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Outsourcing within airport services

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Abstract

This article highlights the key issues of outsourcing in the field of airport ground services. Both airlines and airports have gradually started to outsource these services, following governmental decisions in several countries regarding the commercialization and privatization of airports. Our research was based on data available from different airports showing a general trend in service outsourcing. There are particular situations in which both the airports and airlines take measures for insourcing services, mainly those related to passengers' security in today's global security conditions with threats of potential terrorist attacks – even when this is known to be a more expensive method of doing business. Modern technology provides conditions in which it is possible to reduce the number of operators, controllers and other staff, which gives the same chance for insourcing and outsourcing. Our contribution provides a general idea of outsourcing applied to the air business. The company cannot do everything – specialisation and differentiation means that an enterprise may carry out its business better and cheaper and can thus offer this service to other enterprises.

Introduction

When we hand in our passport at the airport check-in desk the chances are that the staff are not employed by the airline or even the airport – despite the uniform they wear. Neither is the woman who checks our ticket at the gate, nor the man on the telephone when we change our flight booking, and probably not many of the people who clean and maintain the aircraft, nor those who organise the sandwiches and perfumes on board. In an attempt to drive down costs, airlines are scrutinising every part of what they do to see if someone else can do it more cheaply. The market in services provided to airlines, excluding back-office functions such as IT, is worth more than €200 bn globally and growing, according to the estimates of KPMG (*founded in 1987 by merger of Peat Marwick International and Klynveld Main Goerdeler*). Typically, budget airlines such as easyJet and Ryanair are the biggest outsourcers as they look to keep a tight lid on their costs. Only staff in easyJet's core functions, such as its crew and its pilots, are on the payroll, leaving services such as passenger helplines and crew rosters to specialists in Montreal and Krakow

respectively (Wild, 2014). With the aviation market set to grow at about 5 per cent a year, according to industry estimates, and the global rise of low-cost carriers, opportunities for companies providing airport services are plentiful.

Demand for airport services has also been spurred on by consolidation within the sector, as the bulk of providers are usually small local operators. Since the end of the 20th century the concepts of commercialization and privatization in air transport management have appeared as the most remarkable issues, which have forced airports worldwide to strategize their operational tactics to provide better service to their customers. Airports will therefore need to find a model for appropriate practice from different perspectives. Deregulation and the privatization of airports have opened up competition and are helping providers to increase their market share (Chung et al., 2015).

While outsourcing saves money, it can come with big risks. Being in an airport environment, the security aspect is important. Staff must be vetted. Because of the heightened terrorism threat the need for an outsourcing provider to demonstrate high-

-quality security credentials has become even more important. This is the big challenge to deliver excellent customer service at the right cost, very efficiently and in a very friendly way, even though it is outsourced.

However, taking staff off the books does not eliminate the risk of industrial action. Airlines, for example, have still had to cancel flights when their ground handling contractors strike. This is painful for the airline and airport outsourcers, who often make narrow margins of 5 per cent or less, although the profits of the suppliers are considerably fatter. This has pushed some airlines to work out new ways to recapture these margins.

Airport technology, mainly from the point of view of security, should provide the answer as to why to use outsourced services. The airport constitutes one of the critical parts of air transport, which must ensure efficient and economically viable activity for operators, and also provide services of interest to passengers and air carriers. To improve efficiency and profitability airports can outsource their logistics activities. Outsourcing is currently regarded as a tool to increase efficiency and thereby the competitiveness of companies in all economic sectors. Its importance has grown significantly in terms of opening markets and with the accession of several countries to the European Union. Not only are foreign companies bearing out this trend, but increasingly outsourcing is starting to also be applied within Slovak enterprises. Outsourcing contributes to increased productivity and optimization of selected processes, especially when it concerns both the service and the support processes.

Current situations in outsourcing within ground handling

Ground handling at the airport includes services such as ticketing, check-in, VIP lounges, load control, aircraft loading and unloading, cabin cleaning, toilet and water services, aircraft ground power and start-up, de-icing, pushback and towing, customer complaints handling, independent call centres, airside and landside bussing, secondary tracing, LZ storage and management (based on LUX-ZEPLIN (LZ) experiment), searches for direct dark matter signals using a liquid xenon target and dual-phase time projection chamber. Yoshida and Fujimoto (Yoshida & Fujimoto, 2004) applied both endogenous-weight TFT and DEA methods to evaluate airport operational performance using input and output parameters. In this study, input attributes include airport facilities (runway, taxiway, cargo terminal and passenger terminal), labour service (passenger handling

volume, cargo handling volume, loading and unloading of baggage/freight) and other input parameters, such as outsourced and consultant services. Output attributes consist of freight, aircraft and the movement of aircrafts. All of those parameters can be measured and compared in outsourcing and insourcing service provision. The most typical measurement indicators for air-cargo business include the total cost per Weight Load Unit (WLU), operating cost per WLU, labour cost per WLU, total revenue per WLU and aeronautical revenue per WLU (Doganis, 1978; 1983; 1992; Doganis & Graham, 1987). Later Graham applied the measurement indicators of labour cost per WLU, cost per WLU, non-aeronautical revenue per WLU, and revenue per employee, to compare the operational performance of European major airports. These measurement indicators play a significantly important role as a starting point in determining the operational performance of airports.

The UK Civil Aviation Authority suggested that airports should continuously benchmark their service and cost factors in order to improve their performance and attract customers and freight to their airports. Apart from those measurement indicators, there are others indicators which have been used to measure other activities associated with the airport, such as the benchmarking of retail activity performance in airports (CAA, 2000).

Who does what at the airport?

Menzies Aviation is a global provider of passenger, ramp and cargo handling services. Menzies has grown rapidly since its conception in 1995. Through a combination of organic growth, acquisitions and the development of niche opportunities, the company has established itself as a major force in the international ground handling industry. Operating at 149 stations in 31 countries and supported by a worldwide team of more than 21,000 people, it serves over 500 airline customers handling over 1.0 million flights and 1.6 million tonnes of cargo per annum.

Ground handling – Menzies staff do much of easyJet's ground handling, working on check-in desks, at departure gates and directing passengers to aircraft. As part of this the company undertakes a range of services including de-icing aircraft in winter, cleaning toilets and manoeuvring aircraft into position at airports.

IT – In 2013 German flag-carrier Lufthansa outsourced the maintenance and support of its ticketing and reservations booking system. It saw money-saving benefits, as well as a more efficient use of resources, as workers would be on hand when

needed rather than being in-house and on standby at all times. The airline pushed through a cost-cutting strategy in 2012 that shed 3,500 jobs.

Retail – Spanish airports authority AENA tendered out a concession to run 80 duty-free shops at 26 of its airports just over a year ago. World Duty Free, the winner of the contract, paid €1.96 bn to run the stores until the end of the decade.

Catering – Delta Air Lines signed a deal in January that increased services from its long-time provider Gate Gourmet. The catering company, which produces the foil-topped meals served up in plastic dishes to airline passengers, will now add Düsseldorf, Manchester and Santiago to the list of airports where it provides for Delta.

Security – G4S last year won a three-year contract to provide security for British Airways at Heathrow and Gatwick airports. The outsourcing specialist screens bags and passengers, provides document and biometric verification and responds to incidents on site, with 600 staff across the two airports.

Bratislava M.R. Štefánik Airport is one of the major Slovak international airports and it is the largest international airport in the country. Regular and irregular domestic and international air connections are provided by low cost and traditional airlines (Kozel et al., 2006). The airport has two runways available which cross each other. This is a risky system which creates possible collision space and maintenance at the intersection of the two paths can mean the exclusion of all operations. In order to maintain operation and expansion, the airport will soon be investing in repairs and/or their reconstruction. From the perspective of maintaining an operational airport, it is an important and necessary task to invest in runways, taxiways and aircraft stands. It is financially very demanding. One way the airport can save its financial resources is through outsourcing.

Services at the airport M.R. Štefánik are divided into services related to the operation of air transport equipment and transport for passengers, and additional activities conducted for the benefit of the travelling public and other users to fulfil their needs at the airport. Some of these airport services are provided by the company, whilst other services are provided by subcontractors.

Airport control and security systems and outsourcing

The majority of international airports have special contracts with major providers of security that cover, if not all, then a substantial portion of their security requirements. These companies are either

related to the airport by some kind of ownership (share holders) or they do the job on contract for a limited period of time. They have very good reputations and serve many airports in different countries. They guarantee up-to-date technology, efficient and well-trained staff and short maintenance times.

To ensure a safe airport process several security systems are used at the airport. Among these systems are frame metal detectors, biometric systems, detection of trace elements, X-ray equipment, explosive detection systems and equipment, electronic security entry systems and access to premises and facilities at the airport. There are also biometric systems based on biometric features such as iris recognition, fingerprint recognition or 3D facial morphology.

GmbH Safety and Service is a 100% subsidiary of Airport Dusseldorf GmbH with many years of experience in airport security. The company works closely with service providers on the ground, both on the landside and airside for safety (see Figure 1) and service (e.g. patrol duty, property protection, alarm pursuit, luggage guarding, document control, event protection, closing tasks, aircraft guarding, special services on request, and access control (Dusseldorf Airport GmbH, 2015)).



Figure 1. The Flughafen Düsseldorf Security GmbH – Safety and service first hand

Outsourcing of technical airport security is one of the new trends which is beginning to be used increasingly at airports. It is the use of external suppliers to reduce costs. There are a few common devices used for security that involve X-rays. They are generally regulated by federal or state agencies. The walk-through arch, shown in Figure 2, in which a magnetic field is used to determine if there is any metal on or in the body, does not involve X-rays.

Cabinet X-ray systems are one of the more commonly used security devices. They are found primarily at airports (the devices that carry-on bags are sent through for X-ray examination), although they can also be seen at the entrances to some federal and state agencies and courthouses (Slevin,



Figure 2. The walk-through arch X-rays

2011). These units use a low-dose, continuous X-ray beam, which is also referred to as fluoroscopy. Most items receive about one-tenth of a millirem of exposure (about a tenth of a day's worth of natural background radiation). The operation of the airport is very difficult, especially in terms of cost, and therefore sometimes airports turn to outside suppliers who can provide services more cheaply and efficiently than if the airport carried out these services separately. These services are conducted by the airport operator or an external organization within a controlled area and especially in the private part of the airport.

Following the outsourcing of all its ICT systems to operational services GmbH & Co. KG (OS), now a T-Systems subsidiary, Fraport AG decided to outsource its related service management as well. The requirements prompting the move included the need to lower costs and to enhance service quality.

By outsourcing its service management for its entire IT system to operational services, Fraport has obtained a reliable end-to-end solution for ITIL v3-compliant service operations. The central elements of the solution include a service desk, the initial point of contact for reporting all incidents, and an operation centre that monitors all systems around the clock. From these sites, tickets move, with IT support that facilitates immediate processing, to the right departments for 1st, 2nd and 3rd level support.



Figure 3. Classic airport check-in desk

T-Systems assume responsibility for all process steps defined in ITIL v3, through successful fault clearance. This leaves Fraport free to concentrate fully on running the airport, able to rely on downtime-free operation at all times (T-systems, 2014).

Generally, the airport is a vast complex of facilities, which begins and ends with the city terminal and take-off runways, and is intended for the operation of aircrafts, providing pre-flight and post-flight services to passengers, the handling of luggage (see Figure 3), and air cargo and the operation of ground service, handling and transportation equipment.

The airport is divided into two areas:

- Landside – area is designated for the movement of ground vehicles, passengers and cargo;
- Airside – it is a controlled or protected part of an airport designed for aircraft movements at the airport, and includes take-off or landing and space for manoeuvring the aircraft before landing or departing.

Landside

Both the buildings and facilities on the landside serve to ensure the conditions for the preparation of passengers and cargo for carriage by air. The terminal building serves to ensure these conditions and is the main environment for creating linkages between the public and private part of the airport. The terminal is a complex structure designed to implement a number of specific requirements for different types of users. In terms of the needs of passengers, the airport allows operation of the various activities associated with the preparation of passengers for a flight at a terminal. There is the clearance of passengers, security checks, customs inspections, luggage check-in and passengers exiting at their destination airport (Průša et al., 2008).

The primary evaluation factor is the level of air and non-aviation services provided by the airport. Revenue items of airports are primarily the revenues from aeronautical activities and services provided by air carriers. These include airport taxes, landing fees, fuel and other charges. Airports also try to make use of their space in the terminal, therefore the landside is used for commercial activities, from which the airport operator makes a financial gain. Modern airport buildings and terminals around the world are increasingly starting to resemble the great business centres of cities. Non-aviation services at the airport are an important component of the income of each airport. For economic reasons, the increasing utilization of aircrafts and airports has shortened the length of stay of the aircraft on the ground. These facts necessitate the introduction of airport ground

transportation for passengers to get to the aircraft on time and without too much effort. This also requires the land transport of passengers by controlled movement of the apron, which is needed especially in terms of seamless service processes and tracing aircraft before take-off. Currently, the major airports ensure good and reliable land transport of passengers at the airport. This is a critical issue that can limit the volume of passengers and the general usage of the airport.

Transport and handling of the luggage of airline passengers is an integral part of the airport check-in process where the main emphasis is on regularity, reliability, efficiency and safety of operation. For reasons of speed and efficiency, airline baggage check-in at airports requires the appropriate systems for monitoring baggage, with a high degree of mechanization and automation. Handling systems are used for different aspects among which are:

- Screening X-ray equipment;
- Complete hand search;
- Screening wands (Duduc, 2006).



Figure 4. Luggage check and handling system built by Logan Teleflex

Madrid's Barajas Airport built the largest high-speed baggage sorting system in Europe. The airport has a system that sorts 16,500 pieces of luggage/hour and allows the accurate location of all luggage. The terminal is connected to the main airport building by a tunnel of about one mile. The main safety feature in this case is the automatic X-ray sensors, which all luggage must pass through before it reaches the aircraft. Suitcases travel at a rate of ten meters per second on conveyor belts, whose length is nearly one hundred kilometers. Plenty of parking spaces are therefore a prerequisite for the proper functioning of each airport. Ultimately, the length of time required for a person to get to the aircraft, may be the decisive motive for them to ultimately choose another means of trans-

port. The international airport in Munich uses the automatic guidance system Sipark that directs drivers to free parking. Above each parking space is a small ultrasonic sensor that monitors whether the position is vacant or occupied.

Airside

The non-public part of the airport is designed, built and operated according to the number and types of aircraft that will use the airport. The non-public area of the airport includes built runways, taxiways, apron and parking areas for aircrafts, and positioned here are also navigational aids, lighting systems, signs and markings. In addition, back-office services ensure air traffic safety, through resources such as rescue and anti-fire equipment, equipment for removing snow and ice, aircraft maintenance and airport resources to track the movement area. The non-public part of the airport represents about 80 to 95% of the total area of the airport and together with its aerial solution, affects all operational activities of the airport and its future development.

In terms of operation the most important part of the airport is the runway. It is a defined and regulated area for the take-off and landing of aircraft, equipped with marking that enables the identification of signs and side signals to track the controlled movement and safe exit from the runway after landing. The pathway may be reinforced concrete or asphalt, dirt or frequently a grassy area. Through outsourcing, the construction, maintenance or repair of such airport surfaces can be carried out by an outside supplier. In Slovakia, the largest manufacturer and supplier of building materials is the company Holcim Slovakia Ltd, which aims to set standards of customer satisfaction and sustainable development in the Slovak construction industry.

A defined path is necessary for taxiing aircraft at the airport, intended for terrestrial connection to the airport. This system's tracks must be designed to permit the safe and smooth rolling of aircraft. For each runway it is necessary to create as many taxiways to ensure efficient aircraft taxiing for take-off or after landing. An apron is used to position the aircraft or for its clearance. It allows the entry and exit of passengers, technical clearance of aircraft, aircraft parking and other activities. This area is the most heavily loaded of all movement areas, as this is when an aircraft is at its highest weight.

The process of clearing an aircraft involves a highly specialized range of activities and decisions about the quality of professional staff that provide technical clearance and the aircraft, tools and equipment used. Ground handling services are

either provided individually to airlines or the services of the airport operator and handling agents operating at the airport are used. They provide the means and equipment to assure ground handling of flights, including stairs, auxiliary power, boarding bridges and others.

Take-off and landing of the aircraft are the riskiest phases of flight. Airport runways are essential for air safety. They are equipped with lights and radio navigation aids, which allow aircraft to fly at night or in poor visibility. These include systems such as ILS, DME, VOR or visual locking devices SALS, PALS, RIL.

To outsource, or not to outsource?

Outsourcing has several advantages, but there are also disadvantages. The benefits of outsourcing include:

- Immediate resolution of temporary labour shortages;
- Reduction in the cost of maintaining, repairing, and upgrading equipment;
- Speed of execution of orders;
- Safeguards and guarantees for services performed.

The disadvantages of outsourcing include:

- Outsourcing failure;
- Increased demands on management;
- Unforeseen costs (Dzurová, 2007).

Analysis of the risks, threats and costs to the airport in the case of outsourcing are critical issues. This particularly involves the comparison of cost reductions offered by providers with an increase in transaction costs for that area. Costs can be especially problematic. There are hidden costs, so additional costs of some obvious aspects of this area should not be completely ignored. In terms of opportunity, cost can be compared by highlighting two situations:

- Internal operation, the total cost of which is usually known;
- Displaced traffic, though the cost must be less to adequate risk propensity of the risk.

It is necessary to consider the selected functional areas and whether to remove the entire area or only part of it, and whether it will be beneficial to receive this service from a provider of integrated services, or selectively from different providers.

Current state of outsourced services at the Bratislava M. R. Štefánik Intl Airport and Düsseldorf Intl Airport

Based on our research conducted within Slovak airports we found that the use of outsourcing

services from different suppliers is positive for several reasons. There are four major issues with regards to the introduction of outsourcing, which to some extent overlap. These are competitive, material, financial and organizational reasons. They also have an important role in providing investment and human resources for the airport. The airport is a self-employed company that finances its activities by avionic and non-avionic activities. The principal line of business is economically self-sufficient and does not require public funding. However, due to the need to reduce costs, the company must ensure some services are carried out through outsourcing. This means that if the business has growing or declining demands (i.e. for technical and personnel resources) the airport does not immediately need to seek additional funding, nor solve the problem of overcapacity. All obligations and assets, with the associated economic risks, human resources and related agenda, are the responsibility of their outsourced services providers (Kolesár & Petruš, 2011).

The world has become more competitive than ever before. In such a situation, the provision of assistance from external contractors is very important in many ways. This process involves the transmission of different services or activities to external service providers. The use of modern technology is increasing significantly, and it is currently highly desirable to provide this through outsourcing. Many companies and businesses operating in the market are ready to provide such services. According to (Žihla et al., 2010), when selecting a supplier, there are many criteria by which the airport can decide which services outsourcing vendor to choose. Table 1 shows the percentages (or weight) of criteria that support the decision for outsourcing at the Slovak airports.

Table 1. Attributes – criteria for decision making (for decision) on outsourcing

Providers Attributes	Percentage [%]
Price	23.1
Service Quality	21.2
References	13.5
Reliability	11.5
Experience in Branch	9.6
Fitness Expertise	7.7
Reaction Speed	5.8
Good Background	3
Liability	2.2
Flexibility	1.98
Know-how Provided	1.6

Management at the airport of Düsseldorf decided to use outsourcing services for their information and communication technologies. Through

outsourcing, the airport gained a lot of rich experience in terms of information technology and reduced its own costs of operation. Now the airport belongs to a profitable independent company. In addition to the cost savings of outsourcing, it has provided the airport access to a wider range of experiences in terms of information technology as well as know-how, enabling the airport to focus on its core business, namely for its customers and passengers.

Düsseldorf Intl Airport GmbH is the third largest airport in Germany. It is the largest international airport of the Rhine and Ruhrland, one of the largest regions in Germany. The airport has two runways and there are 107 parking spaces for aircraft available at one time. The majority of airport service providers are companies tied to the airport by a share of the ownership. They specialise in different types of services.

Table 2. Flughafen Düsseldorf GmbH & subsidiaries (Flughafen Düsseldorf, 2015)

Shareholders	Sector	Shares
State capital Düsseldorf	City/municipality	50%
Airport Partners GmbH		50%
• AviAlliance GmbH	Transportation/Traffic	40%
• AviAlliance Capital Co. KGaA		20%
• Aer Rianta CPT	Transportation/Traffic	40%

Share capital: 25,564,594.06 Euro

Financial claims on the pursuit of security activities, including screening, have an upward trend. It is expected that over the coming years the trend will change only slightly. The main burden of costs to implement preventive security measures cannot be transferred to airport operators and air carriers. It would also significantly adversely affect the business of airports and air carriers, their development and competitiveness. However, the appropriate form of cost reduction and outsourcing can mean airports and air carriers would be able to reduce their own operation costs. Technology is now available to speed up processes at the airports to the strictest safety standards (Slevin, 2011).

Results

Handling systems, screening, and airport software and services are crucial in modern air transport. Most of them are provided by contractors to airlines and travellers at airports to promote aviation. This includes not only highly technical services such as maintenance, fuel supply and oil and cargo, but also services essential for safety and comfort, such as passenger check-in, catering, baggage handling and ground transportation to the

airport. The success of companies who provide the airport services and support aviation transport prove that the division of services from solely flight issues was the correct and appropriate step. There are several companies, each of which serves large numbers of airports in several countries. Their job is to serve both the airports and passengers in order to promote comfortable and safe air transport.

The first suggestion might be to provide more options to choose from ground-handling services for airlines at airports, which includes full market opening for a self-handling airline, which would enable the airport to save some of the costs of providing ground handling services. Another way to improve ground handling can also be regular staff training or transfer of employees, including improving the efficiency and quality of the training process.

Key areas for decision making on outsourcing of services include:

- Baggage Outsourcing Solutions;
- Baggage Handling System;
- Airport Software & Services.

The most rapid development within the airport services are Airport Software & Services. These include:

- Airport Software;
- Sort Allocation Computer;
- Baggage Tracking & Reconciliation System;
- Information Display System;
- Allocation Management System;
- Early Bag Management System;
- ICT Services;
- Support 24hrs / day 365 days / year;
- Systems Maintenance;
- IT Systems Integration;
- Training;
- Baggage and Passenger Process Simulation.

All of these services are highly dependent on the latest technology and the frequent change of hardware and software to maintain today's highest security level. To ensure air safety requires the implementation of new technologies in the field of technical support and increased demands for ensuring the security and safety of air traffic.

To prevent unauthorized access to restricted areas facial biometric identification, fingerprint or iris or retinal content shall be used, especially at airports where it is used for mechanical and technical protection. To prevent unauthorized access to aircraft or airport operational areas there should be increased control, and new technologies and additional screening should be used instead of traditional screening. The benefits for airports include:

- Allows airport to focus on core “revenue generating” activities;
- Saves time and money on system design, thus on overall project execution;
- Immediate “Buy In” to all functional and performance requirements;
- Earlier and more accurate budgeting;
- Operational matters & total cost of ownership (O&M) considered at design stage;
- Handover from construction to O&M team facilitated (training, commissioning); unique responsibility remains with AAS-LT;
- Ability to reflect project cost on end users (airlines) via monthly fee, passenger fee or bag fee.

Conclusions

The aim of this paper was to explore the issue of the outsourcing of airport services. The researched outsourcing solutions clearly proved that at several airports, airport services may have a positive impact on profit, mainly with regards to screening and handling at the airport, as well as in some other aspects, such as maintenance and airport management, ground handling in operational areas, and screening in the terminal building. However, security can't be measured by costs. The future for the airlines is driving down costs through closer co-operation. It might mean that some of the things that have previously been outsourced are better done in-house once they've achieved scale. Alternative models are emerging.

International Airlines Group, the parent company of British Airways, has made savings through synergies such as sharing fleet orders, combining staff and renegotiating handling contracts to save €410 m last year. However, sometimes outsourcing does not work – as easyJet grew bigger the engineering team that carried out engine maintenance work grew from 7 to 140 people, so the airline insourced all the work as this was more cost-effective.

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