

Cooperation of German Airports in Europe – Comparison of different Types by means of an Interdependence-Profile-Model

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Abstract

The limited growth possibilities in the home markets - not the least of which, based on capacity and expansion problems - force the large airport operators to enter into, via partnerships, cooperations and alliances. The German airports already cooperate among one another in different forms.

The purpose of the paper is to examine the structures and possibilities of cooperation among airports in Europe (e.g. Airport Systems, Airport Networks). The experience of German airports with different cooperations and alliances will be also considered.

Finally the forms of cooperations among airports are analysed by means of interdependence-profile-models with different features (mutual dependence, coordination volume, complexity, cooperation profit, value, degree of formalization and temporal frame), in order to find out how high the cooperative attachment of cooperation is to be evaluated.

Keywords: Cooperation, Airport Alliance, Airport System, Airport Network, Airport Holding, Interdependence-Profile-Model, Satellite Airports, Joint Ventures, mutual dependence, coordination volume, complexity, cooperation profit, value, degree of formalization and temporal frame

1. Introduction

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2. Different Forms of Cooperations among Airports

For some years airports announced cooperations or partnerships among each other. The number of airports who have partnership shares in other airports, or own other airports, increased too. Some forms of cooperation among airports will be represented at the following:

2.1 Cooperation within Airport Alliance: Cooperation in the Secondary Market and Competition on Primary Market

Cooperation of the airports occur in the most different sections of the airport business. However, a cooperation is also possible in a single field. Airports arranged a free-and-easy-cooperation in some more area of operations, like the cooperation among the south-german airports ("South German Airport Alliance"): Munich, Dresden, Leipzig, Nuremberg and Stuttgart. In this case, it was stressed that a practical cooperation is only striven by mutual investments by protection of independence and without interlacing or fusion of the cooperation partners.

2.2 Cooperations between large Airports and their satellite Airports

In the case of cooperation with ownership stakes, one airport acquires business interests of another airport and takes influence on the business policy and the development of the other one. In Germany airport ownership cooperations can be divided in two ways: ownership stake among a large airport and a small "satellite airport" (Frankfurt - Hahn, Dusseldorf - Gladbach, Munich - Augsburg, Stuttgart - Baden Airport) or a large airport and a distantly located airport (Frankfurt - Saarbruecken and Frankfurt - Hanover).

2.3 Cooperation within Airport Holdings and Airport Systems

The cooperation form of the holding company supports a homogeneous and comprehensive strategic appearance of the partners. The concept of a airport holding company is especially widespread among the European airport systems. The airports of Berlin Schoenefeld, Tegel and Tempelhof are part of the dominating BERLIN BRANDENBURG AIRPORT HOLDING LTD. (BBF). For the members, this holding company takes care of the following tasks: accountancy, controlling, marketing, public relations and environmental control as well as the project control for the Single-Airport Berlin-Brandenburg-International (BBI) and the preparation of the privatisation of the BBF. A few months ago the airports Leipzig-Halle and Dresden became the CENTRAL-GERMAN-AIRPORT-HOLDING.

2.4 Cooperation within Airport Networks

This is a further form of the cooperation with ownership stakes by a Non-Airport-enterprise - An example for this are the activities of the 100 percent subsidiary of the building combine HOCHTIEF LIMITED COMPANY, the HOCHTIEF AirPort Ltd. This enterprise invests in airports, develops and operates them like the airport Athens-Spata. The project of the new international Athens Airport was constructed by a consortium as BOT-Model. Since 1997 the HOCHTIEF AirPort Company tenders in cooperation with the Irish airport management company AERRIANTA INTERNATIONAL for privatisation of airports. In this case, they received the acceptances of a bid for minority stakes at the two privatisation in part of airports in Germany, Dusseldorf and Hamburg.

The airport network of the HOCHTIEF AirPort, that is the investment to commerce airports, exists in present 39,9 percent at the ATHENS INTERNATIONAL AIRPORT S.A. and together with AerRIANTA 50 percent at the Airport Dusseldorf and 36 percent (with an option of further 13 percent in the next years) at the Airport Hamburg. Furthermore this airport com-

pound have also indirect the investment on the Airport Moenchengladbach with 70 percent, because its included in the Airport Dusseldorf stake.

For HOCHTIEF AirPort Company is - after the integration of the airports into their airport network - one of the aims the creation of additional profit potentials from compound effects ("Economies of scope") for the member airports. On account of the view into the processes, the organization and the cost structures of "their" different airports the stake owner can perform optimal Benchmarking. Efficiency gaps of the airports can be filled systematically by the continuous comparison of the processes and the means.

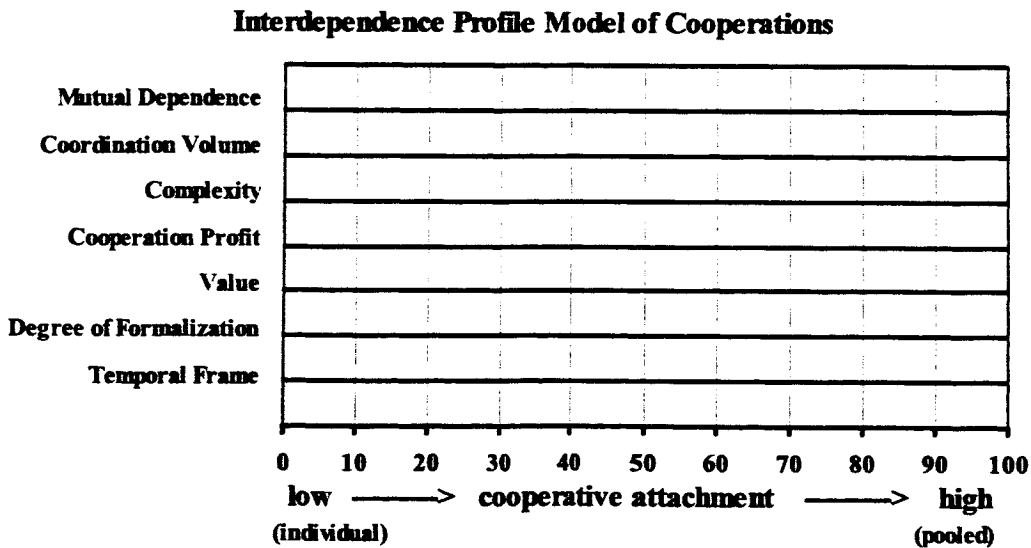
2.5 Cooperation within Joint Ventures (e.g. PANTARES ALLIANZ)

The limited growth possibilities in the home markets (not in the end on account of capacity and expansion problems) force the large airport operator companies via partnerships up to cooperations and stake ownerships in the global field. Example is the cooperation between the Schiphol group (Airport Amsterdam) and the formerly hard competitor Airport Frankfurt (FRAPORT). In November 2000 this first alliance between two international hub airports was announced officially under the market appearance of the common subsidiary PANTARES.

3. Analysis of different Airport Cooperations

For enterprises it is in practice of great importance which kind of attachment, which interdependences on the one hand exist to the cooperation partner and on the other hand exist between cooperation activity and other enterprise activity. By means of an interdependence profile, will be attempted in the following to illustrate the importance of airport cooperations by some features (mutual dependence, coordination volume, complexity, cooperation profit, weight, degree of formalization and temporal frame). For this purpose, some cooperation forms between airports were analysed by means of the above criteria. The aim was to find out how highly the cooperative attachment of cooperation is to be evaluated. A bipolar continuum seems apt for this purpose. The interdependence section of TROENDLE (illustration 1) is taken as a basis for this model. On a scale from zero (low) to one hundred (high): At one end we find the simplest market transaction/exchange, which can not yet be taken as cooperation, and at the other end a complete fusion of the partners which cannot be designated as cooperation any more.

Illustration 1: Interdependence profile by TROENDLE



The individual positions between these extremes show the extensity of the cooperation relationships (small - high) by means of the criteria *mutual dependence*, *coordination volume*, *complexity*, *cooperation profit origin* (here: individual - pooled), *value*, *degree of formalization* and *temporal frame*.

The individual dimensions of the interdependence section by TROENDLE are to be interpreted as follows:

- The more distinctly the criterion of *mutual dependence* is developed, the larger is the attachment between the enterprises. The smaller the substitutability of service produced by the cooperation partners is, accordingly, the greater is dependence.
- The *coordination volume* indicates how extensive the communication requirements are in order to match the business actions. The more frequent and more extensively the partners must coordinate their transactions, the more certainly one can speak of cooperation with far-reaching mutual adaptation measures. The coordination volume depends largely on the decision rules and possible capital majorities.
- The *complexity* of a cooperation is an indicator of the number and interdependence of enterprise functions which are concerned by cooperation. Complexity is very high, for instance, during the foundation of a joint venture, but small in the case of a pure agreement about a standardization of a product.
- *Cooperation profit* can either result in common, and must then be divided up between cooperation partners ("pooling"), or it results individually. However, a combination of both kinds (e.g. Joint Venture) is also conceivable if the partners supply cooperating enterprise individually. A *cooperation profit* resulting commonly corresponds more to an intense cooperation than a reciprocal cooperation with which the profit results individually because of exchange.
- Furthermore, the *value* of a cooperation is important for an enterprise. The more larger the sales part respectively dividend, or the resources put into this cooperation are, the greater is the importance of the cooperation for an enterprise. The *value* consequently also encloses the risk of failing respectively the profit contribution for the enterprise. The more comprehensively a cooperation is controlled by contract, the more important it is for an enterprise. A partner can also proceed better in contract injuries.
- The *degree of formalization* finally gives information about the kind and form of the agreements. A smaller formalization points to a smaller importance for the enterprise.
- Finally the criterion *temporal frame* shows that a cooperation put on a long-term basis normally has more cooperative elements than a short-run one. If a cooperation is at short notice, it resembles only a market transaction.

Illustration 2 gives a survey off the criteria of the examined cooperation forms between airports.

Illustration 2: Forms of Cooperations - Results of the Dimension Model

Forms of cooperations	Mutual dependence	Coordination volume	Complexity	Cooperation profit	Value	Degree of formalization	Temporal Frame	Mean number
SOUTH GERMAN AIRPORT ALLIANCE	30	80	70	70	80	50	50	61,43
Airport Union (e.g. ADV - UNION OF GERMAN AIRPORTS)	60	90	90	20	50	10	50	52,86
Airport cooperation Dusseldorf and Gladbach	90	10	80	90	90	30	100	70,00
Airport cooperation Frankfurt and Hahn**	90	60	90	80	100	40	100	80,00
Airport cooperation Munich and Augsburg	80	40	30	70	70	50	100	62,86
Airport cooperation Stuttgart and Baden-Airport	70	30	90	90	90	30	100	71,43
Management contracts (e.g. FRAPORT/Athen-Spata)**	50	10	20	0	80	100	70	47,14
Joint Venture (e.g. PANTARES ALLIANZ)**	80	80	100	50	100	100	70	82,86
Holding (e.g. CENTRAL GERMAN AIRPORT PLC)	50	70	90	100	90	100	90	84,29
Airport System (e.g. Berlin Airports)	90	80	90	100	100	100	100 (20)	94,29
Airport Network (e.g. HOCHTIEF AIRPORT)	70	50	100	50	100	50	100	74,29
Multicorporate Airport Enterprise (e.g. FRAPORT AG)	30	50	80	40	60	50	70	54,29

It becomes clear from the illustration that the cooperative attachment is good in the case of a Joint Venture (e.g. PANTARES ALLIANZ), a holding company (e.g. CENTRAL GERMAN AIRPORT PLC.) and an airport system (e.g. Berlin airports). The mean values of this first group are 80 scale points and more. Noticeable is that the cooperation within an airport system had a better rating in general than the Berlin example, because according to planning in 2004 (this system will be replaced by the new Berlin-Brandenburg-International-Airport) the temporal frame had to be classified with a very small index (20). In airport systems, the temporal frame is usually

to be evaluated very high (value 100) , because for example the title has been denied by the EU up to now.

In the second group there are the majority of the selected cooperations between large airports and their satellite airports as well as the airport network of HOCHTIEF AIRPORT GMBH with still high scale values (mean values between 70 and 80). The cooperation of Frankfurt with Hahn stands out from this group (mean value of 80). In this case, the reasons are mainly the coordination volume (with 60 higher than the others in this group) on account of the airport expansion and accessibility as well as the high weight of cooperation with a neighbouring airport because of the capacity problems in Frankfurt.

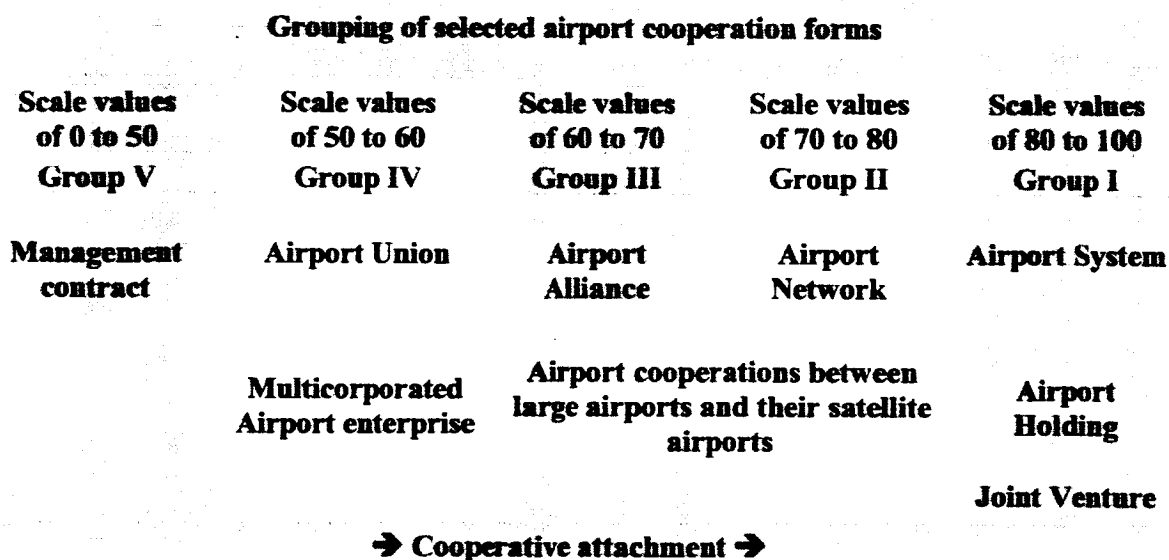
The high cooperative attachment of the airport network compared to the other cooperation forms of this group is especially given in the case of complexity and value (with 100 scale points in each case). The criterion *temporal frame* is dominate within this group (100), since the participations and investments can be seen as long-term engagements .

In the third group there are the cooperations which have a mean value of less than 70 scale points. The SOUTH GERMAN AIRPORT ALLIANCE miss a better cooperative attachment only because of small values of criteria of cooperation complexity (70) and of a more detailed formalization of cooperation (50). Cooperation within the SOUTH GERMAN AIRPORT ALLIANCE could be to be intensified in some fields of activities and controlled more comprehensively by contract. In this way the evaluations of the two criteria would improve. The more complex a cooperation is, the larger are its dependence and its temporal frame. The airport cooperation between Munich and Augsburg is to be seen apart from its affiliation to the SOUTH GERMAN AIRPORT ALLIANCE. Seen in such a way, the dependence of the two partners is by far higher (80) than dependence in the entire alliance (30). The two airports Munich and Augsburg show a very high dependence on account of their proximity and the financial commitment (from the viewpoint of Munich). Coordination (40) and complexity (30), however, are very small compared to the alliance very small since cooperation has only concerned the expansion of Augsburg up to now. This airport cooperation clearly remains behind the above-mentioned ones (Frankfurt/Hahn, Stuttgart/Baden-Airport and Dusseldorf/Gladbach) concerning business functions affected by cooperation.

The examples which have a mean value between 50 and 60 are in the fourth group: GERMAN AIRPORT UNION ADV (52,86) and the multicorporated airport enterprise of FRAPORT AG (54,29). The later is positioned almost on the other side of the continuum hierarchy and nearly out of bounds in the field of cooperation. Management contracts (e.g. between FRAPORT and Athens-Spata) received the lowest dimensioning of all examined cooperation forms. Especially the completely individual cooperation profit (Value: zero) clarify similarity to the barter deal (know-how for payment) and show proximity to the market continuum. The complexity of the management contract was only limited to the flying business, so the evaluation could only turn out very low. An expansion of the complexity can be increased by additional management contracts.

The result of dimensioning and the attempt of a grouping of the analyzed cooperation forms is to be seen in illustration 3.

Illustration 3: Grouping of selected airport cooperation forms



On account of the considerations, experiences from practice and results of dimensioning the cooperative attachment is especially high in the case of Airport Systems, Joint Ventures and Holdings. Especially in airport system good assumptions exists for cooperation.

In particular the important aspect of a possible shift of air traffic between neighboring cooperation partners - even if this can only be realized with great difficulty in reality - is to be put through legally within an Airport System. In the final analysis this aspect becomes the deci-

sive factor for more complex and higher-quality cooperation. However, an Airport System must be approved by the EU, has only got an outlook to success for airports within a common conurbation.

The cooperation forms "Joint Venture" and "Holding" offer similar advantages for a narrow cooperation between airport enterprises as an Airport System with regard to complexity of the affected business fields, value and degree of formalization of the cooperation - except for the aspect "shift of air traffic". Airport Systems and Holdings can be regarded congruently to regard (except for the "shift of air traffic"-aspect), because the European Airport Systems are generally organised in the legal form of a Holding Company.

The examined airport cooperations with investment of a large airport in a satellite airport showed that every situation influences the cooperation in a different way. Great differences are to be found especially at the extent of the coordination and complexity of the cooperation fields. The very low degree of formalization during one-sided investments lets the author presume a controlling majority, so that possibly agreed cooperation contracts are not or hardly not important.

The cooperation form of an Airport Network (e.g. HOCHTIEF AIRPORT GMBH) shows advantages concerning of mutual dependence, complexity, value and temporal frame of cooperation compared to an Airport Alliance (e.g. SOUTH GERMAN AIRPORT ALLIANCE). The clear investment structure and benchmarking by the "center" of the Airport Network HOCHTIEF AIRPORT GMBH is the main reason for the advantages of this form. The selection of members for this Airport Network, the complex benchmarking via all groups and the long temporal frame of the cooperation on account of high investments supports a greater cooperative attachment compared to an Airport Alliance (like the SOUTH GERMAN AIRPORT ALLIANCE).

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