



AVIATION WEEK EXECUTIVE ROUNDTABLE:

Examining the Findings of the NextGen Task Force

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Since 2004 AVIATION WEEK has led Executive Roundtables that bring together multiple stakeholders in a neutral environment to address issues critical to the aerospace and defense community, with the goal of identifying actions to be taken by individuals or organizations that will benefit the enterprise as a whole.

The NextGen Mid-Term Implementation Task Force Report, issued Sept. 9, 2009, was the focus of the AVIATION WEEK Executive Roundtable held Nov. 9, 2009, at the National Press Club in Washington, D.C. The purpose of the roundtable was to examine the findings of the Task Force, make recommendations on areas for improvement and ways to accelerate the implementation of the Next Generation Air Transportation System—known as NextGen—to ensure future safety, capacity and environmental needs are met using 21st century technologies.

The roundtable was hosted by Kitty Higgins, president of The Higgins Company and former National Transportation Safety Board member, and Tony Velocci, Editor-in-

Chief of Aviation Week & Space Technology. Opening comments were made by Victoria Cox, senior vice president for NextGen and Operations Planning, Federal Aviation Administration (FAA).

Organizations participating in the roundtable discussion included Aerospace Industries Association; Air Line Pilots Association, International; Air Transport Association; Air Transport International; Aircraft Owners and Pilots Association; American Airlines; American Association of Airport Executives; ATAC Corp.; The Boeing Company; Continental Airlines; CSC; Delta Air Lines; DeTect, Inc.; Embry-Riddle Aeronautical University; FAA; Federal Express; FreeFlight Systems; General Aviation Manufacturers Association; Harris Corp.; Helicopter Association International; The Higgins Company; Honeywell International; ITT Corp.; jetBlue Airways; L-3 Communications; LHD & Associates, Inc.; MITRE/CAASD; NASA; National Air Traffic Controllers Association; National Business Aviation Association; Rockwell Collins; RTCA, Inc.; Sensis Air Traffic Systems; Southwest Airlines; SRA, International; Thales North America; United Airlines; and the U.S. Senate Aviation Subcommittee.

Roundtable participants divided into six work groups that were challenged to respond to a set of questions focusing on one of six areas addressed by Task Force recommendations: 1) Surface; 2) Runway Access; 3) Metroplex; 4) Cruise; 5) Access to the Nation's Air Space (NAS), and; 6) Overarching Recommendations. In addition, the first five teams also addressed Data Communications and Integrated Air Traffic Management (I-ATM), two capability areas that cut across the five domains. Following the discussion, participants prioritized actions to help move NextGen ahead faster.

KEY RECOMMENDATIONS:

- Streamline outcome-based metrics.
- Establish metrics that measure operational benefits such as runway throughput, fuel burn from top of descent, miles flown, etc.
- Have FAA partner with stakeholders to identify legislative changes to streamline environmental reviews to implement more efficient procedures.
- Provide greater details regarding the financial aspects of incentives.



These key findings are based on the details of topical conversations in the work groups, which addressed the following sets of questions:

GROUPS 1-5:

Each group addressed one of the five problem areas (Surface, Runway Access, Metroplex, Cruise, Access to the NAS) plus the cross-cutting recommendations on Data COMMUNICATIONS AND I-ATM:

Are the recommendations in the report right? Are they complete? If not, why not? What are the major technical, organizational and political issues associated with the implications of the recommendations? Identify priorities with regard to policies and procedures. Identify metrics that will gauge impact/effectiveness of the system. What is needed to build the business case/return on investment? What are the next steps?

GROUP 6:

OVERARCHING RECOMMENDATIONS:

Taking a critical look at the Task Force findings report, is it right? Is it too narrowly focused? Too short term? What is missing? (ADS-B, ERAM, etc.) Are these deal breakers? Will it accommodate future development? Recommendations for improvement? Does it keep us moving to NextGen fast enough? If any of those answers are no, what can be added to the report? Who should be held accountable for delivering benefits, not just deploying technology? How should we measure results? How should we hold accountable?

In addition, participants were issued a verbal set of challenge questions that may be addressed in more depth in a future roundtable: Are we all keeping in mind why NextGen was launched and what problems it is intended to solve, including who will benefit? What difference will it make? Why should the public support NextGen? What can we promise and by when? What will it cost and how will we pay for it? How do we reassure skeptics that government and industry can design, implement and manage this incredibly complex system on time and on budget? How can we make this new system more transparent to decision makers and the public? In an era of scarce resources, economic uncertainty and competing priorities like high-speed rail and surface infrastructure, how do we generate a sense of urgency among decision makers and funders to make funding for NextGen a priority?

BACKGROUND INFORMATION – The nation’s air traffic is projected to triple over the next several decades. In order to meet this demand, the United States Congress created the Joint Planning and Development Office “Vision 100—the Century of Aviation Reauthorization Act” within the FAA, to develop a Next Generation Air Transportation System—known as NextGen—to ensure future safety, capacity and environmental needs are met using 21st century technologies.

NextGen is a U.S.-driven plan to address air traffic management and communications, navigation and surveillance via a more-automated, aircraft-centered satellite-based system by 2025. Yet Australia, China and Europe are each developing their own versions which will be implemented by government directives. Because U.S.-based airlines would have to equip their aircraft at considerable cost to meet the new requirements to serve these markets, there exists a strong national imperative to define and implement NextGen nationally—while playing a leadership role globally—before the 2025 deadline.

Many stakeholders believe existing technologies, procedures and capabilities can be maximized to begin realizing benefits now--“NowGen”--without deviating from long-term NextGen goals. Yet a lack of clarity, consensus and trust are delaying the investment by operators in equipment that will begin delivering benefits, and reducing inefficiencies and delays in the system in the mid-term, from now through 2018.

On Jan. 16, 2009, FAA officials sent a letter to RTCA, Inc., a private, not-for-profit corporation organized in 1935 as the Radio Technical Commission for Aeronautics that today includes approximately 335 government, industry and academic organizations from the U.S. and around the world, and functions as a Federal Advisory Committee. They requested RTCA establish a government-industry task force to develop consensus on operational improvements that can be implemented by the mid-term while maximizing near-term NextGen benefits, and develop a business case for industry investment. The RTCA NextGen Mid-Term implementation Task Force issued its final report on Sept. 9. It is this report that was the subject of the AVIATION WEEK NextGen Executive Roundtable.

EXECUTIVE SUMMARY

The AVIATION WEEK NextGen Roundtable on Nov. 9 reviewed the findings of the RTCA Task Force, and determined the recommendations are generally on target, although some adjustments are needed along with a sharper focus on exactly what must be accomplished. There was a recurrent theme on the need for standardization and the establishment of a common understanding of the rules, especially on technology issues. The participants also agreed political complexities exist, and stakeholders must find ways to successfully work through them. Because there is ambiguity in the operational benefits of NextGen, stakeholders must establish metrics that measure the broader operational benefits to help validate the business case—and measure outcomes, not activities. Policies and procedures must also be streamlined to enable benefits to be realized sooner, for it is benefits—not the technology infrastructure—that will help drive investment by operators in aircraft equipment sooner. A final recurring theme was that the lack of system-wide integration is a pain point that must be addressed to enable NextGen to be successfully implemented.

WORK GROUP FINDINGS:

1. SURFACE PLUS CROSS-CUTTING RECOMMENDATIONS ON DATA COMMUNICATIONS AND I-ATM:

Are the recommendations right?

- Recommendations are right but missing in-depth implementation plans; all criteria haven't been defined to get us to 2018/2025.
- Aircraft-specific technology is missing in addition to criteria itself. Until we address weather and have common standards for airport closures, certain airports will operate outside the margins.
- Surface safety and reducing incursions is a big part of surface management. We've addressed policies and procedures already; surface moving map is the next stage.

Major technical, organizational and political issues associated with the recommendations:

- Criteria: Operators are hesitant to invest in technology because criteria/standards not yet fully defined.
- Compatibility: Key for all organizations (airlines, operators.) to work together for good of the airport as a whole, ultimately benefits all.
- Complexity: Politically, we need to figure out ways to bridge the gaps between silos.

- Cost: Driven by the above. Must have ROI and all work together to make money.
- Identify priorities with regard to policies and procedures. Identify metrics that will gauge impact/effectiveness of the system:
- Priorities for the FAA, industry and airports include: standardization through shared metrics; collaborative decision making; and surface movement and weather-related memoranda of understanding
 - The entire system is better served by defined metrics. An airport can work to meet the needs of its operators and community served through classic metrics; airport capacity; surface wide information management (SWIM) and working to expand the nation's air space.

What is needed to build the business case/return on investment?

- Funding incentives, grants, jumpstarting programs on which considerable money already spent, such as Capstone.
- Clarify Return On Investment (ROI) for users, taxpayers and policymakers.

What are the next steps?

- Refine MOU process (standardize/centralize) so criteria are in-kind and beneficial to all
- Establish framework for collaborative decision making process, data sharing-- represents paradigm shift
- Education/outreach on environmental benefits, fuel savings, safety and other

2. RUNWAY ACCESS PLUS CROSS-CUTTING RECOMMENDATIONS ON DATA COMMUNICATIONS AND I-ATM:

Are the recommendations in the report right?

- The combined Tier 1 & Tier 2 address majority of issues, but all of Tier 2 items need more emphasis, as they address building blocks
 - Maintaining visual operations
 - 2.5 nm separations
 - Turn on to final
 - Paired approaches

Major technical, organizational and political issues associated with the recommendations:

- Safety case drives how quickly we can realize the benefits of new procedures
 - Wake turbulence
 - Separation standards
- Training for controllers and pilots
 - Wake turbulence – spacing on final
- Better Equipped Better Served vs. Best Equipped Best Served (BEBS)
 - Not necessarily front of line, but better service

Identify priorities with regard to policies and procedures:

- Separation standards
- Time based

Identify metrics that will gauge impact/effectiveness of the system:

- Improvements in runway throughput and airport throughput by configuration in all weather conditions
- Fuel burn from top of descent to runway
- Terminal mileage/fuel burn

What is needed to build the business case/ROI?

- Improvements in metrics will provide data on ROI and encourage users to equip
- Incentivize funding for ADS-B Out, then ADS-B In
- Need better definition of BEBS, use that to stimulate the business case

What are the next steps?

- Establish metrics listed above
- Pilot/controller training on new procedures
- Safety case for new procedures
- Funding for ADS-B Out equipage
- Better Equipped Better Served- Look for opportunities to stimulate investment

3. METROPLEX PLUS CROSS-CUTTING RECOMMENDATIONS ON DATA COMMUNICATIONS AND I-ATM:

Are the recommendations in the report right?

- This group supports the conclusions and objectives of the reports, but some gaps remain

Major technical, organizational and political issues associated with the recommendations:

- Need to improve stakeholder interface with technical and operational issues. Stakeholders include: NATCA; aircraft operators; aircraft manufacturers; airports; communities, etc.
- The environment is a huge priority for the new administration. Need to clearly communicate the environmental and energy benefits of reduced greenhouse gasses, etc.

Identify priorities with regard to policies and procedures. Identify metrics that will gauge impact/effectiveness of the system:

- Need more streamlined process for designing and implementing RNAV/RNP procedures
- Focus should not just be on quantity but the actual quality of procedures and performance metrics
- Work with stakeholders to develop baselines and performance metrics to ensure quality procedures
- Metrics include improvements to safety, gate-to-gate times, fuel burn, security, better on-time performance, etc.

What is needed to build the business case/return on investment?

- More resources and better coordination devoted to airside airport improvements
- Human factors studies/human-machine interface during NextGen development and implementation
- Greater value and recognition given to the environmental/energy benefits of NextGen improvements
- Consider a financial credit to offset the cost of doing additional environmental studies

What are the next steps?

- Best equipped-best served must be a fundamental basis for NextGen with accompanying technology and investment
- Give crews and controllers tools to sequence and monitor aircraft and crew capability
- FAA and stakeholders must identify legislative changes to streamline environmental reviews to implement more efficient procedures

4. CRUISE PLUS CROSS-CUTTING RECOMMENDATIONS ON DATA COMMUNICATIONS AND I-ATM:

Are the recommendations in the report right?

- Special activity airspace is an existing term not in the report. It includes Homeland Security, Border Patrol, etc. and there is good reason to add this to the report

Major technical, organizational and political issues associated with the recommendations:

- Technical: stand-alone systems transitioning to real-time and probability decision making
- Organizational: FAA has now assigned a full-time person to work the plan (budget and authority)
- Political: paradigm shift between controllers, pilots, traffic flow management, flight operations center, airline operations center, etc.
- Examine PGM from system-level perspective

Identify priorities with regard to policies and procedures. Identify metrics that will gauge impact/effectiveness of the system:

- Transition from local efficiency to system-level performance
- Metrics geared to both sides, DoD plus any state, government entities looking at this plus FAA: if we give you the airspace how often are you going to use it?

What is needed to build the business case/return on investment?

- ROI= Access
- Significant emphasis on systems integration and funding needed
- Without the foundational capabilities of data communications and I-ATM we have localized silos that may operate very efficiently but get nowhere. Solutions need to be integrated across the NAS

What are the next steps?

- Additional/accelerated R&D to integrate NAS-wide into ATC procedures:
 - Increased surveillance precision
 - More accurate weather (common air/ground picture)
 - Navigation precision
 - More precise timing

5. ACCESS TO THE NAS PLUS CROSS-CUTTING RECOMMENDATIONS ON DATA COMMUNICATIONS AND I-ATM

Are the recommendations in the report right?

- The report missed an opportunity to forge a federal/local/non-OEP airports alliance to stoke greater economic growth, support communities' access to greater medical support, increase safety for first responders/disaster relief/traffic reporting helicopters, etc.

Major technical, organizational and political issues associated with the recommendations:

- The Task Force did an adequate job of addressing operational capabilities to be implemented for data communications and I-ATM. This is a real “it depends/wait-and-see for non-OEP/non radar airports.”

Identify priorities with regard to policies and procedures. Identify metrics that will gauge impact/effectiveness of the system:

- Measure the number of airports that are willing to share in the investment because of a positive business case/ROI for their communities
- Measure the number of general aviation accidents avoided and NextGen operations

What are the next steps?

- Legislation needs to be changed to allow non-OEP airports to use AIP funds for NextGen-related capabilities like LPV approaches, etc.
- Use federal funds for a communications campaign targeting local airports/communities on what NextGen is and potential benefits of financially supporting improvements at their airport
- Allow 3rd party certifications for building and certifying approaches

6. OVERARCHING RECOMMENDATIONS:

Taking a critical look at the Task Force findings report, is it right? Is it too narrowly focused? Too short term? What is missing? (ADS-B, ERAM, etc.) Are these deal breakers? Will it accommodate future development?

- Controllers believe measurement of separation standards is too precise—were not measured precisely back in the 1960s, and it has caused a lot of extra miles to be added.
- The report works to establish a collaborative learning environment to achieve optimal separation standards
- Acknowledge it is a short-term/transitional goal to move forward with NextGen

To have gotten 300+ organizations to agree on the RTCA Task Force findings was really something!

Recommendations for improvement? Does it keep us moving to NextGen fast enough? If any of those answers are no, what can be added to the report? Who should be held accountable for delivering benefits, not just deploying technology? How should we measure results? How should we hold accountable?

- Every day aircraft continue to come off the line that are not equipped for NextGen. Need to understand that each is added to the list of aircraft that will need to be retrofitted over the next 30 years for NextGen
- If you don't have “HOV” lanes into the airport (Chicago) how do you deal with the traffic? Need to drive the operators to put the right aircraft in the right place with large equipage.
- Need to move fast, the longer we wait, the more challenging the problem we are creating. Need to:
 - Identify now
 - Forward fit fast
 - Retro fit after
- Operators need to be able to answer, “If I equip, *what* am I going to do with them and where will I use them? Need incentives right away.
- Need to provide greater details regarding the financial aspects of incentives
 - Facilitation at high levels of government
 - Facilitate the business case for individuals
 - Make use of equipage policies and procedures, must be in place to achieve business case
 - Streamlining-outcome based metrics, not activity metrics
 - Are runway occupancy times increasing?
 - Are runways being built where we need them?
 - Are environmental issues being addressed?
 - Example: I produced three runways that saved XX pounds at Seattle...
- Above all else, need to get started on defining new separation standards
 - The only part of NextGen that will bring increased airspace capability
 - It will take a long time to get agreement

The Boeing Co.

As the world's largest aerospace company, Boeing has a unique stake in ensuring that ATM safety and capacity issues are addressed aggressively. Since 1916, Boeing has advanced the growth of aviation. We have led the world in the development of commercial and military aircraft, and have worked on air traffic system improvements, airport infrastructure, security, safety management, weather systems and more. Additionally, our continual dialogue with pilots, controllers and aviation personnel has provided Boeing with a unique, operational perspective on the system; ensuring early identification and resolution of issues.

Boeing's plan supports the FAA's NextGen vision. We have operational projects underway to test new aviation concepts for an improved traffic management system. This transformational push, with incremental development steps, helps move these ideas from concept to reality with managed risk. Our objective is to enable demand-driven growth of aviation with safe, efficient, interoperable, and environmentally progressive ATM solutions.

ITT Corporation

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SRA International, Inc.

SRA International Inc. is committed to delivering proven solutions for the world's most challenging air traffic management needs. Headquartered in Fairfax, Va., with a strong history of government contracting success, SRA is an established solutions provider and proven partner to the Federal Aviation Administration (FAA). With more than 100 government, commercial and military air traffic control customers throughout the U.S., Canada, Europe, the Middle East, Africa, South America and Asia, SRA is an established world leader in next-generation surveillance and flight tracking solutions and serves the global Air Navigation Service Provider (ANSP) community with industry leading multilateration and ADS-B (automated dependent surveillance broadcast) technologies. SRA has had the unique distinction of being a FORTUNE 100 Best Employer for 10 consecutive years. SRA has a history as a FAA support contractor since 1989, has disciplined systems integration experience, and is an employer of choice.

