How COVID-19 impacts airport operations planning

Physical distancing,
volatile schedules,
and limited budgets



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ABOUT THIS GUIDE

This guide is for anyone involved in the airport operation – from the airport planner to the terminal manager and the airport executive. We want to assist your organization with handling the COVID-19 aftermath in the best and most costeffective way by ensuring that financial impact is kept at its lowest while delivering a positive passenger experience. We invite you to learn about the main challenges faced in the airport operation, assuring that no obstacles are overlooked, and ensure that you have considered all relevant challenges and have started thinking about initiatives to mitigate.

INTRODUCTION

Airports globally are currently experiencing an unprecedented challenge, as airlines have grounded aircraft in response to the sharp decrease in demand. Some airports have significantly limited their operations, while others have closed altogether, awaiting traffic to pick up gradually. Over the coming weeks, we will publish a series of articles with a focus on the challenges faced by the airport operational planner, as traffic ramps up with the easing of travel restrictions and on how to best handle these challenges. Our focus is both short-term and long-term when we refer to the post-COVID-19 situation. In this first article, we introduce six major challenges for the airport operations planner post-COVID-19. We deep-dive into the challenges in the coming weeks with a dedicated article for each challenge including examples of how COVID-19 is handled in several major airports still maintaining an operation.

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CHALLENGE 1: High variance in flight schedules and load factors

The first challenge is that a high degree of variance in both flight schedules and load factors is expected as traffic ramps up. Several airlines, including Lufthansa, Delta Airlines, and United Airlines, have publicly stated that they will emerge from the COVID-19 crisis as changed and smaller airlines. The high variance will make every day unique and increase the need for accurate and dynamic forecasting and planning. It is more important than ever before that the passenger forecasting process is adaptive and self-correcting. As traffic ramps up, the critical question for airports becomes how to maintain physical distancing as traffic gets closer to the pre-COVID-19 level





CHALLENGE 2: Lower annual passenger numbers but unchanged or higher peak levels compared to pre-COVID-19

The last time airlines generally saw a severe drop in passenger traffic was in 2008 / 2009 during the financial crisis. An interesting observation from 2009 was that while annual traffic numbers dropped significantly – typically between 10% and 15% – the peak traffic levels in airports remained largely unchanged. This was driven by the desire from airlines to fly in peak times, as this is where the yield for airlines is highest. While the COVID-19 situation is already far worse than the financial crisis, we expect a similar development for the rebound in traffic after COVID-19.

Below, we have outlined nine combinations between annual traffic numbers and peak traffic numbers based on their pre-COVID-19 level. The color of each square indicates the financial impact and planning complexity of each combination – with higher peak volumes and lower annual numbers being the worst case and lower peak numbers with higher annual numbers being the best case.

We have outlined what we believe to be the most likely development for airports in general. This development sees peak volumes increase faster than annual volume and hence, a clear need to optimize the airport operation.



Annual passenger numbers compared to pre-COVID-19

Figure 1



The enhanced cleaning processes could impact the cleaning time of an aircraft and hence, may lead to longer turnaround times for the aircraft

CHALLENGE 3: Physical distancing

Another challenge for airports when ramping up after COVID-19 is the requirement to ensure physical distancing. This will severely impact the airport operation and increase the need for understanding passenger flows. Being able to predict and control passenger flows has never been more important.

The post-COVID-19 airport operational plans must include physical distancing measures for all areas, including:

- Queue areas for check-in, security, immigration and other operational areas of the airport
- Occupancy of terminal areas including gate hold rooms, lounges, space around baggage reclaim belts, toilets, etc.

Physical distancing measures must be clearly communicated to passengers and staff is needed to enforce the physical distancing. Also, physical distancing significantly lowers the capacity of terminal areas. As traffic ramps up, the critical question for airports becomes how to maintain physical distancing as traffic gets closer to the pre-COVID-19 level.

Airports also need to consider how physical distancing impacts employees. Mitigating measures include increased digitalization, grouping of employees (for instance, using different break rooms for different groups), and increased hand sanitization.

CHALLENGE 4: Cleaning and personal protective equipment

The need for more frequent and enhanced cleaning will increase across all areas of the airport. This includes cleaning of terminal areas as well as cleaning of aircraft. The enhanced cleaning processes could impact the cleaning time of an aircraft and hence, may lead to longer turnaround times for the aircraft.

The terminal cleaning must be planned in line with passenger flows to ensure best use of cleaning resources. Ideally, the plans for cleaning are based on real-time observations of use of terminal areas with a special focus on toilet areas.

Another consideration is the use of personal protective equipment (PPE) for staff. Our consideration will be on how the increased use of PPE can impact staff productivity – could processes be slowed due to the need for using PPE?



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CHALLENGE 5: COVID-19 testing

As traffic ramps up, there will be a focus on the continued identification of people with COVID-19. Already, several different options are applied. Analysis of travel history and thermal screening of departing and arriving passengers are some of the less intrusive options. At the same time, testing of a small blood sample is a more intrusive, more conclusive option.

No matter the setup, it will impact the airport operation significantly. Depending on the selected option, there could be a need for areas for examination of passengers detected by thermal screening, for carrying out tests and similar. Also, enhanced screening on arrival would require additional staff and space.

CHALLENGE 6: Financial impact

The financial impact on airports is massive, and it will take several years to regain what was lost during the COVID-19 standstill period. Our focus is on what this means for the airport operational planner - both short-term and longterm.

For CAPEX, we believe that multiple infrastructural investments will be postponed or even eliminated. In the short term, the need for investment will most likely be limited as traffic is lower than pre-COVID-19. As traffic levels return to their pre-COVID-19 levels, we expect CAPEX budgets to continue being impacted by COVID-19. Longerterm, this means that the current available infrastructure needs to last for longer, thereby driving the need for optimization.

For OPEX, the main short-term challenge will be to balance costs to an unstable developing demand. The increase in cleaning costs are expected to continue well into the future and may find a structurally higher level compared to pre-COVID-19. Also, we expect airports to have an increased focus on reducing OPEX costs. We foresee airports thoroughly reviewing their current OPEX budget with a focus on the reduction of staffing costs (both internal and external staff costs). A short-term element for airports to consider is when to reopen the parts of the airport that were shut down in a reaction to the massive drop in traffic. The trade-off is between increased OPEX when opening more infrastructure against keeping physical distancing and satisfactory performance in the open parts of the airport.

The optimization effort should start even before traffic ramps up, as the COVID-19 standstill has provided an option to start from scratch. COVID-19 is a unique opportunity for airports to adapt their current operation with a focus on improved processes and planning and could ease the change management effort.

ABOUT Copenhagen Optimization

Copenhagen Optimization is a combined consultancy and software company specializing in analyzing and planning any operation on a strategic, tactical, and operational level. We improve your airport operation through data-driven analytics and strategic consultancy in combination with our Better Airport[®] software suite to support you all the way. Working with more than 50 airports globally, we offer our unique services and technology to support airports of all sizes.

If you would like to learn how we can help your airport navigate through the COVID-19 aftermath, reach out to us for a personal talk via:

contact@copopt.com

use www.copenhagenoptimization.com or call us at +45 3091 4679







Kasper Hounsgaard Managing Partner, and Co-founder

Kasper has a M.Sc. in Economics and has, for years, been the main driver in business development in Maersk, Copenhagen Airport, and Copenhagen Optimization. Kasper is a natural in identifying new areas of interest and has extensive experience in developing and implementing solutions with proven results. With responsibility for Consultancy and Business Development, Kasper excels in quickly understanding your challenges and adapting our ideas and experience to identify ways of overcoming the challenges.

Anders Dohn Managing Partner, and Co-founder

Anders has a strong theoretical background and significant experience from industrial application of operations research. Anders has a M.Sc. in Applied Mathematics and a Ph.D. in Operations Research and is the lead on technical development and product innovation. While having a strong theoretical background, Anders's former role as Head of Staff Planning at Copenhagen Airports, a job with many practical day-to-day challenges, has given him important experience in terms of both human resource management and application of optimization.



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contact@copopt.com, www.copenhagenoptimization.com +45 3091 4679