



Improving the Airline Operations Center

Objective The airline operations center (AOC) is a facility built and operated by an airline to manage its aircraft fleet. An AOC has several distinct areas and manages large amounts of information. However, the computer-supported work processes are generally not well integrated or automated. This may lead to a lack of efficiency and increased workload for airline dispatchers. The current activities of the AORG are directed toward developing tools that better integrate and provide access to the data airline dispatchers must deal with. We are also building automation tools that provide tailored and directed critical decision-making assistance for airline dispatchers.



Dispatcher Work station

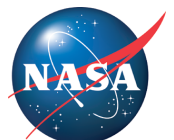
Approach The AORG laboratory consists of several workstations that simulate a partial AOC configuration including flight operations (dispatch) and air traffic control coordination. Research is being performed in various areas including cognitive computing and winter weather operations. We are also configuring the laboratory to support simulation studies.

The implementation of cognitive computing and machine learning technologies (such as IBM's Watson) to support access to large, changing data sets may allow for quicker response times to issues that arise in the AOC. This may play a critical role in providing dispatchers with assistance in the in-flight decision making process.

The AORG is currently proceeding with the development of the Flight Awareness Collaboration Tool (FACT). FACT is aimed at improving AOC and National Airspace System operations in winter storm conditions. It gathers onto a single, unified display the critical and most important data that decision makers in the AOC use in their time-sensitive tasks. Historical data and the effects of winter weather are also being used to develop predictive models for airport capacity in response to anticipated storms to allow for improved foresight in decision-making.

Impact Implementing a cognitive computing/artificial intelligence assistant in the AOC could provide dispatchers with an additional layer of automated support to reduce dispatcher workload and increase the safety and efficiency of airline operations. Tools such as FACT would support improved collaboration and information sharing between AOC and airport personnel. We have formed connections and partnerships with the airline industry to further the AORG research.

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