Air cargo alliances: Walking on a Thin Line

A study on the impact of air cargo alliances

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Summary

Within the air passenger industry alliances are important too. According to Wan et al. (2009) the three largest alliances (Star Alliance, OneWorld Alliance and SkyTeam Alliance) dominate the industry. Although alliances are well-known within the air cargo industry, Zhang et al. (2006) and Zhang et al. (2007) conclude that further research is required to examine the position and role of air cargo alliances. In comparison with the participation in air passenger alliance, it seems that airlines are more reluctant to join an alliance. In order to fill this knowledge gap, this study is therefore focussed on the reasons and motives for joining or creating air cargo alliances, compared to the situation within air passenger alliances.

Literature study

In the literature several reasons and motives can be found for the creation of an alliance (Wan et al. (2009), Zhang et al. (2004), Zhang et al. (2006), Cruijssen et al. (2007), Gudmundsson and Lechner (2006) and Czipura and Jolly (2007)):

• To obtain access to new markets and to provide new services
• Benefit from economies of scale
• Jointly development of services and improvement of airline performance
• To maximize the level of operating, marketing integration and revenues
• Avoid restrictions from bilateral agreements
• As a response to increased competition

Research method

This study included a literature study and a case study. The investigation was firstly focused on the air passenger alliances; this was purely conducted through a literature study. The findings were translated into tentative answers, based on the tentative answers, the cases were studied.

Four interviews were conducted with four selected companies. The selected companies were; Air France-KLM Cargo (member of SkyTeam Cargo alliance), Lufthansa Cargo (member of WOW Cargo alliance), Malaysia Airlines Cargo/MASkargo (non-alliance) and Cargolux (non-alliance). This approach allowed the researcher to gain information from both alliance members and non-alliance members. Data has been collected primarily through interviews. The informants of the companies involved were not randomly chosen, but were chosen because they have specialized knowledge and experience on the subject of alliances within the air cargo industry. Apparently, air cargo alliances are reluctant to enter or create an alliance, compared to air passenger airlines. In order to understand why air cargo carriers are more reluctant to create or to participate in an alliance, the characteristics of air passenger alliances and air cargo alliances have been compared.

Research questions and tentative answers

The result of this analysis was translated into tentative answers of the research questions.

1. What are the reasons for airlines to join or create an air cargo alliance?
   • Increase customer benefit
   • To expand its network
   • Cost reduction
   • Product improvement
   • Threat of its market position by integrators

2. How do these reasons differ from the foundations of other alliances, especially compared to air passenger alliances?
   • Legislation is not a reason to create an air cargo alliance.
   • Air cargo alliances are created as a response to the expansion of integrators
• Clients of air cargo airlines have, different needs compared to clients of air passenger airlines.

3. How could these differences be explained and what are the consequences?
• Air cargo carriers could use various transportation modes to ship its shipment to an off-line destination; as a result there is no need to cooperate.
• Increased competition from integrators; they are expanding their market spectrum
• Clients of air cargo alliances have different needs
• There is dependency between the growth of the global economy and the importance of international alliances.

4. What is the impact of air cargo alliances on carriers?
• A complementary alliance tends to enhance economic welfare.
• Partner airlines generally increase profits, whether they have a complementary alliance to reduce operating costs or through joint operation of services.
• Loose some control over their most important assets by making them accessible to other members of the alliances.
• Enables airlines to enlarge its network and increase the quality of the services (Wan et al. (2009), Park et al. (2003) and Zhang et al. (2004).

Conclusions and recommendations
Clients of air cargo airlines do not believe that an air cargo alliance could add extra value to the product, confirming one of the tentative answers. For a large part this conclusion can be explained through the needs and characteristics of its clients. Although an air cargo alliance is not able to create and improve customer benefits, large air cargo airlines like Korean Air Cargo and Air France-KLM Cargo, have decided to create an air cargo alliance. This research has found the following reasons and motives:
• According to both Air France–KLM Cargo and Lufthansa Cargo, the advantage of an alliance is the creation of synergies.
• The aims of the SkyTeam Cargo alliance are to align the services of the alliance members, not only in order to generate savings through the creation of synergies, but also to offer a standardised product portfolio.
• For Lufthansa Cargo the reason the WOW Cargo alliance was created was the believe that marketing methods would also be successful within the air cargo business. The second aim was to offer a one-stop-shop service to its customers.

This research has found that air cargo airlines are reluctant to enter an alliance. As there is still a need to cooperate, air cargo airlines use other forms such as, bilateral agreements and joint ventures. In the end, it can be concluded that an air cargo alliance could create a number of substantial benefits for the airline involved. However, the current circumstances in the industry do not stimulate the creation of air cargo alliances. Competition agencies have created various impediments and there is a continuous threat that an alliance could be more beneficial for a partner or competitor. Joining an alliance could therefore create high risks for an airline, with a possible low return on investments through the lack of customer benefits. Future studies could investigate whether or not the other members of the same alliance use the alliance in the same way. In order to gain more insight in the position of clients and final customer within strategic cargo partnerships, future studies could be focused on these groups. This study suggests that their decisions will structure strategic air freight collaborations. Because there is a clear dependence between the creation of air cargo alliances and the policies of competition agencies, future research should also be focused on these policies.
1 Introduction

1.1 Purpose of this study and research questions

Forming alliances are generally a strategy that companies use for acquisition or internal development as means of expanding is not an option (Iatrou and Alamdari 2005). Global airline strategic alliances have emerged since the late 1980s, and their numbers have slowly risen through the years (Fan et al. 2001).

Global alliances are a common feature within the air transport industry. Starting in 1991 when KLM and Northwest Airlines founded the first alliance within this industry (Morrell and Pilon 1999), various other constellations followed, some successful others were not. Zhang (2005) considered a strategic alliance to be a medium- to long-term partnership of two or more firms, their goal to improve the partners competitive advantages collectively, vis-à-vis their competitors. In other words, strategic alliances are different from ordinary alliances in that the partners make a serious commitment to cooperate, not only on operational matters but also on key strategic matters. These include new product development, market access and linkages, quality improvement and pricing and capacity coordination.

There are various reasons and motives for the creation of an alliance (Wan et al. (2009), Zhang et al. (2004), Zhang et al. (2006), Crujissjen et al. (2007), Gudmundsson and Lechner (2006) and Czipura and Jolly (2007)):
- To obtain access to new markets and to provide new services
- Benefit from economies of scale
- Jointly develop, market and improve airline performance
- To maximize the level of operating, marketing integration and revenues
- Avoid restrictions from bilateral agreements
- As a response to increased competition

There are various examples of successful alliances within the airline industry. Wan et al. (2009) have conducted a research on the three largest alliances (Star Alliance, OneWorld Alliance en SkyTeam Alliance, involving 36 airlines). Together, these alliance account for 76.3% (29.1% Star Alliance, 21.5 % OneWorld Alliance and 25.7% SkyTeam Alliance) of the global market based on revenue passenger-kilometres. This does not immediately prove the success of an alliance, but proves that this kind of cooperation is an important phenomenon within the airline industry.

Within the air cargo industry, alliances are a common form of cooperation too. Although alliances are uncommon within the air cargo industry, the majority of studies are focused on the air passenger market. Little is known about air cargo alliances (Houghtalen et al. to be published, Zhang and Zhang 2002). A notable exception is the work of Zhang et al. (2007) who described the Cargo 2000 alliance. Within the Cargo 2000 alliance various airlines work closely with express couriers (AEI (Air Express International), Danzas and DHL). Examples that are more recent are the alliances that have been created in the shadow of air passenger alliance; WOW Aircargo Alliance and the SkyTeam Cargo Alliance (Zhang et al. 2007 en Houghtalen et al. to be published). These two alliances involve nine airlines (Wan et al. 2009, Zhang et al. 2007 and Houghtalen et al. to be published).

Zhang et al. (2006) and Zhang et al. (2007) concluded that further research is required to examine the position and role of air cargo alliances. Although Intermodal alliances in the air cargo industry are largely a recent development, it is difficult to conduct systematic, empirical investigations into
how they have performed, before and after their alliance. There is nevertheless a need to carry out such investigations by future research (Zhang et al. 2007).

It seems that passenger airlines are more eager to join an alliance, compared to cargo airlines. The air cargo airlines seem more reluctant to join an alliance than passenger airlines. Although much has been written about the motives for joining or creating air passenger alliances, little is known about the position and role of alliances within the air cargo industry and the motives for joining an air cargo alliance. This study is therefore focussed on the reasons for joining or creating air cargo alliances, compared to the situation within air passenger alliances. The research questions are:

1. What are the reasons for airlines to join or create an air cargo alliance?
2. How do these reasons differ from the foundations of other alliances, especially compared to air passenger alliances?
3. How could these differences be explained and what are the consequences?
4. What is the impact of air cargo alliances on carriers?

1.2 Methodology

For this research, two research methods were used: a study of the available literature and a case study. According to Doz (1996), Bagchi and Virum (1998) and Bhatnager and Viswanathan (2000) a case study remains the principal method for studying alliances. Case study research is appropriate when the research focuses mainly on how and why questions.

The case study was focused on the airlines active within the two main air cargo alliances: WOW Aircargo Alliance and the SkyTeam Cargo alliance (Zhang et al. 2007). The SkyTeam Cargo alliance and the WOW Aircargo Alliance are two examples of air cargo alliances, which were created according to the definition of an alliance by IATA (International Air Transport Association) (Zhang et al. 2004, Houghtalen et al. to be published and Iatrou and Alamdari 2005).

The data was collected primarily through interviews. The informants of the companies involved were not randomly chosen, but were chosen because they have specialized knowledge and experience on the subject of alliances in the air cargo industry. Four companies were selected: Air France-KLM Cargo (member of SkyTeam Cargo alliance), Lufthansa Cargo (member of WOW Cargo alliance), Malaysia Airlines Cargo (not an alliance member) and Cargolux (not an alliance member). Members from the Amsterdam offices were approached for an interview. Respondents were interviewed based on a semi-structured interview, allowing for elucidation, elaboration and clarification. The use of a semi-structured interview is in line with the nature of the exploratory research objectives. The respondents were interviewed in November 2009 and January 2010.

In-depth semi-structured interviews were conducted by means of face-to-face contact. Draft reports were sent to the respondents, reporting back the tentative analyses and conclusions from the interviews, which provided them with the opportunity to:

• improve the match with the intended information
• explore issues in more detail

This thesis is divided into several sections. In the first section the definition and purpose of an alliance in general will be described, further the alliances within air passenger industry are described and finally the current alliances within the air cargo industry are described. Based on the theory and the conclusions from the theory the two alliances are analysed via a case study. This thesis will be concluded with the findings from the case study, followed by the discussion and implications of the findings.
2 Literature study

2.1 The air cargo industry
Air Cargo, constituted by cargo and mail together, represents less than 1% of the world’s transportation work when putting air, rail, shipping and trucking together. The value, however, of this 1% cargo carried, is around 10% of all goods commercially transported in the world (Grönlund and Skoog 2006).

Whether it travels direct, or hubs through one or more airports, is of lesser consequence than for passengers. It is also insensitive to transfer flight synchronization, and to airport terminal services. By contrast, air cargo is sensitive to different factors, including whether pallets need a change of aircraft is required, whether pallets need to be broken down and rebuilt, and the cost of trans-shipment handling.
In addition, cargo flows are unbalanced, or unidirectional, much more flows from Asia to the US than from the US to Asia, for example. By contrast, passenger air travel is much more balanced: passengers tend to make a two-way journey (from home to destination and back again) (Zhang and Zhang 2002).

Trying to understand the air cargo business requires forgetting about passenger business for the following reasons (Otto 2006):
• Air cargo does not fly return. The directionality of air cargo is in line with the economic trade flows and these are unequal. The non-parity of air cargo transport does not correspond with the traditional return-flight philosophy of airlines.
• Air cargo is a heterogeneous good and comes in numerous shapes, weights and values. The heterogeneity of air cargo bears a challenge for efficient load planning.
• Three in-flight-products suffice to satisfy the demands of most airline passengers. Due to the heterogeneous nature of air cargo shipments, numerous different transport solutions must be available for air cargo. The heterogeneity of air cargo translates into a significantly higher complexity of process.
• Cargo customers are concentrated, with a limited number of forwarding agencies accounting for the major share of air cargo demand, whereas countless individuals and companies purchase passenger tickets. The bargaining power of the customer in the air cargo business is significantly higher than in the passenger business.
• Numerous companies can be involved in realizing the air cargo transport chain to fulfil the required transport, handling, warehousing and customs tasks. Unlike passenger airlines, air cargo carriers do not have individual customer relationships.

The air cargo industry is considered to be a part of the services sector. Figure 1 describes the traditional air cargo chain (Otto 2006). Two flows are mentioned:
• The transportation of the cargo. The flow includes functional communication with the various participants.
• The commercial communication. These communication flows are emphasised on the three main parties:
  o The company or organisation that has sold or bought the items. Mentioned in the chart as shipper or consignee.
  o The cargo forwarder. Could be one global forwarder or two (or more) local agents.
  o The airline that is responsible for the cargo transportation.
Air cargo services are traditionally carried out mainly by two kinds of companies: airlines and forwarders. Airlines perform the airport-to-airport movement of goods, while forwarders act as intermediaries moving cargo from a shipper’s premises to the origin airport and from the destination airport to the consignee’s premises (Bowen and Leinbach 2003). The position of the two companies changed with the introduction of integrators (Grönland and Skoog (2006) and Bowen and Leinbach (2003)).

2.2 Theoretical foundation of the creation of strategic alliances
Increased competition, higher customer expectations, and rising costs have forced companies to seek radically new ways to succeed in the marketplace. Strategic alliances are often used to rationalize business operations and improve the overall competitive position of a company (Bagchi et al. 1998).

Through collaborations, carriers take steps to improve the profitability of their cargo business (Houghtalen et al. to be published).

To be the first to establish a new link (with a client) and or by trying to end a pre-existing one is generally defined as competition (Gudmundsson and Lechner 2006).
Extending this view to several partners in an alliance, new competition arises: ‘group versus group’ or ‘networks against networks’. The various branded airline alliances (STAR, OneWorld, SkyTeam, etc.) are examples of this group versus group competition (Gudmundsson and Lechner 2006).

It seems that the competition level has moved from companies that challenge each other on an individual level to competition on network level. Groups of companies (alliance members) combine their forces and compete with other networks.
Strategic alliances have shifted the fundamental competitive paradigm in many domestic and international markets from traditional firm-to-firm competition to more alliance-based, network-v.s-network competition (Holmberg and Cummings 2009). According to Holmberg and Cummings (2009) strategic alliances are an
increasingly important core element in many firm’s strategies to create and sustain their competitive advantages in dynamic market environments. Based on this theory it is clear why the International Air Transport Association has included the promotion of the alliance brand to identify the alliance services at airports and other service points (Iatrou and Alamdari 2005).

The term airline alliance has been used to describe various modes of operation including: - an accord, partnership, cooperative agreement, joint operation, marketing alliance or code sharing agreement (Wang and Evans 2002).

A study by Cheng and Yeh (2007) has revealed that strategic alliances are an important source of sustainable competitive advantage. Strategic alliances can help firms to consolidate their market position and to become cost-efficient.

**2.3 Definition**

The International Air Transport Association (IATA) (2001) define an airline alliance as follows: three or more airlines participating in commercial relationship or joint venture, where a joint and commonly identifiable product is marketed under a single commercial name or brand; and this commercial name or brand is promoted by the airlines participating in the alliance and its agents; and the commercial name or brand is used to identify the alliances services at airports and other service delivery points in situations where bilateral agreements exist, e.g. code share agreement (Zhang et al. 2004, Hughtalen et al. to be published and Iatrou and Alamdari (2005).

As this definition is the most comprehensive definition available, this definition will be used for this research.

Although joint ventures are included in the definition of an alliance of IATA. Great Wall Cargo airlines (joint venture between Singapore Airlines Cargo, China Great Wall Industry and Corporation and Dahlia Investments) and Jade Cargo airlines (joint venture between Lufthansa Cargo, Shenzhen Airlines and DEG-Deutsche Investitions- und Entwicklungsgesellschaft GmbH.) are not included in this research. These joint ventures are between an airline (Singapore Airlines Cargo or Lufthansa Cargo) and financial (Chinese) institutions. The definition of IATA indicates that the relationship has to be between airlines. Furthermore, the airlines do not share knowledge or services. Therefore these joint ventures are not created and executed according to the definition of an alliance by IATA (Zhang et al. 2004, Hughtalen et al. to be published and Iatrou and Alamdari (2005) and are therefore not included in this research.

**2.4 Alliances within the air cargo industry**

SkyTeam Cargo alliance and the WOW Aircargo Alliance are two examples of air cargo alliances that are created according to the definition of an alliance by IATA (Zhang et al. 2004, Hughtalen et al. to be published and Iatrou and Alamdari 2005). SkyTeam offers cargo customers, which was created in 2000 and is the largest global footprint of any air cargo alliance, 545 destinations, 127 countries, 1,200 aircraft and 8,900 daily flights. The alliance consists of Aermexico Cargo, Air France-KLM Cargo, Delta Air Logistics, CSA Cargo, Allitalia Cargo and NWA Cargo (SkyTeam Cargo 2009).

Prompted by the success of the Star Alliance, Lufthansa Cargo, Singapore Airlines and Scandinavian Airlines agreed to engage in closer cooperation in 1999. About a year later the three airlines jointly founded the “New Global Cargo” alliance that in 2002 was renamed “WOW”. The decision to enter into an alliance was based on two considerations (Graumann and Niedermeyer 2006):
• The first was the perceptible trend towards consolidation in the air cargo business; in view of that, the three carriers deemed it sensible to add greater weight to their own position by entering into closer cooperation.
• The second was the forecasted market growth of between five and six per cent in the industry in the years ahead. The three considered it difficult to accommodate that projected additional demand on their own, since capacity increases in the air traffic business require substantial capital expenditure.

In July 2002, Japan Airlines Cargo joined the WOW alliance as its fourth member. The alliance now commands a fleet of 43 freighters and the belly-hold capacities of 760 passenger aircraft. Those resources are utilized in a network of more than 500 destinations in 103 countries around the globe.

Comparison between air passenger alliances and air cargo alliances.
In order to conclude why air cargo carriers are more reluctant to create or to participate in an alliance, the characteristics of air passenger alliances and air cargo alliances are compared.

2.5 Reasons for the foundation of air passenger alliances
Industry structure and success factors specific to the airline industry open up various fields for improving competitive position by cooperation/integration (Fritz 2006). Fritz has outlined the various competitive forces in table 1.

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<td>Risk diversification</td>
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*Table 1, Influencing competitive position through cooperation/integration (Fritz 2006)*

Customer benefit
In their research on horizontal cooperation within logistics, Cruijssen et al. (2007) concluded that cooperation on core activities, although involving the exchange of customer information, is considered to be more desirable than cooperation on non-core activities because of the higher potential of cost savings. They furthermore concluded that the respondents from their research consider horizontal cooperation to be an interesting possibility for increasing their customer service.

Being able to service larger clients and protecting market share (Cruijssen et al. 2007).

Network expansion
International alliances allow carriers to expand the reach of their networks and services to many parts of the world where it may not be economical to do so on their own, or where there may be a lack of authority to operate their own flights.

Airlines have increasingly formed strategic alliances with foreign carriers as a means of forming global networks. As of June 1996, the 171 international alliance airlines formed more than 380 alliances (Park and Zhang 1998).
According to Hertz (1996), strategic alliances have historically been an important way of internationalizing for transport companies, in part because of the rules and regulations governing transportation and transport companies in different countries. Furthermore, there is a necessity to gain access to domestic networks for transport in foreign countries; strategic alliances could provide access to a domestic market.

It appears that economic forces inherent in the industry will probably pressure airlines into a greater degree of consolidation, subject to the pace of regulatory liberalization in passenger air transport and the public’s anti-trust concerns (Fan et al. 2001).

**Cost reduction**

Network expansion and mutual traffic feeding allow alliance partners to operate with higher traffic density. This will allow partners to operate higher frequency and / or to use larger aircraft, which in turn, reduce unit costs. Economies of scope can be achieved if alliance partners link up their existing networks so that they can provide connecting services for new markets (Oum and Park 1997).

Alliances may provide opportunities for the partner airlines to reduce costs by coordinating activities in various fields: joint use of ground facilities such as lounges, gates and check-in counters; code sharing operation; block space sales; joint advertising and promotion; exchange of flight attendants; and so on. As a result, the partners may become cost-effective and increase their competitiveness (Park et al. 2001).

Alliances can reduce unit costs by allowing the partners to take advantage of economies of scale, increased traffic density and economies of scope. Economies of scale can be achieved if an alliance partner is able to serve the same amount of traffic at a lower cost, with its network size held constant. Joint use of airport facilities, joint advertising and promotion, joint purchase of fuel and other items, joint development of systems and software and joint handling of baggage transfer, etc. will result in economies of scale (Oum and Park 1997).

**Product improvement**

Creating specialization, new product development/R&D and faster time to market, are according to Cruijssen et al. (2007) and Zhang and Zhang (2002) reasons for airlines to create an alliance.

The transfer of knowledge transfer is according to Park et al. (2003) also a tool to improve the quality of a product and the organisation in general and is therefore a reason to create an alliance.

**Capacity optimalisation**

Similar to code sharing in the passenger industry, key decisions involved in the cargo setting include sharing space and revenue among members. An additional consideration in the cargo setting, however, is that of route selection. In contrast to passengers, cargo is relatively insensitive to routing decisions; therefore, the decision of how to route cargo through the alliance network becomes a relevant factor in considering collaborations among air cargo carriers (Houghtalen et al. to be published).

SkyTeam Cargo alliances is able to offer cargo customers a combined fleet of more than 1.000 aircraft making 6.800 daily flights to 100 as well as a network of 12 mayor cargo hubs. No single airline could offer such a network (Gooley 2001).
Legislation
The air transport industry has remained one of the most regulated and restrictive industries in the international trade. Domestic deregulation and liberalization have been progressing at an uneven pace across countries, and liberalization of the international markets has yet to overcome numerous obstacles. Air carriers, on the other hand, need to build up an extensive global network to realize economies of scope and density and to meet consumer demands. To accomplish this, they need to have foreign partners. However, ownership restrictions do not allow for cross-country mergers or takeovers. As a result, alliances have become, and will remain in the near future, the primary means for expanding and strengthening airline global service networks (Oum et al. 2001).

Research by Oum and Zhang (2001) highlights the current alliance race is likely to continue unless foreign ownership laws and nationality clauses in bilateral agreements are dismantled to allow for full mergers between foreign airlines.

Alliances create an obvious benefit for international airlines as they facilitate an extension of an airline’s network into a domestic theory that is closed to foreign carriers (Gudmundsson 1999).

According to Park and Zhang (2000) bilateral air service agreements are perhaps the most serious impediments to the expansion of international aviation today. Air carriers cannot simply fly wherever they want and buy whichever carriers they like, owing to bilateral restrictions and foreign-ownership laws. The observed response by air carriers appears to form strategic alliances with foreign carriers.

A common motive for forming an alliance between firms of different nations is to avoid foreign ownership restrictions, which are particularly prevalent in service industries such as the airline industry (Park et al. 2003). Secondly, international alliances can enhance partner firms’ strategic position in markets where distribution channels and the buying power of the partners can be combined (Park et al. 2003).

Wang (2004) focused on the merits of liberalisation and strategic alliances in the aviation business; The research of Wang (2004) discusses the merits of liberalisation and strategic alliances by showing the improved passenger flight services through increased direct flights, city-pairs, route networks, market share, and change of number of carriers on routes. Through removal of barriers to entry, airline alliances enable new services and a growing number of competitors on routes. Liberalisation and strategic alliances enable the airlines to be more competitive in competing markets (Wang 2004).

Mergers and alliances, particularly those involving the holding of stakes (or equity) are shown to be frequent and common policy practised by many EU flag airlines. It has enabled them to cross the borders of domestic markets, provide reliable feeding of the return flights, begin indirect competition with the other flags on their domestic markets and to alleviate potential direct competition on same market routes (Janić 2005).

Reasons for the foundation of alliances, only applicable on air cargo alliances
Gooley (2001) has identified several reasons why the members of the SkyTeam Cargo alliance cooperate:

- Consolidation of warehouse operations at various airports
- Standardizing its products, customers can expect identical service levels from all member carriers.
- It enables members to expand their network
• It enables members to exchange expertise on various subjects.

Furthermore, Grönland and Skoog (2006) and Bowen and Leinbach (2003) have outlined that cargo airlines join alliances in order to increase profitability and to try to solidify its market position. Companies such as DHL, TNT, UPS and FedEx are expanding from their traditional business base of transporting small parcels and moving into the arena of scheduled carriers, cargo and passenger alike. Typically, a shipper had no direct contact with the airline, dealing instead through the forwarder. In some cases, a single shipment was handled by multiple airlines, two or more forwarders, as well as customs brokers, warehouse operators and trucking firms. The ability of integrators to reduce some of this complexity has been a major factor propelling their growth (Bowen and Leinbach 2003).

Bowen and Leinbach (2003) furthermore indicate that the need to serve firms with truly global logistics requirements has helped stimulate the formation of new alliances in the air cargo industry, like those observed in the air passenger industry, containerised ocean shipping and telecommunications.

2.6 Conditions to successfully create an alliance

The formation of a strategic alliance is seen as a process of change for the organizations involved in the international network. In this process, the organizations involved in the strategic alliance are dependent not only on each other but also on the structure of the overall network (Hertz 1996).

It is possible that air cargo airlines find it difficult to maintain an alliance and therefore decide not to participate. According to Wong et al. (2005) relationships between strategic partners, considered very valuable, may be complex and difficult to manage.

Research by Das and Teng (2000) demonstrates that a strategic alliance can be viewed as a system of multiple tensions, namely; co-operation versus competition, rigidity versus flexibility and short-term versus long-term orientation.

Hertz (1996) has created basic criteria for the choice of strategic alliances:
• Relationship and net patterns
• Available gains and gains worth exploiting based on economics of scale and scope at the relationship level and at the net level as well as the costs of effects on the other alliances
• Intangible assets
• The degree to which learning processes are built into the company or net organizations
• Changes in aspects of relationships and nets, the compatibility between the strategies expressed and the behaviour of the company and persons involved and its effects on aspects of the relationship
• The influence of position of the organisation of interest in the net
• Internationalisation of nets and the total network
• Overlapping and complementarily of nets

Holmberg and Cummings (2009) have defined four essential steps to select a partner:

- Step 1: Align corporate and strategic alliance objectives
- Step 2: Develop an appropriate set of critical success factors
- Step 3: Map current and potential alliances on a value net
- Step 3: Analyze targets using dynamic partner selection analysis tool
2.7 Types of alliances

Generally, there have been three types of airline mergers: corporate mergers, simple airline alliances of type ‘marketing agreements’ and strong airline alliances involving holding of stakes or equities by mergers of the partners (Janić 1997 and Jiang et al. 2008).

The formation of strategic airline alliances within the current Air Services Agreements can be categorized mainly into three types: codeshare, joint activities and more liberal forms of service agreements such as the US ‘open skies’ (Wang 2004).

Park et al. (2001) and Park (1997) have examined two types of alliances: complementary and parallel alliances. The *complementary alliance* refers to the case where two firms link up their existing networks so as to feed traffic to each other, while the *parallel alliances* refers to collaboration between two firms who, prior to their alliance, are competitors on some routes of their networks.

According to Zhang (2005), there are three types of alliances:

- **Vertical alliance**: in which two firms link up their complementary products, confers a strategic advantage by allowing the partners to commit credibly to greater outputs, owing to network complementarities, and the strategic effect tends to augment its positive direct effects arising from the elimination of the double-marginalization problem in vertical integration. A vertical alliance results in the extension of a firm’s network and tends to benefit consumers through lower prices.

- **Horizontal alliance**: reduces competition not only in the market where prior competition between partners takes place, but also in other markets of the alliance network. Horizontal alliances tend to be anticompetitive and hence may be restricted by regulatory agencies.

- **Hybrid alliances** (a mix of vertical and horizontal alliances); are likely to have both pro- and anticompetitive effects. The analysis of Zhang (2005) suggests that the incentive to form a hybrid alliance may be reduced when we move from a monopoly-pair setting to a duopoly-pair setting. Real world alliances, in the airline industry, among others – are likely to be a mix of vertical and horizontal alliances. For example, an international airline alliance is likely to reduce competition in the hub-to-hub, non-stop markets in which both partner airlines operate and usually dominate, while it is likely to increase competition in connecting markets to which the partners provide cheaper airfares. The former aspect of the alliance shows the characteristic of a horizontal alliance, whereas the latter aspect reflects that of a vertical alliance.

A joint venture is another type of airline alliance. This has been used to jointly develop, market, and improve airline performance through collaboration between international airlines, and to pool resources and benefit from economic scale and link. Equity deals refer to the agreements made under the bilateral system of air services of air services and involve coordinating, such as routing decisions, joint fares, and sharing in cargo reservation and databases (Wang and Evans 2002).

Fan et al. (2001) has outlined the various levels of cooperation: ordinary, tactical and strategic, see table 2.
Table 2, Airline cooperative relationships, Fan et al. (2001)

Based on the research of Wang and Evans (2002) it is predicted that there is no difference between air passenger and air cargo alliances on the types of alliances.

2.8 Levels of cooperation
Graumann and Niedermeyer (2006) have extended the enumeration of Fan et al. (2001). The following cooperation areas are conceivable for both passenger and cargo airlines:

- Through joint procurement alliance, partners gain advantages from higher volume purchasing. Their increased leverage in the market form bigger volumes helps them to obtain better terms (i.e. delivery service and purchase prices).
- Cooperation on ground handling permits more economical use of existing ground facilities. This results mainly from an increase in flight frequencies arising from integration of airport ground stations.
- Joint maintenance generates benefits if maintenance operations are coordinated or if individual partners specialize in servicing specific aircraft types.
- Alliance partners cooperating on flight operations can exchange crew members beyond their own corporate borders.
- Network and flight-schedule cooperation offer additional advantages. Alliances allow airlines to expand existing hub-and-spoke networks as well as to build up new continental multi-hub networks and global networks.
- On the marketing front joint advertising and common branding enables alliance partners to realize cost benefits and enhance their image.
- Another cooperation area is Code-sharing. This is a tool for offering customers seemingly more flight connections.
- Cooperation also allows frequent flyer programs to be pooled and extended to a greater number of routes. It cements their loyalty to an airline and thereby boosts sales.

The research of Slack et al. (2002) has provided insights into the way alliances have changed the container shipping industry. Alliances have introduced more uniformity in the industry. Slack et al. (2002) has already commented on how service numbers and frequencies have become more alike, and observed how companies are investing in ever-larger ships that are being deployed in joint services. Pooling assets has enabled firms to widen their scope of operations, build up services, increase frequencies, deploy ever larger and more expensive vessels, and serve more ports.

Alliances in the shipping industry, therefore, are seen as facilitators of service integration and improved service conformity.

In accordance with Graumann and Niedermeyer (2006), Gooley (2001) also concluded that air cargo carriers also share services, the consolidation of warehouse operations as an example. It concludes that the level of cooperation within the air passenger and air cargo alliance is comparable.

<table>
<thead>
<tr>
<th>Examples of cooperation and types of relationships</th>
<th>Equity exchange</th>
<th>Outsource logistics at out-stations</th>
<th>Code-sharing or block-space arrangements</th>
<th>Reciprocal frequent flyer benefits</th>
<th>Exclusive membership: joint marketing entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary</td>
<td>Possible</td>
<td>Possible</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tactical</td>
<td>Possible</td>
<td>Possible</td>
<td>Yes</td>
<td>Possible</td>
<td>No</td>
</tr>
<tr>
<td>Strategic alliances</td>
<td>Possible</td>
<td>Possible</td>
<td>Very often</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Air cargo alliances; Walking on a Thin Line.
2.9 Expected benefits
The research of Park et al. (2003) suggested that firms could exploit significant benefits from international alliances. Fast growing global economy makes international alliances more and more important as intensified global competition forces firms to focus on their core skills and competencies.

There are two basic processes in any alliance: value creation and value appropriation. The extent of value creation depends first on whether the market and competitive logic of the venture is sound, and then on efficacy with which the two partners combine their complementary skills and resources; that is, how well they perform joint tasks (Hamel 1991).

Oum and Park (1997) concluded that alliances among airlines are not a passing phenomenon but rather a permanent fixture of the industry because they not only create values to customers, but also enhance profit opportunities for the partners.

The strategic effect of a complementary alliance tends to augment its positive direct effects on profit that arises from the mitigation of the double-marginalisation problem. Even if an alliance creates other negative synergies, it might be pursued, either it is a dominant strategy or because it would deter entry. Although sometimes it may be profit dissipating, rivalry between complementary alliances tends to enhance economic welfare, because the strategic effect results in a higher degree of alliance and hence greater output levels, than would be the case in the absence of such rivalry (Zhang and Zhang 2004). Zhang and Zhang (2004) also found that a complementary alliance could arise purely for the purpose of entry deterrence; such an alliance might reduce total surplus since it creates negative synergies for incumbents and it reduces market competition.

In the context of international air transport, air cargo carriers have increasingly relied on strategic alliances to provide more integrated cargo services. Strategic alliances also offer a solution to regulatory barriers as the lack of access to domestic markets by foreign carriers and limitation on foreign ownership. The alliance partners enhance the quality of their connecting services by adjusting arrival and departure flights so as to minimize waiting time between flights while providing sufficient time for connections. The study of Park et al. (2003) further suggests that smaller firms may be more vulnerable than larger firms to international alliances among their rival firms.

These findings are contradictory to the findings of Zhang and Zhang (2002). In accordance with the expectations of the author, Zhang and Zhang (2002) concluded that the lead-time within the air cargo industry is, within the limits of what might be considered as reasonable, compared to the air passenger industry, less important.

The findings of the research of Park et al. (2001) suggest that partner airlines generally increase profits. Park et al. (2001) investigates the impact of international alliances on the passenger market by comparing alliances comprised of airlines with complementary and parallel networks; it is predicted that an alliance that joins a complementary network will be more profitable.

Gudmundsson and Lechner (2006) further describe the position of a small airline. A small airline with high proportion of non-redundant routes could gain a lot of influence within the alliance even if the customer base of this airline is small. The trade-off between a customer network with little value and route network of high value might hinder the strengthening of alliance processes since large airlines might not be willing to share their large customer base and a smaller airline
possessing an important connecting might consequently decide not to share access (Gudmundsson and Lechner 2006).

One of the most important assets of airlines is their customer base. Joining an alliance could mean that airlines loose some control over their most important assets by making them accessible to other members of the alliances (Gudmundsson and Lechner 2006).

According to Wan et al. (2009) it is clear that airline alliances have a positive impact on connecting passengers, since these passengers benefit from coordination among alliance partners; for example, through lower connecting times. It is less clear if alliances benefit non-stop passengers travelling on hub-to-hub routes between alliance partners. Joint price setting may contribute to higher prices on routes covered by single alliance. On the other hand, alliances can contribute to efficiency gains leading to lower prices on these routes.

Iatrou and Alamdari (2005) have done research on the perceived impacts of alliances by participating airlines. They concluded that alliances bring about an increase in passenger traffic with a parallel increase in load factors and some reduction in costs. Thus, a clear improvement of revenue is observed, a fact resulting from the combination of the increase in traffic and the decrease in costs. Fares, on the contrary, do not move along the same course since in certain cases there is an increase and in others there is no increase.

From their analysis, Park and Cho (1997) concluded that code-sharing, increases the carriers market share. In terms of partner selection, they found that code-sharing between existing airlines increase market share less than those between relatively new carriers. The market-share increasing effect of Code-sharing alliance is higher in markets with fewer competing carriers. According to Park and Cho (1997) the impacts of strategic alliances are more significant in flexible and growing markets than in stable and stagnant markets.

According to Gudmundsson (1999) the most important benefits of an alliance are:

- Code-sharing, which improves computer reservation systems priority listing and allows the virtual extension of a foreign carrier into domestic market it cannot serve.
- The amalgamation of frequent flyer mileage awards across the whole network of the alliance partners.
- Traffic feed into international gateway hubs of partners.
- Schedule coordination as a means to increase the perceived seamlessness of the code-shared service, reducing passenger-waiting time at hubs and the likelihood of competitors having connections that are more convenient.
- Resource sharing through the reduction or elimination of duplication of sales offices and staff at major airports, as well as joint marketing and sales programs.
- Access to congested airports, by exchange of slots and terminal facilities.
- Technical cooperation on the operational front such as maintenance, access to flight equipment in emergency and integration of information systems.
- Access to established system of travel agents’ commission overrides.
- The ‘Halo’ effect that stems from the tendency of travel agents to book a well-known domestic brand, an obvious gain for a foreign airline.

Götsch and Albers (2006) have summarized the positive and negative potential synergies involving strategic airline alliances. The synergies are summarized in table 3 below.
<table>
<thead>
<tr>
<th>positive potential synergies</th>
<th>costs ↑</th>
<th>risk ↓</th>
</tr>
</thead>
<tbody>
<tr>
<td>* code sharing/combination of route networks</td>
<td>* lower completion between partners</td>
<td>* reduction of behavioural uncertainty among partners</td>
</tr>
<tr>
<td>* schedule coordination</td>
<td>* coordination of hub activities</td>
<td>* parallel code sharing</td>
</tr>
<tr>
<td>* sharing of market data/joint market analysis</td>
<td>* joint purchasing</td>
<td>* deterrence of market entry</td>
</tr>
<tr>
<td>* combination of frequent flyer program</td>
<td>* products and parts standardization</td>
<td>* joint lobbying</td>
</tr>
<tr>
<td>* image transfer</td>
<td>* reduction of redundant infrastructure and process</td>
<td></td>
</tr>
<tr>
<td>* price coordination (if antitrust immunity allows)</td>
<td>* lowering of financing and capital costs</td>
<td></td>
</tr>
<tr>
<td>* market power at hub airports</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>negative potential synergies</th>
<th>costs ↑</th>
<th>risk ↓</th>
</tr>
</thead>
<tbody>
<tr>
<td>* loss of customers to non-alliance carriers</td>
<td>* high coordination costs</td>
<td>* loss of flexibility</td>
</tr>
<tr>
<td>* loss of autonomy</td>
<td>* loss of autonomy (load factor)</td>
<td>* disclosure of information</td>
</tr>
<tr>
<td>* loss of single individual business relations</td>
<td>* common hub activities</td>
<td>* threat of re-regulation/antitrust jurisdiction</td>
</tr>
<tr>
<td></td>
<td>* dispute and friction costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* opportunity costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>* communication costs</td>
<td></td>
</tr>
</tbody>
</table>

Table 3, the positive and negative potential synergies involving strategic airline alliances by Götsch and Albers (2006)

2.10 Realized benefits

According to Harrison et al. (2001), research has confirmed that complementary resources, creates the potential for greater synergy from acquisitions and alliances, leading to higher long-term firm performance as an end result. The valuable, unique, and inimitable synergy that can be realized by integrating complementary resources provides an opportunity for the firm to create competitive advantages that can be sustained for a period of time. In addition, complementary resources present opportunities for enhanced learning as well as the development of new capabilities.

Alliances also produce several benefits for consumers. Alliance partners can coordinate flight schedules to minimize travellers’ waiting time between flights while providing sufficient time for connections. One-stop check-in reduces the time necessary for a passenger to re-check-in. Joint baggage handling eliminates the need to retrieve and re-check baggage at connecting. (Park 1997)

According to Oum (2001), an alliance enables partner airlines to achieve an average of 5.0% gain in total factor productivity and 1.4% increase in profitability while being able to lower their prices to consumers on average of 5.5%. These findings are in accordance with Park and Zhang (1998) and Oum et al. (2004). Research by Iatrou and Alamdari (2005) alliances bring about an increase in passenger traffic with a parallel increase in load factors and some reduction in
Air cargo alliances; Walking on a Thin Line.

costs. Thus, a clear improvement of revenue is observed, a fact resulting from the combination of the increase in traffic and the decrease in costs. Fares, on the contrary, do not move along the same course since in certain cases there is an increase and in others is no increase. The questionnaire analysis indicates that both passenger traffic and load factors of all airlines show clear increase. This in turn has positively affected revenue, while the impact on costs, even though positive, remains comparatively limited at least on a short-time basis.

Oum et al. (2004) found that horizontal strategic alliances make significant contributions to partner firms’ overall productivity gains. This empirical finding corroborates the existing conceptual argument that alliances will improve firm operating efficiency through such eventualities as economies of scale and access to resources and skills.

The value of smaller rival firms is more sensitive to both promising and discouraging events than that of larger rivals. Overall, our results suggest that the international alliance of BA/USAir appeared to strengthen the partner firms’ competitiveness, which in turn weakened their rival firms’ value (Park et al. 2003). These findings are in accordance with Park and Cho (1997).

According to Oum and Zhang (2001), major (strategic) alliances enable partners to achieve an average of 5% gain in total factor productivity and a 1.4% increase in profitability while lowering their prices to consumers by an average of 5.5%. On the other hand, minor (tactical) alliances do not have statistically significant effects on partner airlines’ productivity, pricing or profitability. Furthermore, major strategic alliances have brought a profound change in the way airlines route their traffic, not only on intercontinental routes, but also on domestic routes. Alliance partners generally increase traffic routing via their intercontinental gateway airports after strategic alliances. Even if alliance carriers themselves do not promote traffic via their alliance hubs, the high frequency and convenient services between alliance hubs will induce increasing proportions of passengers to route their travel via alliance hubs (Oum and Zhang 2001).

In its fiscal year 1998, Lufthansa reported that its strategic alliances contributed some €250 million to its success of that year. In 2003, US Airways announced an expected $75 million increase in revenues per year by joining Star Alliance (Götsch and Albers 2006).

Rühle (2006) has done research on the profitability on airlines participating in a strategic alliance, the research was focused on the Wings Alliance, Star Alliance and OneWorld Alliance. His findings concluded that the members of Wings and Star alliance performed on average at around 3.3% better each year than unaligned carriers. This difference shows that partnership efforts of these carriers paid off for them. Similar findings for OneWorld do not exist. It is assumed that this could be due to the fact that the alliance was experiencing some uncertainty, due to one of their core members pursuing merger talks with a major competitor. Possibly slowing down the integration process and therefore the chance to target cost savings intensively through joint operations.

Park and Zhang (1998) conducted a survey on the partner firms’ outputs within alliances; the research was focused on alliances active on routes across the North Atlantic. Their theoretical model finds that under fairly standard conditions on oligopolistic interaction, following an alliance, a partner’s total traffic on a gate-to-gateway alliance would increase and the partner’s profit would likely increase.

Bhatnager and Viswanathan (2000) have done research on the success of a strategic partnership between manufacturing firms and global logistics service providers. The chief motivation for such an alliance is the quest for efficient
supply chain management. It was estimated that through this alliance, Motorola could realize potential cost savings to the extent of 2.7 percent of its net profits, while improving its service performance. For UPS, the primary benefits stemmed from enhanced volume consolidation, which improved its cost economies.

Research by Oum and Park (1997) has concluded that the alliance between British Airways and USAir has brought British Airway an additional profit of $27.2 million and USAir gained $5.6 million during the first quarter of 1994. Due to the Northwest-KLM alliance, Northwest gained an additional profit of $16.1 million and KLM a profit of $10.6 million.

2.11 Drawbacks and risks
The literature pays little attention to the woes and worries, of close relationships. Instead, most publications focus on the (theoretical) advantages of cooperation and only report on successful case studies, when as many as 70 percent of all started strategic alliances fail for one reason or another (Cruijssen et al. 2007). Impediments and cooperation relate to four areas (Cruijssen et al. 2007):
- partners (difference in interests, difficulty in finding partners, difficulty in finding a trusted party/person, difficulty to distinguish oneself towards customers, high coordination costs due to differences in operating procedures, risk of losing clientele to competitors/partners)
- determining the gains (difficulty in determining the benefits, difficulty in establishing a fair allocation of the workload, difficulty in establishing a fair allocation of the benefits)
- negotiation (disagreement over the domain of decisions, unequal bargaining positions)
- coordination and information and communication technology (high indispensable ICT costs, high additional coordinating and controlling costs, loss of control).

A firm’s poor response to on-going alliance formation could therefore jeopardize its market share and profitability (Park and Zhang 1998; Park and Cho 1997; Park et al. 2003, Park et al. 2001, Park 1997)

Within the research of Morrell and Pilon (1999) “On the impact of a passenger alliance (KLM and Northwest) and cargo service characteristics?”, it has rejected the hypothesis that the KLM/Northwest alliance passenger alliance that had led to a decline in the quantity and quality of cargo service connections. However, the first years of the alliance clearly indicated deteriorating cargo layover times.

Inter-competitor alliances can seriously affect the competitive dynamics of firms in a market because partners in an inter-competitor alliance could be yesterday’s competitors. For example, alliances between the largest and second largest firms in a market can threaten the positions of small firms in the same market. For example, in the case of large market sharers, it is better to select an equivalent airline as an inter-competitor alliance than smaller airlines in a give market (Park and Cho 1997).

2.12 Tentative answers to the research questions
In this paragraph, the research questions are answered through the available literature. Due to the fact that answers have not been confirmed through the ‘research’ part of the research, the answers are therefore treated as tentative. Furthermore, the foundations of the answers are mentioned in this paragraph. The contents of this paragraph will be used in the ‘research’ part of this research.

The research questions are:
1. What are the reasons for airlines to join or create an air cargo alliance?
• Increase customer benefit
• To expand its network
• Cost reduction
• Product improvement
• Threat of its market position by integrators

2. How do these reasons differ from the foundations of other alliances, especially compared to air passenger alliances?
• Legislation alone is not a sufficient reason to create an air cargo alliance. The literature on the creation of cargo alliances does not include a theory regarding legislation. Hertz (1996), Gudmundsson (1999), Park and Zhang (2000), Park et al. (2003), Oum et al. (2001) and Oum and Zhang (2001) have indicated that legislation prohibits airlines to fly any random route, thus limiting their services. Air carriers cannot simply fly wherever they want and buy whichever carriers they like, owing to bilateral restrictions and foreign-ownership laws. The observed response by air carriers appears to form strategic alliances with foreign carriers.
• These findings are directly linked to air passenger transportation, the journals concerning air cargo alliances did not mention these legislations as a foundation for air cargo alliances to be created. An air cargo airline has the possibility to avoid governmental restrictions.
• Grönland and Skoog (2006) and Bowen and Leinbach (2003) concluded that cargo airlines join alliances in order to increase profitability and to try to solidify its market position. Companies such as DHL, TNT, UPS and FedEx (integrators) are expanding from their traditional business base of transporting small parcels and moving into the arena of scheduled carriers, cargo and passenger alike. They are therefore a threat to the position of traditional air cargo carriers.
Because this situation is unique for the air cargo industry, there is no comparable phenomenon within the air passenger industry, this is not a reason for air passenger carriers to create an alliance.
• Another difference between air cargo alliances and air passenger alliances is the position of the client, in terms of air cargo; the shipper or consignee. Park (1997), Harrison et al. (2001), Wan et al. (2009) have concluded that an alliances improves the services towards a client; the passenger. Alliance partners can coordinate flight schedules to minimize travellers’ waiting time between flights while providing sufficient time for connections. One-stop check-in reduces the time necessary for a passenger to re-check-in. Joint baggage handling eliminates the need to retrieve and re-check baggage between connections (Park 1997). Avoiding discomfort is their main purpose, especially when business or first class passengers are involved.
However, for clients of air cargo airlines none of the above is important. It shows that all cargo carriers may have different routing needs than passenger carriers. Thus requiring different sets of air traffic right from those needed by passenger carriers (Zhang and Zhang 2002).

3. How could these differences be explained and what are the consequences?
• It is likely that airlines are able to transport air cargo to various destinations without the use of partners and within the boundaries of the various legalisations.
In the traditional air cargo chain, airlines mainly use a hub-and-spoke system to distribute their air cargo. For the transportation between the hubs, large (cargo) aircraft are used. These flights are operated within the various legalisations. The last segment of the route is carried out via smaller aircraft or by other means of transportation, for instance a truck or train. If it is too expensive to use their own facilities or legislation prohibits
the usage of their own facilities, the airline is forced to make use of other options. The evidence has provided proof that within air passenger transportation, alliances are a common solution. For the air cargo industry, other options are more logical. Either due to the costs of the alternative (competitors/partners are too expensive), due to the disclosure of information (competitors/partners are able to obtain valuable client information) or due to the impediments of the cargo itself (it is too big for a small aircraft) airlines decide to send their cargo with other means of transportation to its final destination (Otto (2006). The usage of a trucking or train company is therefore a serious alternative and does not require that an air cargo alliance is been created.

- Companies such as DHL, TNT, UPS and FedEx (integrators) are expanding from their traditional business base of transporting small parcels and moving into the arena of scheduled carriers, cargo and passenger alike. They are therefore a threat to the position of traditional air cargo carriers. Air cargo airlines try to defend their market position through the creation of an alliance. As a group they are able to confront the integrators and offer a competitive product to its customer.

- Air passengers prefer to travel stress-free, and alliances can facilitate these requirements. Air cargo clients on the other hand, do not have such requirements. For clients of air cargo it is more important for their cargo to arrive on time (as booked) and according to manifesto, (complete). Most airlines are able to provide this service without the use of partners and therefore do not need to join or create an alliance.

- According to Zhang and Zhang (2002) the lead time within the air cargo industry is, within the limits of what might be considered as reasonable, compared to the air passenger industry, less important.

- According to Park et al. (2003) there is a dependence between the growth of the global economy and the importance of international alliances. Fast growing global economy makes international alliances more and more important as intensified global competition forces firms to focus on their core skills and competencies.

It is strange that shipping carriers are nearly all involved in strategic alliances (Alix et al. 1999) and air cargo carriers are not. According to Alix et al. (1999), the formation of alliances has been precipitated by technological, operational and market focus. Against the backdrop of the globalisation of the economy, in which international maritime trade plays an important role, an unprecedented growth in the size of container ships has put great pressures on the lines. In order to pool resources and extend market coverage lines are able to cope with the situation.

4. What is the impact of air cargo alliances on the industry and its clients?

- A complementary alliance tends to enhance economic welfare.
- Partner airlines generally increase profits, whether they have a complementary alliance to reduce operating costs or through joint operation of services.
- Joining an alliance could mean that airlines lose some control over their most important assets by making them accessible to other members of the alliances.
- Enables airlines to enlarge its network and increase the quality of the products.
3. Methodology

Theorists typically combine multiple data collection methods. This research is based on two main research methods;

- a study of the available literature
- a case study

Whilst a review of the literature is the basis of the study, the case study brings further insight into the situation within strategic alliance in the air cargo industry, by combining data collection methods such as interviews, questionnaires and secondary resources (Eisenhardt 1989).

Respondents were interviewed based on a semi-structured questionnaire, allowing elucidation, elaboration and clarification. The use of a semi-structured interview complements the nature of the exploratory research objectives. The interview guide can be found in Appendix A. Data were collected primarily through interviews and secondary resources, such as Internet websites and annual reports of the airlines involved. Altogether four interviews were conducted with four informants.

That is, the triangulation made possible by multiple data collection methods. Of special note is the combining of qualitative with quantitative evidence (Eisenhardt 1989). Quantitative evidence can indicate relationships that may not be salient to the researcher. It also can keep researchers from being misinformed by vivid, but false, impressions in qualitative data, and it can bolster findings when it corroborates those findings from qualitative data. The qualitative data are useful for understanding the rationale or theory underlying relationships revealed in the quantitative data or may suggest directly theory which can be strengthened by quantitative support (Eisenhardt 1989).

The case studies entailed the use of a "key informant method", interviewing a limited selected number of participants. The informants were chosen not on a random basis, but because they were considered to have specialized knowledge of the development of a strategic cooperation with other airline through alliance (judgement sample). This approach is appropriate for exploratory studies. In all case studies, the key-informants were responsible for the strategic relationship with (partner) airlines. This approach can be justified by the fact that there is need for a clear overview of the ins and outs of the strategic alliance. The focus of each interview was the person’s own factual experience with the partnership, the evolution of the involvement, understanding commitments and feeling towards the partnership, their own interactions with members of the partner firms and of their own firm on partnership matters, and their recollection of ‘events’ that they saw as important in the evolution of the partnership.

In-depth semi-structured interviews were conducted by means of face-to-face contact. In order to corroborate a correct interpretation of the interview, the respondents where given a summary of the interview afterwards. If the contents were not according to their understanding, they were given the opportunity to correct the contents of the summary.

The companies in this case study were selected on their achievements within air cargo alliances. The following airlines are included in the case study:

- Air France Cargo-KLM Cargo
- Lufthansa Cargo
- Malaysia Airlines Cargo/MASkargo
• Cargolux

Air France Cargo-KLM Cargo claim that through the SkyTeam Cargo alliance they participate in the ‘world’s leading air cargo alliance’. Based on this statement the researcher is keen to know how this claim is realised and how the output of the alliance has affected the air cargo industry. Furthermore, the SkyTeam Cargo alliance is currently the only air cargo alliance that is actively communicating its products with its customers.

Lufthansa Cargo has (together with Singapore Airlines Cargo, Japan Airlines Cargo and SAS Cargo) created the first air cargo alliance; WOW Cargo Alliance. The researcher is keen to know why the airline has created the alliance and furthermore, why the alliance is not actively communicating this with its customers at this moment. The official web site of the alliance is, for instance, no longer available. According to Wikipedia, Lufthansa Cargo has ended its membership of the alliance in 2009. Lufthansa Cargo is therefore selected for the case study.

Malaysia Airlines Cargo (MASkargo) is a large cargo airline, their strategy has an impact on the industry and it is to be expected that they will continue to do so in the future. Furthermore, Malaysia Airlines Cargo is not part of a cargo alliance. The researcher is keen to know why the airline has not joined an alliance and based on its position in the industry, was selected for the case study.

Cargolux was invited to participate because they are also one of the few ‘all cargo’ aircraft airlines in the world. As the majority of the airlines transport 50% or more of their freight in the holds of passenger aircraft, the hold capacity is a vital part of the business model. Since Cargolux doesn’t use passenger aircraft they can adopt a different business model. It is not clear if an alliance would generate an added value for a company with an all freight operation.

The number of cases in this study was deliberately limited to allow a deeper analysis and understanding of each case.

The views of the two alliances (and the three airlines involved) are not corresponding. The SkyTeam Cargo alliance is still active and is seeking an active relationship with its clients. In contrast, it seems that the WOW Cargo alliance has concluded its operation. It will be vital to know why this contradiction has occurred.

Within a case study there is a serious risk that the available volume of information is overwhelming. The danger is that investigators reach premature and even false conclusions as result of these information processing biases. Thus, the key to a good cross-care comparison is counteracting these tendencies by looking at the data in many divergent ways. This risk has been management by using the categories from the interview guide.
4. Research findings

4.1 Air France – KLM Cargo

Introduction
Air France and KLM carry over 65 million passengers per year. They operate more than 554 aircraft enabling them to fly to 316 destinations worldwide with 2,370 daily flights. The two airlines’ world networks can be combined, forming a vast network organized around the two major hubs of Amsterdam-Schiphol and Paris-CDG.

Since May 2004, Air France and KLM Royal Dutch Airlines have become the largest European airline group: one group, two airlines, and three businesses. Each airline has retained its individual identity, trade name and brand. The three core businesses are Passenger Business, Cargo and Engineering & Maintenance. Both airlines run their own operations from their respective hubs Paris-Charles de Gaulle and Amsterdam-Schiphol. A strategic management committee coordinates overall strategy. In figure 4 the current and old situation are summarised.

Cargo revenue in 2008: €2,739,000,000, (11.4% of total group revenue)

Current cooperation with other (cargo) airlines
Air France -KLM Cargo is a partner in SkyTeam Cargo. SkyTeam Cargo offers cargo customers, which was created in 2000 and is the largest global footprint of any air cargo alliance, 545 destinations, 127 countries, 1,200 aircraft and 8,900 daily flights. The alliance consists of Aermexico Cargo, Air France-KLM Cargo, Delta Air Logistics/NWA Cargo, CSA Cargo and Allitalia Cargo. Next to the above-mentioned cooperations, the airline has additional understandings with various airlines.

Partner airlines of Air France Cargo:  
Japan Airlines Cargo  
Thai Cargo  
Kuwait Airways  
Saudi Arabian Airlines  
Air Madagascar  
China Eastern

Partner airlines of KLM Cargo:  
Northwest Cargo (merged with Delta)  
China Southern Cargo  
MASkargo (Malaysia Airlines)  
Nippon Cargo Airlines  
TNT Global Express, Logistics & Mail  
Kenya Airways Cargo

Figure 4, chart of the Air France-KLM organization before and after the merger.
Reason for the creation
Air France – KLM Cargo is a member of SkyTeam Cargo. The SkyTeam Cargo alliance is a result of the SkyTeam alliance. SkyTeam was created for the transportation of passengers at an earlier stage. The necessity for the creation of an alliance for the transportation of air cargo is considerably lower. Within the market of SkyTeam, millions of people are considered to be potential clients. In the general air cargo market several dozen large freight agents are considered to be potential clients. The market spectrum is therefore much clearer for Air France - KLM Cargo than it is for Air France - KLM. Through the SkyTeam alliance, Air France - KLM is able to offer a more appealing product than it would have been as a single operating airline. It is furthermore able to shave money doing it. The strength of freight agents is there ability to consolidate shipments. Through this strength they have created a strong negotiating position. The SkyTeam Cargo alliance will not improve the negotiating position of Air France-KLM Cargo; a freight agent will chose to use the services of the airline with the most appealing offer.

The aims of the SkyTeam Cargo alliance are to align the services of the alliance members and to generate savings through the creation of synergies. The alignment of the services is an important feature to improve the product. Through one booking, clients are able to use the networks of all the alliance members. In a situation without an alliance, it is required to use several bookings. Air France-KLM Cargo tends to implement a one roof policy through the alignment; in other words a one-stop-shopping concept. Synergies are created through the following initiatives:

- Alliance members offer the same product portfolio
- Joint operation of marketing activities
- Joint promotion policy
- Joint attendance at air cargo fairs
- One website for the online presentation
- Joint purchasing programs, for instance for the selection of handling agents

Based on the website of Air France–KLM Cargo and the annual report of the airline it became clear that strategic alliances are a vital part of the business strategy. The network has expanded by using its partner’s network and capacities of aircrafts are shared in order to keep waste to a minimum.

Clients
Clients do not choose to use Air France–KLM Cargo because they are a member of SkyTeam Cargo. ‘Clients couldn’t care less through which airline its shipment is being transported’. The largest freight agents prefer to spread their business over several airlines. The freight agents will negotiate to get the best possible deal, membership of an air cargo alliance will have limited impact on that choice.

Although the clients are not considered to be loyal, Air France – KLM Cargo tries to increase their loyalty through SkyTeam Cargo. The one-stop-shop is a method to improve a product and this has a positive effect on the customer loyalty. Other examples are SkyTeam Cargo meetings with clients at the 15 largest gateways and the attendance at air cargo fairs. During these events the goals of the alliance are presented and the value added services of the alliance are explained.
**Integrators**
According to Air France–KLM Cargo, integrators have increased their market presence on the general air cargo market. As integrators have seen a decrease in volume on the express market, they have been searching for an alternative market. In economic severe times integrators will increase their presence on the air cargo market, the drop in the express market is compromised by volume from the general air cargo market. Air France–KLM Cargo expects that the integrators will focus on the express market again if this market improves. The profit margins within the general air cargo business are considerably lower compared to profit margins from the express business. It is therefore financially more interesting for an integrator to offer express services. Air France–KLM Cargo considers integrators to be serious competitors, although the impact of this competition can vary. The SkyTeam Cargo alliance has not been created as a response to the presence of integrators.

**Jurisdiction**
In theory Air France–KLM Cargo is able to overcome legal obstacles through a strategic cooperation; a bilateral cooperation for example enables the company to offer new destinations. In reality, airlines do not always need to use a partner to ship their cargo to a destination. Road transportation can be used to offer services to these destinations. For Air France–KLM Cargo, financial arguments are more important, due the fact that it is more expensive to transport a shipment by air than by sea or land, international road transportation is frequently used. Another impediment is the size of the shipment. ‘The choice for a transportation mode in Europe is not controlled by the good road infrastructure, but by the weak infrastructure of air services.’
For the last (short) segment small aircraft are frequently used, these aircraft have a relatively small cargo compartment. If the shipment is too big or too heavy, Air France–KLM Cargo is automatically required to use international road transportation. In such a situation, an alliance could not offer any extra value to the supply chain.
In theory the alliance could create a joint purchasing program for the selection of a regional trucking company. It is to be accepted that such a program would create additional cost saving and would improve the quality of the product.

**Impact**
Members of SkyTeam Cargo do not share financial information; ant-pricing fixing acts forbid them from sharing this kind of information. The financial results from SkyTeam Cargo are not separately reported within Air France–KLM Cargo. Air France–KLM Cargo does not believe that SkyTeam Cargo generates additional sales revenues for the company. Despite this, the alliance does have a positive contribution on the financial results of the company. This contribution is created through the synergies of SkyTeam Cargo.

SkyTeam Cargo members frequently meet to discuss the development of the alliance and the air cargo business in general. Based on these discussions the members decide on the strategic policy on the alliance. The alignment of the product portfolio and the services in general are also discussed during these meetings.
The biggest challenge for the alliance is the difference in culture between the alliance members. It is vital for the members to understand each other’s values and historical background.
4.2 Lufthansa Cargo

Introduction
Lufthansa Cargo is the cargo airline subsidiary of the Lufthansa Group. It has its own ICAO (International Civil Aviation Organisation) code, and call sign, unlike most other "cargo divisions Lufthansa Cargo does not only offer space on its own freighters (19 freighter aircraft), but also has access to the freight capacities of more than 400 Lufthansa passenger aircraft.

Cargo revenue in 2008: €2,907,011,000 (20.1% of group revenue)

Cooperation with other airlines
Lufthansa Cargo has several cooperation agreements with other airlines; the cooperations are dived in five groups:
• Cooperation through an alliance, Lufthansa Cargo is currently a member of the WOW Cargo alliance.
• Cooperation through capital involvement. Lufthansa Cargo is currently involved in two airlines; Jade Cargo and AeroLogic.
• Cooperation through its ownership of an airline. Lufthansa Group has acquired several airlines and as a member of the Lufthansa Group, Lufthansa Cargo is able to set up a cooperation with these airlines. Examples are, Swiss World Cargo, Brussels Airlines Cargo, Austrian Airlines Cargo and BMI Cargo.
• Cooperation through block space agreements. Lufthansa Cargo has block space agreements with Air China Cargo, Japan Airlines Cargo and LAN Cargo.
• With about 80 airlines, Lufthansa Cargo has various SPA’s (special prorate agreements) also known as interline agreements. The depth of the cooperation depends, with some airlines Lufthansa Cargo only cooperates on one route. With other airlines, for instance Brussels Airlines Cargo, Lufthansa Cargo cooperates on 150 flights.

Reason for the creation of a cooperation
The WOW Cargo alliance was based on the foundations of alliances within the air passenger business. It was thought that an air cargo airline could benefit from such a cooperation. The WOW Cargo alliance was created as a result of the success of the Star Alliance; ‘the general idea was to copy Star Alliance’. The founding members thought that such an approach would also work within the air cargo business. Not only was the WOW Cargo alliance created, in 2000 Lufthansa Cargo also introduced a new product line, the Td (time definite) product line. It tried to copy the principles of air passenger products (first, business and economy class). The aim was to sell time frames, instead of flight numbers.
Lufthansa Cargo realised that the air cargo business is not comparable to the air passenger business. Demands and requirements are different and therefore the marketing features from the air passenger business did not work.

Customer benefit
According to Lufthansa Cargo the creation of a cargo alliance has very little benefits for customers.

‘There is no customer benefit for cargo customers within cargo cooperations, an exception is network capacity”

The bigger the network (specifically from the origin of the customer), the more attractive a cooperation will be for a customer. A one stop shop could be another benefit. An important explanation is the shopping behaviour of the freight forwarders. Freight forwarders have decreased the number of suppliers. In the
past a freight forwarder used more than ten airlines, they have now narrowed it down to three. This enables them to improve their buying position. It is therefore also important and beneficial to have a good relationship with the airline, because through one contact the freight forwarder could gain access to the network of the whole alliance.

Other air passenger benefits, like joint handling, joint lounges or customer loyalty program's, are not applicable within the air cargo industry. Other forms of cooperation have considerable advantages both for customers as well as in terms of cost savings.

**Integrators**

Lufthansa Cargo has not created a cooperation in order to defend its market position against integrators. The strategy of integrations is aimed at the usage of their own aircraft on large trunk routes. This strategy enables them to create a strong market position, however, on other routes, they do not hold a strong market position.

**Legislation**

The freight collaborations are created for various reasons, legislation for instance. Through the cooperation Lufthansa Cargo is able to offer the destination through the services of its partner.

If Lufthansa Cargo believes that the demand on a route is not strong enough to fill an aircraft, a cooperation could offer additional commercial opportunities to increase the load factor and share operating risks. It furthermore enables customer to choose from two products and tariffs, but using one aircraft.

The last reason for the creation of a cooperation for Lufthansa Cargo is the lack of capacity. In some situations, the demand exceeds the capacity of Lufthansa Cargo. In this situation Lufthansa Cargo is able to create additional capacity through its partnership.

The utilization of truck services is also considered to be an effective solution to avoid legislation. The use of truck services could be beneficial if the travelling time is compatible with air cargo services (including ground handling times). Within Europe this is the case in several regions and it enables Lufthansa Cargo to avoid legislation. If the truck service is not a compatible solution, air cargo services will be used. In addition, if legislation is an issue, a cooperation could be a solution.

In some situations, for instance if a small shipment has to be transported, an air cargo service is chosen over trucking which is just too expensive.

**Impact**

Lufthansa Cargo was not able to elaborate on the financial registration of strategic cooperations.

If the companies would expand their freight collaborations, there is also a risk involved that the brand identity will be lost. Lufthansa Cargo is seen as a premium mass carrier, Swiss World Cargo on the other hand is considered as a premium carrier. Through these brands, Lufthansa Cargo is able to offer an attractive product to various customers. If the two brands merge, it is possible that some customers will be lost in the process. For them it is unclear what the new identity of the merged airline is.

A comparable situation arose with Jade Cargo. The introduction of the airline on the Dutch market was coordinated through a general sales agent (GSA), without success. A solution was found through the Amsterdam office of Lufthansa Cargo, the Jade Cargo product was sold together with the Lufthansa Cargo products. The operational coordination was a success, unfortunately fewer customers bought the Jade Cargo product. The different identities created this situation. Jade Cargo
was considered to be a low cost cargo carrier, Lufthansa Cargo was considered to be a high cost carrier. Customers who called Lufthansa Cargo, did not consider using Jade Cargo as well. After 1 ½ years of intense sales promotion, customers finally understood that both products could be bought through Lufthansa Cargo. Customers approach Lufthansa Cargo with a requirement; personnel of Lufthansa Cargo will offer the appropriate solution.

Depending on the cooperation form, it is to be expected that a partner would like to have some influence in the strategic decisions. Meetings with a partner would extend the decision making process and could weaken the impact of the decision; market circumstances could have changed. It is also possible that the new business opportunity would interfere with the proposition of the partner. Lufthansa Cargo considers this to be a down side of a cooperation. Frequently there is no communication upfront; the idea has been put into practice and afterwards the situation will be discussed with the partner. Alternatively, it is to be expected that the idea is not feasible, a partner will not approve of it, in this case the idea is not implemented.

Although a cooperation has various down sides, Lufthansa Cargo believes that the advantages are by far bigger than the disadvantages. As a result the company prefers takeovers, joint ventures and merges instead.

4.3 Malaysia Airlines Cargo (MASkargo)

Introduction
MASkargo or Malaysia Airlines Cargo (Malaysia Airlines Cargo Sdn. Bhd.) is a cargo airline based at the Advanced Cargo Centre (ACC) at Kuala Lumpur International Airport. It is a cargo division of its parent company, Malaysia Airlines, and operates scheduled, charter air cargo services as well as airport to seaport cargo logistics via ground transportation. MASkargo became a subsidiary of Malaysia Airlines in April 1997 with two Boeing 747-200F freighters from the parent company. MASkargo operates a fleet of 7 freighter aircraft and has access to the belly capacity of Malaysia Airlines passenger aircraft. MASkargo offers freighter services to major cities in Asia, Australia, the United States and Europe.

Cargo revenue in 2008: RM 2,230,000,000 (in €418,308,000 converted in January 2010) (14.8% of group revenue)

Current cooperation with other (cargo) airlines
MASkargo has cooperation agreements with the following airlines:
- KLM Cargo (only cooperation in Western Europe)
- Korean Air Cargo
- Emirates Sky Cargo
- Iran Air Cargo
- Garuda Indonesia Cargo
- Ethidada Crystal Cargo

Reasons for the creation
MASkargo is not involved in an air cargo alliance, other strategic cooperation forms are therefore discussed in this paragraph. The agreements are focused on the joint utilisation of (cargo) aircraft, capacity on certain routes are shared. MASkargo uses the cooperation to improve their service; more flights are offered and the capacity utilisations of air cargo aircraft are increased. Through its partner, KLM Cargo, MASkargo is able to offer a daily freighter services from Amsterdam to Kuala Lumpur. Due to the fact that customers require a flexible flight schedule, a daily flight is vital for high customer satisfaction. This
cooperation is also favourable for KLM Cargo. KLM is also able to offer daily cargo flights to Kuala Lumpur and due to the fact KLM Cargo is allowed to use cargo capacity on Malaysia Airlines flights to Australia and New Zealand, KLM Cargo is able to offer new destinations.

Although capacity is shared, the partners will remain competitors. MASkargo only allows KLM Cargo to offer cargo from other markets on its flights, freight from the United States of America is an example of such a market. MASkargo does not have a strong presence in the American market, KLM Cargo on the other hand has a strong presence in this market. KLM Cargo will use the flights of MASkargo to ship this cargo from Amsterdam to Dubai (cargo flights from Amsterdam to Kuala Lumpur refuel in Dubai). The proposition of KLM Cargo is not a threat to the market potential of MASkargo in Europe. The same rule applies on the flights from Kuala Lumpur to Australia and New Zealand. KLM Cargo is only allowed to ship cargo on these flights from certain Asian markets. The capacity utilisation of the flights are increased and MASkargo is able to generate additional income.

The cooperation is more favourable for KLM Cargo than it is for MASkargo. On the home market of MASkargo, the Asian market, higher freight tariffs are being issued. Through the cooperation with MASkargo, KLM Cargo is able to obtain a larger piece of the market. ‘It is all about give and take for both partners.’

Although the cooperation has proved to be successful for MASkargo, the most important goal of the airline is to fill their own aircraft and not the aircraft of other airlines.

The nature of the cooperation is based on flexibility; the agreements usually will not last very long.

**Customer benefit**

A cooperation should not influence the market potential of MASkargo. Similar with the KLM Cargo cooperation, MASkargo will demand that partners will upload freight on MASkargo flights that are from different markets. The cooperation will therefore focus on cargo from other markets than the O&D (origin and destination) market.

Clients of MASkargo are not interested if its cargo is transported through a partner of MASkargo; prices and time of arrival are more important. ‘The colour of the airplane is not important for the freight agent.’ Another important selection criteria is the transit time. Through partners, MASkargo is able to shorten the transit time to some destinations and increase the number of destinations in its network. These features will enable MASkargo to improve its position in the market.

‘At the end it is more important to offer a daily belly flight in cooperation with a partner than a weekly freighter.’

**Integrators**

Integrators are trying to enlarge their market share within the (classic) air cargo industry. During severe (economic) circumstances integrators are looking for additional methods to increase their capacity utilisation. In spite of the presence of integrators, MASkargo does not see integrators as a threat. The niche position of MASkargo is for an integrator difficult to reach, MASkargo has secured a market position to some destinations and integrators will not threaten this position. MASkargo also expect that the integrators will return to their original business model if the economic climate improves. Therefore, there is no long-term threat.

There are distinctions between the two parties (integrators and classic air cargo airlines). If MASkargo requires the assistance of other airlines, for instance if a plane has broken down, other airlines will try to offer their assistance. This could
also include airlines who are considered not to be partners of MASkargo, in return MASkargo will try to assist other airlines. If integrators face difficulties, they will not make an appeal to classic airlines, they will try to solve this situation with their own resources.

**Comparison with air passenger alliance**

One of the key differences between the air transportation of people and cargo, are the dimensions. People, are on average, comparable in size, cargo can be shipped in all different shapes and sizes. This creates restrictions regarding transportation requirements; the hold capacities of (narrow) body passenger aircraft are not suitable for transporting every type of air cargo.

In order to transport a shipment from a hub, for instance from Amsterdam, to its final destination, in Copenhagen, airlines are required to use international road transportation for large items. Legislation has little impact on the distribution of cargo from a hub to its final destination. If a shipment can be loaded onto a (narrow body) passenger aircraft, it is done frequently. Another deciding factor is if the higher tariffs (IATA pro rata tact tariffs) are in place, airlines could decide, on financial grounds, not to use passenger aircraft for this segment.

MASkargo is part of Malaysia Airlines, Malaysia Airlines does not interfere with the strategic decisions of MASkargo. Malaysia Airlines is not a member of an alliance, it holds various code share agreements, for instance with KLM and Singapore Airlines. In one example, the cargo cooperation with KLM cargo was the initial start for a cooperation between the passenger departments of Malaysia Airlines and KLM.

Cargo airlines will issue a request for cooperation when there is a capacity shortage, market circumstances are more important than the policy of the parent company. If there is a surplus in capacity, partners will tend to discontinue the cooperation. If the partners decide to continue the partnership in a market of surplus capacity, it will undermine their negotiation position. In order to get attractive deals, the clients will make use of this situation. MASkargo has currently no active cooperation with a partner. This could change if the circumstances improve.

**Impact**

Financial results originated from the cooperation are not separately reported within the company. Because the partners are competitors, partners are not allowed to share financial results. Anti-price-fixing-acts restrict companies from sharing this kind of information.

In some cases the cooperation is based on a financial agreement; a partner is required to pay for the consumed capacity. The financial settlement of the cooperation is divided into two methods:

- **Hard block;** partners share an equal amount of capacity on the same route. The space is guaranteed. Due to fact that the partners share an equal amount of capacity, the economic value of cooperation is balanced. The partners are therefore not required to pay a tariff per kilogram.
- **Soft block;** a partner is able to use a part of the hold capacity on flights of a partner. The partners has agreed on a per kilogram tariff. The user is able to use the capacity flexibly. If the demand is there the capacity can be used. Based on the capacity that has been used, the user will pay a tariff per kilogram.

With its key partner for Western Europe, KLM Cargo, MASkargo have general meetings twice a year to discuss the developments within the industry. If there is a need to start a cooperation program, the plans for this program will be discussed during these meetings but if there is an immediate shortage in capacity meetings are often convened earlier.
MASkargo prefers not to source services in cooperation with its partners. Joint purchasing will affect the flexibility of the airline and it will have impact on the position of the airline in the market. MASkargo positions itself as a niche player in the market, a joint purchasing program could effect their independent position. A (larger) partner would interfere with the companies’ strategic policy. As the partners are competitors flexibility and an unique identity is very important.

The biggest disadvantage for MASkargo is in the management of the air cargo service. Partners often use each other services, many of these differences start to disappear. However, because the partners remain competitors in the same market, it could affect the market potential of MASkargo. It is therefore very important for MASkargo to reach an agreement with the partner providing the initial transport of the cargo.

Anti-price-fixing law, issued by various government agencies is not a restriction for MASkargo. In order to avoid fines and penalties, it is vital for partners to make thorough agreements on the information that will be shared. The partners will, for instance, not discuss tariffs with the each other, avoiding accusations of a cartel. Through these arrangements, the partners will help prevent penalties from being issued.

4.4 Cargolux

Introduction
Cargolux is an ‘all cargo’ airline based in Luxembourg. It is one of the largest scheduled ‘all-cargo’ airlines in Europe with a global network. Cargolux operates exclusively for freight forwarders. It uses a fleet of 14 B747-400 freighter aircraft and 20 trucking contractors to move valuable and time-sensitive commodities on its worldwide network, covering over 90 destinations.

Cargo revenue in 2008: US$ 1,963,849,626 (in €1,255,016,376 converted in January 2010) (99.0% of group revenue)

Cargolux does not have any partnerships, alliances or code share agreements that other carriers might use. In some cases the situation arises that Cargolux has a commercial understanding with another airline. Within this understanding, Cargolux pays for the used air cargo space. In this paragraph, the reasons for such an understanding and the reasons not to form a partnership with another airline will be discussed.

Examples of commercial understandings with other airlines
The following two examples will be discussed in detail:
- The utilisation of Cargolux capacity by Finnair Cargo on the route from Helsinki to Hong Kong.
- The utilisation of Silk Way capacity by Cargolux from the hub of Silk Way in Baku.

The examples were suggested by the interviewer, the information was obtained through the website of Cargolux and various annual reports.

Other examples
An agreement with Toumai Air Tchad made it possible to operate a new Abu Ahabi – N’djamena flight. For this operation, Cargolux reopened its Abu Dhabi station. An agreement with Hewa Bora airways resulted in a weekly Brussels – Kinshasa service.

Reason for the creation of a cooperation
The agreement with Finnair Cargo was created on request from Finnair Cargo and is considered to be a commercial agreement rather than a strategic cooperation.
Within the agreement, Cargolux was responsible for the transportation of the cargo, the cargo was transported on airway bills of Finnair Cargo. Finnair Cargo was responsible for the sales activities, and for the financial risks that accompany these activities. Cargolux was not involved in the sales activities.

Through the agreement with Silk Way, Cargolux was able to expand its network. More destinations were offered through the agreement. It is required to have specific market knowledge to operate successfully in this region. In Baku, the hub of Silk Way, freight is transferred from Cargolux to Silk Way. Although Cargolux is able to use the capacity of Silk Way, both airlines remain competitors. There is just a commercial understanding for the capacity usage.

The company’s Baku operation proved advantageous, developing into a ‘regular hub’ between Luxembourg, the Caspian Sea Region, and Cargolux’s destinations in Asia, a real ‘Silk Route’, with tonnages that increased considerably since its start in 2001. Currently, several daily flights into Baku are offered, and the company’s aircraft, in Luxembourg’s colors, have become part of the daily operations at Baku Airport. The hub is used for shipments from East to West and vice versa, or just as ‘technical stop’ for crew change and refueling.

Most of the freight arriving at Baku Airport is in transit, mainly destined for Kazakhstan, Turkmenistan, Iraq, and Afghanistan. The flights serving these regions are operated by Silk Way, which has adequate aircraft, equipment and experience to serve these destinations.
In general, Cargolux concludes agreements with other airlines to expand its network.

**Reasons not to start a cooperation**

Although a partnership could be beneficial for the airline, Cargolux is very reluctant to conclude a cooperation, alliances in particular.

Cargolux believes it is important to remain, neutral, independent and flexible. The company believes that a cooperation will have a negative impact on these values. Depending on the cooperation form, it is to be expected that a partner would like to have some influence in the strategic decisions. Cargolux could be described as an organisation with a compact management structure and as a result; flexibility is the strength of the company. It is able to respond rapidly to developments in the business. Meetings with a partner could extend the decision making process and thus weaken any impact through lack of response to market forces. It is also possible that the new business opportunities could compete with proposals by the partner.

Through its strategy, Cargolux is able to hold its position in economically difficult times as it has become a niche player in the air cargo business. Their services are customised to specific requirements. Therefore, they find there is no need to create a partnership to share capacity risks during economic severe times.

An alliance would furthermore make it difficult to sell their product due to a lack of knowledge of the partner’s aircraft and the possibility that aircraft capacity decreases over time.

A partnership could furthermore deteriorate the quality of the service. According to the respondent, Cargolux offers a high quality product. This level is created through the quality of its equipment and through the knowledge and experience of Cargolux’s employees. If a partner is not able to offer an equal product, it is to be expected that clients of Cargolux will issue a complaint and will eventually end their relationship. The working relationship with their clients is often more important than the need to offer a complete global network. Cargolux considers it
to be a strength that it is able to say no to some requests. The quality of the product and the relationship with the freight agent enables Cargolux to hold its position. Cargolux guarantees its product quality through a network of local Cargolux employees.

Some airlines join an alliance to develop a joint product portfolio. A joint product portfolio enables the partners to generate synergies and to share knowledge. Cargolux believes that it offers a more than adequate product range and that it will be very difficult for a partner to improve this range. It therefore does not participate in a cooperation for such a reason.

Recent developed jurisprudence on anti-price-fixing, part of the European Competition Law, (several airlines have been convicted for price-fixing activities) have changed the way airlines interact with other airlines. Cargolux has extended its policy not to conclude air freight collaborations with other airlines.

Customer benefit
For Cargolux the main and only customers are freight forwarding agents. In comparison with some air cargo airlines, end customers (for instance manufacturers) are not able to book a shipment directly with Cargolux. For these clients it is required to make use of the services of a freight forwarding agent. The requirements of the freight agents are the fundamentals of Cargolux’s business policy. It has created sufficient expertise and product range to meet these requirements.
Also Cargolux believes that a partnership could harm the existing service to its customers.

Integrators
According to Cargolux, integrators have extended their market presence on the general air cargo market. The activities of integrators are closely monitored by Cargolux. The move of integrators could be explained through the decrease of volumes in the express air cargo market, the core business of integrators. In order to maintain their income, integrators have extended their product portfolio. Cargolux does not consider the competition to be a big threat. It is therefore not required to create an air freight collaborative with other airlines to defend its market position.
It believes that through their capabilities, expertise and relationships with its clients, the company are able to defend its position.

Legislation
In comparison with the air passenger business, Cargolux is not required to set up a partnership with other airlines in order to resolve limitations created through legislation. Airlines are required to obtain landing rights before they can offer services to a destination; this legislation is applicable on both air cargo and air passenger services. In the air passenger business, it is a common practise to offer an ‘off-line’ destination through a cooperation. Air cargo airlines, like Cargolux have more options, for instance the use of truck services. In various regions, Cargolux has an extensive trucking network and is able to offer various off-line destinations through this network. In some situations, the service provided is not considered to be adequate, in this case, speed being the biggest limitation. For these shipments, it is required to use airfreight services. However, if Cargolux has not obtained landing rights, it is required to conclude an agreement with other airlines.

Due to the fact that a partner could weaken the quality of the product, Cargolux has decided not to set up a partnership. As a consequence, the off-line destination will not be offered. In some situations, for instance through the
agreement with Silk Way, Cargolux has made an exception. In this instance employees of Cargolux at the hub of the other airline, (in the case of Silk Way, Baku), make sure that the required service level is achieved. Because the deployment of Cargolux employees at a hub is expensive however, it is not always economically viable to use this solution in every situation.

**Comparison with air passenger alliances**

In contrast with the passenger business who have the resources to communicate with the end customer, cargo airlines have no such arrangements with the end customer; this is also applicable for Cargolux. The company uses the slogan: “the forwarders airline”. It is therefore easier for cargo airlines to have contact with their customer, the focus group is compact. In theory, almost every person in the Netherlands could be a part of the focus group of an air passenger airline. It is more difficult to communicate with the final customer. Air passenger airlines use alliances and cooperations in general to improve the communication with the final customer. The need is not there for a cargo airline. According to Cargolux, the air passenger industry has more opportunities to offer a differentiated product range. Examples are first and business class products and a more recent development is the premium economy class product. After thorough consideration, Cargolux has come to the conclusion that such a differentiation is not feasible within the air cargo industry. An alliance would therefore not be beneficial.

**Impact**

The revenues obtained through an agreement with another airline are not separately reported in, for instance, the annual reports. All the generated revenues are reported through one account, the same accounting rule is in place for the operating costs. The operating costs created through a commercial agreement and the operating costs created using own material, are jointly reported as operating costs in the annual report.

Cargolux does not believe that a partnership could create sufficient synergies in order to generate cost savings with a partner. It is not to be expected that a partner will offer its cargo capacity for a price lower than market average.

A customer is not specifically informed if its shipment being transported through the services of another carrier. Comparable with the trucking network, the CV, official IATA airline code of Cargolux, operation code will be used if there is a long-term commercial understanding with another airline. Cargolux does not think that through a cooperation, additional revenues will be created; the cost of the cooperation will not exceed the revenues. This is another reason why partnerships are not adopted.

The impact or drawbacks within a commercial arrangement depends on its structure. Within an alliance it is frequently required to discuss the strategic direction of the alliance, Cargolux believes this could have a negative impact on its flexibility. For a block space agreement fewer meetings are required, it will therefore have limited impact on its flexibility.
### 4.5 Key cargo figures

<table>
<thead>
<tr>
<th></th>
<th>Load factor</th>
<th>Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AF - KLM Cargo</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>66.1%</td>
<td>10.830</td>
</tr>
<tr>
<td>2007</td>
<td>66.6%</td>
<td>10.986</td>
</tr>
<tr>
<td>2008</td>
<td>67.5%</td>
<td>11.365</td>
</tr>
<tr>
<td><strong>Lufthansa Cargo</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>67.0%</td>
<td>8.103</td>
</tr>
<tr>
<td>2007</td>
<td>69.1%</td>
<td>8.451</td>
</tr>
<tr>
<td>2008</td>
<td>65.8%</td>
<td>8.283</td>
</tr>
<tr>
<td><strong>MASkargo</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>66.8%</td>
<td>6.359</td>
</tr>
<tr>
<td>2007</td>
<td>65.8%</td>
<td>6.305</td>
</tr>
<tr>
<td>2008</td>
<td>67.6%</td>
<td>5.750</td>
</tr>
<tr>
<td><strong>Cargolux</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>72.8%</td>
<td>5.271</td>
</tr>
<tr>
<td>2007</td>
<td>73.0%</td>
<td>5.537</td>
</tr>
<tr>
<td>2008</td>
<td>70.6%</td>
<td>5.411</td>
</tr>
</tbody>
</table>

Definition load factor: revenue ton-kilometres divided by available ton-kilometres.
Definition traffic: total number of tons of paid cargo multiplied by the number of kilometres that this cargo is carried, displayed in millions. Also known as revenue ton-kilometres.
Figure 5, Key cargo figures participating airlines case study. LH = Lufthansa Cargo, MH = MASkargo (official IATA codes)

Air cargo alliances; walking on a thin line.
5. Conclusions, discussion and recommendations

In this chapter conclusions will be drawn from the research findings. Based on the conclusions the value of this research based on the existing literature will be discussed. This chapter will also include the limitations of this research and recommendations for future investigation.

5.1 Conclusions

Based on the findings of Houghtalen et al. (to be published) and Zhang and Zhang (2002) a gap in the literature has been recognised. This gap was the starting point of this research; the purpose of the research was to enlarge the knowledge on the position and role of alliances within the air cargo industry. The most important conclusion of this research is that an alliance member is not able to create and improve customer benefits within the air cargo industry.

The clients of air cargo airlines also do not believe that air cargo alliances could add extra value to the product. By contrast, through services like joint lounges, joint in flight products, joint check-in desks and joint frequent flyer programs, an alliance could offer a more appealing product in the air passenger sector. According to the airlines involved, clients appreciate these services and award this with customer loyalty.

The services that make an air passenger alliance unique are not a part of the air cargo supply chain. Air cargo airlines are therefore limited to a niche domain by offering specialist services.

The most important consequence is that air cargo airlines, with the exception of the members of the SkyTeam Cargo alliance, have decided not to participate or create an air cargo alliance. The situation for Lufthansa Cargo is somewhat unique. Officially, the airline is still a member of the WOW Cargo, but due to the fact that the alliance is not active, an alliance is not a part of their daily operation.

Although an air cargo alliance is not able to create and improve customer benefits, large air cargo airlines like Korean Air Cargo and Air France-KLM Cargo, have decided to create an air cargo alliance. As a membership undertakes various responsibilities and membership fees are in place; an air cargo alliance should, in theory, be able to create several benefits for an airline. If this was not the case, airlines would not have invested in an alliance. This research had found the following reasons and motives:

- The creation of the two investigated alliances (SkyTeam Cargo and WOW Cargo) is based on the successes of alliances within the air passenger industry.
- According to both Air France–KLM Cargo and Lufthansa Cargo, the advantage of an alliance is the creation of synergies. Synergies enable Air France–KLM Cargo to operate more cost efficient than it would have been as a single operating airline. This is in accordance with Bhatnagar and Viswanathan (2000), Harrison et al. (2001), Cheng and Yeh (2007), Oum and Park (1997) and Park et al. (2001), they have concluded that strategic alliances can help firms to consolidate their market position and to become cost-efficient.
- The aims of the SkyTeam Cargo alliance are to align the services of the alliance members, not only in order to generate savings through the creation of synergies, but also to offer a standardised product portfolio. This is in accordance with the findings of Hamel (1991), Harrison et al. (2001), Zhand and Zhang (2002) and Cruijsen et al. (2007),
- Air France – KLM Cargo was the only airline which also use the SkyTeam Cargo alliance to improve the product, for instance through its one roof policy. The one roof policy implies that a client has access to the complete
network of the alliance through one booking. Lufthansa Cargo has also confirmed that this is the only customer benefit of an alliance.

- For Lufthansa Cargo the reason the WOW Cargo alliance was created was, they believed that marketing methods would also be successful within the air cargo business. Not only was the WOW Cargo alliance considered to be a copy of the Star Alliance, Lufthansa Cargo also introduced a product line that was based on the product line of the air passenger department. For Lufthansa Cargo the network expansion is considered to be a large benefit for its clients, the other being the ability to offer a one-stop-shopping concept.

It has been confirmed that there is a difference with the air passenger industry. This difference is for a large part explained through the behaviour and position of the clients. First of all the number of clients are considerably larger than within the air cargo industry; for air passenger airlines several millions persons are potential clients, for air cargo airlines several dozen freight forwarders are potential clients. Air passenger airlines therefore use an alliance to communicate (cost) efficiently with their customers, air cargo airlines are able to communicate with their clients as a single operating airline.

Furthermore, the buying power of client differs. Freight forwarders frequently place orders with air cargo airlines, with several bookings a day being no exception. With the exception of some frequent flyers, air passengers do not place orders regularly. Freight forwarders have furthermore decided to decrease the number of suppliers, thus improving their buying position. According to freight forwarders the differentiated perception of air cargo airlines is limited. This is because the buying power of freight forwarders is better compared to the buying power of air passengers and the services of the various airlines are alike. The freight forwarders will negotiate to get the best deal possible; membership of an air cargo alliance has limited impact on that choice. An air cargo alliance does not generate additional sales revenues for an airline.

In the last years, several air cargo airlines, including the airlines from this case study, have received high fines and some management personnel have received jail sentences. This event had a big impact on the air cargo industry and the air cargo airlines in particular. Cooperations, including air cargo alliances, have been re-evaluated and some airlines, Cargolux in particular, have suspended cooperations.

Because the approvals of various competition agencies are required to create an air (cargo) alliance, the competition agencies are able to have influence on the development of alliances. An approval is also required for the creation of joint ventures. Through this policy, the competition agencies try to protect the interests of the end customers. According to the airlines some competition agencies, the competition agency of China for instance, also use their power to protect the interests of local carriers.

Although it has been confirmed that cargo airlines are reluctant to participate in an alliance, there is a need to cooperate. In order to fulfil these requirements the air cargo airlines have made other arrangements (Appendix C for Air France – KLM Cargo and Lufthansa Cargo). The research made it clear that other strategic air freight collaborations are also considered to be a vital part of air cargo industry. The other two cases (MASkargo and Cargolux) for instance, are not a member of an alliance and make use of other strategic cooperations to achieve their goals. These partnerships forms are a vital part of the air cargo business, the reason why these cooperations are created was also investigated. It is the first time that the complete range of strategic cooperations within the air cargo
industry have been analysed. The following strategic cooperations were discussed:

- Bilateral agreements, block space agreement and SPA’s
- Joint ventures
- Cooperation through mergers, takeovers or capital involvement

Airlines furthermore emphasise that within a bilateral agreement they will either remain competitors or change their modus operandi. Although the air freight collaborations are beneficial, all of the airlines involved have confirmed that the principal aim of an air cargo airline is to fill its own capacity.

Based on these findings it has been concluded that the air cargo industry has a different approach to alliances than the container shipping industry.

To summarise, it can be concluded that an air cargo alliance could create a number of substantial benefits for the airline involved; the creation of synergies and the expansion of the network being the most important. However, the circumstances in the industry do not stimulate the creation of air alliances. Competition agencies have created various impediments and there is a continuous threat that an alliance could be more beneficial for a partner or competitor. Joining an alliance could therefore create high risks for an airline, with a possible low return on investments through the lack of customer benefits. *Walking on a thin line, with trouble on either side*

### 5.2 Discussion

Within this paragraph the results of this research and the tentative answers (chapter two) in particular, are compared with the existing literature. This chapter is structured through the research questions.

#### 5.2.1 What are the reasons for airlines to join or create an air cargo alliance?

The creation of the two investigated alliances (SkyTeam Cargo and WOW Cargo) is based on the successes of alliances within the air passenger industry. SkyTeam Cargo originated form the success of SkyTeam, WOW Cargo originated from the success of the Star Alliance. There was a need within the alliances to align the air cargo activities of the members. The Star Alliance and the SkyTeam alliance were created in order to strengthen and expand their international presence in ways that would not be possible without an alliance (Czipura and Jolly 2007).

Although the necessity to create an alliance is considerably less than within the air passenger sector, there was a need within SkyTeam to align and improve the air cargo activities of the various alliance members. This finding corresponds to the findings of Gooley (2001) and Graumann and Niedermeyer (2006), with the exception of those within customer loyalty programs.

The necessity is less because the air cargo airlines have considerably fewer clients compared to air passenger airlines. For Air France - KLM Cargo several dozens of freight agents are considered to be the core to vital business, whilst for the air passenger sector, several million people are considered to be potential paying customers. The air passenger departments cooperate with other SkyTeam alliance members to communicate with the target group efficiently and are furthermore able to improve their product. Air passenger airlines use an alliance to communicate efficiently with there customers, air cargo airlines are able to communicate with their clients as a single operating airline. This finding is in accordance with Otto (2006). This is the first time that the number of clients has been linked to the creation of air cargo alliances.
If the reasons for the creation are looked into, differences are recognised. The aim of the SkyTeam Cargo alliance is to align the services of the various alliance members and to generate savings through the creation of synergies. The synergies enable Air France – KLM Cargo to operate more cost efficiently than it would have been able to do so as a single operating airline. This is in accordance with Bhatnager and Viswanathan (2000), Harrison et al. (2001), Cheng and Yeh (2007), Oum and Park (1997) and Park et al. (2001), they have concluded that strategic alliances can help firms to consolidate their market position and to become cost-efficient.

In accordance with the findings of Hamel (1991), Harrison et al. (2001), Zhang and Zhang (2002) and Cruysen et al. (2007), SkyTeam Cargo members align their services to improve the product.

As the SkyTeam Cargo members align their business on both core activities and non-core activities (for instance the joint purchasing program for marketing activities), the conclusion of Cruysen et al. (2007) has not been confirmed through these findings. Cruysen et al. (2007) concluded that cooperation on core activities, although involving the exchange of customer information, is considered to be more desirable than cooperation on non-core activities because of the higher potential of cost savings. Airlines are not allowed to communicate client details and tariffs within a partnership, joint ventures, mergers, takeovers and capital involvement excluded, this conclusion has furthermore not been confirmed.

For Lufthansa Cargo, network expansion, through an air cargo alliance, is considered to be a large benefit for its clients, the other being the ability to offer a one-stop-shop concept. The importance of network expansion has also been confirmed by Oum and Park (1997), Park (1997), Park and Zhang (1998), Oum et al. (2001) and Bowen and Leinback (2002).

This finding is not completely in accordance with Graumann and Niedermeyer (2006). They concluded that Lufthansa Cargo created the WOW Cargo alliance for two reasons:

- The first was the perceptible trend towards consolidation in the air cargo business; in view of that, the three carriers deemed it sensible to add greater weight to their own position by entering into closer cooperation.
- The second was the forecasted market growth of between 5% and 6% in the industry in the years ahead. The three considered it difficult to accommodate that projected additional demand on their own, since capacity increases in the air traffic business require substantial capital expenditure.

Only the second reason has been confirmed by the findings of this research.

This research has found no evidence to support the conclusions of Zhang and Zhang (2002). They have concluded that air cargo alliances are more likely to occur for specific markets rather than on a regional or global scale, in contrast to air passenger alliances. Both Lufthansa Cargo and Air France-KLM Cargo have stated that the network expansion as a result of an alliance membership is one of the main reasons to create an air cargo alliance.

It has been concluded that other cooperation forms are a vital part of the air cargo industry, the reasons for the creation of these forms are also analysed. These reasons are compared with those for the creation of alliances within the air passenger industry. It was found that the reason for the creation of the strategic air cargo cooperation differ to some extent from the creation of an air cargo alliance.
Although it is has been confirmed that airlines are reluctant to participate in an alliance, there is a need to cooperate. Through various methods, air cargo airlines are able to cooperate, the following being the major ones identified:

- Bilateral agreements, block space agreement and SPA’s
- Joint ventures
- Cooperation through mergers, takeovers or capital involvement

The network of Lufthansa Cargo has expanded by using its partner’s network and capacities of aircrafts are shared in order to keep waste to a minimum. Lufthansa Cargo also uses this kind of cooperation to create cost savings. Comparable with the finding of Hertz (1996), it has been concluded that if landing rights are refused, airlines use SPA’s as a solution to obtain access to a destination. Lufthansa Cargo furthermore uses SPA’s to minimise commercial risks. If there is doubt that the demand on a new route is not strong enough to fill an aircraft, the airline will try to set up a partnership with a partner to increase the load factor and share operating costs. Comparable findings have been found in the cases studies of Air France – KLM Cargo and MASkargo.

In case of capacity shortage, airlines also use this kind of cooperation to obtain additional capacity. Through the knowledge and contacts of a partner, Cargolux is able to run a successful operation in a specific region. Within this cooperation however, the airlines remain competitors.

Bilateral agreements, block space agreement and SPA’s are considered to be a flexible and straight forward cooperation. Although capacity is shared, the partners will remain competitors. In order to control its position, MASkargo only allows KLM Cargo (partner of MASkargo) to offer cargo from other markets on its flights. Freight from the United States of America is an example of such a market.

Das and Teng (2000) also have described the competitive edge of the cooperation; ‘the simultaneous existence of cooperation and competition between partners is an important characteristic of strategic alliances. Whereas competition can be defined as pursuing one’s own interest at the expense of others, cooperation is the pursuit of mutual interests and common benefits in alliances (and cooperations).’

Partners do not run joint purchasing programs or other joint initiatives; joint activities are usually the basis of cooperations within the air passenger industry. Through anti-pricing fixing acts, various governments have placed impediments, for instance the communication of tariffs, on the possibilities of bilateral agreements. The nature of the cooperation is based on flexibility; agreements in general will not last very long. Partners will evaluate the cooperation frequently.

Within a joint venture, airlines attempt to run a joint operation with a partner on a specific route or within a specific area; the network operation and the commercial activities are, within the boundaries of the anti-price fixing acts, aligned. Expenses and earnings generated through the cooperation are shared. The achievements of these goals depend on the performance of the partner. Therefore, the cooperation creates more obligations compared to a bilateral agreement, in general joint ventures are long lasting agreements.

Cooperation based on mergers, takeovers or capital involvements are comparable with joint ventures, but have almost no legal restrictions.

5.2.2 How do these reasons differ from the foundations of other alliances, especially compared to air passenger alliances?

Air cargo alliances are based on the alliances of air passenger alliances, the involved airlines have tried to duplicate the philosophy of the air passenger alliances. The philosophy is applicable in the creation of synergies and cost saving, but the other reasons differ.
The main difference is finding that clients of air cargo airlines do not believe that an air cargo alliance could add extra value to the product. The services (joint lounges, joint in flight products, joint check-in desks and joint frequent flyer programs) that make an air passenger alliance unique are not a part of the air cargo supply chain. According to the airlines involved, clients appreciate these services and award this with customer loyalty. This has been confirmed by Park (1997), Wang (2004), Czipura and Jolly (2007) and Wan et al. (2009). The research of Wang (2004) evidences the merits of liberalisation and strategic alliances by showing the improved passenger flight services through increased direct flights, city-pairs, route networks, market share, and change of number of carriers on routes. According to Wan et al. (2009) it is clear that airline alliances have a positive impact on connecting passengers, since these passengers benefit from coordination among alliance partners; for example, through lower connecting times. Air cargo airlines are limited to create a differentiated strategy. This is in accordance with (Zhang and Zhang 2002); whether it travels direct, or hubs through one or more airports, is of lesser consequence than for passengers. Air cargo is also insensitive to transfer flight synchronization, and to airport terminal services. By contrast, air cargo is sensitive to different factors, including; transfer of freight to another aircraft; whether pallets need to be broken down and rebuilt; the cost of trans-shipment handling (Zhang and Zhang 2002). Houghtalen et al. (to be published) also have concluded this.

As this research implies that an air cargo alliance does not create any benefit to the product for the client, the findings of Oum and Park (2003) are not completely supported. According to Oum and Park (2003) alliances are not a passing phenomenon but rather a permanent fixture of the industry because they not only create values to customers, but also enhance profit opportunities for the partners. The findings of Zhang et al. (2004) are also not supported. According to Zhang et al. (2004) (air cargo) alliances will likely increase the partner's own output, while simultaneously decreasing its rival's output, in not only the cargo markets but also the secondary passenger market. The research implies that an air cargo alliance only creates cost saving benefits through synergies within the organisations of its members. With the exception of network expansion, there are no customer benefits involved in air cargo alliances.

Demands and requirements of clients also differ. In general, air passengers wish to travel from A to B in a comfortable environment and within a specific time frame. For freight forwarders the environment, with the exception of specific products like perishables and dangerous goods, is less import. For the freight forwarders the time frame and the price are more important. Freight forwarders are able to switch supplier without quality impediments. Lufthansa Cargo tried to introduce air passenger products within the air cargo business, this initiative failed because the requirements of freight forwarders are different.

Freight forwarders have other demands, air cargo airlines have more possibilities to use other transportation modalities. If a freight forwarder would like to book a shipment from Shanghai to Liverpool, a cargo airline is able to use a plane from Shanghai to London and a truck to Liverpool. If an air passenger would fly the same segment, they would almost certainly not accept that a bus would be used from London to Liverpool. These findings are contradictory with the feedings of Park et al. (2003) and support the findings of Zhang and Zhang (2002). Zhang and Zhang (2002) concluded that the lead time within the air cargo industry is, within the limits of what might be considered as reasonable, compared to the air passenger industry, less important.
The decision as to which transportation modality will be used is more a financial decision; client demands have little impact on this decision. An air cargo airline has the possibility to avoid governmental restrictions, for instance because landing rights are not issued. If an air passenger airline is willing to offer a destination in a similar situation, it is forced to create a partnership with another airline.

The evidence from this research conclusively links legislation to the creation of an air cargo alliance.

There are also situations where an air cargo airline is not able to choose between the various transportation modalities, for instance the size or nature of the shipment creates impediments for the transportation by plane.

Through a joint purchasing program for the trucking services, air cargo alliance members could create synergies. In theory this could work, but both Lufthansa Cargo and Air France-KLM Cargo have decided not to do so. It is thought that the co-ordination costs would outstrip any savings.

Within the air cargo industry, not all shipments are alike, airlines have created specialisations accordingly. If an air cargo carrier is being asked to transport radioactive medical materials, other skills are required than if the shipment consisted for example of inert clothing. In some situations airlines are not allowed to cooperate with a partner, for instance if a partner does not posses the required skills or knowledge and does not have the required licenses. Otherwise this could lead to illegal activities that would most likely impact on the quality of service and/or the relation with a client.

As these differences are not in place within the air passenger industry there are no limitations to service related motives to create a partnership.

Another difference is the buying power of clients. Freight forwarders frequently place orders with air cargo airlines, with several bookings a day being common. With the exception of some frequent flying customers, air passengers do not book frequently. With freight forwarders also decreasing the number of carriers they use, improves their buying leverage.

The diversity of air cargo airlines is limited to the numbers of freight forwarders, the purchasing power of freight forwarders is enhanced compared to that of air passengers. Also the differentiated perception of air cargo airlines is limited according to freight forwarders, the buying power of freight forwarders is better compared to the buying power of air passengers.

The freight forwarders will negotiate to get the best deal possible; membership of an air cargo alliance has limited impact on that choice. An air cargo alliance does not generate additional sales revenues for an airline. Alliances within the air passenger business generate extra sales revenues for airlines (Iatrou and Alamdari 2005 and Götsch and Albers 2006).

For its fiscal year 1998, Lufthansa reported that its strategic alliances contributed some €250 million to its success of that year. In 2003, US Airways announced an expected $75 million increase in revenues per year by joining Star Alliance (Götsch and Albers 2006).

This research is not in accordance with Cruijssen et al. (2007). According to Cruijssen et al. (2007) an airline is able to service larger clients and protect market share.

The final difference is the rise of new competitors. Although Bowen and Leinbach (2003) and Grönland and Skoog (2006) have stated otherwise, this research has found no evidence that air cargo alliances have been created to stop the rise of integrators. According to air cargo airlines, the integrators are enlarging their market presence and are considered to be serious competitors. Nevertheless, because freight forwarders do not believe an air cargo alliance could add value to
the product of the air cargo carrier, the position of the air cargo carrier will not be improved. Furthermore, it is to be expected that integrators will switch back to the express cargo market if this market segment improves, it is not required for air cargo carriers to improve or defend their position.

To some extent, this research is in correspondence with Zhang et al. (2004). According to Zhang et al. (2004), airlines could offer comparable express services through an alliance; ‘by forming alliances, passenger airline groups may be able to offer express services taking two to four days (for services from Hong Kong to Europe or to the US) door-to-door’. Both Lufthansa Cargo and Air France – KLM Cargo have launched an express products (td Flash for Lufthansa Cargo and Equation for Air France – KLM Cargo) through their alliance. However, the reason for the joint implementation is cost driven and not market driven; both airlines would also have implemented such a product as a single operating airline. Through an alliance they were able to launch it more cost efficiently.

It is to be expected that the foundation of alliances within the air passenger sector are related to the rise of low cost carriers, directly or indirectly. Fritz (2006) has concluded that the threat of budget new comers was the reason for the creation of air passenger alliances. The threat of these new entrants was described in general by Fritz (2006) who did not elaborate specifically on the rise of low cost carriers. The rise of low cost carriers has been confirmed by O’Connell and Williams (2005). Either directly or indirectly an alliance could improve the position of an airline, for instance through their joint service portfolio and the creation of synergies.

According to Fritz (2006) the industry structure and success factors specific to the airline industry, creates various possibilities for improving competitive position by cooperation/integration (Fritz 2006). The various competitive forces by Fritz (2006) have been mentioned in table 1 and have been confirmed by this research. Within air cargo alliances, the approach to improve the bargaining power towards suppliers is a vital part of an air cargo alliance. To some extent the competitive forces ‘threats of entry’ and ‘rivalry among established airlines’ are applicable on the SkyTeam Cargo alliance. Within the SkyTeam Cargo alliance, members align their services and offer the same product line, but the philosophy behind this policy is mainly cost driven (creating synergies) and not because of the threat of rivalry between airlines or integrators. The competitive approach to decreasing the bargaining power of buyers is not applicable on the air cargo industry and is mainly a feature of the air passenger industry.

This research has found evidence that air cargo airlines in general are reluctant to join or create an alliance, with only one case (Air France-KLM Cargo), of the four investigated providing evidence that an alliance could create benefits for its members (air cargo airlines). An alliance as a business tool is therefore considered not to be an important phenomenon within the air cargo industry. This does not compare with developments within the sea cargo industry. Research by Slack et al. (2002) provided insights into the way alliances have changed the container shipping industry; services have become more alike and the intensification of operations. Alliances in the shipping industry are seen as facilitators of service integration and deepening, and of service conformity. Aix et al. (1999) also has concluded this finding.

5.2.3 How could these differences be explained and what are the consequences?
The explanations of these differences are discussed in paragraph 5.2.2, this paragraph will be focused on the consequences.

The most important consequence is that air cargo airlines, with the exception of the members of the SkyTeam Cargo alliance, have decided not to participate or
create an air cargo alliance. Although Lufthansa Cargo is officially still a member of the WOW Cargo, it seems that the alliance is not active. This finding is a new addition to the literature on strategic cooperations within the air cargo industry.

As airlines are unable to reveal client details and tariffs within a cooperation, joint ventures, mergers, takeovers and capital involvement excluded, the conclusions of Crijssen et al. (2007) (cooperation on core activities, although involving the exchange of customer information, is considered to be more desirable than cooperation on non-core activities because of the higher potential of cost savings) has not been confirmed.

According to Slack et al. (2002) there is no clear consensus as to the economic justification for the recent formation of groupings in the container shipping industry. The relative merits of acquisitions against alliances have been considered in several studies. Evidence points towards equity mergers providing fast means of growth and greater possibilities of integration. This is a conclusion drawn from a case study of CP Ships. The company was not a member of an alliance, yet has acquired control over half a dozen smaller carriers in its attempt to become one of the top 10 container lines (Aix et al. 1999). The growth of world trade, a direct outcome of the internationalisation of the economy, has made it essential for container shipping companies to extend their market coverage globally. At the same time, costs of providing such global services have been increasing because of the need to deploy ever larger and more costly vessels. The emergence of new carriers has also heightened the competition. Faced with these circumstances, the shipping lines have moved to restructure (Slack et al. 2002).

The foundations for the creation of an alliance within the container shipping industry are therefore comparable with the foundations for air freight collaborations within the air cargo industry. The big difference is the realisation of these foundations. According to Slack et al. (2002) and Aix et al. (1999) shipping companies have decided to create alliances on a big scale and air cargo airlines have decided to set up other cooperative arrangements. It is to be expected that for a large part the nature of the cargo will determine the strategy adopted. Using containers, the shipping industry has standardised and simplified cargo handling. It is therefore relatively easy to cooperate with a partner. Although unit load devices (ULD’s) have standardised the air cargo industry, specialisations and airline specific procedures exist; specialisations for instance for the transportation of high value products or live animals. The existence of these variables will impact on the various cooperative possibilities. This in particular was a reason why Cargolux didn’t want to form a partnership.

Another explanation is the requirements of the clients. This research implies that from a freight forwarder’s point of view an air cargo alliance will not improve customer benefits. An alliance would decrease the buying power of the freight forwarder. It is unclear if clients of shipping companies believe that an alliance will improve the service of the shipping company. If there is a service improvement, it is to be expected that clients have requested shipping companies to create an alliance.

It is expected that the policies of the competition agencies within the shipping industry are similar to the policies within the air cargo industry. This could not explain the different behaviour.

5.2.4 What is the impact of air cargo alliances on carriers?

In accordance with the expectations of Gudmundson (1999), several air cargo airlines, including those from the case studies, have had large fines imposed, with some management personnel being sentenced to jail. Competition authorities of various nations (including, the United States, Australia, New Zealand and the European Union) have successfully prosecuted the airlines for the anti-price fixing activities. The airlines were in particular accused of the rigging of fuel surcharges.
These activities were carried out within the structure of a partnership and without such an agreement, in other words a cartel.

This event had a big impact on the air cargo industry and the air cargo airlines in particular. Air freight collaborations, air cargo alliances included, have been re-evaluated and some airlines, Cargolux in particular, have suspended cooperations.

As a result, airlines emphasise that within a bilateral agreement airlines will remain competitors or have altered the execution of the cooperation. Because the airlines remain competitors within a bilateral agreement, as mentioned earlier MASkargo has created conditions on the partner’s cargo that is transported through the cooperation. The finding is in accordance with Oum et al. (2001). The desirable international regulatory structures on international alliances should include convergence of national competition policies and enforcement practices to achieve common standards and treatment of airline alliances within the general framework of competition policy. The establishment of such coordinated regulatory structures and the liberalisation of international aviation reinforce each other and should be pursued simultaneously (Oum et al. 2001).

However, this finding is not in accordance with Wang and Evans (2002). This research suggests that trade opportunities may be enhanced by an across-the-board-approach, to enable a like-minded sub-group of countries to negotiate air transport and other goods and services trade together (Wang and Evans 2002).

Although the cooperations are beneficial, all of the involved airlines confirmed that the principal aim of an air cargo airline is to fill its own capacity. The way the various airlines treat the verdicts of the competition agencies are apparent; Air France – KLM Cargo call the cases ‘a storm in a tea cup’ and Cargolux has emphasised that the company does not cooperate through strategic cooperations with other airlines. Instead, Cargolux has indicated that it has ‘commercial agreements’ with other airlines, agreements comparable with other clients for instance freight forwarders. Based on the reasons these agreements have been created and the execution of the agreements, it can be concluded that these agreements can also be defined as strategic cooperations. The remarks by Cargolux on this point are therefore considered to be legally orientated.

This finding is not completely in accordance with Houghtalen et al. (to be published). According to Houghtalen et al. (to be published), carriers take steps to improve the profitability of their cargo business; there are increasing collaborations for cargo that are independent of those already established for the passenger industry.

This research implies that air cargo carriers have recognised that air freight collaborations, and alliances in particular, enable them to create synergies and as consequence could improve the profitability. However, because government agencies have placed limitations on these cooperations and have successfully prosecuted airlines, the airlines are reluctant to participate in a partnership. Takeovers, mergers and capital involvements are an exception, this is due to the fact that the enforcement by government agencies is limited.

This research does not support the findings of Gudmundsson and Lechner (2006). According to Gudmundsson and Lechner (2006) one of the most important assets of airlines is their customer base. Joining an alliance could mean that airlines lose some control over their most important assets by making them accessible to other members of the alliances.

Because air cargo alliances are not allowed to exchange client details the conclusion of Gudmundsson and Lechner (2006) is implausible for legal reasons.
According to both Air France–KLM Cargo and Lufthansa Cargo the biggest impact of an alliance is the creation of synergies. Air France – KLM Cargo was the only airline which also use the SkyTeam Cargo alliance to improve the product, for instance through its *one roof policy*. The one roof policy implies that a client has access to the complete network of the alliance through one booking. Lufthansa Cargo has confirmed that this is the only customer benefit of an alliance.

Both Air France-KLM Cargo and Lufthansa Cargo confirm that clients will not choose to use an alliance because it is a member of an alliance. Alliances will be unable to create extra revenues for its members. The key cargo figures (figure 5) confirm that the external impact of an alliance is limited. Air France-KLM Cargo, Lufthansa Cargo and MASkargo have comparable load factors; a possible advantage of Air France-KLM Cargo through the SkyTeam Cargo alliance is not visible. The airline is not able to create a significant increase of its load factor. According to the findings of Iatrou and Alamdari (2005) such a trend has been found in the air passenger industry. They have done research on the perceived impacts of alliances by participating airlines. They concluded that alliances bring about an increase in passenger traffic with a parallel increase in load factors and some reduction in costs. Thus, a clear improvement of revenue is observed, a fact resulting from the combination of the increase in traffic and the decrease in costs.

Cargolux however is able to transport its shipments more efficiently; the load factor is considerable higher compared to the other airlines. It is not likely that the difference will be explained through the policy of Cargolux within cooperations; Cargolux is reluctant to conclude cooperations.

The difference could be explained through the business plan of Cargolux within an ‘all cargo’ aircraft operation. Here all the activities of Cargolux are aimed at the transportation of cargo. For the other airlines, the transportation of air passengers is more important and the business is aimed at this focus group; the cargo activities are of minor importance. The flight schedules of air passenger aircraft are aligned to the requirements of air passengers. Air cargo airlines transport approximately 55% of their shipments through the holds of air passenger aircraft, the flight logistics are not always aligned with the requirements of freight forwarders. For the other 45% specialist cargo aircraft are used. Some passenger flights carrying cargo may have a low load factor. Zhang and Zhang (2002) have also addressed this. Their research shows that all-cargo carriers may have different routing needs than passenger carriers and thus require different sets of air traffic rights from those needed by passenger carriers.

One of the biggest challenges for the members of the SkyTeam Cargo is the difference between the various cultures. It is difficult for the members to understand each other’s values and historical backgrounds. It will be difficult to use the full potential of the alliance if the members are not able to align these values. This finding is in accordance with Wong et al. (2005). The same situation is applicable on the air freight collaborations of Lufthansa Cargo through its mergers or takeovers. If local managers are not able or willing to cooperate, the cooperation will not be executed to its full potential. The reason for this is the willingness of the various airlines to defend their brand and the position of the brand. From a market position, it is understandable, but from an internal perspective it is difficult to explain. Lufthansa Cargo believes that if the cooperations would be expanded, cost savings would be achieved. This finding is accordance with the two basic processes in any alliance: value creation and value appropriation (Hamel 1991). According to Hamel (1991), the extent of value creation depends first on whether the market and competitive logic of the venture is sound, and then on the efficacy with which the two partners combine
their complementary skills and resources, that is, how well they perform joint tasks. If the companies would expand their air freight collaborations, there is also a risk involved that the brand identity will be lost.

Through these findings three of the impediments of Cruijsen et al. (2007) have been confirmed. Impediments and cooperation relate to four areas (Cruijsen et al. 2007):

- partners (difference in interests, difficulty in finding partners, difficulty in finding a trusted party/person, difficulty to distinguish oneself towards customers, high coordination costs due to differences in operating procedures, risk of losing clientele to competitors/partners)
- negotiation (disagreement over the domain of decisions, unequal bargaining positions)
- coordination and information and communication technology (high indispensable ICT costs, high additional coordinating and controlling costs, loss of control).

Determining the gains is not considered to be limitation to conclude an alliance because alliance members are legally not able to discuss to financial side of the cooperation.

All of the involved airlines indicated that the financial results of the freight collaborations are not separately reported within the annual reports of the companies. Both the expenses and the revenues are jointly reported with the other expenses and revenues. The air cargo airlines were not able or willing to give detailed information regarding the financial results of cooperations and air cargo alliances in specific. The findings of Oum (2001), Park and Zhang (1998) and Oum et al. (2004) have not been discussed.

The airlines were also asked how they think the alliances, and cooperations in general, would evolve in the future (Appendix D). Air France-KLM Cargo, Lufthansa Cargo and MASkargo believe that cooperations will continue to have a dominant position in the air cargo industry. As the joint ventures and takeovers have fewer impediments from the competition authorities, these air freight collaborations will be preferable compared to alliances or bilateral agreements. In the end, a limited number of air cargo carriers will survive. This vision is in accordance with Gudmundsson and Lechner (2006) and Holmberg and Cummings (2009). Because the approvals of various competition agencies are required to create an air (cargo) alliance, the competition agencies are able to have influence on the development of alliances. The future policies of the competition agencies will therefore have a big impact on the development of air freight collaborations, air cargo alliances and joint ventures in particular and the air cargo industry in general.

This finding is not in accordance with Oum et al. (1993). This article argues that global networks will be formed by alliances of carriers from different continents, rather than one mega-carrier creating a global network on its own through mergers and acquisitions. The findings of Wang (2004) supported the findings of Oum et al. (1993); ‘market liberalisation provides the conditions for the development of strategic airline alliances. Liberalisation and alliances enable the airlines to be more competitive in competing markets.’ As this research implies that air cargo airlines prefer mergers and joint ventures to improve their position in the market, the findings of Oum et al. (1993) are not completely supported.
As Oum et al. (2001) already concluded in their research, governments have placed restrictions on cross-country mergers or takeovers. It is to be accepted that alliances and bilateral agreements have become, and will remain in the near future, the primary means for expanding and strengthening airline global service networks, air cargo included. This also has been confirmed by and Park and Zhang (2000), Oum and Zhang (2001) and Park et al. (2003).

The policies of the government agencies are conclusive for the findings of Park and Zhang (1998), Park and Cho (1997), Park et al. (2003), Park et al. (2001) and Park 1997). According to these researches, a firm’s poor response to ongoing alliance formation could jeopardize its market share and profitability.

Cargolux believes that a good cooperation with its client will be more beneficial, especially if it is able to create a relationship with the end customer and the freight forwarder. This vision corresponds with Zhang et al. (2007). Zhang et al. (2007) who have examined the effects of alliance and multimodal integration on the rivalry between integrator and a forwarder-airline alliance. They found, under the economics of traffic density on a given route, that for a given forwarder-airline alliance, an improvement in its multimodal integration would increase the alliance’s output, while reducing the integrator’s output, not only in the multimodal market but in the other markets of the cargo network as well.

5.2.5 Limitations
As with the research of Doz (1996), the conclusions and findings of this research are also based on just a small sample (four), case studies. Findings and conclusions drawn, no matter how carefully sampled and researched, obviously deserve healthy caution (Doz 1996). In line with the reaction of Doz (1996), the researcher believes that this research provides interesting insight into how the air cargo alliances have developed and what the strategic position of air cargo alliance is. As Ellram (1996) mentioned in her study, multiple case study results may be more generalised than the results of a single case study, which tends to be very specific.

In order to ensure valid and repeatable results, data for the analysis were systematically collected. Case study methodology calls for the use of a variety of evidence-primary resources being interviews, direct observation, company documents and literature (Golicic et al. 2003 and Ellram 1996). Multiple indicators also tend to produce more stable and reliable results (Ellram 1996). For this study interviews, company documents and literature were used.

Lack of generalisation has been the major criticism of case studies, which is best addressed by replicating case studies and verifying patterns (Ellram 1996). In this study this limitation is countered through the use of semi-structured interviews.

Based on the findings of Ellram (1996) the reliability of this research was improved through the use of a case study protocol. The case study protocol includes the interview guide and an interview procedure (Appendix A).

5.3 Recommendations
These findings demonstrate the position of an alliance within the air cargo industry. This study contains valuable information for managers within air cargo airlines, especially for managers of new entrants or less experienced airlines. Based on these findings these managers are able to develop and implement strategic air freight collaborations.

Furthermore, the significance of this study is important for freight forwarders and end customers. For these organisations, the end customer in particular, it is very difficult to understand the role of strategic cooperations. Although an important requirement for airlines is that a partnership should not influence the service
negatively, it is to be expected that almost all air freight collaborations have an influence, both negatively and positively. This study will enable them to improve their knowledge and understanding.

This study is also of interest to government agencies, and competition agencies in particular. In order to protect the interests of end customer, these authorities have tried to structure the development of strategic cooperations within the air cargo industry. An important part of this research is focussed on the reaction of the airlines after they have been penalised for price-fixing activities. These findings will enable the authorities to evaluate the development of strategic cooperations and will furthermore enable them to alter their policy if required.

Further research should be aimed at two distinct objectives;

1. Improvement on the limitations of this research
2. Further in depth research in the subject and the policies of competition agencies.

The limitations could be improved on by an extension of this research and through a comparable but larger case study, which can determine the reliability of these findings and conclusions.

Furthermore, it would be interesting to investigate if the members of the same alliance use the alliance in a comparable manner. Through a research purely focused on the largest group considered and based on transported revenue cargo by SkyTeam Cargo members Air France-KLM Cargo, Korean Cargo, Delta Air Logistics and Allitalia Cargo, the findings of this research could also be confirmed or challenged.

In order to gain further insight into the position of clients and end customers within strategic cargo cooperations, further research should be focused on these groups. This research suggests that organisational decisions taken by individual cargo members will inevitably structure strategic cooperations.

Because this research has made it clear that there is a clear dependence between the creation of air cargo alliances and the policies of competition agencies, future research should also be focused on these policies.
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Cargolux, annual reports 2007 and 2008

**Websites**

[www.afklcargo.com](http://www.afklcargo.com) (2009)
Appendix A, interview guide

Introduction
(Instruction: The interviewer introduces himself, explains the objectives of the study, and clarifies the organisation of the interview.)

1. Current activities.
   • Could you describe the alliance/cooperation(s) your company is currently part of?
   • In what way is an alliance/cooperation part of your daily operation and the strategic policy in general?

2. Reason(s) for the creation of an air cargo alliance or strategic cooperation.
   • Why does your company participate in an air cargo alliance/cooperation? How did these motives impact the decision of your company to join an alliance? Please elaborate.

(Instruction: The interviewer checks if the following potential reasons are brought forward by the respondent. The interviewer only brings a reason to the respondent’s attention in case the respondent did not mention this particular reason.)

   • One could suppose that companies might be inclined to participate in an airline alliance because it increases customer benefit, for instance through a one-stop shopping concept. Did this motive play a role in the decision of your company to participate in an alliance? If not, why not? If so, how?
   • One could suppose that companies might be inclined to participate in an airline alliance because it implies an expansion of it’s network. Did this motive play a role in the decision of your company to participate in an alliance? If not, why not? If so, how?
   • One could suppose that companies might be inclined to participate in an airline alliance because it reduces cost, for instance through joint operation of various services. Did this motive play a role in the decision of your company to participate in an alliance? If not, why not? If so, how?
   • One could suppose that companies might be inclined to participate in an airline alliance because it improves products through the alignment with the product portfolio of the partner member(s). Did this motive play a role in the decision of your company to participate in an alliance? If not, why not? If so, how?
   • One could suppose that companies might be inclined to participate in an airline alliance because it protects against threats of your market position by integrators. Did this motive play a role in the decision of your company to participate in an alliance? If not, why not? If so, how?
   • In better economic situations there was a shortage of capacity within the air cargo industry. According to some literature there is a relationship between the growth of the global economy and the importance of international alliances. How would the current difficult economic environment have impacted the decision of your company to participate in an alliance?

3. Comparison with air passenger alliance
Concerning the reasons for creating and joining alliances, apparently there are differences between air passenger alliances and air cargo alliances.

   • Legislation; for the transportation of air cargo, airlines often make use of a ‘hub and spoke’ distribution method. Within this method, it possible that cargo is delivered to the customer with other means of transportation, for instance by a truck. In this situation, the airline is not obligated to hold
rights to offer this route. If this situation would have occurred within passenger transport. The airline should have acquired rights to offer the flight. In some cases legislation prohibits airlines to offer this service. Through an alliance an airline is able to make use of the service of a partner airline and avoid legislation. How do you think that this difference will impact the reason to participate in an air cargo alliance?

- **Threat of position by integrators;** integrators, for instance Fedex, TNT or UPS, are expanding from their traditional business base of transporting small parcels and moving into the arena of scheduled carriers, cargo and passenger alike. How has this event influenced the strategic policy of your company regarding alliances?

- **Requirements of clients;** air cargo clients have other requirements compared to air passengers. One of the distinctions is the transit time on an airport. Air passengers generally prefer a short transit. In some occasions, an airline is able to offer more connections through an alliance. Given this situation the passenger could prefer to fly with the airline, the alliance therefore improves the attractiveness of the service. Due to the fact that transit time is to a point less import for air cargo clients, an alliance will not impact the service of the airline in the same manner. How do you think that this difference will impact the reason to participate in an air cargo alliance?

4. **Additional question for Lufthansa Cargo as WOW cargo member**

   The decision to enter into the WOW alliance was based on two considerations:
   
   (1) The trend towards consolidation in the air cargo business. In view of that, the three carriers deemed it sensible to add greater weight to their own position by entering into closer cooperation.
   
   (2) The forecasted market growth of between five and six per cent in the industry in the years ahead. The three considered it difficult to accommodate that projected additional demand on their own, since capacity increases in the air traffic business require substantial capital expenditure.

   - The alliance was created in the year 2001. Among other things, the tragic attacks in the United States and the current economic downfall have changed the air cargo industry. How have these facts impacted the two founding motives?

5. **Comparison with alliance for passenger transport**

   - (not applicable on MASkargo) Your (mother) company is also participating in an alliance for passenger transportation. Are there differences in the reasons for participating in an alliance for passenger transport in comparison with the air cargo alliance?
   
   - It seems that, in comparison with air passenger transport, airlines are more reluctant to participate in alliance for the transport of air cargo. Why do you think airlines are more reluctant to participate in alliance?
   
   - In comparison with the shipping industry, the air cargo industry is reluctant to create an alliance. What do you think are the main differences between the industries that could explain this behaviour?
   
   - If the alliance of which your company is a member, is compared with the alliance of the main competitor, what are the main differences?

6. **Impact of air cargo alliance/ strategic cooperation**

   - What is the impact of your air cargo alliance/cooperation on the operational (execution of the daily operation) and financial (financial results) performance of your company?
What is the impact of your air cargo alliance/cooperation on the operational (execution of the daily operation) and financial (financial results) performance of the partners of the alliance?

What is the impact of your air cargo alliance/cooperation on the operational (execution of the daily operation) and financial (financial results) performance of your main competitors?

What is the impact of your air cargo alliance/cooperation on your clients?

What are the negative side effects?

Did the membership of an air cargo alliance/cooperation affect your ability to control the assets by making them accessible to other members of the alliance? Please, elaborate.

Does the alliance/cooperation have a positive impact on the financial position of your company? Please, elaborate.

Are you able to create resource complementary for greater synergy from alliances/cooperation? Please, elaborate.

Could you describe how client details are distributed within the alliance/cooperation? In what why does the (possible) exchange of client details affect the execution of the alliance?

In the last couple of years some airlines have accessed of price fixing. In some situations the indictment is based on the participation of these airlines in (cargo) alliances. In what manner do these events have impacted the alliance and the way the alliance is managed?

How does the current financial circumstance effect the position of your company within the alliance/cooperation?

Has there been any changes in the way the alliance/cooperation is executed in the last years?

7. Additional questions for Malaysia Airlines Cargo.

If the respondent has not indicated why the airline is not a part of a cargo alliance.

Why is MASkargo not a member of a cargo alliance?

(Instruction: The interviewer checks if the following potential reasons are brought forward by the respondent. The interviewer only brings a reason to the respondent's attention in case the respondent did not mention this particular reason.)

Because the mother company is not a part of an alliance and MASkargo is required to follow the same policy.

The company believes that their objectives will be met through other strategies.

The company has not found a suitable partner(s).

The company expects that the expected benefits will not outweigh the costs of maintaining an alliance.

Because other airlines have been accessed of price fixing, in some situations through (cargo) alliances. The company therefore decided not to participate in an alliance.

Future:

In what circumstance would your company decide to join an alliance? And do you think such a situation will a occur within the next couple of years?

8. Closing of the interview

(Instruction: the interviewer thanks the respondent for his/her cooperation, he makes arrangement for the follow-up (sends interim report, provides the respondent an opportunity to check this report, improves the match with the intended information, provides the respondent the opportunity to recheck the revised version.)
### Appendix B, list of respondents

<table>
<thead>
<tr>
<th>Company</th>
<th>Respondent</th>
<th>Position</th>
<th>Date of interview</th>
<th>Place of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air France–KLM Cargo</td>
<td>Chong Choy</td>
<td>Vice President Alliances / Chairman SkyTeam Cargo</td>
<td>November 17th 2009</td>
<td>Schiphol Airport, the Netherlands</td>
</tr>
<tr>
<td>Malaysia Airlines Cargo/MASkargo</td>
<td>Keesjan de Vries</td>
<td>Regional Manager Europe</td>
<td>November 17th 2009</td>
<td>Schiphol Airport, the Netherlands</td>
</tr>
<tr>
<td>Cargolux Airlines International S.A.</td>
<td>Rebecca Mok</td>
<td>Country manager</td>
<td>January 13th 2010</td>
<td>Schiphol Airport, the Netherlands</td>
</tr>
<tr>
<td>Lufthansa Cargo</td>
<td>Alexander Kohnen</td>
<td>Regional Manager BeNeLux</td>
<td>January 15th 2010</td>
<td>Schiphol Airport, the Netherlands</td>
</tr>
</tbody>
</table>
Appendix C, Other cooperation forms alliance members

**Air France – KLM Cargo**

**Reason for the creation**
The other three cooperation forms that are used within Air France-KLM Cargo are bilateral agreements, joint venture and takeovers.

Bilateral agreements are agreements between two airlines. The aim of the cooperation is that partners share capacity; the overall goal is that partners improve their product through the cooperation. The partners together offer more frequencies and this enables them to achieve this aim. The agreement furthermore enables the partner to share risks. Partners are each responsible for the utilisation of the air cargo capacity, the capacity risks are therefore also shared.

A bilateral cooperation is considered to be a flexible and straight forward cooperation; partners share capacity on a certain route and are therefore able to improve their product (for instance through daily flights) and decrease capacity risks. Partners do not run joint purchasing programs or other joint initiatives. Partners will continue to operate as separate entities and are therefore competitors. Through anti-pricing fixing acts, various governments have placed impediments on the possibilities of bilateral agreements.

An example of a bilateral cooperation is the cooperation with MASkargo.

Within a joint venture Air France-KLM Cargo attempt to run a joint operation with a partner on a specific route or within a specific area; the network operation and the commercial activities are, within the boundaries of anti-price fixing acts, aligned. Expenses and earnings generated through the cooperation are shared. The principal aims of the cooperation are to create synergies and to improve the product. The achievements of these goals depend on the performance of the partner. If one of the partners is not able to operate on the required level, it will have a negative impact on the results of the joint venture. ‘It is like a mirage; joint together for better and worse.’ This cooperation therefore creates more obligations compared to a bilateral cooperation.

Partners will continue to use their own identity. Air France-KLM Cargo is able to offer an expanded network to its customers using the existing contacts. Due to the fact that the partners use a joint sales organisation, the cooperation is under close watch of anti-pricing fixing acts. An example of a joint venture within Air France – KLM Cargo is the joint venture with Kenya Airways Cargo for services to and from Kenya, another example is the Trans Atlantic cooperation with Delta Logistics.

A different cooperation form is the cooperation through acquisition. In 2008 Air France-KLM acquired full ownership of Martinair. This enabled Air France-KLM Cargo to enhance the cooperation with Martinair Cargo. The combination of AF-KL Cargo and Martinair Cargo enables the Air France KLM Group, sole shareholder of Martinair as per the 31st of December 2008, to build the world’s most relevant and a very high quality Cargo network. The optimization of aircraft, route and capacity for the three operating carriers will result in some network changes per start of the summer schedule 2009, concerning mainly the overlapping network points in South Africa and the Far and Middle East. AF-KL Cargo and Martinair Cargo will also implement capacity arrangements between the operating carriers thereby increasing the alternatives for their customers. Furthermore new unique origin and destinations will be offered by combining the AF-KL Cargo and Martinair Cargo networks.
Impact
Within a bilateral cooperation partners are not allowed to share financial information, anti-pricing fixing acts forbid them from sharing this kind of information. Because a bilateral cooperation has an operational foundation (sharing capacity) it is also not required for partners to share financial information. Due to the fact that partners will remain competitors, it is also not in their best interest to share this kind of information.

As the foundation of a joint venture is more sales oriented and partners run a joint operation, partners are allowed to share financial information. The joint operation requires them to share the expenses and earnings generated through the cooperation.

Recent developed jurisprudence on anti-price-fixing, part of the European Competition Law, (several airlines have been convicted for price-fixing activities) have changed the way airlines interact with other airlines. This is not the case for Air France – KLM Cargo. “These cases are a storm in a tea cup.” Companies within the cooperations have cooperated according to the jurisprudence and where not breaking the law.

Lufthansa Cargo

Reason for the creation
The other three cooperation forms that are used within Lufthansa Cargo are bilateral agreements, joint venture and takeovers.

Through the ownership of several airlines, Lufthansa Cargo is able to create cooperations. Because Lufthansa Group is the owner of the partner, anti trust legislation is not applicable on these cooperations. Lufthansa Cargo and Swiss World Cargo are, for instance, able to discuss tariffs. The cooperations have various aims, capacity sharing and creating synergies being the most important. The thoroughness of the cooperation depends on various items. The cooperation between Lufthansa Cargo and Swiss World Cargo, for instance, was created several years ago and is still gaining strength. The duration of the cooperation have improved the quality of the cooperation. The existence of a cooperation also depends on the behaviour of local (country) managers. If these persons are not willing or not able to cooperate, the cooperation will not get started.

Through its capital involvement in Jade Cargo and AeroLogic, Lufthansa Cargo is able to complement its capacity, the activities are coordinated between the partners. The operations of Jade Cargo and AeroLogic are integrated in the network of Lufthansa Cargo.

AeroLogic GmbH utilizes Boeing 777-200LR freighter aircraft from Leipzig/Halle Airport. On weekdays DHL Express will use the aircraft and in the weekends Lufthansa Cargo will use the aircraft as extra capacity.

Jade Cargo was created in 2004 and is a joint venture between Shenzhen Airlines (51%), Lufthansa Cargo AG (25%) and DEG Deutsche Investitions- und Entwicklungsgesellschaft (24%). The Chinese registered airline operates six Boeing 747-400ERF aircraft from its hub’s in Shenzhen and Shanghai. From these cities the airline has services to various European and Asian cities.

SPA’s or interline agreements offer Lufthansa Cargo the ability to expand its capacity if there is a need to. An important difference with a block space agreement is the lack of capacity obligations. Within a block space agreement, Lufthansa is obligated to pay for the agreed capacity, also if the demand isn’t there. This is not the case with a SPA. Partners assist each other if the demand is
there. Due to the fact that there is not a blocked space on the aircraft, it is possible that a partner is not able to offer the required capacity.

**Legislation**

With block space agreements partners share cargo capacity and share capacity risks on specific routes, for instance with Air China Cargo Lufthansa shares capacity between the cities of Frankfurt and Beijing. There is no strategic interest in these partners; Lufthansa Cargo is still a competitor of Air China Cargo. *These cooperations are basically cost pooling.*

The most important aim of Lufthansa Cargo is to fill its own aircraft and not that of its partner.
Appendix D, Additional information from the case studies

Air France-KLM Cargo

Future development of strategic alliances
The future development of strategic alliances and the development of air cargo in general depend on the development of global trade. The influence of political leaders is also a vital element. If governments continue to favour their local (national) airline, competitors do not compete on equal grounds. In such a market environment, SkyTeam Cargo will not be able to use it full potential.

The company has high expectations on the developments of joint ventures. Due to fact that these cooperations are sales oriented, they are of great value for the airline. Air France-KLM Cargo is currently working on the development of a Sino-European Cargo Joint Venture with China Southern Airlines Cargo. This joint cargo company will operate from the Chinese airports Tianjin, Shanghai and Guangzhou.

Lufthansa Cargo

Future development of strategic alliances
Two developments:
- In North-America, Europe, Asia/Pacific region legislation will be reduced. As a result the number of airlines will be reduced to a select few. These companies will compete with each other, this also include air cargo services.
- The second development is the strategy of cargo airlines. It is to be expected that the airlines will be more cost driven. Marketing features will not convince customers; for airlines it will be more difficult to differentiate. Price will therefore be more important, being efficient is the new goal.

MASkargo

Future development of strategic alliances
Schedule changes could imply aircraft changes; smaller or larger aircraft will be used. As a result of the global economic crisis the number of people that had used an airplane has decreased. This has also affected Malaysia Airlines and the company is therefore required to downgrade certain routes. New technologies enable Malaysia Airlines to increase the usage of smaller aircraft. The Boeing 737-800 Next Generation is for instance able to fly from Kuala Lumpur to Perth. In normal economic situations, Malaysia Airlines deploy a Boeing 777-200ER or an Airbus A330-200. Compared to a Boeing 737-800, a narrow body aircraft, these wide body aircraft are able to carry more cargo. This decision will affect MASkargo and in order to maintain their position in the market, it is required for MASkargo to search for a partner to supplement its capacity.

The air cargo industry market is currently recovering from the global crisis. For the economic vitality of the industry, it is crucial that the load factors improve. The available capacity utilisations and the tariffs should furthermore be adapted to the market circumstances. If the load factors improve, MASkargo will investigate if their services are in accordance with the demands of the clients. If the service is not in accordance, MASkargo will investigate the opportunities of cooperation with partners. MASkargo will not start a cooperation with Jade Cargo and Great Wall Airlines. These joint ventures offer standard services from several large (hub) stations in Asia and Europe. Their services are standard and their network is also standard, a cooperation will not add any value to the services of MASkargo. It will probably
decrease the market potential of MASkargo and could furthermore create a price battle.

In a stabilised market situation, MASkargo would like to start a cooperation with Hainin Airlines of China. Hainin Airlines is the parent company of several domestic airlines, for instance Yangtze River. Yangtze River has a strong domestic network. Through a cooperation with Yangtze River, MASkargo could improve its position on the Chinese market, Yangtze River could add the (international) destinations of MASkargo to its network. The cooperation would improve the position of both airlines, because both companies will continue to operate as competitors, they should reach an agreement on the origin of the cargo. In December 2009 both airlines have reached an agreement.

**Cargolux**

**Future development of strategic alliances**

Cargolux believes that as a result of the jurisprudence on anti-price-fixing legislation, air cargo airlines will continue to be isolated. This will strengthen the position of the freight forwarding agents. In cooperation with the freight forwarding, Cargolux would like to exchange its knowledge with the end customers (Philips for instance). Through the knowledge and experience of Cargolux, end customers will be able to transport items more efficient. It is to be expected that the creation of savings will become more important. If Cargolux is able to create savings in cooperation with the freight forwarding agents and the end customer, it will be able to maintain its position on the air cargo market.