Analysis of competition structure and its development in the ground handling sector on airports in Germany

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1. Introduction and approach to subject matter

The purpose of the Bachelor-Thesis was to analyze and evaluate the competitive situation in the ground handling market on airports in Germany. Against the background of deregulation, initialized by the European Union's council directive "96/67/EC of 15 October 1996 on access to the ground handling market at Community airports" and its implementation in the German legal system by the "Bodenabfertigungsdienst-Verordnung" (ordinance on the access to ground handling markets on airports in Germany) the thesis was dedicated to the competitive environment for market actors. Thesis research especially focused on the current infringement proceeding initiated by the European Commission, the possible future amendment of the ordinance and the altered challenges and chances for market actors

Thesis research was majorly based on personal interviews as a method of empiric social research with additional literature-based gathering of information. With the aim of creating an overview of the differing stakeholder's positions, interview partners consisted of representatives from the fields of work councils, airport operators, independent ground handling providers, airlines, airline and airport unions, universities and a research organization as well as political and public interest groups.[1]

Research results were analyzed, interpreted and put together using Porters Five Competitive Forces Model. The thesis covered a theoretic overview of markets, competition, deregulation and economic aspects of air traffic and ground handling as well as European and German legislation on the topic. Major concepts applied included competitive theory (Aberle, Knieps, Pfähler), (aviation) market structure (Mankiw, Vasigh/Fleming/Tacker, Pindyck/Rubinfeld) as well as the contestable market theory (Pazar/Baumol/Williams).[2]

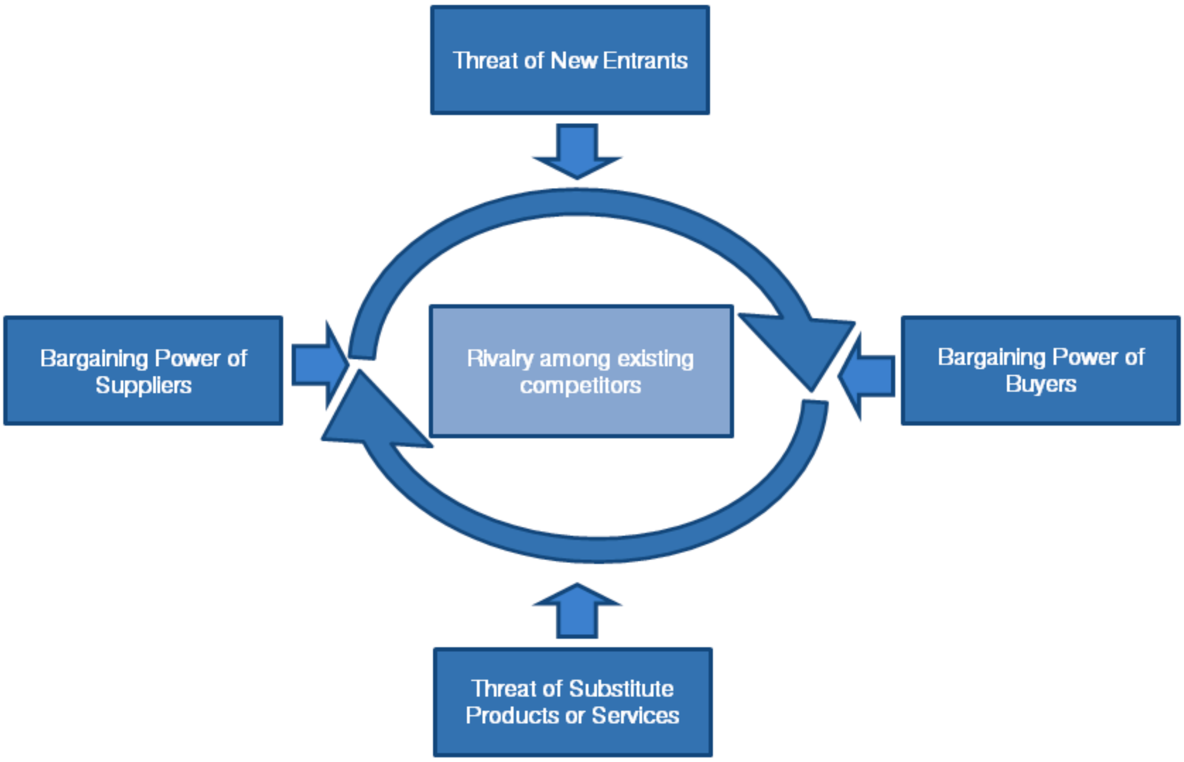
Based on research results the thesis evaluates the current competitive situation in the German ground handling market and provides an overview of current and future challenges for market participants, taking micro- and macroeconomic aspects into consideration. The analysis of Porters Five Forces was compiled using interview results and supported by the three major studies

[1] See Annex 1 for list of interviewees.
[2] See Annex 2 for bibliography.

on the effects of deregulation in the ground handling market which were ordered by the Commission of the European Union (SH&E 2002, ECORYS 2007, ARC 2009).

2. Competitive analysis of the ground handling sector on airports in Germany

In order to evaluate external and internal factors forming the competitive situation on the ground handling market, Porters Five Forces Model has been applied. Interviewees were questioned about their perception of market development, entry barriers, fair competition, the German tender process, the airport user's committee etc. The following two chapters will contain very few literature references as the analysis was based on information given by the interviewees.



Modified from Porter (2008a), p. 4.

2.1. Rivalry among existing competitors

According to Porter rivalry among existing competitors occurs whenever market suppliers decide to improve their competitive position. Established rivals in a market are affected by the others performance. If competitors are numerous and roughly equal in size, the market equilibrium becomes very vulnerable to their behavior.[3] Looking at the ground handling market and taking the contestable market approach established by Baumol, Pazar and Williams into consideration, special attention needs to be drawn to the alleged equality among competitors. It appears ne-

[3] Cp. Porter (2008b), p. 51.

cessary at this point to realize that rivals in this market have different structures, historical backgrounds and stakeholders and hence different objectives and market behavior. Being either a (self handling) airline, a ground handling provider run by or attached to an airport operator or an independent ground handling service provider, the structural differences alone lead to an "uneven playing field". In order to guarantee fair competition further compensatory measures might have to be taken.

The existing heterogeneity reflects the monopolistic past of this market. Since structural distinctions among market rivals might imply differing objectives and stakeholder interests which give way to potential conflicts.[4] The German ground handling market can be considered a prime example for this as it unites former monopolist airport operators on one hand and huge international conglomerates such as Acciona Airport Services SA on the other hand. In order to exemplify the diverging positions of incumbent providers reference can be made to the allegation raised by independent handling providers: airport operators were given preference over them since they enjoyed free and unlimited market access. As opposed to that the complaint that with existing legislation independent handling providers are still allowed to cross-subsidize between their business segments, airports made their contribution to this discussion. A possible reaction to the former complaint could be that airport owned ground handlers would still have to compete in the market with the need to gain a good reputation in order to survive. The latter complaint might be ruled out by the fact that the possibility to cross-subsidize within a conglomerate is being paid for by higher complexity and entrepreneurial risk and must be granted legitimate practice since it is a classic question of management.

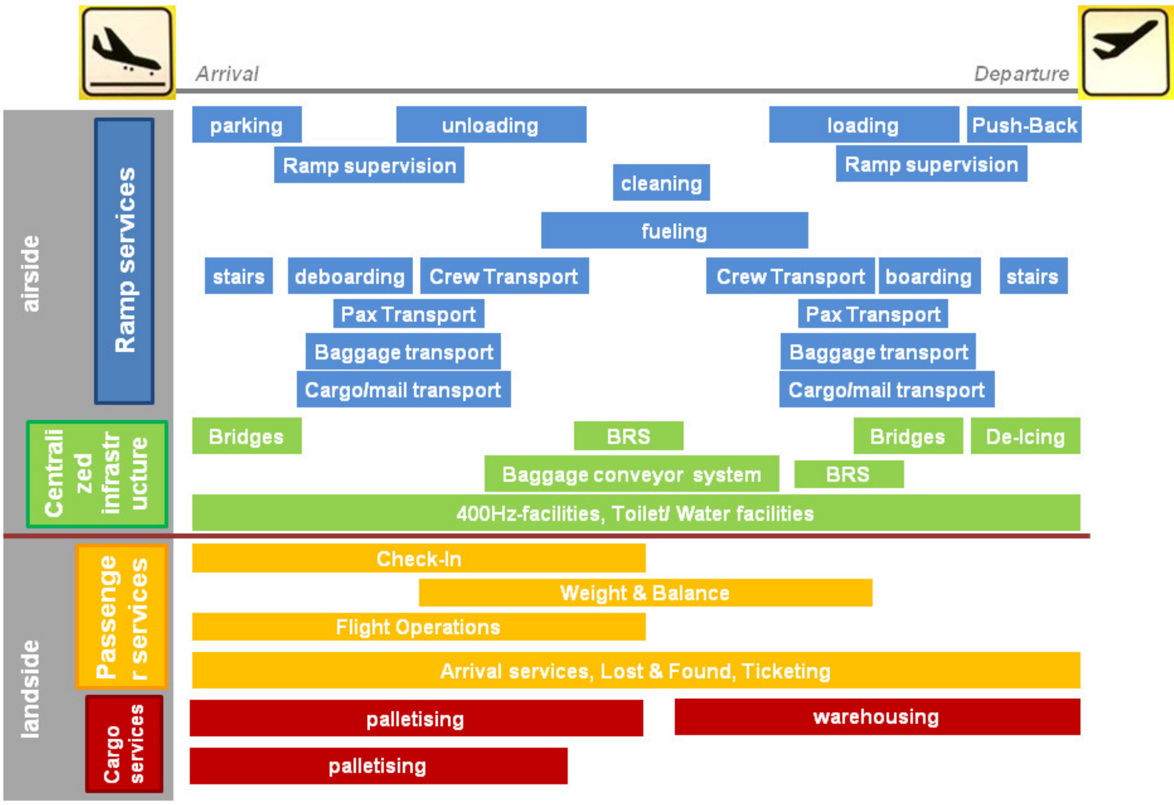
If rivals are highly committed to a business and have strategic goals that go beyond economic performance in the particular industry, competition will be especially intense.[5] This could be true for the ground handling market in two cases: if for example an airport is very keen on its ground handling performance and its public reputation towards the airline or passenger as customers' on one hand. Or on the other hand if big conglomerates have entered a ground handling market and try to gain market shares in order to attack national providers in their domestic environment by using crowding out methods.

In order estimate the intensity of competition among existing rivals Porter also took the rate of industry growth and the influence of major capacity expansions into consideration.[6] The ground handling sector is accompanied by a derived form of market demand: Since traffic in general and hence also air traffic is subject to a derived form of market demand, the demand for ground

[4] Cp. Porter (1979), p. 8 und Porter (2008b), p. 54.
[5] Cp. Porter (2008b), p. 54f.
[6] Cp. Porter (2008b), p. 53.

handling services is therefore subject to the second derivation of the allover market demand. This basically leaves all ground handling providers with literally no possibility to influence demand dimensions.

Another factor introduced by Porter is the existence of high fixed and low marginal costs. This might create pressure for competitors to cut prices below their average cost and to steal incremental customers.[7] Since the provision of ground handling services creates a situation similar to high fixed costs, concealed price reductions are like to take place- the mostly biannual negotiations between airline and handling agents are always subject to the threat of losing vital market shares to competitors. At this point another very important characteristic of the ground handling market comes into the picture: a high (critical) mass of handled aircraft movements or turnarounds is necessary to establish profitable operations. Due to the temporal structure of aircraft movements and the unproductive time span in-between, cost-efficient operations require a fairly big share of overall traffic volume at an airport. Following graphic illustrates the ground handling service portfolio during a turn around.



Modified from Templin (2006), S. 3.

[7] Cp. Porter (2008b), p. 53.

Special attention during thesis research was drawn to baggage handling, ramp handling, fuel and oil handling as well as freight and mail handling which in accordance to the EU directive can be defined core handling services.

Because the products offered are nearly identical competition is intense. The core product offered, such as aircraft cleaning, can hardly be modified into a unique service. Product differentiation only exists in the area of value adding services such as washing services for cabin interior like blankets and pillow cases. Another important point is switching costs. Whereas all former facts indicated intense price competition and powerful buyers, switching costs can be considered the Achilles Heel of the airlines since it lowers competitive intensity among existing rivals.[8] Airline operation, especially concerning legacy carriers and their hub structures, are highly sensitive to disruptions during ramp and passenger operations. Their complex system is vulnerable to domino effects created by e.g. the delayed turnaround of a late incoming aircraft. This makes airlines estimate the possible switch of providers with great caution- at this point especially hub carriers rather focus on smooth operations than a purely cost-driven approach. This indicates a chance for handing providers: establish very reliable handling services and endeavor not to become the cause of an airline's operational insufficiency.

High exit barriers in form of sunk costs that contribute to sharp competition do exist in the German ground handling sector. From the point of view of a service provider the "threats" of having to create a social compensation plan for employees after retiring from a market and probably also in the case specialized investments (dedicated handling equipment might not be sold easily) may function as an entry/exit barrier.

2.2. Threat of entry

On the opposite side of high exit barriers Porter states that the threat of entry in an industry depends on the height of entry barriers that are present and the reactions entrants can expect from existing competitors.[9] Major factors to be considered for a possible market entry are existing supply-side economies of scale which require industry entry at a fairly large scale or the acceptance of cost disadvantages among other entry barriers.[10]. At this point the aircraft movements-related high critical mass (as explained in the previous paragraph) for ground handling services reaches its full power of impact. Other than that new entrants might also have to face disadvantages independent of size such as proprietary technology or preferential access to raw material.

[8] Cp. Porter (2008a), p. 9.
[9] Cp. Porter (2008a), p. 3.
[10] Cp. Baumol/Panzar/Williams (1982), p. 283.

In order to apply this theory to ground handling bering a rather simple service, the availability of adequately skilled personnel and sufficient airport facilities and infrastructure capacity should be considered. A lack of access to human capital at an airport might make it impossible for new entrants to establish operations and prevent them from entering the market. This could also become true in the case of shortness in available handling equipment within a given amount of time (which also leads to the imperative of certain span of reaction time that future incumbents must be granted from the point of winning the tender to starting operations). Apart from the availability of handling equipment the disposability of airport facilities such as office space and the even more important parking areas for handling equipment that can lead to problems: since quick access to ramp handling positions is a vital factor for successful market entry a lack of it might lead to disadvantaging or even discrimination of new entrants.

Success of new entrants is also closely related to the willingness of airlines to switch their services providers. Established rivals might have achieved customer loyalty and airlines might want further competition in order to add further pressure to price negotiations rather than actually switching handlers. As explained in the above paragraph for the airlines as customers switching costs should be understood as putting smooth operations at risk instead of aiming at a purely financial improvement. As empirical evidence in the German ground handling sector shows this seems to have led to hampered gaining of market shares for new entrants. In Germanys former monopolistic market regulatory influences are still of great importance, last but not least due to the artificial entry barrier of limiting the number of incumbents to two per airport.[11]

2.3. Threat of substitutes

Considering the threat of substitutes for the ground handling industry one might think of two different approaches: self-handling by airlines and process substitution by automation. To start with the latter it can be concluded that most parts of ramp handling are to be considered location-dependent services which will always require certain manpower (on the contrary to e.g. banking services or the examination of an x-ray photograph by a doctor). Other than that so far all available automation devices were considered by interviewees as a chance and possibility to alleviate the physical workload and hence to reduce the wear and tear of e.g. loading and unloading heavy bags from an aircraft (with the exemption of already automated cargo and mail handling).

Although the German ordinance on the access of ground handling markets explicitly allows self-handling by airlines so far only DHL has made use of it regarding their cargo operations in Leipzig Halle. As long as remuneration structures within German airlines stay as steep as they are it

[11] Concerning the „core handling services“ named above.

seems unlikely that major airlines could save money by self-handling (with respect to core ground handling services).

2.4. Power of Buyers

Buyers are powerful if they have negotiating leverage relative to industry participants, especially if they are price sensitive, using their clout to pressure price reductions.[12] This is true for big airlines in Germany that make up a very large-volume (often together with alliance partner airlines) of overall traffic and handling volume. Since the ground handling product can be considered a major fraction of an airline the existing bargaining tendencies seem understandable. Next to that not only ground handlers but also airlines faced major liberalization and therefore intensified cost pressure leaving them with lower profits and price sensitivity. Since airlines seem to have almost complete information (as opposed to airport-related ground handlers that cannot compare their fees to other stations) their power is likely to be fairly high.

As already name above the Achilles' Heel of the buyer's power is their operational sensitivity and hence their emotional barrier and imaginary high switching cost that leads to their reluctant behavior when it comes to switching service providers. Other than their vulnerability towards passenger perception (e.g. lost bags) of ground handling service quality and a hub-network susceptibility to domino effects the power of buyers experiences hardly any limits in the ground handling sector.

2.5. Power of suppliers

Since ground handling is a service, labor supply is the most important input factor for its production and while there is no substitute for it so far. Other than that as already mentioned regarding entry barriers handling equipment play a minor role in ground handling supply compared to the availability of adequate personnel. Considering personnel supply in the ground handling sector it is essential to differentiate between airport-related and independent competitors since they are faced with very different staff characteristics supposedly leading towards the above mentioned unlevel playing field. As opposed to independent rivals airport-related handling providers still employ personnel that remain from their monopolistic past and have gained social achievement ("Besitzstand"). These special personnel are very likely to be rather costly, aged and hence suffer from understandable physical wear out for having worked for long years in this physically demanding job. Of course also staff employed at independent handling providers ages, but it seems that so far the climax has reached airport-related incumbents whereas by comparison independent competitors face unequally younger and more productive employees.

[12] Cp. Porter (2008b), p. 60.

Apart from the fact that most of the independent handling providers that started operations from zero were able to establish mostly flexible remuneration and contracts, all incumbents have to face labor unions when dealing with staff supply.

Since handling prices dramatically decreased since the opening-up of the market, the industry is heavily characterized by cost pressure. This leads to a phenomenon which may cause severe trouble if further continuing its development: whereas handling prices and hence remuneration in this sector have decreased, airlines attempts to cut costs have led to shortened turnarounds and the fact that ground handlers reduced the number of personnel employed per turnaround in order to cut average and overall cost. Now taking the necessary multifunctionality of employees into consideration, who have to take over various responsibilities (e.g. connecting the ground power unit, moving passenger stairs, loading bags) during a turnaround rather than concentrating on one single task as in former times, gives way to how further these conflictive developments may continue before provoking major caesuras.

3. Current and future challenges and perspectives of the ground handling sector on airports in Germany

3.1. Perspectives and development potential created by a future amendment of current legislation

In order to look at future legislative perspectives one will have to consider all possible options. Theoretically the possibility of a general amendment of the German ground handling ordinance on a broad basis does exist, although this seems rather unlikely. Germany's government has made attempts to evade amendments to the current national legislation that were of the European Commission in the course of the infringement procedure the EU had initiated against the Federal Republic of Germany early in 2009. Since from Brussels' point of you no proper measures had been taken during the one year reaction time other than disapproving all accusations in a minute, the Commission initiated the second step of their treaty violation proceeding by sending a formal request to Germany in March 2010. The German government reacted to that in early June, finally admitting certain adaptations to applicable regulations concerning the remaining reproaches.

Adjustment concerned the Commission's reproach about Germany's practice in the tender process, now assuring that no institution other than the local aviation authority is allowed to (pre-)select the winner of a tender. Next to that the German practice of granting a license for the period of five years and having some institution decide over the remaining two years has been changed towards instructing the initiation of a entirely new tender process, even after five years. In addition to that the German government eliminated the passage of the ordinance stating that recourse may be had at the administrative court. Other than that the existing appendix of the German ordinance containing the list of airports at which the legislation is to be applied will be updated and corrected. Having reacted like that the German government has decided not to take the risk of being taken to the European Court of Justice in the third step of the Commissions' infringement proceeding. Nevertheless the German resistance does not seem to lead towards further voluntary involvement in amending the applicable regulations.

It seems all the more likely that on the way to further deregulation measures to amend the European directive are to be expected from the European Commission. Possible amendments might target at the granted term of licenses which have been subject to criticism by various parties, Main problem about license duration is the conflict between granting a durance that allows a reasonable amortization and planning period for market incumbents while at the same time allowing healthy and effective competition.

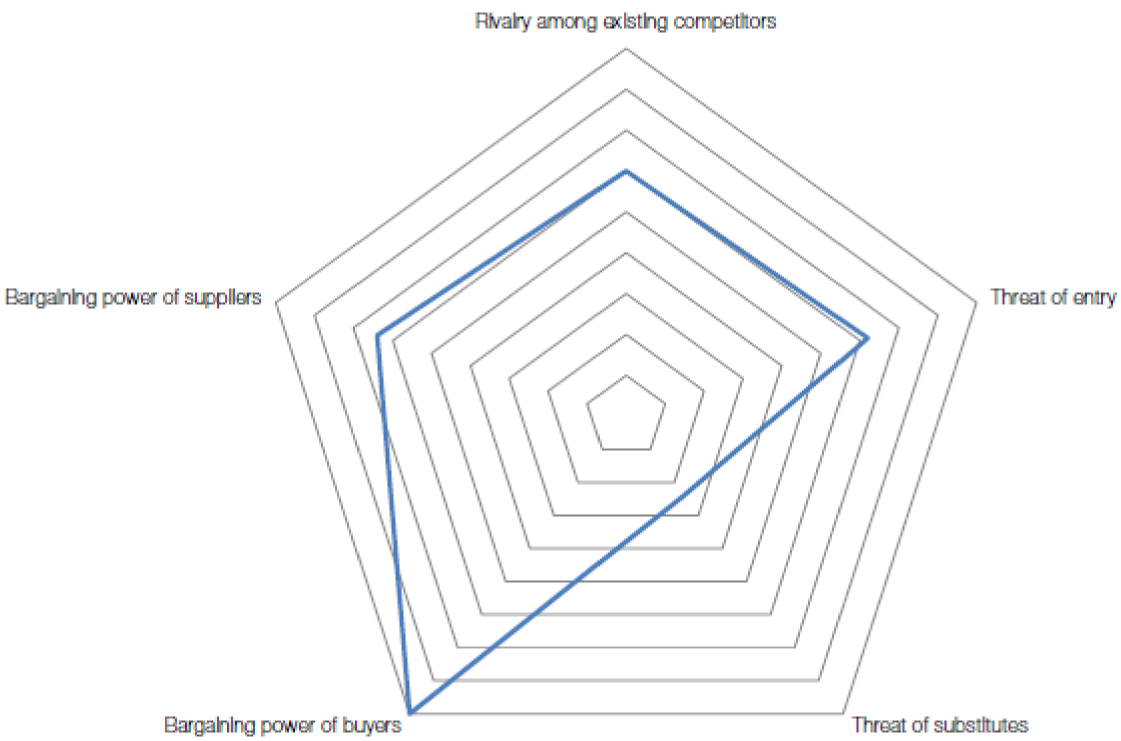
Other than that clarification seems to be necessary when it comes to article 18 of the directive that deals with social and environmental security and which various member states have tried to implement in national legislation- without success so far (the Commission disapproved all suggestions). It might almost be taken for granted that a future amendment of the European directive will contain an increased number of allowed competitors at an airport. This was expected by all questioned parties and will surely lead to intensified competition- with its good and bad side effects for all incumbents.

4. Stakeholder challenges and perspectives in the ground handling market

Before drawing conclusions, previous thesis' research and results shall be summed up in order to pave the way for final statements.

After opening-up the German ground handling market in 1996 by the remittal of the European Directive and its transposition into German law by the German Ground Handling Ordinance (BADV) the sector experienced a successive abolition of monopolistic remains with respect to market structure, rival- and stakeholder behavior as well as price and service characteristics. With limiting the number of allowed rivals to two per airport (one of them with an economic connection to the airport operator) duopolistic market structures were created, with one or two fairly big airline customers or alliances and two service providers (such as Air Berlin and Lufthansa (and their allies) in the current German market). In order to evaluate the functionality and effectiveness (say contestability) of the market the contestable market theory has been applied. The assessment of competition and effectiveness on contestable markets is evaluated by the (non-)

existence of barriers to enter or leave a market such as sunk costs, legal constraints or specialized investment. Analysis led to the assumption that regarding contestability, other than removing quantitative admission restrictions, hardly any other measures need to be taken to further increase market contestability. A critical appraisal of all other barriers and influences on competitive structure in the ground handling market has been developed in the course of Porters Five Forces Model for industry analysis. Conclusions on market structure as well as rival and consumer behavior are heavily influenced by the symbiosis-like existence of a ground handling market which has to be considered as a complementary product to transportation services offered by commercial airlines. The complementary character and the influence of national and supranational political developments are two major superior factors that influence the characteristics of the Five Forces as well as all stakeholders' decision making and behavior. Following graphic provides an overview of the interviewees' perception of each force's strength:

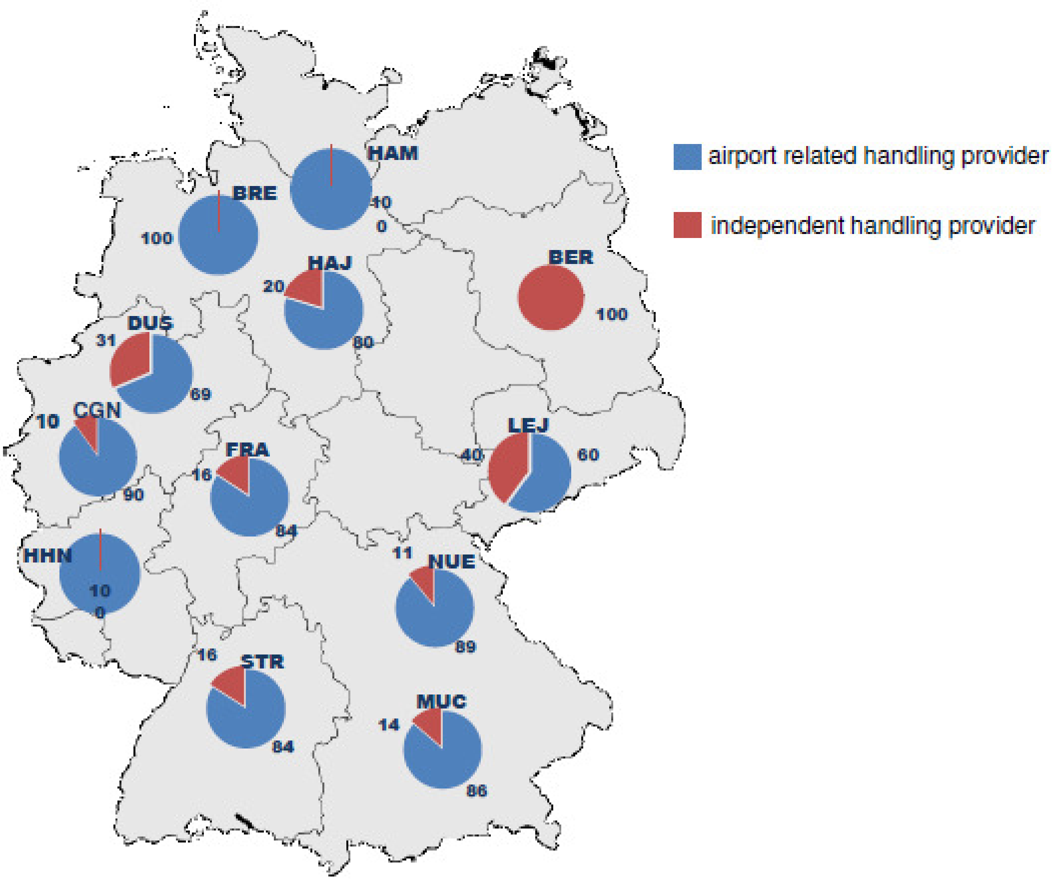


Original illustration based on interview results.

Analyzing the five forces has revealed an enormous *power of buyers* closely followed by strong *competition among existing rivals* as well as a considerable *threat of entry*. The non-existing suitability for storage of services and the homogeneity of core ground handling services has abetted buyer's power. This configuration meets a highly heterogeneous supply side of the market consisting of different company structures, histories and hence dissenting strategies and preconditions. According to the Five Forces analysis the ground handling industry is subject to intense price competition since margin recognition is relatively low and both supply and demand side experience severe cost pressure. Ground handling providers, and as empirical evidence shows, especially new entrants suffer from big airline conglomerates and alliances causing them to struggle in the acquisition of sufficient market shares necessary for profitable operations.

Whereas *the threat of substitutes* does not appear to be of considerable influence, incumbents are very vulnerable to labor availability and its organization as well as remuneration issues as expressions of the bargaining *power of suppliers*. Confronted with ageing personnel at the moment especially some airport-related providers suffer from productivity losses and difficulties caused human resources issues they might have failed to tackle in the past.

Not only in terms of comparable strength but also considering the similar issues the two forces are influenced by a rivalry among existing competitors and the threat of entry are closely linked. Successful market entry and survival are subject to the behavior of core customers. Analysis has revealed that new entrants on the German market still suffer from small market shares partly caused by core customers not willing to switch providers after having claimed the market entry of further competitors necessary. Following graphic points out market shares of independent and airport-related service providers on German airports:



Source: ADV (2010), market shares of independent and airport related handling providers by movements

Whereas the composition of an entire competition strategy for ground handling services providers was not covered in the thesis, it can be stated that according to Porter, services providers as competitors will want to focus on the positioning of their companies and shall makes attempts to shape industry structure.[13]

Moving on to future challenges and perspectives, the regulatory environment of the market comes into view again. Evaluating future competitive perspectives, three major options seem imaginable and potentially beneficial: a complete liberalization with free market entry and no tender process, a modified selection process with proportionate decision-making authority for the user's committee members and mandatory selection criteria as well as the deployment of an independent regulatory authority such as the German Network Agency. With deploying an independent regulator the selection process could be reversed in a way that the Federal Network agency becomes final decision-maker in the tender process while the airport is being consulted among other users in the course of the tender process. It would still have to be decided if the ground handling sector shall be defined as a network market. In addition to that it seems rather likely that the Commission of the European Union will engage in a further deregulation rather than setting up new regulatory constructs.

Looking at the complete opening-up of the market in Germany, the aftermath seems likely to be the following: after a short or mid-term increase in the number of service providers on airports in Germany, the share of traffic volume required for profitable operations would lead to market clearing and hence a reduction in the number of providers, expectably slightly higher than now (depending on the airports total traffic volume). Social consequences of free competition are to be expected, but possibly to a much lesser extent than it has occurred in neighboring states since the German perception of acceptable social and working conditions seems to have more of a protective approach to it. Since potential margin recognition is rather poor in the market, capacity overkill for the pure attractiveness of the market does neither seem very likely.

Anyhow, in the case of a rather high number of service providers on a market, stakeholders fear a vital impairment of security and operational safety. Other than that further liberalization will lead to tightened competition from airport-related provider's point of view. Suffering from the difficulties explained in previous chapters this would add emphasis and accelerate the existing outsourcing tendencies. Whereas this might not seem desirable to airport operators at all moments, it holds potential for the creation of a strategic alliance: with the outsourcing of ground handling services a holding could be founded, uniting a certain range of approved services pro-

[13] Cp. Porter (2008a), p. 12 and 14.

viders and forming a sort of marketing, representation and sales unit, offering the full range of handling services. The airport could get involved with the holding in order to have an insight into the business and a certain control of the quality offered. This could also be in the interest of airlines, since they have to face the threat of substitution at their hub airports and will want to assure good handling quality to be recognized by passengers rather than earn a reputation as notorious bag-loosing carrier or hub airport. With all outsourcing tendencies at airports the discussion about core competencies of the airport as infrastructure provider could be brought up at this point as well.

Nevertheless, when it comes to quality it can be concluded that the definition of handling quality is subject to a bilateral decision-making process between the provider and the airline as a customer more than anything else. A second conclusion which can be drawn from analysis is that the existing dissatisfaction of the airlines with the market situation is not related to the quality and the service offered but should rather be explained as dissatisfaction with the market structure itself. As the improvement of handling quality was one of the two major goals the European Commission expressed within the preamble of the ground handling directive, the degree to which this goal can be considered as fulfilled is hard to determine. The other major goal being the reduction of operating costs for the user can surely be considered as accomplished, since not only all interviewees were consensual about reduced prices, increased effectiveness and lower cost also all studies ordered by the European Commission support this conclusion.

Although prices were lowered by increased competition for service providers, also the airlines have to face considerably tightened competition including the emergence of new business models such as low-cost carriers which led to modified demand for ground handling services resulting from each business model's requirements. This is not only a matter of fact but also a possible chance for handling providers who manage to differentiate their product and core competencies in accordance to the necessities of the different business models. As any development within the airline industry will influence ground handling markets, next to further consolidation tendencies, the potential sword of Damocles for the entire industry exists in future environmental requirements and constraints as well as in the pending implementation of emissions trading. In addition to that future challenges for market incumbents might result from changes in the supply side of the labor market. The implementation of a collective labor agreement for example might add further pressure to competition, its extent depending on the type of labor union involved in this process.

ANNEX 1

Interviewees

ADV Arbeitsgemeinschaft Deutscher Verkehrsflughäfen: Funk, Ulrike Dr. (Association, Economics and Legal Affairs)

Airport Service Losch GmbH: Ruck, Stefan (Ground Handling Service provider, Assistant to the managing director)

BARIG Board of Airline Representatives in Germany e.V: Duckstein, Rudolf (Association, Charges Working Group)

BDF Bundesverband der Deutschen Fluggesellschaften e.V.: Wiegand, Marco (Association, Department Fees and Infrastructure)

Deutsche Bank AG/DB Research: Heymann, Eric (Bank, Economic and branch analysis)

Deutsche Lufthansa AG: Holzrichter, Alexander (Airline, Commercial Airport Relations)

Flughafen Hamburg GmbH: Arndt, Uwe (Airport, Work Council)

Fraport AG: Dillmann, Heinz (Airport, Legal Department)

Fraport AG: Templin, Cornelia Dr. (Airport, Strategy Department)

UAS Bremen: Niemeier, Hans-Martin Prof. Dr. (University, Department of Economics and Transport)

VDF- Vereinigung der Dienstleister an Deutschen Flughäfen e.V. :Knöpfle, Klaus (Association, Managing Director)

Wichtel, Peter- Member of the Bundestag (former head of Fraport works council)

ANNEX 2

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