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AIRPORT DESIGN



SONIC BOOM: DO AIRPORTS NEED TO PREPARE FOR THE SUPERSONIC REVOLUTION?

"Airports Council International wants to fast-track new standards and practices to regulate supersonic aircraft, which are expected to be reintroduced in 2023. Julian Turner discusses the key issues with University of Salford senior lecturer in aerodynamics and aircraft performance at the University of Salford Phil Atcliffe."

Source: Airport Industry Review

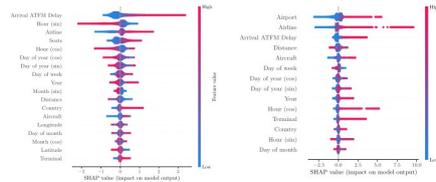
SMART AIRPORT



ONE ID: INSIDE IATA'S PLAN TO END PAPER TRAVEL DOCUMENTS

"IATA is working on the development of One ID, an integrated identity management solution that could eliminate the use of paper-based travel documents with the aid of biometric technology. But with so many stakeholders involved in its

AIR TRAFFIC MANAGEMENT



Assessing strategic flight schedules at an airport using machine learning-based flight delay and cancellation predictions

"To mitigate air traffic demand-capacity imbalances, large European airports implement strategic flight schedules, where flights are assigned arrival/departure slots several months prior to execution. We propose a generic assessment of such strategic schedules using predictions about arrival/departure flight delays and cancellations."

Source: Journal of Air Transport Management

Criteria selection and multi-objective optimization of aircraft landing problem

"Inspired by the similarities of the aircraft landing problem (ALP) and the single machine scheduling problem, we propose a criteria selection method that has been used successfully in the single machine scheduling problem to determine appropriate objective functions of ALP."

Source: Journal of Air Transport Management

ECONOMIC DEVELOPMENT & IMPACT



Regional Economic Briefing: Asia-Pacific (December 2019)

A holistic overview of the economic, market, and industry performance of the aviation sector in Asia-Pacific regions in December 2019.

Source: International Air Transport Association

STATISTICS



Annual World Airport Traffic Report 2019

World Annual Traffic Report (2019 edition) published by Airports Council International (ACI).

Source: Airports Council International

OUTLOOK



implementation, will it ever come to fruition? Adele Berti reports."

Source: Airport Industry Review

Q&A: AIRPORT EFFICIENCY WITH THYSSENKRUPP ACCESS SOLUTIONS

"Creating a seamless, technology-driven experience for passengers is what any airport in the world aspires to. But how can this be achieved? thyssenkrupp Access Solutions CEO Mauro Carneiro gives to Adele Berti his insights on the industry's biggest demands and the role his company is playing to improve efficiency at airports."

Source: Airport Industry Review

Friendlier skies: how airports use audiovisual technology to enhance the passenger experience

"Several airports are using audiovisual (AV) technologies to convert a humdrum wait in departures into an exciting and potentially profitable diversion. From virtual reality simulators at Vienna to elaborate LED displays at Charlotte Douglas, AVIXA chief marketing officer Dan Goldstein highlights how AV technologies are giving passengers a travel experience to remember."

Source: Airport Technology

STARTUPS



FLYING HIGH: THE AVIATION START-UPS SET TO TAKE OFF IN 2020

"An explosion in air traffic has caused an exponential increase in the number of start-ups sprouting across the globe with the aim of improving passenger experiences and solving the aviation industry's biggest challenges. Varsha Saraogi takes a closer look at five start-ups looking to take off in 2020."

Source: Airport Industry Review

CYBERSECURITY



Building resilience

"A raft of industry initiatives have emerged to address cybersecurity,

A practical approach to determining critical macroeconomic factors in air-traffic volume based on K-means clustering and decision-tree classification

"This research proposes a practical methodology for investigating the inherent patterns of the relationships between air-traffic volume and macroeconomic development, utilizing data-mining techniques, including K-means clustering and Decision Tree C5.0 classification."

Source: Journal of Air Transport Management

Quantum Annealing Applied to De-Conflicting Optimal Trajectories for Air Traffic Management

"We present the mapping of a class of simplified air traffic management problems (strategic conflict resolution) to quadratic unconstrained Boolean optimization problems. The mapping is performed through an original representation of the conflict-resolution problem in terms of a conflict graph, where the nodes of the graph represent flights and the edges represent a potential conflict between flights."

Source: IEEE Transactions on Intelligent Transportation Systems

Route-Based Dynamics Modeling and Tracking With Application to Air Traffic Surveillance

"In transportation networks, the majority of moving vehicles are route-based or trajectory-scheduled. Taking advantage of such predictive information generally produces more accurate dynamic models and better surveillance performance. This paper is concerned with the route-based dynamic modeling along with the route-aided tracking."

Source: IEEE Transactions on Intelligent Transportation Systems

A mixed integer programming model for optimal ATC tower height and location: a case study for Singapore Changi Airport's third runway extension

"This article formulates the ATC tower location and height problem as a Mixed-Integer-Programming (MIP) model while considering the visibility and obstruction constraints. Singapore Changi Airport's proposed third runway extension is used as a case study to determine the set of location and height of ATC Tower using the proposed approach."

Source: Engineering Optimization

Annual World Airport Traffic Forecasts 2019-2040

Airport statistics infographic published by Airports Council International (ACI).

Source: Airports Council International

but is the aerospace industry doing enough? Emma Kelly reports."

Source: Asian Aviation Magazine

REGIONAL INSIGHTS

Singapore Airshow



Sustainable Singapore

"As the aviation world comes under scrutiny for its emissions contribution to the climate crisis, the 2020 edition of the Singapore Airshow is going greener, as Matt Driskill reports."

Source: Asian Aviation Magazine

Boeing sees China as driver of Asian market

"Dividing Asia-Pacific into five sub-regions — China, Northeast Asia, Oceania, South Asia, and Southeast Asia — the US manufacturer expects robust growth to continue, especially in areas such as China, South Asia, and Southeast Asia 'as these economies expand and more people begin to travel'."

Source: Asian Aviation Magazine

The battle for India's airports

"With the Modi government making it clear that it doesn't want to be in the business of running airports, India's numerous airfields are the new battlegrounds for corporate control of lucrative aviation assets as India correspondent Shelley Vishwajeet reports."

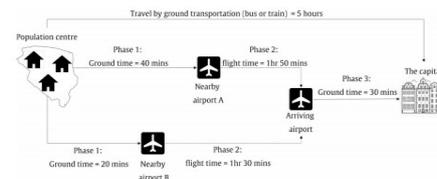
Source: Asian Aviation Magazine

Application of merging optimization to an arrival manager considering trajectory-based operations

"An arrival manager (AMAN) is a support system for air traffic controllers in the airspace near an airport. The AMAN assists the air traffic controller in facilitating efficient arrival sequences and arrival times to ensure smooth arrival traffic ... This study proposes a novel AMAN algorithm based on the merging optimization method."

Source: Transportation Research Part C: Emerging Technologies

AIR TRANSPORT NETWORK



Decision Support for an Optimal Choice of Subsidised Routes in Air Transportation

"The aim of the work presented here is to develop a mathematical model that can assist decision-makers in selecting the optimal network of subsidised routes in air transportation. Sweden is used as a case study."

Source: Journal of Air Transport Management

Data-driven planning of reliable itineraries in multi-modal transit networks

"Our paper takes an important step in this direction by analyzing and aggregating data from the operation of scheduled and unscheduled modes to create a reliability measure for multi-modal travel. We use a network search algorithm to evaluate itineraries that combine schedule-based long-distance travel with airlines with last-mile and first-mile drive times to efficiently identify the one with the highest reliability given a start time and travel-time budget."

Source: Public Transport

AIRPORT OPERATIONS



Source: Britannica ImageQuest

An objective model for collaborative flight scheduling in a single mega-hub network

"Single mega-hub (SMH) airports are among the highest passenger volume airports in the world. Eight operational features that distinguish an SMH

airport are identified, including collaborative flight scheduling between the airline and airport. This paper develops an objective function to direct collaborative flight scheduling."

Source: Transportation Planning and Technology

SAFETY

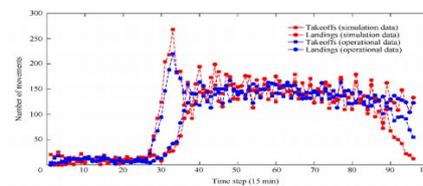


Investigating and operationalising the mindful organising construct in an Air Traffic Control organisation

"... Safety is therefore achieved through these human processes and relationships. But what should an organisation do in practice to be mindful? We explored this in the Maastricht Upper Area Control Centre (MUAC), an Air Traffic Control (ATC) organisation, which has reported for many years high-standards of safety (i.e. very low numbers of serious incidents). A single-case study approach was used to support the in-depth description and understanding of the phenomenon within its real-life context."

Source: Safety Science

AIRPORT NETWORK



Measuring the resilience of an airport network

"Recent studies on air transport system resilience focus on topology characteristics after the disturbance and measure the robustness of the network with respect to connectivity. The dynamic processes occurring at the node and link levels are often ignored. Here we analyze airport network resilience by considering both structural and dynamical aspects."

Source: Chinese Journal of Aeronautics