

# JPDO NEWS

June - July 2008

A newsletter from the Joint Planning and Development Office

## From 1500 K Street, NW

**Reminder:** The next "All Hands" Meeting is scheduled for June 18 from 9:00 a.m. to noon in the James Webb Auditorium at NASA Headquarters. This meeting is open to the public. Please visit the JPDO Web site for further details. *Please note that no travel compensation or per diem will be provided.*

The JPDO/NASA Quarterly Meeting will be held on June 20 at NASA Headquarters.

On June 27, Yuri Gawdiak, Director of the Systems Modeling and Analysis Division, will serve on the "Working to Build the Next Generation Air Transportation System" panel during the Smithsonian Folklife Festival in Washington, DC. This year the festival highlights NASA's 50th Anniversary along with Texas and Bhutan.

The JPDO Board members will meet on June 30.

The Senior Policy Committee will meet on July 25.

We welcome your input. Please send your comments to [9-AWA-ATO-JPDO-Partnership@faa.gov](mailto:9-AWA-ATO-JPDO-Partnership@faa.gov).

*JPDO News Staff*

Joint Planning and Development Office  
Partnership Management Division  
1500 K Street, NW, 5th Floor  
Washington, DC 20005  
[www.jpdo.gov](http://www.jpdo.gov)  
202-220-3487

## IWP Version 0.2 Comment Adjudication Process

During the public comment period for Version 0.2 of the Integrated Work Plan (IWP), the Joint Planning and Development Office (JPDO) received more than 1,000 comments from government agencies, industry associations, private organizations, and individuals.

These comments are being adjudicated by the IWP Team through an iterative process involving Subject Matter Experts (SMEs) aligned to each functional area within the IWP. The SMEs are working with the Enterprise Architecture and Engineering Division to resolve comments, with consultation and verification by the various Working Groups.

The comment adjudication process is supported by an interactive Web-based tool that tracks comment assignments, status, and resolutions. The intent is to resolve all comments and make other structural and content changes by August 1 for the final baseline IWP release in the fall of 2008. ✈️

## Paper Released Comparing NextGen/SESAR Operational Concepts

The JPDO released a comparative assessment of the NextGen and Single European Sky ATM Research (SESAR) Operational Concepts on May 22. The paper is a high-level philosophical study which describes where the concepts align and differ. The development of the paper was overseen by the JPDO's Global Harmonization Working Group.



The information paper summarizes that, due to the existence of formal cooperative arrangements between the U.S. and Europe, the vision and philosophical perspectives of the two concepts are generally aligned. Both operational concepts describe a performance-based airspace that supports aircraft of varying capabilities whose operations are enhanced by timely, common information-sharing. However, there are some noteworthy differences as well. For example, the SESAR ATM Target Concept recognizes weather-related issues but lacks the same level of attention to weather-related infrastructure, prediction, modeling, and planning that the NextGen concept provides. This is due to the fact that convective weather is more prevalent in the continental United States than in Europe. As work continues in both regions to validate concepts through research, trade studies, and scenario-based analysis, these activities will add more detail to the concepts, and implementation-oriented differences will likely become apparent.

Accompanying the paper is an appendix which provides a more technical comparison of the two operational concepts. ✈️

*All JPDO Papers are accessible at [www.jpdo.gov](http://www.jpdo.gov).*

## Aircraft's Role in NextGen

*Measuring programming progress by lines of code is like measuring aircraft building progress by weight. — Bill Gates*

As the critical efforts to define and plan the implementation of the Next Generation Air Transportation System (NextGen) began in 2003, the formation of the Aircraft Working Group (WG) in 2007 reflected the recognition of aircraft as the cornerstone of implementation programs within the NextGen initiative.

Led by Jeff Duven (FAA) and Dave Nakamura (Boeing), the Aircraft WG is founded on a number of key principles. The aircraft-centric concept involves taking full advantage of previously approved aircraft equipment that has yet to be fully integrated in the National Airspace System (NAS), as well as deployment of new aircraft capabilities. These aircraft capabilities are evolutionary; that is, the capabilities available today are being utilized to successively develop and implement new capabilities to fully achieve NextGen goals. Based on this aircraft-centric concept, advanced aircraft and proper air/ground integration will enable operators to “fly when they want and where they want.”

NextGen involves elevating the common denominator of aircraft capabilities through a planned set of operational transition steps. The aircraft usage will evolve from two-dimensional (2-D) clearances to 3-D paths, to 4-D trajectories. With aircraft able to safely, precisely, and repeatedly accept, execute, and monitor 4-D trajectories unconstrained by arbitrary navigation aid location, the Air Traffic Management (ATM) system may then assume the role of automation, deconfliction, and monitoring of 4-D trajectories, having been relieved of the onus of today's tactical separation workload.

A vital part of the WG is the Aircraft Equipage Standing Committee (AESC). Led by Steve Van Trees (FAA) and Frank Alexander (Northwest Airlines), the AESC is performing the “heavy lifting” in cataloging existing aircraft capability and planning for equipage and capability evolution that will enable implementation of NextGen Operational Improvements. The key product of the AESC is an Avionics Roadmap that will be delivered in the fall of 2008.

The Avionics Roadmap presents the following information with respect to modern avionics: 1) required advances in safety equipment; 2) capabilities inherent to flying a published route, with today's Required Navigation Performance-certified equipment; 3) negotiated trajectories, utilizing aircraft data communications for real-time rerouting; 4) aircraft separation in which the aircraft assumes a central role in flying a safe and accurate 4-D trajectory; 5) low-visibility equipment for aircraft approach and landing (including a timeline for surface operations); and 6) ATM efficiencies, when the NAS levies requirements on the aircraft.

In addition to defining the aircraft equipage for the long term, this senior government-industry group is also maintaining detailed



knowledge of current fleet capabilities as well as defining critical needs for FAA aircraft policy, aircraft-related research, and FAA NAS ground system implementations and ensuring that JPDO planning aligns with implementation agency commitments.

The Aircraft WG plays an integral role in developing the NextGen planning documents. The WG is working to ensure that the content of the Integrated Work Plan (IWP) reflects a balance and integration of operations and aircraft. This capability-based approach will yield a much cleaner plan, aligned with agency and industry commitments.

The Aircraft WG has also done salient work in the coordination of the IWP with the FAA Operational Evolution Partnership and Enterprise Architecture to ensure that a common approach is being pursued rather than separate epicycles. NextGen relies on a series of key developments affecting both the air traffic infrastructure and the aircraft systems. Implementation of NextGen depends on a coordinated deployment of new operational capabilities, investing in both ground systems and avionics, as necessary. The full capabilities of NextGen offer substantial benefits, but the potential costs to industry are significant. Some of the early NextGen-related aircraft changes will be aimed at achieving consistent capabilities across the various user fleets in light of their level of desired airspace access. Looking beyond these initial changes, it is possible that every existing aircraft will require avionics changes to fully participate in NextGen. While 2025 seems distant, over 60 percent of the air transport fleet operating in 2025 will be based on today's airplanes.

The Aircraft WG has accomplished a great deal of work, but much remains. The WG is undertaking key tasks on Trajectory-Based Operations (TBO) and the Traffic Alert and Collision Avoidance System (TCAS), as well as coordinating with the JPDO Policy, Enterprise Architecture and Engineering, Portfolio Management, and Systems Modeling and Analysis divisions. 

*This article was prepared by the Aircraft Working Group.*