33
303	121,7	444,205	**349**	146,7	535,455	**395**	164,5	600,425
304	122,3	446,395	**350**	147,1	536,915	**396**	164,9	601,885
305	122,9	448,585	**351**	147,6	538,74	**397**	165,2	602,98
306	123,5	450,775	**352**	148	540,2	**398**	165,5	604,075
307	124,1	452,965	**353**	148,5	542,025	**399**	165,8	605,17
308	124,7	455,155	**354**	149	543,85	**400 or more**	166,1	606,265
309	125,3	457,345	**355**	149,4	545,31			