

**FINNAIR  
COMPETITIVE ADVANTAGE THROUGH  
ENVIRONMENTAL RESPONSIBILITY**

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## ABSTRACT

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<p>Abstract:</p> <p>Air transportation plays a vital role in many aspects of our every day life. Due to strong growth and the increasing amount of green house gases released, the aviation industry cannot be considered as operating sustainable. To change this all stakeholders of the aviation industry have to act. A special role hereby play the airlines as they can most directly influence the amount of green houses gases released e.g. by operating modern and fuel efficient aircraft.</p> <p>Offering flights that are producing less emissions has its price as e.g. acquiring modern aircraft can be very costly. At the same time competition between airlines is getting continually tougher forcing also established airlines to cut back their costs. The idea of this research is therefore to study how an airline could turn these additional investments into a competitive advantage factor instead of just seeing the costs and risks.</p> <p>One airline which has shown strong commitment to cut back green house gas emissions in the recent years is Finland's largest airline Finnair. The purpose of this study was to find out how Finnair could gain competitive advantage through its environmental performance. Therefore Finnair's customer's opinions and attitudes towards environmental aspects of flying have been studied and analysed with the help of a web-based questionnaire. The results showed that there are air passengers who consider the environment when booking a flight although this was not the majority. The study also found that Finnair's customers value the fact that Finnair is operating a modern fleet and is offering them the shortest routes but not all of them were ready to pay more for that. The research also detected that many Finnair customers are not aware of Finnair's outstanding environmental performance. It can therefore be concluded that Finnair should more actively communicate its environmental work to attract new customers and to gain competitive advantage.</p>	
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# 1 INTRODUCTION

Air transport has become an essential part of our every day life as it brings people to business, products to their markets, tourists to their holiday destinations and it unites families and friends all over the planet. While air transportation made the global village a reality it is like the entire transportation sector also a strong contributor to climate change.

Even if the aviation counts currently for only 3 per cent of the man-made contribution to climate change this industry is growing at a very fast rate. In the past the aviation industry saw a growth of about 4 per cent per annum and for the future an even stronger growth is predicted. This growth also had an impact on the emissions released by aircrafts as between 1991 and 2003 the aviation's carbon dioxide emissions grew by 87 per cent. Against this background discussions have started how the aviation's contribution to climate change could be mitigated with the introduction of incentives. The difficulty here is that the aviation industry is operating internationally and finding a global solution is not easy and might take some more time. So far the aviation has been excluded from any kind of taxation or carbon policy. (Rothengatter 2010, 11-13.)

Therefore as long as governments are not coming up with tighter policies the responsibility to mitigate the impact of the aviation industry onto the climate lays at the remaining aviation stakeholders. This research will hereby focus on one of the most important group of stakeholders, the airlines. Airlines have many opportunities to reduce green house gas emissions by e.g. operating a modern fleet, offering more direct flights, green landing approaches or better educated personal regarding environmental issues.

As an example for this research one airline was chosen which shows among many other air carriers an outstanding environmental performance, as we will discuss more in detail in chapter 4.6. The chosen airline is the largest Finnish airline and the state's flag carrier *Finnair*. Established in 1923 Finnair's operations focus mostly on transporting passengers between Europe and Asia, via its hub in Helsinki. Beside that Finnair's operations also covers leisure traffic, technical and ground handling operations, catering, travel agencies as

well as travel information and reservation services. Finnair has approximately 8,000 employees and operates a fleet of around 60 airplanes. (Finnair 2011e.)

Finnair's goal is it to become the leading airline in terms of environmental responsibility and Finnair's environmental work dates back to its beginnings in the late 1980s (Finnair 2011c, 36). Nevertheless Finnair is also operating in a highly competitive environment with new airlines pushing into its established markets. The purpose of this thesis therefore is to find out how Finnair could gain competitive advantage especially through its environmental responsibility. The basic aim of this research is to provide Finnair with information about their customer's opinions and attitudes towards environmental aspects of flying. This information will be collected with the help of a web-based questionnaire. Based on the collected data the study will then detect how Finnair could gain competitive advantage through its unique environmental performance.

The research perspective is strongly related to *Corporate Environmental Management* and to *Strategic Management*. The idea for this topic was formed during my studies at the Copenhagen Business School's International Summer University Programme in 2010 where I took part in a course called *Sustainable Development and Competitive Advantage*. The objective of that course was to study how companies who are offering green products could gain competitive advantage through the products or services they are offering. Hereby the essential question always was does the customer see value in the fact that the product or service is less harmful for the environment and is the customer ready to pay more for such an environmental quality. While the course was mostly focusing on basic consumer products such as food or clothing I was interested to learn whether this concept would also apply to the aviation industry as I already did previous research in this field.

The thesis itself will start with a short introduction about the *environmental impacts of aviation* giving the reader an overview about the industry's current status. Followed by that the concept of *environmental competitive advantage* will be explained and *Finnair's six sources of environmental differentiation* will be introduced. The theoretical framework will then be rounded up by a third chapter discussing the six sources of environmental differentiation more in detail. The section about *research methods* will then deal with topics such as the aim of the research, the research question, what kind of research approach has been chosen regarding type of study, data collection method, sampling and data analysis. In the next step the *results* from the questionnaires will be presented and analysed according to the six sources of environmental differentiation. In the following *discussion* part answers to the research problem as well as recommendation based on the results will be given to Finnair. Beside that also the reliability of the research and ideas for further research related to the subject will be discussed. The research report ends with drawing *final conclusions* regarding the results received from the study.



## 2 ENVIRONMENTAL IMPACTS OF AVIATION

Aviation is often seen as one of the main contributors of climate change. According to the International Air Transportation Association<sup>1</sup> (IATA 2011a) aviation is only responsible for 2 per cent of the global carbon dioxide (CO<sub>2</sub>) emissions and to a total of 3 per cent of man-made contribution to climate change. Compared to other transport sources, aviation only contributes to 12 per cent of the CO<sub>2</sub> emissions while 74 per cent are produced by road transportation.

Nevertheless the aviation industry is growing at a very high rate which will also lead to a much bigger impact onto the environment (Whitelegg & Williams 2001, 8). Due to the strong growth it is predicted that by 2050 the impacts of air transportation might be similar to those of road transportation (Åkerman 2005, 112). According to the International Civil Aviation Organisation's<sup>2</sup> 2010 Environmental Report (ICAO 2011a, 18) passenger air traffic will in average grow by 4.8 per cent annually within the next 25 years.

### 2.1 Strong growth in the past

Already in the past aviation saw a continues growth as the total passenger air traffic grew by 108 per cent between 1990 and 2006 (Macintosh & Wallace 2009, 266). The main drivers of the extensive growth in the transportation sector are the increase in income and motorization, cultural change and tourism, reduction of transportation time and prices as well as industrial trends such as

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<sup>1</sup> International Air Transportation Association (IATA) represents 230 international member airlines in 125 countries. IATA's members carry about 93% of the world's scheduled international air traffic. It is IATA's role to represent, lead and serve the airline industry in a wide variety of fields.

<sup>2</sup> International Civil Aviation Organisation (ICAO) is a United Nations specialized agency that assigns the principles and techniques of international air navigation and the planning and development of international air transport ensuring safe and orderly growth.

the world-wide distribution of workflows (Rothengatter 2010, 6-7). In the aviation sector the two main drivers in particular are economic growth and falling ticket prices. While economic growth cannot directly be related to the aviation industry, the availability of better aerospace technology, more efficient management as well as the liberalization of airline markets had a huge impact on the decrease of airfares. (ICAO 2011a, 19.)

Especially the liberalization has opened the market for new airlines mostly operating as Low Cost Carrier. This led to more competition and to falling airfares and created hereby also new demand for air travelling. (Baumeister 2010, 32.)

## 2.2 Aviation and climate change

According to Green (2003, 281) the three main impacts of aviation on the environment are noise, air pollution around airports and influences on climate change. Hereby the contribution to climate change is seen as the impact with the greatest significance and will therefore be discussed in the following section more in detail.

A number of emissions released from aircrafts during flight have a warming effect to the earth's atmosphere. These emissions lead to a retro reflection of infra-red radiation back towards earth's surface; otherwise the radiation could escape from the earth's atmosphere. This cause an increase in average global temperatures leading to climate change. (Whitelegg & Williams 2001, 18.)

Among those emissions are three types of greenhouse gases which have a significant impact on global warming, these are carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and water vapour (H<sub>2</sub>O) (Zhang, Gudmundsson & Oum 2010, 1).

*Carbon dioxide* released from aircrafts accumulates in the atmosphere and has the exact same global warming effect as carbon dioxide released from any other source (Whitelegg & Williams 2001, 18). Once released into the atmosphere carbon dioxide has a lifetime of up to 100 years (Bows, Anderson & Mander 2009, 18). As jet engines are operating at very high temperatures and pressures they release a huge amount of *nitrogen oxides* which create ozone, another particularly potent greenhouse gas. The third greenhouse gas released especially by high-flying aircraft is *water vapour* which freezes and leads to contrails. These contrails can spread over tens of kilometres preventing infra-red radiation from escaping the earth's atmosphere. In highly used flight corridors contrails can cover up to 5 per cent of the sky. (Whitelegg & Williams 2001, 19.)

## 2.3 Aviation and efficiency

Although aviation has seen a strong growth in the past decades, the industry could manage its impacts on the environment in a way that they were not growing at the same rate. This was mostly achieved by a tremendous increase in efficiency. (Macintosh & Wallace 2009, 266.)

According to IATA (2011b) the fuel efficiency of aircraft has increase by 70 per cent in the past 40 years and by 20 per cent during the last decade. Modern aircrafts nowadays consume on average 3.5 litres of fuel per 100 passenger kilometres, similar to a small compact car, but moving with six times the speed. The newest generation of aircrafts which are currently entering into service, namely the Airbus A380 as well as Boeings 787, were even designed to go below 3.0 litres per 100 passenger kilometres.

The past increase in efficiency was achieved by three different factors. Technical improvements in aircraft and engine design, a remarkable increase in load factors by basically using the capacity of the aircrafts more intense as well as changes in air traffic management. However while the efficiency increased during the 1990s in average by annually 4.5 per cent the rate of improvement fall after the millennium to only 1.2 per cent per annum. (Macintosh & Wallace 2009, 266.)

The decrease in further improvement of efficiency in the aviation industry might be an indicator that the efficiency factors presented above have reached their peak and that new technology might be needed to achieve further improvement. Due to the strong growth which is predicted for the aviation sector in the coming years, improvements in efficiency are needed more than ever before.

## 2.4 Carbon-neutral growth

Even if aviation's contribution to climate change is compared to other industry sectors quite small, currently 3 per cent, due to the extensive growth mentioned above the Intergovernmental Panel on Climate Change (IPCC 1999) has predicted that by 2050 aviation's share could be well at 5 per cent. Also aviation's contribution to carbon dioxide emissions will increase from currently 2 to 3 per cent by 2050. These figures already took the current rate of improvement in efficiency into consideration. That basically means even if the aviation industry is increasing its efficiency at a rate of about 4.5 per cent annually, its contribution to climate change will grow on the long run.

Although the figures of aviation's contribution to climate change are still low, no major industry can anymore afford to have a growing carbon footprint. The IATA has therefore set an ambitious goal, to achieve a carbon-neutral growth starting by 2020 which is a fundamental milestone towards a zero

carbon future for aviation. In the long run IATA wants to reduce carbon dioxide emissions by 50 per cent in 2050 based on the 2005 level. (IATA 2009.)

The concept presented in IATA's "*Pathway to Carbon-neutral Growth in 2020*" (IATA 2009) is based on the following six key points:

- Fleet renewal: About 27 per cent of the current fleet should be replaced that accounts for about 5 500 aircrafts. This would lead to a 21 per cent reduction in carbon dioxide emissions.
- Operations: Improvements in operational practices could bring another 3 per cent reduction. Those are reduced APU (auxiliary power unit) usage, more efficient flight procedures as well as measures in weight reduction.
- Infrastructure: Improving ATM (air traffic management) operations as well as existing airport infrastructure could help to reduce additional 4 per cent globally and in some regions even more than 10 per cent of carbon emissions.
- Engine retrofits & airframe technology: Another 1 per cent of emissions reduction could be achieved in modifying existing aircrafts for example by adding winglets or by drag reduction.
- Biofuels: Tests have shown that by using biofuels in aviation a reduction of 80 per cent of carbon dioxide emissions can be achieved. Assuming that by 2020 a 6 per cent biofuel mix would be available this could help to cut the carbon dioxide emissions by another 5 per cent.
- Offset mechanisms: In order to achieve the carbon-neutral growth approximately 90 million tonnes of carbon dioxide will need to be offset by 2025.

Figure 1 shows one more time the importance of achieving a carbon-neutral growth as otherwise the carbon dioxide emissions would growth tremendously.

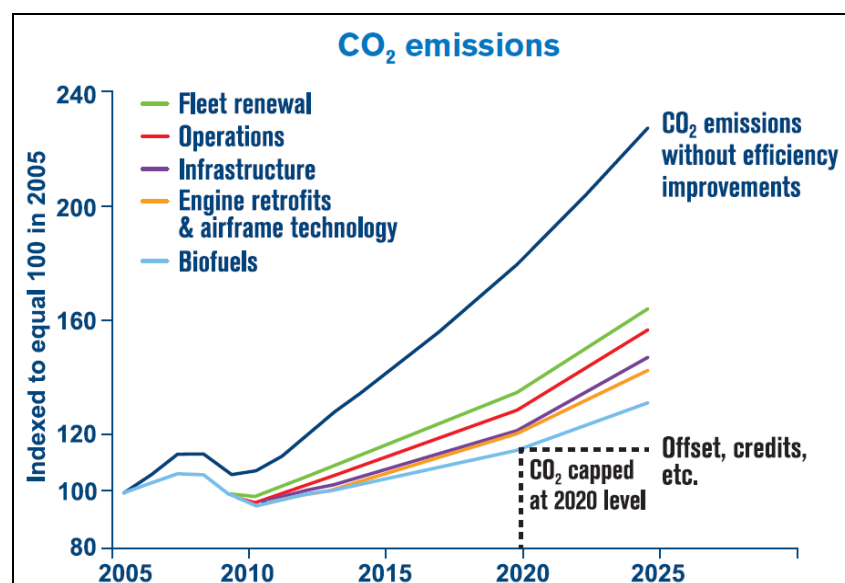


FIGURE 1 Carbon-neutral growth scenario 2020 (IATA 2009).

To achieve the carbon-neutral growth the contributions of all aviation stakeholders are needed: Airlines, manufacturers, fuel suppliers, airports, air navigation service providers as well as governments (IATA 2009). Reading through this six key points it becomes quite obvious that the strongest commitment anyhow has to be made by the airlines. The replacement of every fourth aircraft will lead to a huge reduction in carbon emission but will also require big investments. According to IATA (2009) replacing 5 500 aircraft will have an investment volume of about 1 trillion euros. Beside that improving operational practices and retrofitting existing aircraft e.g. by adding winglets will be the airlines responsibility as well.

Although it is the manufacturers role to provide the airlines with more efficient aircrafts and engines as well as the fuel suppliers role to develop biofuels and bringing them onto the market, in the end it is up to the airlines to purchase these new technologies or to make the decision to use biofuel in the their operations.

## 2.5 EU Emissions Trading Scheme

Although there are no international binding policies existing that forces aviation to reduce their green house gas emissions, governments and policy makers have in the recent years been discussion different options how to change this (Anger 2010, 100). Nevertheless due to different political interests it is very unlikely that a global environmental approach will ever been achieved (Scheelhaase & Grimme 2007, 262). One approach favoured by the European Union is to include aviation into its emissions trading scheme. The *European Union Emissions Trading Scheme* (EU-ETS) is currently representing the world's biggest trading scheme and the first one that works across borders (Anger & Köhler 2010, 39).

According to Anger and Köhler (2010, 44) including aviation in the EU-ETS will only result in a negligible reduction of carbon dioxide emissions. The aviation sector, when further growing, will need to buy allowances from other sectors. Due to the fact that the amount of allowances needed by aviation is considerably low, compared to the entire trading scheme, aviation will not affect carbon prices in the market significantly. It is expected that airlines will pass the additional costs created by emission trading on towards their customers. But it is also considered that this might not have a huge impact on airfares, the demand for air travelling will not be affected that strongly and neither will it slow down the expected growth of the aviation industry.

IATA's pathway to carbon-neutral growth and the approach of including aviation into EU-ETS present just a few ways how aviation could be made more sustainable. However it became quite obvious that among all the aviation stakeholders airlines are playing a key role when it comes to the point of taking responsibility for making a change. Hereby airlines should not hesitate to act.

They should not wait until the carbon neutral airplane is available on the market but renew their fleet more constantly or at least retrofit existing aircraft with new technology. Being a responsible airline is not only a benefit for our environment but can also help to gain competitive advantage, but this needs action as we will discuss more in detail in the following chapters 3 and 4.

### 3 ENVIRONMENTAL COMPETITIVE ADVANTAGE

In this chapter I will present the concept of *environmental competitive advantage*. First I will define what *competitive advantage* means before I will go deeper by presenting the three different approaches of competitive advantage: *Cost leadership*, *differentiation* and the *focus strategy*. Then I will talk about how these three different strategies are applied in different ways among airlines and why the differentiation strategy displays the most suitable option in case of Finnair. Followed by that I will explain what the factors of a successful *environmental product differentiation* are. Finally I will present the six sources of Finnair's environmental product differentiation which could bring Finnair environmental competitive advantage. *Finnair's six sources of environmental differentiation* will then be discussed more in detail in the following chapter 4.

The basic rules of any industry are set by the *competitive environment* in which the industry's companies are operating in (Porter 1985, 1). According to Porter (1985, 5) this competitive environment consists of five main forces which are the power of buyers, the power of suppliers, market entry barriers, the threat of substitutes as well as the competitors.

To be able to compete against these competitive forces a company needs a *competitive strategy*. A competitive strategy can be considered as an instrument that helps a company to obtain a sustainable and permanent position in a certain industry. *Competitive advantage* is finally what any company wants to reach with the usage of competitive strategy. (Porter 1985, 1-3.)

#### 3.1 The three generic strategies

According to Porter (1985, 11) the basic of above-average performance of a company in the long run is sustainable competitive advantage. Competitive advantage can be defined as the value a company creates for its customers that exceeds the company's costs of producing it. Therefore to achieve more value and competitive advantage a company should offer a product that either has

the same advantages than the competitor's products but with a lower price or a product that offers more advantages which justifies a higher sales price. This brings us to the two different types of competitive advantage which are cost leadership and differentiation. (Porter 1985, 3.)

To analyze the ways of achieving competitive advantage, Porter (1985, 11) has developed the *theory of three generic strategies*. The theory as presented in figure 2 below is based on the two basic types of competitive advantage as presented above, cost leadership and differentiation combined with the company's scope of activities here called focus. While the cost leadership and differentiation strategies are seeking for competitive advantage in a broader sense, the focus strategy aims at cost advantages or differentiation in a narrow range.

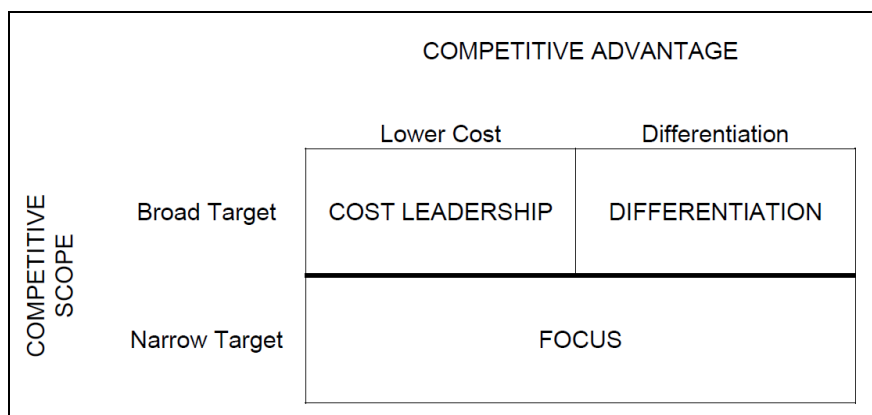


FIGURE 2 The three generic strategies (Porter 1985, 12).

*Cost leadership* means that a company sets the goal to become the low-cost producer in a certain industry. It is hereby important to notice that this strategy requires that the company really is the cost leader and not just one among several other firms. If more than one company is aiming for becoming the cost leader of an industry the competition is commonly very tough. Unless one company finds a strategy to position itself as the cost leader the consequences for profitability can be catastrophic for all those firms aiming to become the cost leader in that very industry. (Porter 1985, 12-14.)

In practice cost leadership means that a company intends to minimizing its cost in all kinds of different operations. Depending on the industry the sources for cost reductions can be for example: Economies of scale, automated assembly, low-cost design methods, technology, R&D, low-cost labour or more efficient training. However it is essential that the sources of costs and cost advantages are controlled and monitored very carefully to make sure the company stays profitable with its market strategy. (Porter 1985, 12-13.)

A well designed cost leadership strategy can work as a defence mechanism towards the main competitive forces in a certain industry because a low cost company is able to achieve higher returns than its competitors and can therefore stay much longer profitable. Anyhow it is in this case important to notice that the products offered by the low cost company need to be perceived



as comparable and acceptable by the buyers. If this is not the case the cost leader will be forced to sell the products well below the competitor's prices which might result in a loss. (Porter 1985, 13.)

*Differentiation* means that a company intends to offer something unique for its customers that entitles them to ask for a premium price for their products. Hereby the uniqueness should be based on some attributes that a company finds valued by the customers. The company should then try to make these attributes superior and different from its competitors. The attributes can be basically anything that is part of the company's product such as the product itself, the way how it is delivered, the marketing approach as well as a broad range of other factors which makes the product different from the competitors' products. (Porter 1985, 14.)

A company may sustain its differentiation position as long as the costs of being unique are not exceeding the profits gained from the uniqueness. Therefore a differentiator also has to focus on the costs, but instead of aiming for a general cost minimization like in the cost leadership case, the differentiator should reduce only costs in those functions that do not affect the differentiation. (Porter 1985, 14.)

*Focus strategy* means that the focus is laid on a certain buyer group, segment or geographic market. Compared to the cost leadership and differentiation strategy as presented above which are applied industry wide, the focus strategy is only aiming on a certain segment. Inside this segment the focus strategy is then either using the cost leadership or the differentiation strategy. Typical segments in which the focus strategy might be applied are those segments in which competitors are either under- or overperforming. In underperforming segments competitors do often not meet the needs of the customers; here a differentiation strategy could work. In segments with overperforming competitors that are offering too expensive products, a cost leadership could bring competitive advantage. (Porter 1985, 15-16.)

When looking at airlines as such both the *cost leadership* as well as the differentiation strategy are applied in many different ways. Especially the introduction of the low-cost airline model in the 1980s and 1990s is a good example of the cost leadership strategy. Low cost airlines are offering cheaper tickets for a comparable flight namely by bringing air passengers from airport A to airport B but with less service. Hereby many additional services such as free food and beverages, in-flight entertainment or free baggage allowances can be bought by the customer additionally on request. Other airlines have chosen the *differentiation* strategy by offering their customer unique products like for example Finnair by operating the shortest routes between Europe and Asia. Also for the *focus* strategy many examples can be found. Emirates Airlines for example follows a differentiation strategy in the segment of first class passengers by offering them private suites on most of their long-haul flights.

### 3.2 Environmental differentiation

As stated in Finnair's latest corporate responsibility report, Finnair has the goal to become the leading airline in terms of environmental responsibility (Finnair 2011c, 36). This could give Finnair a unique position within the industry, bringing Finnair competitive advantage through differentiation.

According to Schaltegger, Burritt & Peterson (2003, 189-190) *environmental product differentiation* is based on the idea that a company creates a product that provides either greater environmental benefits or has a smaller environmental impact. In addition to that or also alternatively the creation of the product or service might be carried out in a way that is less environmental harmful than the production processes of the company's competitors (Reinhardt 1998, 46). In the case of Finnair operating a modern and fuel efficient fleet that produces less emissions during the flight could be such an example.

The changes in the product design or the production processes will in many cases increase the production costs, in return however the company can then also ask for a higher product price as the product or service contains additional value (Russo 2010, 35). In our example operating a modern fleet requires the constant purchase or leasing of up to date aircraft which is very costly. Finnair has therefore to ask for a premium price to cover these costs.

Reinhardt (1998, 47) found in Kotler's (1997, 294-295) list of seven criteria how managers should analyse potential "*differentiators*" of their products the following three criteria which are essential for a successful environmental product differentiation:

- The company must create or find a willingness among its customers to pay a premium price for the environmental quality;
- The company must provide the customer with credible information about the environmental attributes of its products; and
- The companies must find ways to defence its products against imitation by the competitors.

According to Reinhardt (1998, 52-53) the *willingness to pay* a premium price arise in the case of corporate customers only if the product differentiation lowers the customers overall costs. One example could be that the environmental quality of the product helps the customer to easier fulfil regulatory requirements or prevent him from paying penalties. Another example is that the use of a "greener" product can help the customer to build up or to protect his reputation. Choosing an airline like Finnair for business trips can help a company reducing its own carbon footprint and improve the company's reputation.

When it comes to the private customers Reinhardt (1998, 59-62) found different motivational factors that make consumers willing to pay a premium price for environmental quality. Among those are health benefits e.g. by

consuming pesticide free vegetables or fruits. Another motivation lays in the protection of environmental public goods such as clean air and clean water, a diverse flora and fauna, rivers, mountains and forests. This might occur through recycling, donations to organizations protecting the environment but especially through the conscious product choice towards products with a higher environmental quality.

Upshaw (2007, 172) found that if customers are aiming for protecting environmental public goods and a certain product or service can help them to do so, they are ready to pay a premium price for it as long as they can afford the product. Choosing an airline that flies a modern fleet and the shortest routes like Finnair could be one example how to protect environmental public goods.

In the case of *providing credible information* to the potential buyer, the corporate customers must be made aware of the environmental cost reductions a product offers otherwise he will not buy it (Reinhardt 1998, 47). Especially in the case of new and innovative products this might be a difficult and costly task but it is the only way how to get the product successfully sold (Reinhardt 1998, 53). Finnair for example has already been given information to corporate customers about environmental aspects of flying since many years (Finnair 2010a, 47).

When it comes to private customers the problem often exists that he or she hasn't that much product knowledge than the corporate customer has and it might be also difficult for the private customer to identify the more environmental preferable products. In many industries companies have therefore invented eco-labels, third-party certification and self-certification initiatives. Those initiatives are designed to help the consumer easier to identify the environmental preferable products. Only those products are receiving the label or certificate which are fulfilling certain standards. Those standards are set in a way that only a small fraction of all products available on the market can satisfy them. If the environmental performance is improving industry wide, the standards will be tightened. (Reinhardt 1998, 63-64.)

According to the Ecolabel Index (2011) which presents the largest global directory of ecolabels in 217 countries and among 25 industry sectors, there are no industry wide eco-labels existing within the airline industry that could help customers to identify the environmentally responsible airlines. So far the UK-based low-cost regional carrier Flybe is the worldwide only existing airline that has introduced an aircraft eco-labelling scheme (Flybe 2011).

Nevertheless emissions calculators or ratings as for example done by the Carbon Disclosure Project (which will be discussed more in detail in chapter 4.6) could be the cornerstones for a standardized customer information system e.g. as a tool included in flight booking systems on the internet. Then the customer could compare different flight options and airlines not only according to the price or total travel time but also regarding the carbon dioxide emissions. Once the product is launched, the customer has received credible information about it and is ready to pay the premium price the manufacturer or service provider has to make sure that no competitor tries to *imitate the product* or

service. Barriers can hereby be patent protection, proprietary know-how but also the relationship the company could already establish with their customers which makes it more difficult for them to switch. (Kaptan & Pandey 2010, 64.)

### 3.3 Finnair's sources of environmental differentiation

According to Porter (1985, 120) differentiation has its bases on specific activities a company performs and the way those affect the customer. Basically any activity a company performs can be a potential *source of uniqueness*. Based on Finnair's environmental publications such as Finnair's 2009 Corporate Responsibility Report (Finnair 2010a) and the corporate responsibility section of their web pages (Finnair 2011b) but also through discussions with Finnair's Vice President Sustainable Development Kati Ihamäki (2010) six sources of environmental differentiation could have been detected among Finnair's environmental performances which are unique, those are:

1. *Modern fleet*: Finnair flies one of the youngest fleet in the world which is renewed constantly. Finnair was the first airline to order next generation aircrafts such as the Airbus A350XWB and the advanced A321ER. Based on the fleet renewal Finnair plans to reduce its emissions by 41 per cent until 2017, based on 1999 figures. (Airbus 2011; Finnair 2011b; Finnair 2010b.)
2. *Shorter routes*: Finnair offers the shortest routes between Europe and Asia via Helsinki which not only saves time but also ensures flying constantly into the right direction. Helsinki Vantaa offers enough runway capacity assuring smooth operations. (Finavia 2008; Finnair 2011b.)
3. *Environmental concerns of flying*: Finnair already reports since many years about its environmental impacts and provides also a lot of information for both private and corporate customers about the impacts of flying. Hereby Finnair is not only telling the customer to act more environmental friendly but shows also a lot of own commitment. (Finnair 2011b; Finnair 2011c, 36.)
4. *Carbon offset*: Finnair clearly distances itself from carbon offset because at Finnair people think that offering carbon offset only shifts the responsibility away from the airline to the customer. Finnair wants to be a responsible airline and compensate the own emissions by themselves. (Ihamäki 2010.)

5. *Emissions calculator*: Finnair established in autumn 2010 the worldwide first emissions calculator that is based on actual passenger, freight and fuel data (Finnair 2011a).
6. *Finnair's environmental performance*: According to the Carbon Disclosure Project's 2010's Nordic Report Finnair's environmental performance is among the elite airlines on a global scale (Carbon Disclosure Project 2011). Finnair is listed on the NASDAQ OMX Sustainability Index since 2011 (NASDAQ OMX 2011).

Whether those six aspects of environmental differentiation could bring Finnair competitive advantage or not will be investigated in the following chapters. Porter (1985, 130) stated that differentiation only works as a competitive advantage factor when it *creates a value* for the customer. Beside that, Porter (1985, 139) also found that customers only pay a premium price for a product or service if they really *perceive the value*. The next logical step therefore will be to find out whether these six aspects of environmental differentiation are valued by Finnair's customers or not. To find an answer to this question a survey was conducted among Finnair's customers which will be discussed in the following chapters 5 and 6 more in detail.

But before going into deeper analysis first of all to gain a better understanding and to deliver the background information needed the six sources of environmental differentiation will be discussed more in detail in the following chapter 4.

## 4 FINNAIR'S SIX SOURCES OF ENVIRONMENTAL DIFFERENTIATION

### 4.1 Modern fleet

The term *fleet* refers to any kind of collection of aircraft that a certain airline is operating (Kilpi 2007, 81).

As already mentioned above operating a modern fleet is having a huge impact on cutting down carbon dioxide emissions. Increasing the efficiency leads to a reduction of fuel consumption and to fewer emissions which results in a lower impact on the environment (Egelhofer, Marizy & Cros 2007, 79).

Hereby the achievements in efficiency have been tremendous in the past decades. When comparing the first commercial jet airliner the de Havilland Comet designed in the mid-1950s with the most advanced jet airliner currently available on the market, the Airbus A380, engine fuel consumption has dropped by more than 40 per cent and when translated into a fuel burn per seat even by 70 per cent. (European Commission 2011, 31.)

According to Morrell (2009, 151-152) with every new aircraft generation the fuel efficiency improves by about 20-25 per cent. A new generation means in this context the replacement of an aircraft after 20 to 25 years in use.

The amount of fuel an aircraft burns depends on 3 different components, the aerodynamics (lift and drag), the engines (trust rating and thermodynamics) and the weight of the aircraft (European Commission 2011, 31).

In the field of *aircraft aerodynamics* research is mainly focusing on improving the lift and reducing the drag of an airplane wing. Reduction in drag can hereby really have an impact on fuel burn, as reducing the drag of a wing by 50 per cent can lead to a reduction of fuel consumption by 15 per cent. Major improvements in aerodynamics which were achieved in the past are the introduction of the supercritical airfoil in the 1980s which is nowadays widely used in most of the commercial aircraft designs as well as the already mentioned winglets. Introduced in the late 1980s winglets are nowadays equipped to many new aircrafts as standard, beside that most of the existing

aircrafts can also be retrofitted with winglets. With the help of winglets fuel consumption can be reduced by 2 to 6 per cent. (European Commission 2011, 14, 31-32.)

Since the introduction of the turbofan in the late 1950s *aircraft engines* have become much more fuel-efficient and less noisy. Engines manufacturers have invested huge sums into the development of new engine technologies. Hereby increasing the by-pass ratio of an engine has been a major source of improvement. (European Commission 2011, 33-34.) Currently new and quite promising engine technologies are under development such as the advanced turbofans, geared turbofans and the open rotor (Szodruch, Grimme, Blumrich & Schmid 2011, 35-36).

Another important factor of fuel efficiency is the *weight of the aircraft*. The less weight that needs to be carried up into the air the less fuel will be needed. The weight of an aircraft depends on its structure and the onboard equipment. In the recent years aircraft manufacturers have been focusing on reducing weight e.g. by using lightweight alloy structures. The next generation of aircrafts such as the Boeing 787 or the Airbus A350 XWB will see a further decrease in weight using carbon-fibre-reinforced plastic instead of alloy. Also the onboard equipment such as seats, galleys and toilets have become lighter. A major concern in reducing weight is however that this might have a negative impact on the safety of an airplane. (European Commission 2011, 31; Green 2009, 43.)

When comparing currently used aircraft types such as the Airbus A320-Family, A330/340-Family or Boeings B737 second and third generation as well as the B777 with the former generation designed in the 1970s and 1980s the improvements in aerodynamics, weight and engine technology have been tremendous. New engines with higher by-pass ratio, increased pressure ratio and combustion temperature led to a cut in fuel consumption by 20 per cent. At the same time the standard lift-drag ratio improved by 10 per cent and the introduction of new material lowered the weights of the current generation aircrafts notably as displayed in Figure 3. (Egelhofer, Marizy & Cros 2007, 84.)

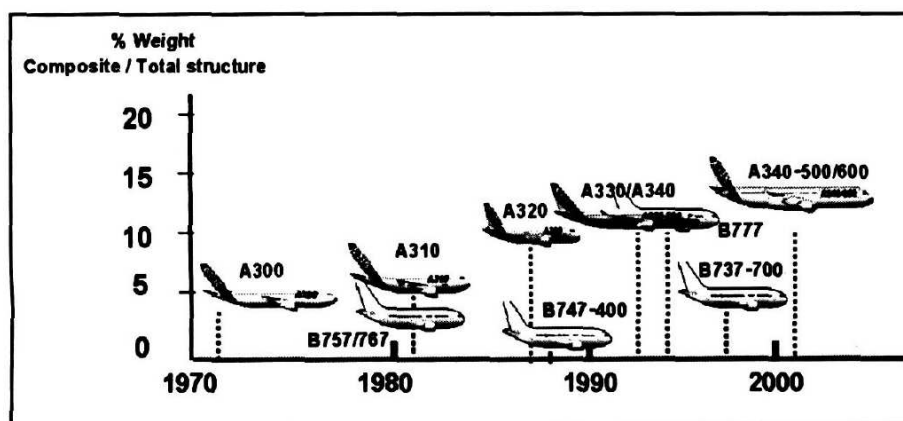










FIGURE 3 Improvements in weight of aircrafts 1970-2007 (Egelhofer, Marizy & Cros 2007, 84).

Beside the fact that operating a modern and fuel-efficient fleet does help to cut down greenhouse gas emissions it also helps airlines to decrease their direct operating costs. During the period of 2007-2008 while oil prices had been on a peak, fuel was the most important cost component for airlines with a share of about 30-50 per cent of their total costs. (Szodruch et al. 2011, 36.)

According to Finnair their most important environmental act is to renew their fleet constantly. Finnair flies its scheduled routes with one of the youngest fleets in the world. (Finnair 2011b.)

Due to the 31<sup>st</sup> of December 2010 Finnair's fleet had an average age of 6.7 years (Finnair 2011c, 6), compared to that the average world fleet is about 11 years old (IATA 2011c). Finnair's current fleet consists of modern Airbus A330-300 and A340-300 wide-body aircrafts for long-haul flights to Asia and Northern America as well as of its European and domestic fleet with different members of the Airbus A320 family (A319, A320 and A321) and Embraer 170 and 190 jets. Table 1 gives an overview about Finnair's current fleet and the average age of each aircraft type. (Finnair 2011b.)

TABLE 1 Finnair Group fleet 31. December 2010 (Finnair 2011c, 6).

Finnair Group fleet 31 December 2010		Seats	Number	Owned	Leased	Average age
Airbus A319		123	11	7	4	9.2
Airbus A320		159	12	6	6	8.4
Airbus A321		196	6	4	2	9.9
Airbus A330		297	8	4	4	1.0
Airbus A340		269	6	5	1	7.0
Boeing B757		227	4	0	4	13.0
Embraer 170		76	6	2	4	4.9
Embraer 190		100	10	6	4	3.1
<b>Total</b>			<b>63</b>	<b>34</b>	<b>29</b>	<b>6.7</b>

On its leisure flights Finnair is still operating older Boeing aircraft type 757-200, those planes will leave the fleet in the near future and will be replaced by modern Airbus aircraft. The extensive fleet renewal by replacing all McDonnell Douglas DC-9, MD-80 and MD-11 aircraft between 1999 and 2009 has resulted in a reduction of emissions by 22 per cent. On the long term Finnair plans to



reduce its emissions by a total of 41 per cent by 2017 based on 1999's emissions. (Finnair 2011b.)

Also in the future Finnair is renewing its fleet constantly. Finnair was the first airline which placed a firm order for the new Airbus A350 XWB which will become available around 2014 (Airbus 2011). Finnair placed 11 orders for this new and more fuel efficient aircraft which will consume less than three litres per passenger and 100 kilometre (Finnair 2011c, 36). Also the renewal of its continental fleet continues as Finnair was as well the first airline to order five Airbus A321ER, a more fuel efficient version of the current A321 model available around 2013. A special feature is the new wing-tip sharklet which will reduce fuel consumption by up to five per cent. (Finnair 2010b.)

Beside that Finnair's entire current fleet is equipped with winglets or sharklets, even the older Boeing 757-200 planes got retrofitted with those fuel saving devices (Finnair 2011b).

## 4.2 Shorter Routes

Talking about improvements in efficiency we should also take into consideration how we get from origin to destination. When flying not only the fuel efficiency of the aircraft plays a crucial role but also how long we are in the air, how many landing and take-off cycles we have to go through before we arrive at our final destination.

If a traveler would today decide to fly from Stuttgart to Tokyo he or she could choose from a huge bunch of different flight connections to get there. Because there are no direct flights from Stuttgart to Tokyo Narita he or she would have to change planes either in Amsterdam, Copenhagen, Frankfurt, Paris, Helsinki, London, Vienna, Zurich, Munich or even Istanbul (Flughafen Stuttgart 2011). Table 2 below shows and compares some of the mentioned connections regarding the distance travelled by airplane and the time spent in the air.

TABLE 2 Comparison of chosen flight connections between Stuttgart and Tokyo Narita (Finnair 2011a; Flughafen Stuttgart 2011).

Flight connection	Distance	Flying time
Stuttgart - Helsinki - Tokyo	9,973 km	12:20h
Stuttgart - Copenhagen - Tokyo	10,017 km	12:25h
Stuttgart - Frankfurt - Tokyo	10,023 km	12:05h
Stuttgart - Amsterdam - Tokyo	10,343 km	12:25h
Stuttgart - Paris - Tokyo	10,731 km	12:50h

According to Hileman, Katz, Mantilla and Fleming (2008, 4) the most efficient way to get from a point A to point B is to use the shortest distance also known as the *great-circle distance*. Any diversion from the great-circle distance is decreasing the efficiency and leads in case of air traffic to additional fuel

consumption and further emissions. The diversion from the great-circle distance can have several reasons; among those are weather conditions or air space restrictions.

A further reason for a diversion is the routing of a flight connection especially when there are stopovers between origin and final destination as shown in the above example (Hansen, Smirti & Zou 2008, 30). Depending on where the stopover takes place this can lead to a larger detour increasing the distance between origin and final destination significantly. Flying from Stuttgart to Tokyo via Paris increases the distance by more than 750 kilometres compared to flying via Helsinki.

Principally it would make sense to connect all *city pairs*<sup>3</sup> with direct flight connections by the great-circle distance instead of rerouting air passengers via intermediate airports. The reason why this is not done is because many city pairs would not generate enough traffic volume to operate them profitable. To generate enough volume long-haul flights are normally operated from larger airports so called hubs located nearby bigger cities and agglomerations. Smaller airports like in our case Stuttgart are normally connected to the hubs by feeder flights like in our example were passengers first were flown by a smaller aircraft to Helsinki were they could transfer to a larger airplane continuing their trip towards Tokyo. This entire system is called *hub-and-spoke* network. (Morrell & Lu 2007, 144.)

Generally speaking taking advantage of using direct flight connections to get from origin to destination displays always the best option as displayed in table 3 when for example flying from Helsinki to New York JFK. In case there is no direct flight connection existing the choice via which hub to fly can make a significant impact as presented in table 2 above.

TABLE 3 Comparison of chosen flight connections between Helsinki and New York JFK (Finavia 2011a; Finnair 2011a).

Flight connection	Distance	Flying time
Helsinki-New York JFK (direct)	6,952 km	08:40h
Helsinki-Amsterdam-New York JFK	7,762 km	10:40h
Helsinki-Copenhagen-New York JFK	7,460 km	10:40h
Helsinki-Frankfurt-New York JFK	8,138 km	11:00h
Helsinki-Paris-New York JFK	8,140 km	11:15h

According to Finnair their own hub at Helsinki Vantaa offers due to its geographical location in many cases the shortest routes between Europe and Asia. Flying *via Helsinki* means constantly flying into the right direction, using the shorter northern route. (Finnair 2011b.)

But also when flying from Asia to North America, via Helsinki displays in many cases the shortest route and saves emissions at the same time. A flight from Delhi to New York via Helsinki (11,821 km) emits approximately 294

<sup>3</sup> A city-pair indicates the origin and destination points of a flight segment e.g. Stuttgart to Helsinki.

tonnes of carbon dioxide while a flight via Dubai (13,229 km) releases over 30 tonnes more carbon dioxide, all together 326 tonnes (Morrell 2010, 470).

A further aspect enlarging the duration of a flight is the limited runway capacity paired with high traffic volume at major hub airports making it quite often necessary for airplanes to fly holding patterns before they can finally approach the runway for landing (Reynolds, Gillingwater, Caves & Budd 2009, 36).

While other European airports such as London Heathrow, Paris Charles de Gaulle, Amsterdam Schiphol or Frankfurt Main are already operating at their capacity limits, making sometimes longer holdings necessary, Helsinki Vantaa airport has with its three runways more than enough capacity (Via Helsinki 2011; Reynolds et al. 2009, 41). Flying via Finnair's hub at Helsinki not only offers the shortest routes between Europe and Asia but reduces also emissions as airplanes are not unnecessarily hold in the air before they can finally land on a highly crowded runway.

Beside the fact that Helsinki Vantaa offers enough runway capacity for smooth operations, the airport operator Finavia has also launched a new "green" landing method the so called "*continuous descent approach*". The aim is to keep the aircraft as high as possible for as long as possible so that it can glide towards the runway. This saves fuel as the aircraft only needs to add thrust shortly before the touch-down. The continuous descent approach starts already 200 km from the airport when the aircraft leaves its cruising altitude. This method can reduce the fuel consumption by 10 to 30 per cent during the approach phase. (Finavia 2008.)

According to Finnair (2011b) about 60 to 80 per cent of all landings at Helsinki Vantaa Airport are carried out as continuous descent approach saving approximately five million kilograms of fuel every year. Green landings can reduce flight times by 45 seconds resulting in a fuel save of about 40 litres and 150 kilograms of carbon dioxide per flight (Musquère 2008, 5).

In comparison to Helsinki Vantaa also other airports started to implement the continuous descent approach. Musquère (2008, 5) found that launching this new approach method at Paris region was considered as very difficult due to the high air traffic in that region, especially maintaining the safety standards in form of the vertical separation of aircrafts by 300 metre. The full potential of the continuous descent approach might only be used at less crowded airports such as Helsinki Vantaa.

### **4.3 Environmental Concerns of Flying**

When it comes to air traveller's awareness of the impact of flying on the environment several studies found that the awareness is in general quite low (Brouwer, Brander & Van Beukering 2008, 304; Hares, Dickinson & Wilkes 2010, 471; Miller, Rathouse, Scarles, Holmes & Tribe 2010, 641). According to Hares,

Dickinson and Wilkes (2010, 471) air travellers have basic knowledge about climate change nonetheless they lack in a deeper understanding. Many travellers can however identify air traffic as a major cause of climate change but when it comes to planning a trip the environmental impacts are most likely not taken into consideration. Brouwer, Brander and Van Beukering (2008, 304) found that the level of concern regarding climate change among air passengers is the highest in the UK, but also quite high in other European countries and North America while significantly low in Asia, Africa and Southern America.

Hares, Dickinson and Wilkes (2010, 471) stated in their research that in the travellers mind quite often no association is made between flying and climate change when booking a flight or it is basically displaced. They found hereby three major barriers to behavioural change. The first barrier many travellers see is the *lack of alternatives to flying* either because of geographical reasons or due to the travelling time. Certainly an ocean can only be crossed by air plane and especially for business travellers time really matters but there are examples existing where other transportation modes are already offering a good alternative such as the high-speed rail link between Madrid and Barcelona, covering the distance of 625 kilometres in less than 3 hours (Román, Espino & Martin 2007, 277). Another way how to replace business trips is to use communication technologies as a substitute such as video conferencing (Davies & Armsworth 2010, 7634).

The second barrier is the *unwillingness in changing travel behaviours*. While business travellers quite often do not have any other choice than taking the air plane, leisure travellers highly value their holidays and don't want to adapt them for climate change's sake. (Hares, Dickinson & Wilkes 2010, 472.) Anyhow rising ticket prices have let some companies started to look for alternatives replacing short-haul flights by other transportation modes such as high-speed trains (Davies & Armsworth 2010, 7638).

The third barrier to behavioural change is the problem that many travellers think that their *contribution to climate change is so insignificant* and that first other players such as governments or businesses should take responsibility. Travellers quite often argue that the action of a single individual could not make any change to such a global problem as climate change. (Hares, Dickinson & Wilkes 2010, 472.) As only a few industries currently have to account for their carbon dioxide emissions (e.g. according to EU-ETS) on the corporate level only a few companies are really going beyond compliance by taking voluntary actions. Most companies are waiting for a regulatory push before really changing any behaviour shifting the responsibility towards the policy makers. (Davies & Armsworth 2010, 7637.)

According to Bonini and Oppenheim (2008, 58) the low awareness of the impacts of flying onto the environment can be overcome by better educating the traveller. They found that the traveller in general wants to act eco-friendly but is often confused or uncertain about how to behave (Bonini and Oppenheim 2008, 58-60). At the current stage it is quite easy to compare different airlines according to their air fares as various kinds of search engines are available on

the internet finding the cheapest flights. Comparing airlines according to their environmental performance such as their emissions or the airlines' degree of responsibility however is very difficult as no standardised information is so far accessible.

Beside that Bonini and Oppenheim also found that there is a certain distrust existing as consumer suspect "greenwashing" behind many so called "green" products or services. Therefore it is the airlines role to educate the traveller, only if he or she knows about it his or her behaviour can change. It is hereby important to bring the airlines own environmental attitude into a broader perspective such as the climate change. For example it should be clearly stated how much carbon dioxide emissions can be reduced by operating a modern fleet. To overcome the suspicion of "greenwashing" the airlines have to be honest and tell the truth about the environmental impacts of flying. At the same time also the airline should act green, just telling the travellers to do so while the airline is not really putting any effort doesn't make the message very trustworthy. (Bonini & Oppenheim 2008, 58-60.)

Finnair (2010a, 47) has been giving information to corporate customers for many years and has recently also started to provide private customers which such for example by integrating its emissions calculator on its webpage. Now everybody can compare Finnair's flights via Helsinki with those ones of Finnair's competitors via Amsterdam with KLM, via Copenhagen with SAS, via Frankfurt with Lufthansa and via Paris with Air France. Beside that Finnair (2010a, 47) has also been participating in the Carbon Disclosure Project (which will be discussed more in detail in chapter 4.6) for several years but so far not all airlines have done so, which means a standardised way of reporting hasn't still arisen.

Finnair (2010a, 47) thinks that in future the comparability of emissions in addition to the air fare will become more important and would like to include information about emissions to all booking systems. According to Kati Ihamäki the traveller could then see at once what kind of eco-friendlier choice it is to fly Finnair with the shortest routes between Europe and Asia operating the most modern fleet in the industry. Only with the right information at hand, the traveller can make the right decision.

#### **4.4 Carbon Offset**

Following the polluter pays principle individuals, companies or governments can purchase offsets on the carbon market to mitigate their own carbon dioxide emissions (Brouwer, Brander & Van Beukering 2008, 302). This means in practice that emissions released by e.g. air travelling can be compensated for example by planting trees financed by the contributor.

There are two different carbon markets existing, the regulatory market and the voluntary market. While the *regulatory market* is based on carbon

trading according to the Kyoto Protocol through the Clean Development Mechanism and Joint Implementation schemes, the *voluntary market* is open to anyone willing to compensate the own emissions on a voluntary base. (Gössling, Broderick, Upham, Ceron, Dubois, Peeters & Strasdas 2007, 226-228.)

In this Master's Thesis we are only going to discuss the voluntary market, as we want to focus more on carbon offset from an air travellers' point of view.

Surveys conducted by van Birgelen, Semeijn & Behrens (2010, 127) as well as Brouwer, Brander & Van Beukering (2008, 305) showed that there is a high willingness among air passengers to pay for carbon offset, only around 15 per cent of the respondents protested against this kind of charge.

This brings us straight to the question why air travelers want to offset their carbon emissions. Brouwer, Brander & Van Beukering (2008, 305) found that the motivation comes not so much from existence values such as give to good causes or charity but that the primarily motive is to take responsibility by paying for the contribution to climate change. The motivation is more a moral obligation paired with concerns about our environment and future generations.

When it comes to the question how much air travellers would be ready to pay for carbon offset, Birgelen, Semeijn & Behrens (2010, 127) found that in average an air passenger would be ready to pay 24 euros for a short-haul flight and 55 euros for a long-haul flight.

According to Gössling et al. (2007, 230-235) there are many providers offering carbon offset for air travelling on a voluntary base. These providers are using different approaches how to calculate the emissions produced by a certain flight. Some are just using simplified factors while others are more accurately also taking the aircraft type, its age and load factor into account. This of course results also in differences when it comes to the price that has to be paid for the carbon offset. In certain cases the price might differ so much that some provider is asking for a 15 times higher price for the exact same flight than another provider does.

Nevertheless in the field of voluntary carbon offsetting the question whether a emission is truly offset or not is a crucial one as voluntary offsetting schemes are so far not subject to any regulation. Hereby two aspects can be utilised for evaluation, the principle of additionality and the principle of sustainability. (Gössling et al. 2007, 228-229.)

According to The Gold Standard Foundation (2011), a non-profit organisation which manages a certification scheme for premium quality carbon credits, the *principle of additionality* is a defining concept of carbon offset. Additionality ensures that any kind of emission offset is really additional to what would have happened if the project would not have been realized.

The concept of additionality can most easily be explained with the help of an example. Additionality means, that emission reductions achieved e.g. by building a wind farm should only be counted if the wind farm is built because of the financial support from the voluntary carbon offset and when an equal

amount of energy will no longer be produced from non-renewable energy sources. (Gössling et al. 2007, 229.)

Beside that it is also important that the carbon offset scheme follows the *principles of sustainability*. A huge afforestation project e.g. in a developing country might not be sustainable at all if large areas would be forested without giving the local population the chance to gain control over this. Their chances to develop would be limited for future generations. (Gössling et al. 2007, 229-230.)

Anyhow even if carbon offset schemes are following the above presented concepts the question is, can carbon offset really be seen as a sustainable solution for dealing with aviation's emissions? The main problem here is that carbon offset organisations are offering neutralisation for emissions released by air travelling by compensation in other sectors e.g. afforestation. This will not motivate the aviation industry to reduce their own emissions because the problem can easily be shifted somewhere else. Though emissions from flying can be offset by e.g. planting trees or building wind farms this approach is somehow limited, especially when aviation's emission are still growing in the future. (Gössling et al. 2007, 229.)

Carbon offset can be seen as one way how to mitigate our carbon emissions but in the case of the aviation industry it does not really solve the problem at its roots. It would make much more sense to avoid carbon dioxide emissions right from the beginning instead of first releasing it and then cleaning it up afterwards. True first we need to have the technology available that makes us able to avoid carbon dioxide at its roots, so long carbon offset can of course help us to at least mitigate the damage done by air travelling so far.

According to Kati Ihamäki (2010) Finnair does not offer carbon offset at all because she thinks that it should be the airlines responsibility for compensating the own emissions. By operating a modern and fuel efficient fleet any airline can take responsibility but this requires also big investments. Those investments result quite often in higher ticket prices which means that a less polluting and better quality flight often costs a little bit more. The reality shows often that people choose to fly with a cheaper airline not having the standards e.g. Finnair is offering and then they pay a couple of euros for carbon offset and think they acted in a very sustainable way. This approach basically shifts the responsibility from the airline to the air passenger. Ihamäki therefore favours a *global emission trading system* which she thinks would offer the greatest possibilities to force airlines acting responsible because otherwise they will have to pay for their emissions.

## 4.5 Emissions Calculator

When choosing the right airline or route regarding environmental aspects an emissions calculator can be a very useful tool to make informed choices, especially for companies seeking to reduce their travel related carbon footprint.

As already mentioned earlier when we talked about carbon offset there are many different approaches used how to exactly calculate carbon emissions.

Miyoshi and Mason (2009, 139-140) found that different emissions calculators are using different methodologies. Many are assuming that all airlines operating on the same route are having the same performance which already has to lead to wrong results e.g. on the Helsinki to Copenhagen route Finnair is flying up to date A320 family airplanes while SAS is still using 1970's design MD-80 aircraft. Beside that many emissions calculator are using unrealistically high load factors of up to 100 per cent or base their calculations on very high efficient fuel consumption factors.

The following table 4 illustrates how much the results can differ when comparing three different emissions calculators with each other. For a better comparability we choose in this example the route Helsinki to Stuttgart which is non-stop only operated by Finnair with a single aircraft type the modern Embraer 170 jet.

TABLE 4 Comparison of different emissions calculators for the route Helsinki-Stuttgart (Finnair 2011a; ICAO 2011b; SAS 2011).

Emissions Calculator	Distance	CO <sub>2</sub> Emissions
Finnair's Emissions Calculator	1,737 km	365 kg / passenger
SAS's Emissions Calculator	1,634 km	219 kg / passenger
ICAO's Emissions Calculator	1,754 km	170 kg / passenger

Although all three calculators have based their calculations on the same aircraft type and also the distances assumed are not differing that much the results are varying tremendously. In this comparison the results from Finnair's emissions calculator can be seen as the most realistic ones. Compared to any other emissions calculator used in aviation Finnair's emissions calculator is the first one worldwide *based on actual emissions figures*. This calculator is using actual cargo, passenger and fuel consumption figures and not averages or assumptions like previous emissions calculators. The data used for calculation is beside that also updated on a quarterly basis. (Finnair 2011a.)

That the use of average figures easily can lead to wrong results shows the example of ICAO's emissions calculator. ICAO is generally calculating with an average number of 90 seats per flight (ICAO 2011b). That this figure cannot be realistic at all proves the fact that the aircraft used on the Helsinki-Stuttgart route has a maximum seating capacity of only 76 seats.

## 4.6 Finnair's Environmental Performance

Finnair's goal is it to become the leading airline in the field of environmental responsibility. Finnair strongly supports IATA's zero-emissions aviation targets and considers itself as a pioneer in the evaluation, reporting and reduction of environmental impacts. Finnair's environmental work dates back to the early



beginnings in the late 1980s, Finnair has been reporting regularly on its environmental impacts since 1997. (Finnair 2011c, 36.)

Finnair sees clearly the responsibility for the emissions generate by flying at the airlines side and is therefore a strong advocate for a global emission trading system and enhanced emission reduction targets (Finnair 2011b).

On the recently published *Carbon Disclosure Project's 2010's Nordic Report* which is measuring environmental effects, Finnair achieved the highest score among all Nordic airlines with 61 points, in comparison to that Scandinavian Airlines only attained 25 points (Carbon Disclosure Project 2011). According to Kati Ihamäki (Finnair 2011b) this result places Finnair among the elite airlines also on a global scale as all the best performing airlines achieved more than 60 points.

Finnair's environmental work shows also results in its performance. In the recent years Finnair could constantly reduce the amount of fuel consumed by its flight operations by improving its efficiency mostly achieved trough the renewal of its fleet. This brought also a reduction in carbon dioxide emissions released as the following table 5 and 6 illustrate quite clearly.

TABLE 5 Finnair's fuel consumption per RPK and ASK (Finnair 2011c, 39).

	2005	2006	2007	2008	2009	2010
Fuel Consumption per RPK <sup>4</sup>	38.5g	38.3g	38.2g	38.0g	36.0g	35.1g
Fuel Consumption per ASK <sup>5</sup>	28.4g	29.2g	29.0g	28.6g	27.3g	27.0g

TABLE 6 Finnair's direct carbon dioxide emissions from flying (Finnair 2011c, 42).

	2008	2009	2010
Direct CO <sub>2</sub> Emission from Flying	2,618,983t	2,244,334t	2,220,388t

Since 2011 Finnair is also listed at the NASDAQ OMX Sustainability Index among the top 40 Finnish companies (NASDAQ OMX 2011).

As shown above Finnair is investing a lot of money into its fleet renewal, Finnair offers the shortest routes between Europe and Asia via Helsinki, Finnair provides a lot of information concerning the environment to its customers and has established the first emissions calculator based on actual passenger, freight and fuel data. Beside that Finnair is also putting a lot of effort into recycling waste, saving energy and optimizing its processes to keep its impacts onto the environment as low as possible (Finnair 2010a, 33). Being an environmental responsible airline is a voluntary choice any airline can do. The same anyhow also applies for the customer as it is his or her decision which kind of airline to support.

<sup>4</sup> RPK = Revenue passenger kilometre is a measure of traffic for an flight calculated by multiplying the number of revenue-paying passengers aboard the flight with the distance travelled.

<sup>5</sup> ASK = Available seat kilometre is a measure that equals the number of seats available on a flight by the number of kilometre flown.

## 5 RESEARCH METHODS

### 5.1 Aims of the research

The basic aim of this research is to provide Finnair with information about their customer's opinion concerning environmental aspects of flying. Based on the answers provided by Finnair's customers, which were collected with the help of an online questionnaire, a theoretical framework will help to detect in which ways Finnair could gain competitive advantage throughout its environmental responsibility. Information provided by the research could help to set up a well-directed marketing campaign to increase the number of passengers flying with Finnair.

The concept - as presented also below in figure 4 - is based on the idea that air travelling cannot always be avoided especially not on long distances or when the available time for travelling is limited. But in most of the cases the traveller can choose between different flight connections and airlines. By choosing an environmentally responsible airline such as Finnair which operates a modern fleet and offers the shortest routes the traveller's decision can really have an impact. Nevertheless operating a modern fleet has its price and results often in a higher airfare that might seem unattractive for some traveller. They don't understand why they should pay more to get from point A to point B and choose quite often the cheaper but more polluting option. To overcome this problem the environmental responsible airline should educate air travellers by explaining what kind of impact it has when choosing the right airline. Only an informed customer can make the right decision. In the case of Finnair a well-directed marketing campaign promoting their environmental responsibility could help gaining competitive advantage over their rival entities as more customers would fly with Finnair in the future.

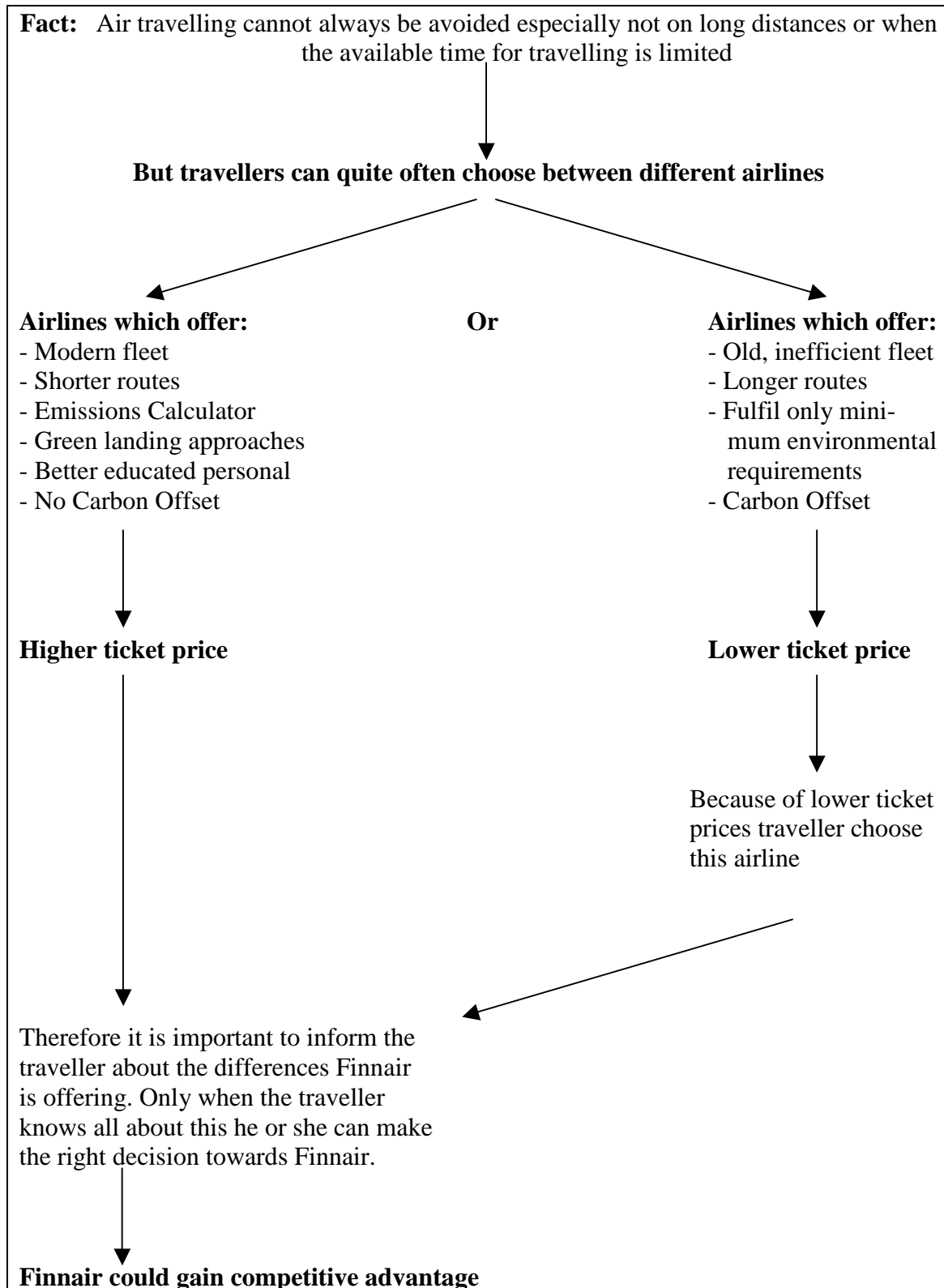


FIGURE 4 How Finnair could gain competitive advantage through environmental responsibility.

## 5.2 Motivation for the research

Based on a personal interest in the airline industry I already did previous research in this field in form of my final thesis for my undergraduate degree in Germany in 2009. I was researching strategic positioning choices of airlines under the circumstances of the deregulation of the airline industry with main focus on the European market. My research was also published in form of a book under the title “Die strategische Positionierung von Fluggesellschaften vor dem Hintergrund der Deregulierung des Luftverkehrs” in summer 2010.

Due to that fact I think I already acquired a certain expertise in the airline industry and I saw it as quite natural also to lay my focus this time on this very industry. Based on my studies in Corporate Environmental Management this time I wanted to focus on the environmental aspects of flying. Especially the aspect that air transportation is considered in public as being a main contributor to climate change makes this topic very interesting.

What I wanted to find out was how does this affect the traveller’s behaviour when he or she needs to fly. Anyhow fact is that air travelling cannot be avoided but there are several ways how to make flying less harmful for the environment. Although many airlines nowadays are changing their policies and are trying to act more responsible I personally choose Finnair as a study subject due to the fact that Finnair shows among many European airlines a really outstanding performance when it comes to environmental responsibility.

## 5.3 Research questions

The *basic research question* for this study is: What are Finnair’s private and corporate customers’ attitudes towards environmental aspects of flying? The purpose of the research question is to find out what are the most important environmental aspects for Finnair’s customers. Based on that aspects Finnair’s competitive advantage through environmental responsibility can be detected and recommendations can be given how Finnair could use those to attract new customers flying Finnair with the help of appropriate marketing instruments.

The *sub-questions* are demonstrated as followed: Does it for the customer really matter that the flight and all kind of operations related to it are carried out in an environmental less harmful way? Does the customer even taking any environmental aspects into consideration when booking a flight or does he or she only cares about the ticket price? Does the customer know that Finnair has a leading role in Europe when it comes to environmental responsibility? Does the customer think that operating a modern fleet is better for the environment? Does the customer accept stopovers on the way to the final destination if the ticket price is therefore lower? Would the customer pay more for a flight that is carried out in an environmental less harmful way? What does the customer

think about carbon offset and has he or she already paid for it? Has the customer heard about Finnair's new emissions calculator and has using it influenced his or her decision making concerning further travelling plans? Finally do corporate customers think that flying Finnair could help them to meet the emission goals set by their company?

## 5.4 Quantitative study

According to Creswell (2009, 3) the distinction between *qualitative* and *quantitative* research is not always that clear, in reality a study tends to be more qualitative than quantitative or the other way around. Generally spoken a qualitative study uses more commonly words than numbers like the quantitative does. In quantitative studies the use of closed-ended questions is more common while in qualitative research open-ended questions are more the case.

Another approach how to distinct qualitative and quantitative research is by the types of research strategies and specific methods used in the research. In the case of quantitative research collecting data is carried out by surveys or experiments while in qualitative research the data collecting happens through observation and with the help of case studies. (Creswell 2009, 4.)

Saunders, Lewis and Thornhill (2007, 145) defined quantitative research more precise as "a synonym for any data collection technique (such as a questionnaire) or data analysis procedure (such as graphs or statistics) that generates or uses numerical data." In contrast to that Saunders, Lewis and Thornhill (2007, 145) stated that qualitative research generates only non-numerical data.

In the means of the definitions presented above and due to the intention of receiving numerical results, for which a survey has been used to collect data, this study can be considered as quantitative. Also the huge amount of data collected doesn't speak for a qualitative study, altogether 50 Finnish companies were contacted and almost 150 private Finnair customers took part in the online survey.

## 5.5 Survey

Beside experimental research the *survey research* is the most common way of how to carry out a quantitative study. A *survey* provides hereby numeric or quantitative information about opinions, attitudes or trends of a certain population by studying a chosen sample of that very population. The results gained from the sample help to generalize or to make claims about the entire population. (Creswell 2009, 145.)

The big advantage of the survey approach lays in the fact that a huge amount of data can be collected from a sizeable population with a minimum amount of affords. Surveys are often carried out in form of standardized questionnaires. The high standardization has also the advantage that the results of different studies can easier be compared with each other. (Saunders, Lewis & Thornhill 2007, 138.)

According to Saunders, Lewis and Thornhill (2007, 138) surveys are commonly used either for exploratory or descriptive research. While the *exploratory* research is focusing on gaining insights into phenomena, the *descriptive* research has the aim to describe a representation of events, persons or situations (Saunders, Lewis & Thornhill 2007, 596-598). For this very research the descriptive method was chosen with the goal to represent the attitudes of Finnair's private and corporate customers towards environmental aspects of flying.

## 5.6 Sampling

The aim of a survey is to gather information about every individual of a chosen population (Fowler 2002, 5). As the *population* in this case means all private and corporate Finnair customers, this would require asking all air travelers using Finnair about their personal attitudes towards environmental aspects of flying. Of course it is not possible to contact each and every person individually. Therefore a small subset of the entire population was chosen to conduct the survey; basically a sample has been drawn. The key for good sampling is to give all members of the population the same chance of being selected to take part in the survey (Fowler 2002, 5).

Though a customer database for frequent flyers (the Finnair Plus Programme) is existing due to Finnair's privacy policy no database could have been accessed from which customers could have been selected to build up an appropriate sample. Therefore other ways needed to be found how to get into contact with Finnair's customers.

Hereby two different approaches had been chosen how to contact private and corporate customers and how to keep the answers of these two groups separately. The group of private customers was not directly contacted due to the lack of any kind of contact details. Instead a link to the questionnaire was placed on *Finnair's international private customer website* that was basically accessible for anyone.

This means that in the case of the questionnaire for the private customers convenience sampling had been chosen. According to Davies (2007, 55) in *convenience sampling* the researcher collects data where ever he or she gets it most easily. This means basically the researcher exercises no control over who falls into his or her sample. Even if there was no other choice than to proceed like this, the disadvantage of convenience sampling lays clearly in the fact that

the researcher does not get any confidence about either the sample is biased or does it really represent the total population as such (Davies 2007, 56). This applies especially in the case of the private customer's questionnaire as basically anyone, Finnair customer or not, could take part in the survey.

In the case of the questionnaire used among Finnair's corporate customers purposive sampling had been applied. According to Davies (2007, 57) in *purposive sampling* the researcher targets on individuals that he or she believes are typical for the population. Also in the case of Finnair's corporate customers no customer data could be handed out by Finnair. Anyhow Kati Ihamäki stated that almost every big and medium sized company in Finland does regularly conduct business trips with Finnair. Therefore 50 Finnish companies from the *Talouselämä* (2011) *top 500* Finish companies list had been chosen and an invitation to the questionnaire had been send to them by e-mail. The criteria for choosing companies hereby were: First of all every Finnish company listed on the Dow Jones Sustainability Index and most of the companies listed on the Helsinki Sustainability NSDAQ OMX2011 Index. Beside that companies were chosen that have international operations or foreign subsidies which naturally requires more air traveling. Another criterion was to choose companies that have a contact person for corporate responsibility which is capable to respond to this kind of questionnaire. A detailed list of all the companies contacted can be found in Appendix 1.

Similar as in the case of convenience sampling also the purposive sampling gives no clear evidence about weather the sample chosen is representative or not. There is also no prove about either the so-called typical qualities are really typical or not. (Davies 2007, 58.)

## 5.7 Questionnaire

According to Saunders, Lewis and Thornhill (2007, 608) a *questionnaire* is a data collecting method in which each participant is asked to answer the same set of questions in a predetermined order. The advantage of the questionnaire method is that it is possible to observe a large amount of people, attitudes or opinions prior to quantitative analysis (Saunders, Lewis & Thornhill 2007, 355).

To receive good respondent rates, validity and reliability a questionnaire needs to be designed very carefully. This requires a clear statement of the purpose of the questionnaire for the potential respondent, carefully and individual designed questions, a lucid layout of the questionnaire form, carefully planned and executed administration as well as a pilot testing. (Saunders, Lewis & Thornhill 2007, 356.)

As already mentioned above the survey itself was carried out with the help of two different questionnaires. While the questionnaire for private Finnair customers was accessible for anyone the questionnaire for corporate customers was only open to a chosen group of individuals. Those were carefully selected

from the information given on the websites of the chosen 50 companies and the preference was either to contact the companies travel manager or the person in charge of corporate responsibility issues. Each and every chosen individual was contacted personally by an e-mail that contained an invitation to the survey as well as the link to the questionnaire itself. The invitation covering letter can be found in Appendix 2. Content wise the two questionnaires didn't differ that much from each other with the exception of the demographic questions. Both questionnaires are displayed in the Appendices 3 and 4.

The two questionnaires were conducted with the help of the web-based interview programme *DimensionsNet mrInterview* version 5.5 to which the access was provided by the University of Jyväskylä. The questions were developed in close cooperation with Finnair and with the support of a company internal survey expert. In both questionnaires the participation had been kept anonymously due to the reason that also question concerning ticket prices had been asked. This was done to ensure that the answers did not get biased.

After an intense design phase and the run of a pilot test with 10 participants in which the functionalities of the questionnaires were tested and certain acquaintance with the web-based interview programme was gained both questionnaires were ready for the launch. All 50 invitations for the corporate customers questionnaire were send out on March the 7<sup>th</sup> and the participants were asked to respond by April the 1<sup>st</sup> at the latest. The private customer link to the questionnaire was placed on Finnair's international website on March the 11<sup>th</sup> and remained online for two month until Mai the 17<sup>th</sup>. Below in figure 5 the link to the questionnaire for private customers is displayed as it could be found on Finnair's international website.

The screenshot shows the Finnair website interface. At the top, there is a navigation bar with the Finnair logo, 'INTERNATIONAL', 'WWW.FINNAIR.COM', 'FINNAIR GROUP', a language dropdown set to 'English', a search bar with the text 'Search the entire Finnair site', and a 'SEARCH' button. Below this is a secondary navigation bar with tabs for 'TRAVEL', 'BUSINESS TRAVEL', 'FINNAIR PLUS', and 'SHOPPING'. A 'LOGIN' button is visible on the right. A yellow banner below the navigation bar reads 'Earthquake in Japan 3/11/2011. [Read more](#)'. The main content area features a large 'New Finnair.' headline with a sub-link '> See our new airplanes'. Below this is a 'SERVICE SELECTION' and 'RESERVATIONS' section. The 'RESERVATIONS' section includes radio buttons for 'Return', 'One-way', and 'Multiple destinations', and another set for 'Return from/to another city' and 'Round the world'. It also has input fields for 'Departure city' (12.3.2011) and 'Destination city' (12.3.2011), dropdown menus for 'Adults' (1), 'Children (2-11 yrs)' (0), and 'Infants (< 2 yrs)' (0), a 'Search option' dropdown set to '+/- 3 days', and a 'Class' dropdown set to 'Economy'. To the right of the reservation form is a promotional box titled 'Take part in a Master's Thesis questionnaire on airlines and environmental responsibility' with a link icon. Below that is another box titled 'Experience the renewed Feel Finnair' with a globe icon. On the left side of the reservation section, there is a sidebar with a quote: '“When flying to Europe, do it in style.”' and a photo of Donna Xie, an 'International style icon Beijing'.

FIGURE 5 Link to the questionnaire on Finnair's website (Finnair 2011d).



## 5.8 Methods of analysing the data

As stated above the data was collected with the help of the web-based interview programme DimensionsNet mrInterview version 5.5. With the same programme also basic analysis could be carried out as mrInterview could deliver all the data needed for the cross tabulations. For deeper statistical analysis SPSS (Statistical Package for the Social Sciences) PASW Statistics version 18.0.0 was used especially for statistical significance testing. While the cross tabulations helped to compare the answers from the different customer groups, age groups and gender the significance testing was applied to prove the accuracy of those comparisons.

*Significance testing* was carried out with the *Pearson's chi-square test*. The chi-square test can be applied when the statistical significance of differences between the cells of a cross tabulation need to be tested (Davies 2007, 248). The chi-square test delivers as a result  $\chi^2$ , the degrees of freedom DF and p. Whether a result can be claimed as statistical significant or not depends on the p value received. According to Davies (2007, 252) the critical level is set at  $p < .05$  meaning 5 per cent or 1 in 20. At that level the result should only occur once in every twenty case ensuring a safe margin of error. Any value less than  $p < .05$  would prove that there is a significant relationship between the two variables tested.

Beside significance testing, SPSS was also used to calculate the *Mean and Standard Deviation* used to analyse the figures. As for the *Likert scale* alternatives it is important for the reader to notice that number 1 means fully agree with the statement, number 2 the participant agree, number 3 the participant don't know an answer, whereas number 4 means the participant do not agree and number 5 that the participant fully disagree with the statement.

## 5.9 Participants in the research

The questionnaire for Finnair's corporate customers was sent out to 50 Finnish companies. From those 50 companies 20 activated the link and accessed the questionnaire. Among the 20 companies 10 completed the questionnaire successfully by answering all the questions. The response rate was therefore 20 per cent.

Although the response rate was very low the companies who were answering can be considered to be among Finnair's key customers as 40 per cent of the respondents are flying with Finnair every day and another 40 per cent are flying with Finnair weekly. The remaining 20 per cent stated to fly with Finnair at least once in a month. One respondent also stated that they are a large scale company that has special "Nego" fares with Finnair. Also the question regarding the company size confirmed the above assumption as 7

companies had over 3000 employees, 2 companies between 1000 and 3000 and the remaining one 500 to 1000 workers. To better understand the customer status the responding companies have for Finnair they were also asked about their membership in the Finnair Corporate Programme. Unfortunately only 2 out of 10 participate in this loyalty programme from which one has the highest tier which is Platinum while the other one did not know their current status.

The questionnaire for Finnair's private customers was only accessible via the link provided on Finnair's international webpage. Altogether the link was activated over 500 times during the two month it was online, finally 148 participants completed the questionnaire successfully and answered all the questions.

Also the private customers were asked how often they usually fly with Finnair. The majority of 31 per cent stated once per year, 29 per cent said 2-3 times per year and 9 per cent declared that they fly with Finnair every month. Beside that also 30 per cent stated that they haven't flown with Finnair so far. Although those 45 participants never flew with Finnair their answers were still analysed as they contained very useful information. For taking part in the questionnaire they had to visit Finnair's international webpage which shows that they have a certain interest in the airline and can therefore be considered at least as potential customers. From the 148 participants 52 were female, that are 35 per cent and 96 male which are 65 per cent. Beside that members from all age groups took part in the research. The biggest group were the 26 to 39 years old with 53 per cent, followed by the group under 25 with 21 per cent. From the age group of 40 to 59 years old 20 per cent took part, the group over 60 consisted of 8 participants which equals to 5 per cent. Also the private customers were asked if they are participating in Finnair's customer loyalty programme the Finnair Plus Programme and what their current status is. Hereby 43 per cent of the participants are Finnair Plus members from which 73 per cent are on the Basic level, 13 per cent on the Silver level, 6 per cent reached the Gold level and 5 per cent are members of the highest tier Platinum. Beside that 3 per cent stated they are Finnair Junior Plus members, Finnair's loyalty programme for travellers from 2 to 17 years.

## 6 RESULTS OF THE RESEARCH

In this chapter I am going to present the results of the two questionnaires and will then in the next step analyse the data received. This will then lead to the discussion which will be taking place in the following chapter. The data presentation as well as the analysis will follow the structure of *Finnair's six sources of environmental differentiation* as presented earlier in chapter 4.

### 6.1 Modern fleet

As stated earlier Finnair's most important environmental act is to fly an up to date fleet which is renewed constantly. To find out if the customers really see value in the fact that Finnair is operating one of the most modern fleet in the industry they were asked if they agree with the statement whether flying a modern fleet is better for the environment or not. When asking Finnair's corporate customers 80 per cent agreed and 20 per cent even fully agreed that operating a modern fleet is better for the environment. The result from asking Finnair's private customers looked quite similar. From 148 customers who answered this question more than half of them, 51 per cent agreed fully with this statement. Another 38 per cent of the respondents agreed and only 17 customers which displays 11 per cent declared that they don't know as displayed below in figure 6. The Mean in the corporate customers statement was 1,80, the Standard Deviation for this question was ,422. In the case of the private customers questionnaire the Mean was 1,61 and the Standard Deviation was ,686.

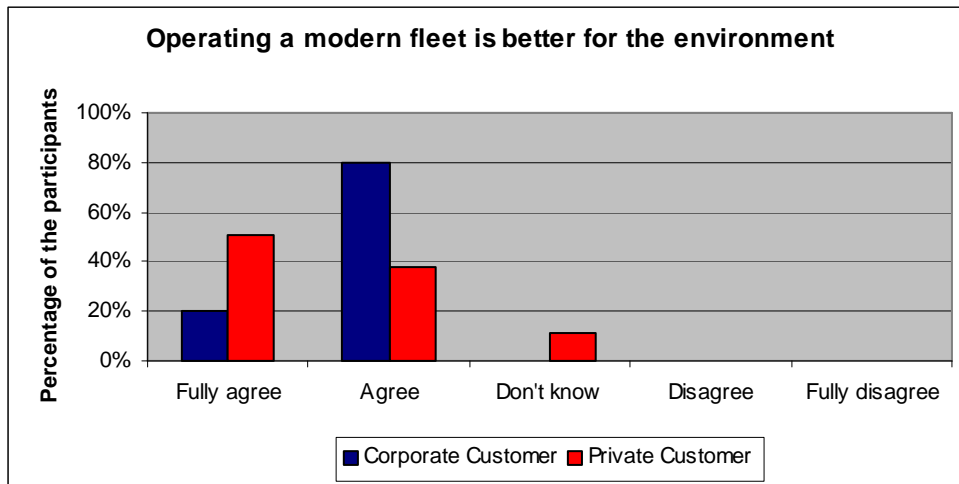


FIGURE 6 Operating a modern fleet is better for the environment.

The results as presented above in figure 6 showed that both customer groups have really perceived the fact that flying a modern fleet has a positive impact as we had already discussed earlier in this thesis. Non of the participants disagreed with the statement but among the private customers were also some participants who did not know any answer to this question as displayed in table 7 below.

TABLE 7 Private customer’s opinion concerning operating a modern fleet.

	Gender			Age			
	Total	Female	Male	under 25	26-39	40-59	over 60
Fully agree	51%	27%	64%	48%	53%	43%	63%
Agree	38%	52%	30%	39%	37%	47%	13%
Don't know	11%	21%	6%	13%	10%	10%	25%
Disagree	0%	0%	0%	0%	0%	0%	0%
Fully disagree	0%	0%	0%	0%	0%	0%	0%

When comparing the answers as displayed in table 7 above it becomes quite obvious that the male participants in the private customer’s questionnaire agreed much stronger with the statement that operating a modern fleet is better for the environment than the female participants did. When applying the Pearson’s chi-square test for statistically significance testing a significant relationship between the gender and the answer to the question whether the customer think that operating a modern fleet would be better for the environment could be detected. The result of  $\chi^2 = 19.651$ ,  $DF = 2$ ,  $p < .000$  clearly proves the hypothesis stated above, that male passenger stronger agree with the statement than female passenger do. When comparing the answers regarding the different age groups it seems that a large group of the over 60 year old participants don’t know whether flying a modern fleet is better for the environment or not. The results of the Pearson’s chi-square test however showed that there is no statistical significant difference between the answers given by the different age groups. The results were  $\chi^2 = 4.188$ ,  $DF = 6$ ,  $p < .651$ . The significance testing showed that whether the private customer value the

fact that Finnair is flying a modern fleet or not does not depend so much on the passenger's age than on the passenger's gender and that female passengers do not see so much value in flying a modern fleet than male passengers.

## 6.2 Shorter routes

When it comes to the question whether corporate customers prefer shorter routes and more direct flights they stated that those aspects are very important or at least important to them. When booking a flight 40 per cent stated that the total flight time including transfer is a very important criterion for them, the remaining 60 per cent considered it as an important factor. Also for 40 per cent of the corporate customers non-stop flights to the final destination were very important, for 50 per cent it was important and only 10 per cent said that non-stop flights are less important to them. The situation however changed when the corporate customers were asked whether they would accept stopovers on their way to their final destination when therefore the airfare would be much lower. 70 per cent of the respondents accepted stopovers if they would save them money, only 20 per cent disagreed and the remaining 10 per cent fully disagreed. Anyhow this confirms also the price sensibility of the corporate travellers: 9 out of 10 stated that the ticket price is a very important factor for them when booking a flight.

In the case of private customers both the total flight time as well as non-stop flight connections to the final destination did not seem to be as important as the ticket price. While 66 per cent of the respondents considered the ticket price as a very important factor when booking a flight, only 36 per cent considered the total flight time as very important and only 27 per cent saw non-stop flights to the final destination as a very important factor. Still 36 per cent of the respondents described non-stop flights as an important factor but the remaining 37 per cent of the private travellers considered non-stop flights as less important or not important at all when making a booking decision. When asking the question whether private customers would accept stopovers on their way to their final destination if the flight would therefore cost less the majority agreed or fully agreed altogether 73 per cent. Only a minority of 5 per cent fully disagreed with this statement as also displayed below in figure 7. The Mean in the corporate customers statement was 2,70, the Standard Deviation for this question was 1,160. In the case of the private customers questionnaire the Mean was 2,20 and the Standard Deviation was 1,245.

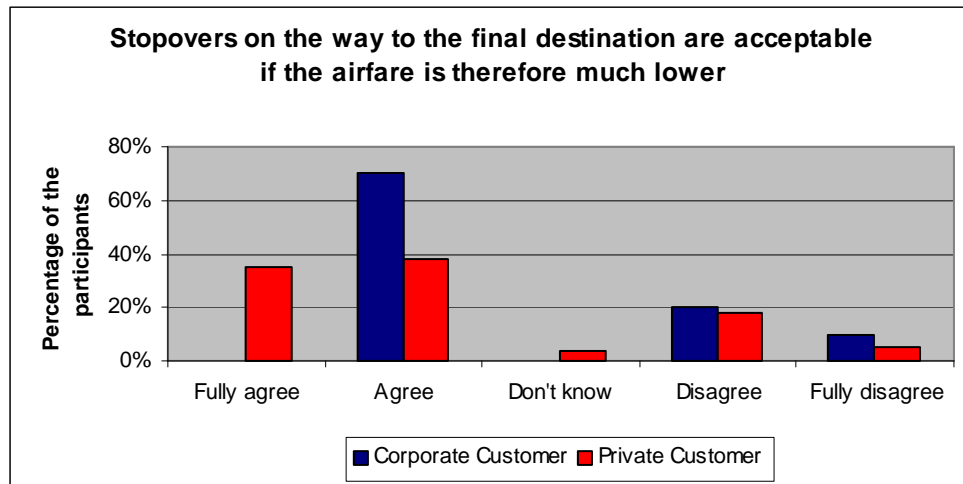


FIGURE 7 Stopovers are acceptable if the airfare is therefore much lower.

Finnair is offering the shortest routes from Europe via Helsinki to Asia as well as the shortest routes from Finland to Europe, Asia and North America. Based on the sampling the corporate customers were more asked about their opinion of shorter routes when departure Finland while the private customers, among them were many from the US or from other European countries, were asked about flying via Helsinki to Asia or Northern America.

In the case of the corporate customers a special interest lay in the question whether the business travellers are interested in direct Finnair flights from Finland to European, Asian or Northern American destinations even if the air fare is higher. Fact is that several foreign airlines have been expanding their route networks towards Helsinki in the recent years, offering cheap flights to many European, Asian and Northern American destinations, but all this flights require changes of airplanes or larger detours. The latest example is the Latvian-based Air Baltic which connects Helsinki and also 7 other Finnish cities such as Oulu, Tampere or Turku with its hub in Riga up to 12 times a day. From Riga Air Baltic is operating an extensive route network towards many European destinations (Air Baltic 2011). Other large competitors are Lufthansa and Scandinavian Airlines offering many connecting flights towards European destinations and towards Asia and Northern America via their hubs in Frankfurt, Munich, Copenhagen and Stockholm. Those four hubs are connected with Helsinki through many daily flights (Finavia 2011b). Especially in the case of Air Baltic and SAS the use of older aircraft but also less service enable them offering much cheaper flights than Finnair.

The results presented above showed that business traveller's value a lot direct flight connections and they do certainly not prefer time consuming airplane changes. However the results also showed that business travellers are very price sensitive as 90 per cent considered the ticket price as a very important criterion when booking a flight. Although Finnair is offering the most direct flights to European, Asian and Northern American destinations the ticket price seemed in the end to be the more important criteria. This could be proved by the answers gained to the question whether corporate customers

would accept stopovers and longer travelling times if the air fare would be therefore much lower. The majority of 70 per cent agreed with this statement.

Similar are the result from the private customers questionnaire. Also for them the ticket price was the most important criteria when booking a flight. Duration of the trip and non-stop flights were not so important for them than for the corporate customers. The percentage of private travellers, who are accepting stopovers on their way to their final destination, if the airfare is therefore much lower, was with 73 per cent very high. This means that the majority of the private travellers are ready to use connecting flights which require larger detours or the stopover at a overcrowded intermediate airport to save money instead of flying on a more shorter route directly to and from Helsinki or via Helsinki to any destination in Asia. Nevertheless among the private customers were also 23 per cent who disagreed.

When asking both corporate and private customers if they take any environmental aspects into consideration when booking a flight, almost half of the participants answered that they choose direct flights and try to avoid stopovers. This shows clearly that some of the customers are aware of the fact that flying shorter routes and avoiding unnecessary starts and landings is better for the environment. Nevertheless when it comes to the question if they would be ready to pay a premium price for shorter and more direct flights their willingness is not very high. Both corporate and private customers are ready to use connecting flights and accept stopovers if it saves them money. They see value in direct flights and shorter routes but they are not ready to pay more for this kind of environmental supplement.

### **6.3 Environmental concerns of flying**

Studies showed that travellers in general want to act more environmental friendly. Choosing the right airline when making the booking decision displays hereby the first step. Therefore both corporate and private travellers were asked what kind of aspects they take into consideration when making a booking decision. As already mentioned above both customer groups chose the ticket price as the most important criteria. Other criteria such as the total flight time, non-stop flights to the final destination, the suitable departure and arrival time were important for some travellers as well. Finnair's new identity as a design airline however was not considered as having any significant impact on the booking decision neither for the corporate nor for the private customers. Therefore the answers to the following question whether Finnair's customers take also any kind of environmental aspects into consideration when booking a flight or not were as expected. Only 30 per cent of the corporate customers stated that they consider the environment, the remaining 70 per cent not at all. The same results could be gained from the private customers. Here as well 30 per cent stated they do take any kind of environmental aspects into

consideration while the remaining 70 per cent ticked no as their answer. Those customers who ticked yes were also asked to specify what kind of aspects they are taking into consideration.

The corporate customers specified that they prefer airlines which are operating a modern fleet, that they try to use direct flights and some also said that they have been increasing the use of videoconferences. One company also stated that they take the amount of carbon emissions into consideration when making a booking decision.

On the private customers side the two aspects of modern and fuel efficient fleet as well as the preference of non-stop flights were mentioned the most. A lot of participants also stated that they try to avoid flying either by searching for an alternative transportation mode such as train or by not making the trip at all. Beside that several customers also mentioned that they are offsetting their carbon emissions. Some also mentioned noise as a criterion which can be dedicated to the aspect of modern fleet. A few participants mentioned aspects related to the airline's environmental practices regarding waste handling, the reduced use of paper e.g. by offering mobile boarding passes and the use of metal cutlery and reusable dinnerware. Beyond that two comments were really interesting and are worth to be mentioned here. One participant stated that he or she chooses Finnair because he or she believes that Finnair's fleet is quite new and that those modern planes are producing fewer emissions than the previous ones. Another participant explained that he or she always tries to fly with an airline that has a strong environmental sustainability initiative such as Lufthansa.

The answer to the question whether Finnair's customer take any kind of environmental aspects into consideration when booking a flight showed that only one third really does so. However the quality of the answers showed that those customers really have a good understanding of this topic and seem to know what are the aspects that matter when searching for a flight that has less negative impact onto the environment. The following table 8 presents now the private customer's answer to the question whether they take any environmental aspects into consideration or not when booking a flight based on the participant's gender and age group.

TABLE 8 Private customers taking environmental aspects into consideration.

	Gender			Age			
	Total	Female	Male	under 25	26-39	40-59	over 60
Yes	30%	29%	31%	29%	34%	23%	25%
No	70%	71%	69%	71%	66%	77%	75%

Table 8 shows quite clearly that the environmental concerns are not depending on the gender. When having a look at the age groups it seems that the environmental concerns are slightly higher among the under 40 year olds. The Pearson's chi-square test detected that there are no statistical significances existing between the questions whether the private customers are taking any environmental aspects into consideration and the gender or age of the



participant. In the case of the gender the chi-square test delivers the following results:  $\chi^2 = 0.92$ ,  $DF = 1$ ,  $p < .762$  proving the hypothesis that there is no difference between the answers of the female and male participants. When testing the different age groups the chi-square test concluded:  $\chi^2 = 1.378$ ,  $DF = 3$ ,  $p < .711$ . The hypothesis that under 40 years old private customers are taking the environmental aspects more into consideration when booking a flight could not be proved in this case. No significant different between the age groups could be detected.

When the corporate customers in a second question were concretely asked if they would be ready to pay a premium price for a flight that is producing fewer emissions the answers tended more towards no. Only 20 per cent of the corporate customers agreed and 60 per cent disagreed or even fully disagreed. In the case of private customers the situation looks different, 6 per cent fully agreed and 11 per cent fully disagreed, the majority either agreed, didn't know or disagreed as displayed in figure 8. The Mean in the corporate customers statement was 3,60, the Standard Deviation for this question was 1,075. In the case of the private customers questionnaire the Mean was 3,09 and the Standard Deviation was 1,109.

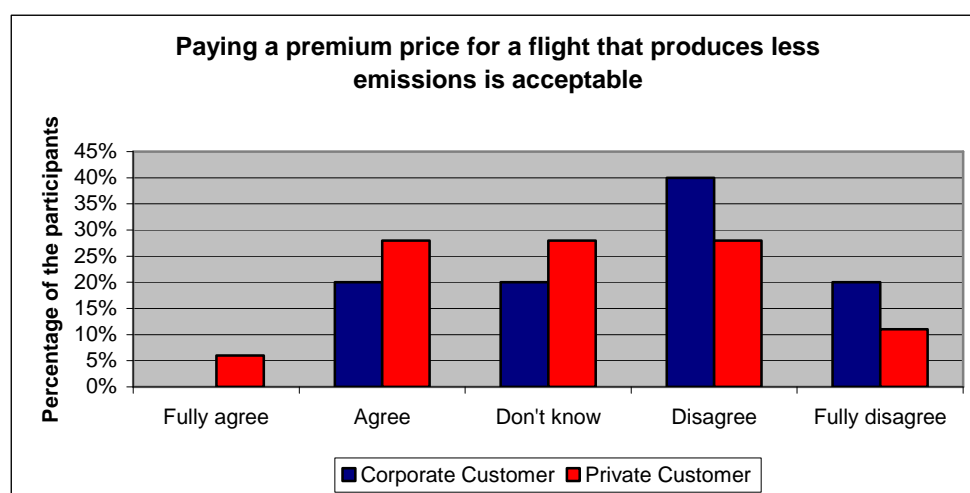


FIGURE 8 Paying a higher price for a flight that produces fewer emissions is acceptable.

Table 9 below displays the connection between company's willingness to pay a premium for a less polluting flight and the question whether the company takes any environmental aspects into consideration when booking a flight.

TABLE 9 Company's willingness to pay more for a less polluting flight.

	Does your company consider the environment when booking a flight?		
	Total	Yes	No
Fully agree	0%	0%	0%
Agree	20%	0%	29%
Don't know	20%	33%	14%
Disagree	40%	67%	29%
Fully disagree	20%	0%	29%

It is interesting to see in table 9 that the majority of companies considering the environment when booking a flight, here 67 per cent, do not want to pay any extra for a flight that produces fewer emissions.

When the companies were asked about their willingness to pay a premium for a less polluting flight and whether they ever paid for carbon offset so far as displayed in table 10 below the answer to the question however was even clearer. All the participants, here 100 per cent, who have already paid for carbon offset in the past, agreed that they are ready to pay a premium for a less polluting flight.

TABLE 10 Company's willingness to pay more for a less polluting flight.

	Has your company ever paid for carbon offset?		
	Total	Yes	No
Fully agree	0%	0%	0%
Agree	20%	100%	11%
Don't know	20%	0%	22%
Disagree	40%	0%	44%
Fully disagree	20%	0%	22%

In the case of the private customers no clear trend towards the willingness or unwillingness for paying a premium price for a less polluting flight could be found. As already displayed in figure 8 the amount of participants choosing either the options "agree", "don't know" or "disagree" was exactly equal with 28 per cent each. Only when it comes to "fully agree" there was only 6 per cent, while 11 per cent choose "fully disagree".

TABLE 11 Private traveller's willingness to pay more for a less polluting flight.

	Total	Gender		Age			
		Female	Male	under 25	26-39	40-59	over 60
Fully agree	6%	6%	6%	6%	4%	13%	0%
Agree	28%	31%	26%	35%	24%	27%	38%
Don't know	28%	27%	28%	26%	29%	27%	25%
Disagree	28%	31%	26%	26%	33%	20%	13%
Fully disagree	11%	6%	14%	6%	10%	13%	25%

Table 11 shows that female passengers have more willingness to pay a premium for a flight that produces less pollution than male. When comparing the age groups the 40-59 years old showed the most willingness to pay a premium price which might be explained by the fact that this age group has access to the highest income and is therefore able to pay more. The most disagreement could be found among the over 60 years old from which 25 per cent did fully disagree. While the age group of fewer than 25 shows a trend towards a willingness to pay more the age group of the 26 to 39 years old tend more to unwillingness. When applying significance testing for the hypotheses stated above no statistical significance could be found proving those statements being correct. In the case of the gender the Person's chi-square test delivered the following results:  $\chi^2 = 2.459$ ,  $DF = 4$ ,  $p < .652$  proving that there is no statistical

significance between the gender and the question whether the private travellers would be ready to pay more for a less polluting flight. Also in case of the different age groups the chi-square test could not identify any statistical significance, as the results were:  $\chi^2 = 9.612$ ,  $DF = 12$ ,  $p < .650$ . Therefore it can be concluded that the passenger's willingness to pay a premium is neither depending on the gender nor on the age of the passenger.

Finally the customers were asked whether they would be interested in donating some of their Finnair Plus-Points to projects aiming to recover the nature such as to the Baltic Sea Action Group or the Finnish Association for Nature Conservation. In the case of corporate customers 70 per cent were not sure if they want to donate, 10 per cent agreed and the remaining 20 per cent disagreed. Among the private customers 40 per cent were interested in donating their Plus-Points, while 30 per cent disagreed as displayed in figure 9 below. The Mean in the corporate customers statement was 3,20, the Standard Deviation for this question was ,789. In the case of the private customers questionnaire the Mean was 2,93 and the Standard Deviation was 1,153.

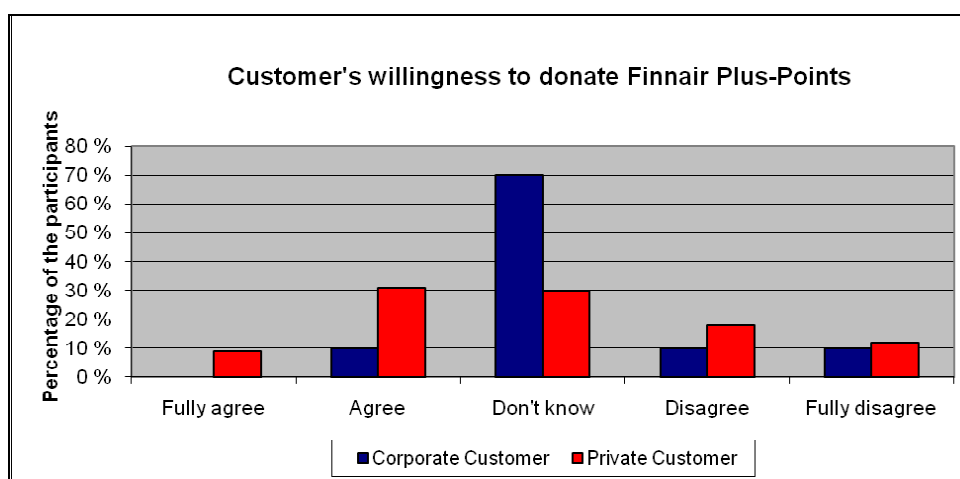


FIGURE 9 Customer's willingness to donate Finnair Plus-Points.

When having a closer look at the connection between willingness to donate and the Finnair Plus member status among private customers as presented below in table 12, the figures show that the higher tiers such as Gold and Platinum members were compared to the Basic and Silver members less interested in donating their points. The most disagreement could be found among the Platinum members. Also Junior Plus members showed a high rate of disinterest.

TABLE 12 Private traveller's willingness to donate their Finnair Plus-Points.

	Customer's current Finnair Plus member status					
	Total	Basic	Silver	Gold	Platinum	Junior
Fully agree	6%	7%	13%	0%	0%	0%
Agree	33%	33%	50%	50%	0%	0%
Don't know	25%	33%	0%	0%	33%	0%
Disagree	25%	24%	25%	0%	33%	100%
Fully disagree	10%	4%	13%	50%	33%	0%

## 6.4 Carbon offset

Finnair is clearly distancing itself from carbon offset because according to Kati Ihamäki offering carbon offset shifts the responsibility away from the airline to the customer. Ihamäki thinks that it makes more sense to avoid carbon emissions right from the beginning e.g. by operating a modern and fuel efficient fleet or flying shorter routes instead of cleaning up the emissions afterwards. Still carbon offset is nowadays widely applied and many airlines are offering it to their customers as a additional product. One aim of this research was therefore to find out how Finnair's customers are thinking about carbon offset and would they be interested in Finnair offering carbon offset to them as well.

When asking the corporate customers what they think about carbon offset 80 per cent agreed with the statement that it has a positive effect on the environment, 10 per cent didn't know and only the remaining 10 per cent fully disagreed. Interesting was also the answer to the following question whether their company ever paid for carbon offset. Only 1 out of 10 companies has ever paid for carbon offset. On the private customer's side almost half of the respondents 47 per cent agreed with the statement that carbon offset has a positive effect on the environment, 28 per cent didn't know an answer and the remaining 25 per cent disagreed, as displayed in figure 10. The Mean in the corporate customers statement was 2,40, the Standard Deviation for this question was ,966. When it comes to the question if the private customers have ever paid for carbon offset 20 per cent did while 80 per cent never paid before. In the case of the private customers questionnaire the Mean was 2,74 and the Standard Deviation was 1,127.

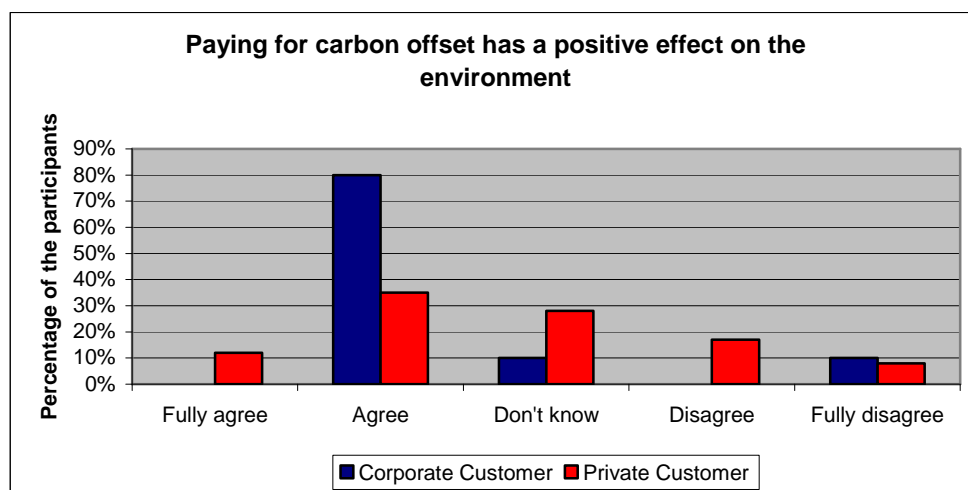


FIGURE 10 Paying for carbon offset has a positive effect on the environment.

After gaining the results that large percentages of the participants consider carbon offset having a positive effect on the environment it is interesting to see then in the next step how many of the respondents ever paid for carbon offset. As already stated above out of 10 only 1 company ever paid for carbon offset,

but 80 per cent believe it has a positive effect for the environment. Table 13 below shows the connection between the customer's opinion about the effect of carbon offset and the fact whether they have been paying for carbon offset so far or not.

TABLE 13 Customers thinking that carbon offset has a positive effect.

	<b>Customer paid already for carbon offset earlier</b>					
	Corporate customers			Private customers		
	Total	Yes	No	Total	Yes	No
Fully agree	0%	0%	0%	12%	14%	12%
Agree	80%	100%	78%	35%	41%	34%
Don't know	10%	0%	11%	28%	38%	25%
Disagree	0%	0%	0%	17%	3%	20%
Fully disagree	10%	0%	11%	8%	3%	9%

Table 13 shows that those corporate customers who have paid for carbon offset also believe that it has a positive effect for the environment. Similar are the results from the private customer's questionnaire. The majority of private customers that have paid for carbon offset so far also believe that they have been doing something positive with their action. Anyhow among those private customers who paid for carbon offset were also 38 per cent who actually did not know whether carbon offset has an positive effect or not. Interesting is also the fact that among both corporate and private customers were many who believed that carbon offset has an positive effect for the environment but they never paid for carbon offset so far. This basically shows that Finnair's customers are interested in carbon offset because they think it has a positive effect for the environment but at the same time not all of them are really ready to take actions by paying for carbon offset.

Once again the Pearson's chi-square test was applied for statistical significance testing. In both cases among the corporate as well as among the private customers answers no significant relationship between the customer's opinion about carbon offset and the fact whether the customer ever paid for carbon offset so far could be detected. In the case of the corporate customers the results were:  $\chi^2 = 0.278$ ,  $DF = 2$ ,  $p < .870$ , in the case of the private customers:  $\chi^2 = 6.666$ ,  $DF = 4$ ,  $p < .155$ . This results basically conclude that the participants answers whether they think carbon offset is better for the environment was not depending on the fact either they ever paid for carbon offset or not.

When the corporate customers in a third question were asked if they would like Finnair to offer carbon offset 80 per cent agreed and 20 per cent disagreed. Also among the private customers there is a great interested that Finnair is offering carbon offset. Hereby 58 per cent agreed that Finnair should offer carbon offset, 29 per cent didn't know and only 12 per cent disagreed, as displayed in figure 11 below. The Mean in the corporate customers statement was 2,40, the Standard Deviation for this question was 1,174. In the case of the private customers questionnaire the Mean was 2,47 and the Standard Deviation was ,993.

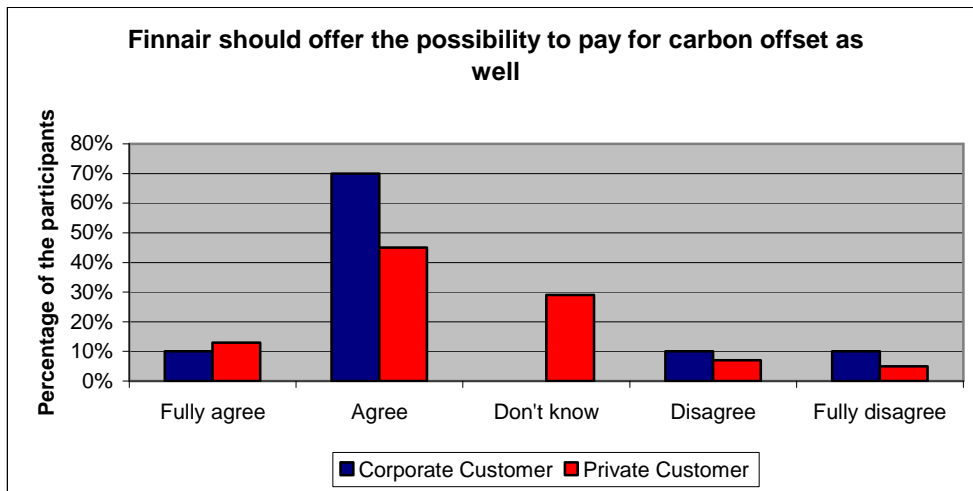


FIGURE 11 Finnair should offer carbon offset as well.

Table 14 below shows that among the customers who want Finnair to offer carbon offset are many who already paid for offsetting their emissions but at the same time there are also plenty of customers who want Finnair to offer carbon offset even if they never paid for it before. Therefore it can be concluded that those customers who never paid for carbon offset so far will also not pay for carbon offset in case Finnair would offer it in the future.

Again the Pearson’s chi-square test could prove that there is no significant relationship between the corporate and private customer’s opinion regarding the two questions whether the customer wanting Finnair to offer carbon offset and the question whether the customer ever paid for carbon offset. With other words the fact either a customer had paid for carbon offset so far or not did not bias the customers answer to the question whether he or she wants Finnair to offer carbon offset.

TABLE 14 Customers wanting Finnair to offer carbon offset.

	Customer paid already for carbon offset earlier					
	Corporate customers			Private customers		
	Total	Yes	No	Total	Yes	No
Fully agree	10%	0%	11%	13%	14%	13%
Agree	70%	100%	67%	45%	59%	42%
Don't know	0%	0%	0%	29%	21%	31%
Disagree	10%	0%	11%	7%	3%	8%
Fully disagree	10%	0%	11%	5%	3%	6%

The exact results from the Person’s chi-square test based on table 14 look as followed: Corporate customers  $\chi^2 = 0.476$ ,  $DF = 3$ ,  $p < .924$ , private customers  $\chi^2 = 3.340$ ,  $DF = 4$ ,  $p < .503$ .

## 6.5 Emissions calculator

The emissions calculator can be considered as a very useful tool in case a traveller wants to include environmental aspects into his or her booking decision. As already discussed earlier it is hereby essential that the emissions calculator is based on actual emissions figures and not on averages or assumptions. Finnair has launched the worldwide first emissions calculator that is based on actual emissions in autumn 2010. After the emissions calculator has been only available for about six month Finnair's customers were asked about if they have heard about the calculator, if they have use it and whether they could imagine that it will help them in decision making when booking a trip in the future.

When the corporate customers were asked if they have ever heard about Finnair's new emissions calculator or used it so far, altogether 3 out of 10 companies reported that they have heard about it but only 1 company has ever used it. To the question whether the results of the emissions calculator will have any impact when making travel plans in the future the only user of the calculator actually disagreed.

Additionally the corporate customers were asked if they could imagine that the information provided by Finnair's emissions calculator could help them to meet the emission goals set by their company. The majority of 50 per cent did not know any answer to this question, while 30 per cent agreed and 10 per cent either disagreed or fully disagreed.

The following table 15 compares the answers to these questions with the answers given by the corporate customers whether they take any environmental aspects into consideration when booking a flight.

TABLE 15 Emissions calculator to help meeting company's emission goals.

	<b>Do you consider the environment when booking a flight?</b>		
	Total	Yes	No
Fully agree	0%	0%	0%
Agree	30%	67%	14%
Don't know	50%	33%	57%
Disagree	10%	0%	14%
Fully disagree	10%	0%	14%

Table 15 shows that the majority of corporate customers which are taking environmental aspects into consideration when booking a flight also see the emissions calculator as an instrument for helping them to make informed decisions regarding the emission of a certain flight. The majority of respondents not taking any environmental aspects into consideration when booking a flight did also not have any opinion about the emissions calculators function as a tool to support the decision making. The significance test however could not find a statistical relationship between the answers of the two questions whether a company considers the environment when booking a flight and their opinion

about the usefulness of the calculator. The significance test delivered the following results:  $\chi^2 = 3.016$ ,  $DF = 3$ ,  $p < .389$ . Still it can be said that two-third of the participants who consider the environment when booking a flight also see the emissions calculator as a useful tool helping them to meet their emissions goals.

When asking the private customers the same questions 36 customers out of 148, which represents 24 per cent stated that they have already heard about Finnair's emissions calculator. Out of these 36 customers 13 have so far tested the emissions calculator but only 2 customers think that the results gained will have any kind of impact for their future travel plans. Those remaining 2 customers were asked in which way they think this results could have an impact on their future travelling plans and only one respondent answered that it makes one more aware of the fact how much you are polluting when flying.

Table 16 below displays now all participants of the private customer's questionnaire according to the age group they belong to, the amount of participants that have heard about the new emissions calculator before and the number of participants who finally used the emissions calculator according to their age.

TABLE 16 Participants who heard about and used the emissions calculator.

	<b>Participants current age</b>			
	Under 25	26-39	40-59	Over 60
Total amount of participants	31	79	30	8
Participants heard about the emissions calculator	8	24	4	0
Participants used the emissions calculator	4	9	0	0

Among the participants who have heard about the emissions calculator the number of the 26 to 39 years old is with 30 per cent quite high. Also among the under 25 years old 26 per cent have heard about the emissions calculator before. From the over 40 years old only a few have noticed the emissions calculator, in the group of the over sixties nobody has ever paid attention to it. When it comes finally to the question who has tried the emissions calculator a clear trend can be seen that with growing age the interest in testing is decreasing.

However the Pearson's chi-square test could not find a significant relationship between the participant's answers whether they have heard about the emissions calculator and the age group they are belonging to. The test results hereby were:  $\chi^2 = 6.151$ ,  $DF = 3$ ,  $p < .104$ . Though the Pearson's chi-square test concludes that there is no relationship between the answer and the age of the participants the p-value is quite low and close to the critical level of  $p < .05$  which would indicate a statistical significance. Therefore a certain trend towards the fact that with growing age the interest in testing is decreasing can be concluded.



## 6.6 Finnair's environmental performance

The Carbon Disclosure Project's 2010's Nordic Report attested Finnair regarding its environmental performance to be among the elite airlines on a global scale. This information is published on Finnair's web pages in the corporate responsibility section among many other useful information about how Finnair is trying to reduce emissions and its impact onto the environment. The question however is, does also the customer know about all this.

Therefore Finnair's customers were asked if they think that Finnair has a leading role in Europe when it comes to environmental responsibility. In both cases the majority of Finnair's customers did not know, among the corporate as well as the private customers around 60 per cent had no answer to this question. At least 30 per cent of the corporate customers agreed, the remaining 10 per cent fully disagreed with this statement. In the case of the private customers 34 per cent said that they think Finnair has a leading role in Europe while only 7 per cent did not found that Finnair is an environmental responsible airline. The Mean in the corporate customers statement was 2,90, the Standard Deviation for this question was ,876. In the case of the private customers questionnaire the Mean was 2,66 and the Standard Deviation was ,779. This confirms that at least some customers have recognized Finnair's environmental work and that hardly anybody does think the opposite, considering Finnair as an airline which does not care about the environment at all, as displayed in figure 12.

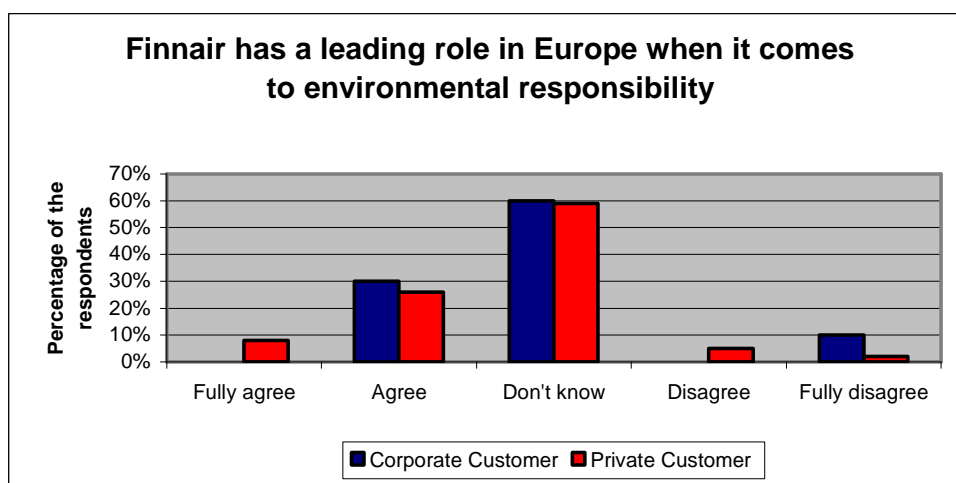


FIGURE 12 Finnair has a leading role in Europe in environmental responsibility.

The following table 17 shows the corporate and private customer's opinion regarding Finnair's environmental performance in connection with their answers whether they take any kind of environmental aspects into consideration when booking a flight or not.

TABLE 17 Customers considering Finnair as a responsible airline.

	<b>Customer considering the environment when flying</b>					
	Corporate customers			Private customers		
	Total	Yes	No	Total	Yes	No
Fully agree	0%	0%	0%	8%	13%	6%
Agree	30%	67%	14%	26%	29%	25%
Don't know	60%	33%	71%	59%	56%	60%
Disagree	0%	0%	0%	5%	2%	6%
Fully disagree	10%	0%	14%	2%	0%	3%

The figures gained from the corporate customer questionnaire showed that the majority of business customers who consider the environment when booking a flight also share the opinion that Finnair has a leading role in environmental responsibility. In the case of the private customers this figures are not so clear but a certain trend can be detected that those customers considering the environment when choosing a flight are tending towards the opinion that Finnair does care about the environment. This results show that those customers who care about the environment when they have to make booking decisions for flights are to a certain extent considering Finnair flights as a responsible choice.

Even if the figures in table 17 show certain trends as described above the Person's chi-square test could not find a clear significant relationship between the corporate and private customers opinion about Finnair's environmental performance and the question whether they consider the environment when booking a flight. The above stated hypotheses were not supported by the significance test as the results read: Corporate customers  $\chi^2 = 2.857$ ,  $DF = 2$ ,  $p < .240$ , private customers  $\chi^2 = 4.620$ ,  $DF = 4$ ,  $p < .329$ . Still comparing the test results the level of statistical significance was considerably higher among the corporate customer's than among the private customer's answers.

## 7 DISCUSSION

### 7.1 Reliability of the research

When evaluating the reliability of the research material received from the two questionnaires, both the internal and the external data reliability has to be taken into consideration. In a first step I will evaluate how well the collected data describes the aspects that the study has been focusing on, the *internal data reliability*. In a second step I will then ask whether it would be possible to draw universal conclusions on the basis of the data collected which displays the *external reliability*. This answers the question whether the research data could be generalized into a broader context. (Alkula, Pöntinen & Ylöstalo 1999, 44.)

The basic aim of this research was to find out what are Finnair's corporate and private customers attitudes towards environmental aspects of flying. To answer this question two online questionnaires were conducted among both customer groups. Within the theoretical framework six aspects were detected which are closely related to Finnair's environmental performance here called the six sources of environmental differentiation. According to these six aspects the two mostly identical questionnaires were designed. After presenting the results from the two questionnaires in chapter 6 it can be said that with the help of the collected data the attitudes Finnair's customers showed, towards the six aspects of environmental differentiation, could be described very well. The questionnaire clearly detected that Finnair's customers value the fact that Finnair is operating a modern fleet. Also the questionnaires proved that Finnair's customers value direct flights and shorter routes as long as they have not to pay more for it. The questionnaires also found that only 30 per cent of the participants in both customer groups take environmental aspects into consideration when booking a flight. Further on the questionnaires found that a majority of Finnair's customers have a positive attitude towards carbon offset and want Finnair to offer carbon offset as well. Only a minority of Finnair's customers has familiarized themselves with Finnair's new emissions calculator and the few who have tested it could not see a huge value in it.

Finally the questionnaires also detected that a majority of Finnair's customers did not have any opinion to the question whether they think Finnair has a leading role in Europe when it comes to environmental responsibility. It can therefore be concluded that for all these six aspects evident answers could be obtained from the participants, describing their attitudes towards environmental concerns of flying very clearly.

The data collected describes the aspects the study was focusing on very well but still the question remains whether it would be possible to draw universal conclusions on the basis of the results. Although both questionnaires delivered very good and interesting results certain limitations among the sampling and the demographic distribution could be detected.

While the sampling among the corporate customers was done very carefully by choosing only those companies which fulfilled certain criteria, no control was exercised over the fact who could take part in the private customer's questionnaire. The risk that the sample got biased by e.g. only those Finnair customers activated the link who consider any kind of environmental aspect when flying remained. The results of the first question even showed that 30 per cent of the participants never flew with Finnair in their life which means that only the remaining 70 per cent were "real" Finnair customers. As already explained earlier due to the fact that they had to visit the Finnair webpage to gain access to the questionnaire they were in this case considered at least as potential customers and their answers given were included into the data analysis. It can also be considered that some of the private customers who took part in the questionnaire were corporate travellers and that their attitudes might more display those ones of their company than their own attitudes. This assumption is supported by the fact that several of the participants in the private customer's questionnaire had Finnair Plus Gold and Platinum status which not often is achieved by private travellers. Further on also no control could be exercised over the demographics distribution of the participants in the private customer's questionnaire as no random sampling could be applied. While the distribution of the different age groups can be considered as quite fair the distribution of the gender is not very satisfying. Among the participants 65 per cent were male and only 35 per cent female.

When looking at the results from the corporate customer's questionnaire the amount of participants was with only 10 companies considerably low. Although the sampling was done very carefully no influence could be exercised on who out of the 50 chosen companies would respond to the questionnaire. It turned out that according to the question regarding the company size mostly the bigger companies took part in the questionnaire. The attempt to also include medium-sized Finnish companies into the sample was not really successful.

In summary it can be said that the results have certain *limitations* especially based on how the sampling was carried out. As already stated in chapter 5.6 it is very difficult to exactly define who belongs to the population of Finnair's private and corporate customers. Drawing a random sample would have been beyond the limits of this Master's thesis. Beside that a further

problem was the lack of access to any customer database which made it basically impossible to build up an appropriate sample. Keeping the limitations of this research in mind we should nevertheless not hesitate to draw general conclusions based on the data received. Especially the high respondent rate in the case of the private customer's questionnaire but also the fact that members of all age groups were present in the sample clearly speaks for the reliability of the research.

## 7.2 Answers to the research problem

The basic research question for this study was to find out what are Finnair's corporate and private customers' attitudes towards environmental aspects of aviation. Therefore six aspects of environmental differentiation were chosen that are unique for Finnair and both customer groups were asked various questions regarding their attitudes to these aspects, what kind of value do they see in these aspects and how do they perceive these values. In the following sub-chapters the customers' attitudes will be presented in terms of these six environmental aspects. In a second step and based on the customers' attitudes *recommendations* will be given to Finnair how competitive advantage could be gained through environmental responsibility.

### 7.2.1 Modern fleet

As the presentation of the results showed, all corporate customers and a majority of the private customers value the fact that Finnair is operating a modern fleet. Finnair's customers really perceive the fact that operating a modern and fuel efficient fleet is better for the environment. This environmental aspect can therefore definitely be seen as a competitive advantage factor for Finnair.

Therefore Finnair should even more *actively communicate* the fact that they are flying one of the *youngest fleets in the industry*. Finnair should also mention that they have ordered *next generation aircraft* design and will be among the first ones operating them. The results also showed that among the private customers especially female participants did not agree so strongly with the statement that operating a modern fleet would be better for the environment than male participants did. Here it could be considered to focus the communication especially towards *female* customers by educating them more about the aspects of flying a modern fleet. Only if the customers are aware of the fact that flying a modern fleet really makes a difference they can make the right decision when booking a flight the next time.

### 7.2.2 Shorter routes

The results of the questionnaires showed that among both customer groups, travellers see a certain value in shorter routes and direct flights. Especially the corporate customers prefer non-stop flights on their way to their final destination. The results also showed that both corporate and private customers are very price sensitive. Although they value shorter routes, their willingness to pay a premium for that was not very high. Offering the shortest routes between Europe and Asia as well as from Helsinki to many destinations in Europe, Asia and Northern America could be a competitive advantage factor for Finnair as the customers really perceive this as a value. The problem here is Finnair's higher airfare which can be seen as a barrier for some customers to switch from cheaper airlines such as Air Baltic or Scandinavian Airlines towards Finnair.

Basically it can be said that both Finnair's corporate and private customers don't value shorter routes and direct flights as long as they are more expensive. Anyhow the results showed that among the corporate and the private customers were also participants who are aware of the environmental impacts of connecting flights and unneeded take-off and landing cycles. Therefore Finnair should *better communicate* the fact that flying shorter routes is better for the environment. The *emissions calculator* could hereby act as a very useful tool to convince air travellers as they can very easily compare different flight options just with a couple of clicks. If customers get more aware of the fact that this has an impact, as some already know, they could make the right decision by flying with Finnair instead of e.g. Air Baltic or SAS.

### 7.2.3 Environmental concerns of flying

The results showed that a minority of 30 per cent in both customers groups take environmental aspects into consideration when booking a flight. Even if this share is quite small the quality of the answers showed that this minority of customers has quite a good understanding of the environmental aspects of flying. However when the corporate customers were asked if they see additional value in a flight that produces less emission and whether they would be ready to pay more for it the trend showed more towards no. The analysis showed that those corporate customers who consider the environment when booking a flight are not ready to pay more for it. They see value in the aspects such as operating a modern fleet and flying shorter routes but they don't have any willingness to pay a premium price for it. The ticket price is still the aspect which matters most for corporate customers when booking a flight.

The answers from the private customers showed slightly different results and no clear trend towards a willingness or not to pay a premium price for a less polluting flight could be detected. Still the private customers seem to see more value in a less polluting flight and show more willingness to pay a premium price than the corporate customer. As long as at least some of the customers see value in a less polluting flight option and are willing to pay more for it Finnair can gain competitive advantage out of the fact that they are

offering such flights. Nevertheless the results from the corporate customer's questionnaire also showed that it is not a lack of information why those customers do not want to pay a premium but just the price sensitivity. To convince those customers to pay a premium price for environmental quality might be very difficult.

As already discussed in chapter 4.3 there is always a risk that the customer suspects "greenwashing" when a company and in this case especially when an airline wants to convince a customer to act more eco-friendly by buying their product. Finnair should be *honest* and state clearly that flying does not have a positive effect for the environment but that choosing the right airline can improve things quite a lot. Finnair should also *not hesitate* to show that they care about the environment in various ways, not only by flying a modern fleet and shorter routes but also by recycling waste, saving energy and optimizing all its processes to keep its environmental impacts as low as possible.

#### 7.2.4 Carbon offset

Similar to the results of earlier studies as presented in chapter 4.4 asking air travellers whether they would be interested in paying for carbon offset, also this study found that the majority of Finnair's customers see a big value in carbon offset and think that it has a positive effect for the environment. When asking the customers if they would like that Finnair offer them carbon offset as well, both corporate and private customers showed a strong interest. However the analysis also detected that among those customers who think that Finnair should offer carbon offset, only a bit more than half of them ever paid for carbon offset so far. It might therefore be considered that in theory customers are interested in carbon offset but in practice, once Finnair would offer it not all of the customers would really go and pay for it.

Although a majority of Finnair's customers are basically asking Finnair to offer carbon offset, there are also customers, mostly among the group of private customers, who do not think that carbon offset has a positive effect for the environment or do not know what carbon offset means. As a *matter of principle* Finnair should not offer carbon offset at all. Instead Finnair should communicate clearly to their customers that offering carbon offset only shifts the responsibility from the airline to the air traveller and that Finnair as a responsible airline is *not willing to give up the responsibility* for its emissions. Flying Finnair means solving the problem of aircraft emissions right at the roots especially by flying a modern fleet and shorter routes. Carbon offset instead is just an excuse for airlines such as e.g. Scandinavian Airlines who do not want to invest into a modern fleet trying to let the customer solve the problem after the emission have been produced by paying a couple of euros after each flight on a voluntary base. Flying Finnair instead shows one of the best solutions for the aircraft emissions problem and replaces the need of paying for carbon offset. If some Finnair customers still feel that they want to pay for carbon offset additionally, numerous private organisations can be found on the internet offering carbon offset. Here Finnair's competitive advantage could be seen in

the fact that Finnair is not offering carbon offset but instead a *much better solution* namely flights that produce less emissions, solving the problem right from the beginning. Finnair should communicate this fact more clearly through their marketing channels.

### 7.2.5 Emissions calculator

Indeed a very useful tool, Finnair's new emissions calculator has not attracted the interest of so many customers so far. Especially the answers from those few active users which took part in the private customer's questionnaire did not show that Finnair's private customers really perceived the value of this calculator. Anyhow the analysis also showed that among the corporate customers who take environmental aspects into consideration when booking a flight a majority agreed that they could imagine that the emissions calculator could help them to better manage their emissions. The emissions calculator could help them to meet their company's emissions goals when preferably using Finnair for their business trips. Although being the first airline worldwide who has introduced an emissions calculator based on actual emission figures and not just on averages or assumptions this will not bring Finnair any competitive advantage as long as it does not attract the customer's interest.

Finnair should much stronger communicate the *existence of this emissions calculator* so that more customers are going to use it. Maybe the emissions calculator should not be just hidden at the corporate responsibility section of Finnair's web pages but should be *integrated into the main page* or the section where the customers are making their bookings. Also in the *Finnair Plus newsletters* the emissions calculator could be presented more often. Finnair could also *actively promote the integration* of emissions calculators that are based on actual emissions on other travel websites such as e.g. ebookers.com or cheapflights.com. This would of course require that also other airlines are reporting their actual emissions which could lead to a competition between airlines not only regarding price or service but also concerning the environmental performance and emissions of airlines. As this study found that a majority of travellers, both corporate and private might be very price sensitive and will also do their booking decisions in future according to the ticket prices, there are also air travellers who want to choose the flight according to the emissions it produces. Being one of the leading airlines in terms of environmental responsibility this could bring Finnair competitive advantage among the segment of customers who consider the environment when booking a flight.

### 7.2.6 Finnair's environmental performance

The results showed that a majority of Finnair's corporate and private customers do not have an answer when they were asked whether they think Finnair has a leading role in Europe when it comes to environmental performance or not. On the other side, those one's which could answer the question mostly tend to



agree with this statement which shows that they have perceived Finnair's overall environmental performance. Especially among the corporate customers who stated that they take environmental aspects into consideration when booking a flight the majority also values Finnair's environmental work.

The analysis detected that those Finnair customers who consider the environment when choosing a flight have a quite good knowledge about Finnair's environmental performance. The analysis also showed that the group of customers who consider the environment is with about 30 per cent both among the corporate and private customers quite small. Finnair should therefore *not hesitate* to communicate its environmental work more openly to also attract customers which have so far maybe not taken any environmental aspects into consideration when they were booking flights. Statements such as Finnair is operating the youngest fleet within the industry can easily be proofed by the average age of the fleet and no competitor can claim this e.g. as greenwashing. Also the emissions calculator *delivers clear figures* and can in most of the cases proof that a Finnair flight is the better choice, simply by the fact that the distance between origin and final destination is as a matter of fact shorter. There might be more air travellers out there which not only care about the ticket price when booking a flight. The problem is as long as nobody informs them that it can make a difference which flight to choose they might believe that all airlines are the same. They naturally think why they should not just choose the cheapest option as they cannot see any real difference.

### **7.3 Potential future research related to the subject**

After this study has detected how Finnair could gain competitive advantage through its environmental responsibility based on their customer's attitudes towards environmental aspects of aviation, the next step would be now to use this information to attract new customers flying with Finnair. In the previous chapter 7.2 several recommendations were given how Finnair should include their environmental work into their communication and marketing. Still further research would be necessary to detect what kind of *marketing instruments* could be used and how they should be applied. Also the question remains how Finnair could gain access to those potential customers who see value in some of those six aspects of environmental differentiation as presented in the research.

To gain more knowledge about the corporate customer's attitudes also further questionnaires could be conducted among *small and medium sized companies* as in this research only answers from larger companies could be obtained.

The research also identified a certain price sensitivity among the corporate as well as among the private customers. Even if there could be some willingness detected among the participants of the research to pay a higher airfare for a less polluting or shorter flight the question remains how much

more in particular an air traveller would be ready to pay. Finding *numerical results* to this question could be an idea for a further research as well.

Further on it could also be studied what kind of impact the integration of emissions calculators based on actual emission figures into travel websites such as e.g. ebookers.com or cheapflights.com could have onto the environmental behaviour of stakeholders of the aviation industry. Would this lead to more competition between airlines regarding their environmental performance and how would that *influence* the decision making process of air travellers when booking flights?

Based on the question how Finnair's customers evaluate Finnair's overall environmental performance compared to other European airlines a further study could be carried out asking how air travellers in general evaluate the different European airlines regarding environmental commitment. This *customer ranking* could then be compared with the real environmental performance of the airlines which could certainly deliver insightful results.

## 8 CONCLUSION

The basic aim of this research was to provide Finnair with information about their customer's opinions and attitudes towards environmental aspects of flying. Based on that the research tried to detect how Finnair could gain competitive advantage through its environmental performance.

This research found that Finnair's environmental performance can be considered as *unique* in the market, bearing a high potential for *competitive advantage*. At the same time Finnair is operating in a highly competitive environment with above average and uncompetitive air fares. The results from the questionnaire showed that Finnair's customers appreciate the modern fleet and shorter routes Finnair is offering but that they do not show a strong interest in paying more for such a flight. The study found that a large amount of air travellers are quite price sensitive. On the other hand the study also found that there are certain air travellers who consider the environment when choosing a flight and that some of them are ready to pay a premium price for a less polluting flight.

Therefore Finnair should more clearly communicate its environmental work because as the results showed not many Finnair customers are really aware of the fact that Finnair is among the leading airlines when it comes to environment responsibility. One very useful tool to convince passengers can definitely be seen in the *emissions calculator* based on actual emissions. With a few clicks anyone can easily see that flying Finnair is in many cases the better option. Only if the air traveller is aware of the fact that choosing the right airline can make a difference for our environment, he or she can make the right decision when booking a flight the next time.

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## Appendix 1: Finnair's corporate customers contact details

Company	Contact person	Function of the contact person
Nokia	Esko Aho	Vice President Corp. Relations and Responsibility
Neste Oil	Simo Honkanen	Senior Vice President Sustainability and HSSE
Stora Enso	Marjaana Luttinen	Vice President Environment Finland
Kesko	Helena Frilander	CR Manager, Corp. Communic. and Responsibility
UPM Kymmene	Unknown	Group Corporate Responsibility
Tamro	Terhi Kivinen	Director Communications and Corp. Responsibility
Fortum	Kari Kankaanpää	Sustainability Manager climate and environment
Wärtsilä	Unknown	Group Sustainability
Metso	Perttu Louhiluoto	President Energy and Environmental Technology
Metsäliitto	Anu Salonsaari-Posti	Vice President Communications
Kone	Anne Korhikoski	Vice President Marketing&Communications
Nordea	Unknown	Group Corporate Responsibility
YIT Group	Unknown	General Company E-Mail Address
Sanoma-WSOY	Unknown	Group Communications
Outokumpu	Tuomas Haikka	Vize President Corporate Responsibility
Cargotec	Unknown	Group Communications
Kemira	Aarno Salminen	Environmental Manager
Huhtamäki	Unknown	Group Sustainability
Lemminkäinen	Johanna Aarnio	Head of Environment and Safety
Rautaruukki	Toni Hemminki	Senior Vize President Technology and Environment
Itella	Hanna Kaustia	Director of Itella's Environmental Program
Stockmann	Nora Malin	Corporate Communications Manager
Telia-Sonera	Minna Pajala-Hammar	Group Corporate Responsibility
Konecranes	Mikael Wegmüller	Vice President Marketing and Communications
Ahlstrom	Anna Wessman	Corporate Environmental Manager
Onvest	Leila Mattila	Management Assistant Communications
Amer Sports	Unknown	Group Communications
Fazer	Ulrika Romantschuk	Senior Vize President Communications
Elisa	Katiye Vuorela	Vize President Communications
Atria	Hanne Kortesoja	Manager Corporate Communications
Myllykoski	Unknown	Group Sustainability
Sampo Pankki	Timo J Anttila	Communication Manager
Gasum	Minna Ojala	Group Communication Manager
ST1	Liisa Joenpolvi	Marketing Communications Manager
Outotec	Harald Huppe	Sustainability Specialist
Skanska	Kaisa Kekki	Sustainability Manager
Nokia Renkaat	Sirkka Leppänen	Environmental, Health, Safety and Quality Manager
Fiskars	Unknown	General Company E-Mail Address
DNA	Vilhelmiina Wahlbeck	Communication Manager
NCC Rakennus	Ritva Norrgrann	Communication Manager
Vapo	Reijo Vatanen	Group Director Communications
Patria	Unknown	General Company E-Mail Address
Finnlines	Unknown	General Company E-Mail Address

Company	Contact person	Function of the contact person
Viking Line	Johanna Boijer	Public Relations Manager
Valtra	Unknown	General Company E-Mail Address
Vaasan	Anja Kuparinen	Human Resource & Corp. Responsibility Director
Sinebrychoff	Timo Mikkola	Communication Manager
Hartwall	Tuija Kleimola	Head of Communications
Polar Electro	Matti Verkasalo	Director Quality
Burger-In	Aanamaaria Ylinen	Human Resource Manager

## Appendix 2: Cover letter for invitation to the questionnaire

**Subject:** Finnair – Invitation to research interview

Dear Mr / Ms ,

In the field of environmental responsibility, airlines are currently playing a particularly important role in the climate change debate. The University of Jyväskylä is at the moment researching how environmental concerns could influence the decision making within companies when arranging business trips.

For gaining deeper understanding how this decisions are made, we are conducting a web-based survey. Because of your commitment to corporate responsibility your company was chosen to be among the 50 Finnish companies which are invited to take part in this study.

Filling in the questionnaire should not take more than 10 minutes of your time. You can access the questionnaire via the link provided below:

<http://mrinterview2.ad.jyu.fi/mrIWeb/mrIWeb.dll?I.Project=FINNAIRCORPORATE>

In case you are not familiar with the purchasing decisions of your company regarding business trips, please forward this E-mail to your company's travel manager or alternatively to your corporate responsibility department.

We would kindly like to ask you to fill in this questionnaire before April the 1<sup>st</sup>.

In case you do have any questions, please don't hesitate to respond to this E-mail.

Yours sincerely,

Stefan Baumeister

M.Sc. Student Corporate Environmental Management

School of Business and Economics

University of Jyväskylä

[stefan.c.baumeister@jyu.fi](mailto:stefan.c.baumeister@jyu.fi)

## **Appendix 3: Questionnaire Finnair private customers**

### **1. Introduction**

Dear participant!

In the field of environmental responsibility, airlines are currently playing a particularly important role in the climate change debate. Finnair wants to be the choice for environmentally conscious travellers and is seeking for new ways how to reduce its emissions.

Taking care of the environment is a very crucial issue and your views are highly valued. Taking part in the questionnaire should not take more than 10 minutes.

This web interview is part of a Master's Thesis research project and is carried out by the University of Jyväskylä, the School of Business and Economics.

The information provided by you will only be used for data analysis within the University of Jyväskylä, individual participants cannot be identified from the report and your responses are absolutely confidential.

Thank you for taking part in this questionnaire!

### **2. How often do you usually fly with Finnair?**

- Once a year
- 2-3 times per year
- Every month
- I never flew with Finnair so far

### **3. When booking a flight how important are the following aspects for you?**

#### **a. Price**

- Very important
- Important
- Less important
- Not important

#### **b. Total flight time (including transfers)**

- Very important
- Important
- Less important
- Not important

#### **c. Non-stop flight to final destination**

- Very important
- Important
- Less important
- Not important

#### **d. Suitable departure and arrival time**

- Very important
- Important
- Less important
- Not important

**e. Finnair's new identity as a design airline**

Very important  Important  Less important  Not important

**4. Do you take environmental aspects into consideration when booking a flight?**

- Yes  
 No

If yes please specify what kind of environmental aspects you are taking into consideration when booking a flight:

**5. In the following section we will present you several statements and ask you kindly to respond whether you agree or you not agree.**

**6. Finnair has a leading role in Europe when it comes to environmental responsibility.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**7. Operating a modern fleet (that means flying new planes) is better for the environment.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**8. I accept stopovers on my way to my final destination if the ticket prices are therefore much lower (e.g. flying from Helsinki to Frankfurt with changing planes in Riga or Copenhagen).**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**9. I am ready to pay more for a flight that is producing less emissions.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**10. I am interested in donating some of my Finnair Plus-Points to projects aiming the recovery of our nature e.g. to the Baltic Sea Action Group or the Finnish Association for Nature Conservation / Suomen Luonnonsuojeluliitto.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**11. I think paying for carbon offset has a positive effect on the environment.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**12. Finnair should offer the possibility to pay for carbon offset as well.**

- I fully agree  I agree  I don't know  I disagree  I fully disagree

**13. Have you ever paid for carbon offset while you booked a flight?**

- Yes  
 No

**14. Have you heard about Finnair's new emissions calculator? (that is based on actual cargo, passenger and fuel consumption figures, not averages or assumptions and is certified by PricewaterhouseCoopers.)**

- Yes  
 No

**15. Have you tried the new Finnair emissions calculator?**

- Yes  
 No

**16. Do you think that the Finnair emissions calculator will have any impact when you make travel plans in the future?**

- Yes  
 No

Please specify in which way the results of Finnair's emissions calculator could influence your decision making about further travelling plans:

**17. The following section contains questions about background information. The information provided by you will only be used for data analysis, individual participants cannot be identified from the report and your responses are absolutely confidential.**

**18. What is your gender?**

- Female  
 Male

**19. What is your current age?**

- under 25  26-39  40-59  over 60

**20. Are you a Finnair Plus member?**

- Yes
- No

**21. What is your Finnair Plus member status?**

- Finnair Plus Basic  Finnair Plus Silver  Finnair Plus Gold
- Finnair Plus Platinum  Finnair Plus Junior

**22. Do you have any comments or notes?****Appendix 4: Questionnaire Finnair corporate customers****1. Introduction**

Dear participant!

In the field of environmental responsibility, airlines are currently playing a particularly important role in the climate change debate. The University of Jyväskylä is at the moment researching how environmental concerns could influence the decision making within companies when arranging business trips.

Hereby we have chosen Finnair as a study subject, due to the fact that Finnair is considered to be a responsible airline, continuously seeking for new ways how to reduce their emissions.

Taking care of the environment is a very crucial issue and we highly value your opinion. Therefore we would greatly appreciate your views and kindly ask you telling us more about your opinions. Taking part in the questionnaire should not take more than 10 minutes.

The information provided by your company will only be used for data analysis within the University of Jyväskylä, individual participants cannot be identified from the report and your responses are absolutely confidential.

Thank you for taking part in this questionnaire!

**2. How often does your company usually use Finnair for business trips?**

- Once per year  2-3 times per year  Every month  Every week
- Every day  We don't fly with Finnair

**3. When booking a flight how important are the following aspects for your company?**

**a. Price**

Very important  Important  Less important  Not important

**b. Total flight time (including transfers)**

Very important  Important  Less important  Not important

**c. Non-stop flight to final destination**

Very important  Important  Less important  Not important

**d. Suitable departure and arrival time**

Very important  Important  Less important  Not important

**e. Finnair's new identity as a design airline**

Very important  Important  Less important  Not important

**4. Does your company take any environmental aspects into consideration when booking a flight?**

Yes

No

If yes please specify what kind of environmental aspects your company are taking into consideration when booking a flight:

**5. In the following section we will present you several statements and ask you kindly to respond whether you agree or you not agree.**

**6. Finnair has a leading role in Europe when it comes to environmental responsibility.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**7. Operating a modern fleet (that means flying new planes) is better for the environment.**

I fully agree  I agree  I don't know  I disagree  I fully disagree



**8. We accept stopovers on our way to our final destination if the airfare is therefore much lower (e.g. flying from Helsinki to Frankfurt with changing planes in Riga or Copenhagen).**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**9. Our company is ready to pay more for a flight that is producing less emissions.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**10. We are interested in donating some of our Finnair Plus-Points to projects aiming the recovery of our nature e.g. to the Baltic Sea Action Group or the Finnish Association for Nature Conservation / Suomen Luonnonsuojeluliitto.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**11. We think paying for carbon offset has a positive effect on the environment.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**12. Finnair should offer the possibility to pay for carbon offset as well.**

I fully agree  I agree  I don't know  I disagree  I fully disagree

**13. Has your company ever paid for carbon offset while you booked a flight?**

Yes  
 No

**14. Have you heard about Finnair's new emissions calculator? (that is based on actual cargo, passenger and fuel consumption figures, not averages or assumptions and is certified by PricewaterhouseCoopers.)**

Yes  
 No

**15. Have you tried the new Finnair emissions calculator?**

Yes  
 No

**16. Do you think that the Finnair emissions calculator will have any impact when you make travel plans in the future?**

- Yes
- No

Please specify in which way the results of Finnair's emissions calculator could influence your decision making about further travelling plans:

**17. Based on the information provided by the emissions calculator do you think that using Finnair as your preferred airline for business trips could help you to meet the emissions goals set by your company?**

- I fully agree
- I agree
- I don't know
- I disagree
- I fully disagree

**18. The following section contains questions about background information. The information provided by your company will only be used for data analysis, individual participants cannot be identified from the report and your responses are absolutely confidential.**

**19. What is the size of your company?**

- Under 100 employees
- 100-250 employees
- 250-500 employees
- 500-1000 employees
- 1000-3000 employees
- Over 3000 employees

**20. Is your company member of the Finnair Corporate Programme?**

- Yes
- No

**21. What is your company's current status in the Finnair Corporate Programme?**

- Basic
- Silver
- Gold
- Platinum

**22. Do you have any comments or notes?**