

THE AEROSPACE PERFORMANCE FACTOR: UTILIZATION OF THE ANALYTICAL HIERARCHY PROCESS TO DEVELOP A BALANCED PERFORMANCE AND SAFETY INDICATOR OF THE NATIONAL AIRSPACE SYSTEM FOR THE FEDERAL AVIATION ADMINISTRATION

Thomas Michael Lintner
Office of Safety
Federal Aviation Administration
Washington, D.C., USA
E-mail: thomas.lintner@faa.gov

Steven D. Smith
Office of Safety
Federal Aviation Administration
Washington, D.C., USA
E-mail: steven.d.smith@faa.gov

Scott Smurthwaite, PhD*
Office of Safety
Federal Aviation Administration
Washington, D.C., USA
E-mail: scott.smurthwaite@faa.gov

ABSTRACT

The central mission of the Federal Aviation Administration (FAA) is the safety of the national airspace system (NAS). Historically, basic metrics such as traffic counts, delays, flight cancellations, incidents, and accidents were used to gauge performance. This method of analysis was effective at looking at isolated events but failed to take into account an overall system-wide assessment of the national airspace system. Currently, the Office of Safety is developing the Aerospace Performance Factor (APF) in order to better understand the overall system-wide events and their relative contribution to the overall safety of the national airspace. In this process, the APF utilizes aspects of the Analytical Hierarchy Process (AHP) method to establish structure and create a measurement of historical FAA aerospace incidents. It presents the results of the measurement as a graphical representation of the system's performance over time. The APF is an effective tool for assessing the relative performance of the FAA's airspace and has been adopted by other groups within the aviation arena including the European-based commercial airline easyJet, the Irish Aviation Authority (IAA), the United Kingdom's National Air Traffic Services (NATS), and the European Organisation for the Safety of Air Navigation (EUROCONTROL).

Keywords: Aerospace Performance Factor, Analytical Hierarchy Process, national airspace system, Office of Safety, Federal Aviation Administration

* Corresponding author