Airports of the future: Redefining travel with innovation

By Emine Zerrin Sakir
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The number of passengers being transported by airlines around the world has more than doubled in the last six years with recent estimations indicating that demand for air transport will increase by around 4.3% on average per annum for the next 20 years.

It's expected that in a little more than a decade, 200 000 flights will be taking off and landing each day, around the world, meeting the need for rapid transportation and facilitating the need for increased volumes of air cargo and tourism. Management consultant, Oliver Wyman forecast that the global commercial aviation fleet will expand by 33% to more than 36,000 aircraft in the next decade.

Emine Zerrin Sakir, CEO, Mangodo.

However, this rapid growth will not be without challenges for airport infrastructure and human resources. Competition between airlines and hubs will increase, requiring airports to rapidly evolve to accommodate the growing demand for airline travel from passengers. Predicted labour shortages and an overwhelmed supply chain add to the challenges, and the most significant changes are expected in terms of technological innovation and the passenger experience.

Technological innovations

Technology is anticipated to play a crucial role in the future of airport operations. Advances in biometrics, artificial intelligence, machine learning, 3D printing, and automation will impact airport operating models. These technological innovations will not only enhance efficiencies but also contribute to an improved passenger experience.

A growing number of air travel passengers express a preference for digital identities over physical passports, with 73% willing to share biometric data for more efficient and seamless airport processes. However, this shift necessitates significant investments in biometrics and digital identity management solutions by airports, ultimately offering passengers a safer, seamless, and contactless end-to-end experience.

Expedia's 2024 Air Travel Hacks Report indicates that more than half of US travellers find airline travel stressful, surpassing the stress levels associated with filing taxes or visiting the dentist. Future-focused airports recognise the importance of providing a positive experience by prioritising convenience and minimising stress and anxiety for passengers.

As the world embraces digitisation, so too will the airport environment need to digitise across both passenger and cargo operations. Even the internal layout of airports will need to take cognisance of the deployment of technology and processing of on-the-move passengers to ensure they reach their gates in time.

A focus on customer experience

According to VPS, enhancing the airport experience for passengers comes down to three critical factors: easy navigation, cleanliness, and customer service. Simple solutions can address these challenges within the airport environment.

Navigating maze-like airport terminals can significantly increase stress levels for passengers. Imperative to this is easily visible signage and digital signage systems play a crucial role in directing passengers and providing real-time information updates.

The increased number of travellers passing through airports will strain facilities such as restrooms, and technology is starting to play a role in addressing this issue. Solutions for restroom cleaning and technical monitoring systems allow passengers to report opinions related to cleanliness and problems, aiding airport management in addressing concerns promptly.

VPS emphasises that airports must understand good customer service traits and components, envisioning airports as consumer hubs. Alongside ambience and atmosphere, airports should offer a mix of restaurant facilities, retail outlets, and children's entertainment areas. Airports are increasingly exploring new technologies to deliver customized and on-demand services, such as virtual queuing and duty-free online shopping, enhancing the overall passenger experience.

The future is expected to see e-commerce platforms delivering food and beverages in time for passengers' flights, becoming more mainstream. An example is a digital restaurant management system like YumMyMenus, which offers a contactless ordering and payment platform with a multi-language selection for passengers.

By 2050, many processes within the airport environment are predicted to be fully autonomous. Singapore's Changi Airport Terminal 4 is already autonomous in check-in, baggage drop, immigration, and boarding due to facial recognition technology. The aim is for fully autonomous airports by 2050, with technologies already in place, such as custom scaler solutions for airports to manage baggage weight information and inform travellers of acceptability.

Airports prioritising the passenger experience are expected to gain a competitive edge in the evolving landscape.

ABOUT THE AUTHOR

Emine Zerrin Sakir, CEO, Mangodo.

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