

TERMINAL 1 SECURITY PROCESS SIMULATION AND CAPACITY VALIDATION

 Kansai International Airport

 Osaka, Japan

 Airport planning

 2023 / 2024



KEY OUTCOMES:

- Operational enhancements improve performance
- Review of the program implementation phases
- Validation of new area layouts

THE NEED:



- KIX Airport required validation of the planned security process at T1, incorporating new CT x-rays and body scanners, to ensure the system met future demand and performance targets.
- The airport tasked EBEA with the identification of potential bottlenecks, from passenger preparation, to the repack areas, to meet the performance targets.
- Capacity needs for different proposed layouts were to be assessed, including queue space requirements and staffing levels to ensure optimal passenger experience.

THE APPROACH:



- Multi-stepped approach, including collection and analysis of KIX Airport data to ensure high-quality of the simulation analysis outputs.
- Developed detailed models of individual security cells, validating capacity expectations and mitigating bottlenecks based on key performance variables.
- Created a holistic fast-time simulation of the tested security checkpoint layouts, incorporating all security process elements (e-Gates, queue management, security lanes, etc.) and adjusting model parameters for optimal flow and queue management.

THE SOLUTION:



- Tested multiple performance scenarios, analysing passenger characteristics, tray processing rates, and service times to project a range of operational outcomes.
- Developed layout options to address key challenges including operational performance and passenger flows, recommending adjustments to meet the airport's operational targets.
- Assessed queuing requirements and space needs for all the tested layouts, recommending the minimum queue space provision levels, and ensuring the right provision of infrastructure to avoid congestion.



[Grand Opening of KIX T1 Renovation](#), link to article published by ACI
ASIAPAC, 27th March 2025:

[\[Grand Opening of KIX T1 Renovation\]](#)

