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ICAO Forum
Integration and Harmonization of NextGen and SESAR into the
Global ATM Framework

Panel Discussion: Initiatives, Transitions Programmes –
What will it take to get there? What is needed from ICAO, industry, etc

ICAO Headquarters
Montreal, Quebec, Canada

Monday, Sept. 8
4:10 p.m.

Remarks as prepared for delivery.

Good afternoon. It's a pleasure to be here at such an important conference with such distinguished colleagues. I know the hour is late, so I won't take up too much of our time this afternoon.

I come today representing not only the U.S. aerospace industry, but the International Coordinating Council of Aerospace Industries Associations. The global aerospace industry is delighted that ICAO is holding this forum. Fifty years ago, when international air travel was in its infancy, it was natural that individual national air traffic management systems developed. That is no longer the case.

ICAO was formed out of a need to make order out of potential international regulatory chaos, and it has done an impressive job of integrating disparate regulatory regimes in the area of safety and procedures. It is both timely and appropriate that ICAO step in to the all-important discussion of harmonizing our systems.

The reason seems a little obvious to state, but it's because we absolutely need a global, seamless, interoperable air traffic management system. Yes, there are funding, political and security hurdles to clear, and it will probably take some time. But as a matter of necessity, it is already happening ad hoc. One could make the argument that the international

aerospace industry is already serving as the world's proxy for that effort. Our companies work across borders on the research and development of the infrastructure that will one day span the globe. Doesn't it just make sense that one day we will be supporting a global, fully integrated system?

But on a more mundane level, it's not an exaggeration to say that manufacturers are the cornerstone of air transportation modernization efforts. And we are unanimous in supporting a number of very important ideas.

One is that the advanced air transportation system must be global in scope. Another is that it must be seamlessly interoperable from nation to nation. And a third is that ICAO must take the lead to make these other goals a reality.

Today I'm going to talk about the global air transportation system's infrastructure, investment and institutions from the manufacturers' perspective.

Let's start with infrastructure. Obviously, this is the area in which manufacturers are most directly involved. We provide the nuts and bolts for NextGen, SESAR and every other iteration of advanced air transportation systems around the world. From the transponders on aircraft to the tracking ground stations to global weather stations to voice switch technology to the satellites enabling all of this; our companies are the brains and brawn of the future global system.

As we all know, ADS-B is the linchpin of these advanced-technology systems.

In the U.S. we are putting in place a major piece of the ADS-B puzzle – the ground stations that link not only aircraft to ATC, but also aircraft to aircraft. ITT won the contract to design, develop, site-test and deploy the stations, with the deployment beginning early next year. Installation of the ADS-B equipment on almost 800 existing mobile phone towers and other facilities to track aircraft all over the country is on schedule.

SESAR is also making inroads, as it is now in the Joint Undertaking status that moves from definition of the effort to the development stage. SESAR timeframes call for deployment to begin in 2013, beyond which users are responsible for all funding. That is a change from the significant government share invested in the definition and development stages.

That's not the only way SESAR has counted on its business partners. The consortium structure of SESAR folded manufacturers into the effort from the beginning, giving them an early stake and guaranteeing buy-in.

Airbus, BAE Systems, EADS, Indra, Selex and Thales were all in on the ground floor. Their partners in government and the airlines have looked to them to provide the technical know-how to make the new system succeed. Three U.S. companies – Boeing, Honeywell and Rockwell Collins – played a role in the original SESAR consortium, with the goal of promoting global interoperability. Similarly, Airbus, Thales and Virgin Atlantic are participating in JPDO working groups through the NextGen Institute in the U.S. International manufacturers' participation in the process is vital, and should continue in a fair and robust way.

The greatest impact from the technologies the aerospace industry develops is felt where it is critical to companies and countries all over the world – energy conservation and environmental stewardship.

The high price of fuel has brought urgency to a number of ongoing technological research and development projects: alternative fuels, lighter weight and more aerodynamically efficient aircraft, and enhanced operational procedures that reduce fuel consumption.

The aerospace industry has always been driven to design fuel efficient engines and aircraft – our customers demand it. It is why aircraft fuel efficiency gains have dwarfed auto efficiency the past forty years. And that's without any federal carbon emissions standards! Competition in a free market has a way of doing that. Fortunately for our industry, air traffic systems like NextGen and SESAR will bring even more efficiency to our customers, and do so while benefiting the planet with much fewer harmful emissions. NextGen and SESAR developers are also in the midst of modeling to quantify environmental benefits of these new air traffic system applications. Once these are defined and quantified, it will help us prioritize our near-term NextGen investments, applications and equipment requirements.

But speaking for the U.S. industry, we have a great start already in applications that significantly reduce fuel burn and emissions.

Next year, Lockheed Martin will have full deployment of the U.S. En Route Automation Modernization, or ERAM.

Not only is this new ATC software the backbone of NextGen capabilities, it allows reduced en route separation with efficiency increases that directly reduce fuel burn and emissions.

New commercial jetliners being developed around the world will deliver significant environmental gains. Airbus, Boeing, Bombardier, Embraer and Mitsubishi are all in some stage of development of new aircraft that offer greater efficiency.

Engine manufacturers are also doing their part. GE Aviation, Pratt & Whitney and Rolls Royce are all working on new engine technology that will result in increased efficiency and few carbon emissions.

And let's look at new technology-enabled procedures that many of our countries are implementing – Required Navigation Performance, known as RNP, and Continuous Descent Approaches, or CDA. Advanced arrival trials using these operational procedures saw fuel savings of 400-800 pounds per flight. That's up to 2,400 pounds of reduced CO2 emissions.

As we know, many NextGen and SESAR activities involve cooperation among many companies. For example, the Network Enabled Operations team includes Boeing, Lockheed Martin, Raytheon, CSC and Harris. They are working with FAA, DoD and DHS to develop multi-agency network-centric capabilities that will allow for common situational awareness and rapid decision making. And within SESAR, as I mentioned earlier, manufacturers are directly involved as partners in the consortium.

It's hard to overstate the environmental benefits inherent in advanced air transportation systems like NextGen and SESAR. The environmental issue is the single biggest barrier to aviation growth worldwide. NextGen's operational efficiencies could produce 12-15 percent fewer carbon emissions, so the environmental benefits alone are worth the investment in the new systems technology.

I've mapped out the importance of manufacturers to the infrastructure. But there would be no infrastructure to speak of without the second area I

want to talk about, and that's financial investment. The substantial cost of upgrading these systems is a challenge anywhere.

But, ironically, it's a larger challenge in developed countries with existing legacy infrastructure. Rapidly developing countries like China and India will actually be able to make quantum technology leaps, virtually skipping the monumental cost of building and dismantling a sprawling existing system.

Let's once again look at this through the manufacturers' prism. Many of the companies involved in modernization technologies are at least partially developing them on their own with the expectations that they will be needed in the future. To use the ITT example once again, the deployment capital expense is being funded by the company. And, as I mentioned, the deployment phase of SESAR is to be funded by user charges.

While industry is doing its part, governments in the U.S. and Europe still need to make certain investments that are required for success. In the U.S. we estimate we need at least \$300 million per year in research and development funding.

Funding is a challenge not only in the U.S, but all over the world. All of us here today must become messengers of the importance of embracing a new paradigm of air transportation, and spread the word far and wide.

Which brings us to the final area I want to mention today – institutional involvement. As you know, manufacturers have been engaged in the efforts to modernize air transportation in the U.S, Europe and elsewhere since day one.

Every company I mentioned this afternoon was an early adopter of the concepts, as well as the challenges, that lay before them in playing an important role. One of the reasons my ICCAIA partners around the world thought it was so important to take part in this forum was to underscore this point.

But leadership is needed on a global level beyond industry to ensure the future air transportation system is seamless and interoperable. And, as you might guess, I believe that leadership capability lies here with ICAO.

Through the years, ICAO has been the torch bearer for international standardization on many issues. Its track record on safety, security, the environment and many other matters makes this body the obvious choice to lead us along a path toward global air traffic management harmony.

And what better place to start than the harmonization of NextGen and SESAR? After all, I think that's why we are all here in Montreal today.

I want to leave you today with a story about the famous Chicago Convention on international aviation in 1944. As you may remember, the British delegation led by Lord Swinton and the group from the United States didn't exactly see eye to eye on how to regulate international aviation after World War II. But they agreed to create a global body to consider the challenges that would arise, and that organization is hosting our forum today. But even with that disagreement, Swinton is famous for a quote that makes a lot of sense in the context of our discussion today – "We want the air to unite the peoples, and not to divide them." Together we can continue that legacy of unity in the air as we move forward into the future.

Thank you.

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