1. A baggage-first processing simulation model for international arrivals at a U.S. airport

Duyos, Jorge (1); Erkoc, Murat (2); Keles, Bursa (2)

Source: *67th Annual Conference and Expo of the Institute of Industrial Engineers 2017*, p 103-108, 2017, *67th Annual Conference and Expo of the Institute of Industrial Engineers 2017*; **ISBN-13:** 9780983762461; **Conference:** 67th Annual Conference and Expo of the Institute of Industrial Engineers 2017, May 20, 2017 - May 23, 2017; **Sponsor:** Pitt Swanson Industrial Engineering; UCF; **Publisher:** Institute of Industrial Engineers

Author affiliation: (1) JRD and Assoc., Inc, United States (2) University of Miami, United States

Abstract: In this study, we present a discrete-event simulation model and analysis for optimizing international passenger throughput at Customs and Border Protection (CBP) federal inspection service (FIS) areas operating at U.S. airports. The study investigates the advantages and disadvantages of the baggage-first model that is now considered by several airports as a result of growing adoption of automated passport control (APC) kiosks and other CBP technology initiatives. The study analyzes configuration options that can be deployed to optimize staffing and passenger routing decisions with the objective of minimizing overall sojourn times for arriving passengers and queue lengths at FIS locations. The results of the study are contrasted against the optimal kiosk-first setting. The proposed model is tailored and applied for the design of a new FIS facility being built for the Fort Lauderdale-Hollywood (FLL) International Airport The projected increase in passenger volume over the next ten years is incorporated into the proposed model. We discuss the advantages and disadvantages of the baggage-first setting based on the results of the simulation study. Overall, the study shows that the baggage-first setting is a viable alternative in designing FIS layouts for airports that fully automate their passport control processes. (6 refs)

Main heading: Airports

Controlled terms: Airport security - Artificial intelligence - Decision support systems - Discrete event simulation - Engineers

Uncontrolled terms: Airport terminals - Configuration options - Customs and Border protections - Discrete-event simulation model - Inspection services - International airport - Passenger throughput - Processing simulation

Classification Code: 431.4 Airports - 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 971 Social Sciences

Database: Compendex

Data Provider: Engineering Village