

Summary

Low-cost carriers (LCC) such as Ryanair and Transavia have proven to be quite successful in the aviation business. In contrast to full-service carriers (FSC), low-cost carriers offer lower fares but also lower service standards to their passengers. LCC manage to stay profitable due to high aircraft utilisation and cost reductions, for example, in aircraft equipment, personnel productivity, customer service and airport access and handling costs. Although the LCC business model has been a success for short haul networks history tells us that the long haul (intercontinental) LCC business model has not been a successful.

The aircraft turnaround at airports is a part of the flight cycle where airlines have a lot of control and flexibility over. This is why airlines are keen on improving the turnaround process to increase profitability. LCC already use techniques to reduce the turnaround time and costs, such as cabin cleaning during the flight, fuel tankering (refueling more than needed for the flight to prevent refueling at every airport) and not transporting cargo. Although the aircraft turnaround of today is already a highly streamlined process at most airports, still there is room for improvement, especially for long haul LCC since this is still somewhat unknown territory.

The aircraft turnaround process can be split in two parts: the airside and the landside processes. This does not mean these processes are not highly interconnected. On the other hand: delays in the landside processes will almost certainly result in delays in the airside processes as well, eventually resulting in a delayed flight. The airside turnaround activities are, among others, passenger (dis)embarkation, refueling and cabin cleaning. The landside activities consist of, for example, passenger and baggage check-in, passenger security control and baggage handling. In order to be able to make any suggestions to improve the turnaround process, first the system has to be clearly defined, that is why in this report a clear definition of all airside- and landside turnaround processes is proposed in Chapter 2. Furthermore the turnaround service sequence is explained. This is the sequence of servicing activities in the aircraft turnaround process due to the fact that not all activities can be serviced simultaneously. These sequences are summarized in a network diagram for the turnaround of a Boeing B747-400ER.

Not only the optimization of the aircraft turnaround is a great opportunity for long haul LCC to increase revenues, also the choice of aircraft is of great importance. Therefore in Chapter 3 the aircraft characteristics found in the aircraft manuals of Airbus and Boeing are summarised. The aircraft turnaround time is one of the most important characteristics and is therefore explained in more detail with the introduction of the PERT chart, which is used to give better insight into the aircraft turnaround times. Next the most important aircraft characteristics are compared to find the most suitable aircraft for long haul LCC. In this comparison some interesting characteristics surface, like the claim of Boeing that the B747-400 has a half an hour shorter turnaround time than the A380 while these aircraft have similar passenger capacities. Another interesting characteristic found in the

comparison is the fuel efficiency of the A380, which is one of the highest if an all-economy class seat configuration is applied.

Chapter 4 gives a more detailed look into the long haul LCC business model in comparison to the short haul alternative. Although the long haul LCC business model is not as refined as the short haul version, still some important differences can be noticed. For example as important difference between the two is the use of a single class seat configuration for short haul operations which will probably not be optimal for long haul services. Another difference is that typically short haul LCC do not transport cargo because of the increased complexity, for long haul LCC this choice might not be feasible. With a clearer understanding of the long haul LCC requirements some turnaround activities that are the most suitable for improvement are discussed.

Passenger embarkation is one of the area's where there is a lot of room for improvement without the need for large investments. First several boarding methods are discussed. These methods are based on the idea of pre-sorting passengers before boarding based on their assigned seats to reduce the amount of 'interferences' (blockage of passengers in the aircrafts' aisles). Although there has been a lot of research in this area, researchers (and therefor airlines) are not in consensus on which boarding method is the fastest. Other ways to speed up the boarding process like foldable aircraft seats to reduce blockage in the aisles and easier access the overhead storage are suggested as well.

Both the time needed for the loading and unloading of baggage and the refueling of the aircraft can be shortened by using modern equipment like conveyors that extent fully into the baggage compartments and high fuel rate refueling systems. A possible bottleneck in the aircraft turnaround might be the servicing of the galleys, though currently there are no solutions on the market to speed up this process. Other solutions like alterations in the aircraft design and the systems for better management of the turnaround process are suggested as well.

This study ends with a suggestion for an improved turnaround process for an Airbus A380 and a Boeing B787-8, which are both very modern aircraft. The aircraft characteristics comparison has shown that the mid-sized B787-8 and the very large A380 both have potential to be the aircraft of choice for long haul LCC. This literature research also shows that there is still an opportunity for airlines, airports, and especially long haul LCC, to further improve the aircraft turnaround for both shorter turnaround times and lower servicing costs. Therefor the long haul LCC business model might still become a success.