

1. Modelling and simulation of large and complex systems for airport baggage handling security

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Abstract: Recently, security experts and policy makers have been increasingly concerned with security measures in place at various public places where masses of people are concentrated in a single location such as, airports, railway stations, sports stadium, major events and concerts. In the case of airports, airport operations analysis is commonly performed in isolation, with the sharing of basic information, such as flight schedules. Airport operations, however, consist of numerous potential security concerns, including: aircraft, aircraft tarmac locations, fuel storages, concourses, cargo terminal operations, catering, retail services, parking, cleaning, with many human interactions including travelers, operations personnel, service staff and visitors. Systems theory and the accompanying methodology can enhance current analysis by considering a holistic approach to airport operations. Systems methodology tools and techniques provide the key stakeholders an improved understanding of the implication of changing policy decisions, altered resource allocations and overall investment strategies, through the identification of emergent behaviors and interdependencies. For any given airport to function efficiently and effectively, these numerous sub-systems must operate together. This talk will focus on new tools and methodologies that are required for model development and analysis. The case study provided will be on modelling, simulation and analysis of an airport baggage handling system, providing greater understanding of airport operations with a change of security policy. © Springer Nature Switzerland AG 2019. (17 refs)

Main heading: Airport security

Controlled terms: Aircraft - Airports - Baggage handling - Computation theory - Decision making - Economics - Fuel storage - Intelligent computing - Materials handling equipment - Security systems

Uncontrolled terms: Baggage handling system - Investment strategy - Modelling and simulations - Process mining - Process model - Security policy - Simulation and analysis - Tools and techniques

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