AIR TRAFFIC MANAGEMENT IN FOREIGN COUNTRIES

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BEFORE THE

SUBCOMMITTEE ON AVIATION

OF THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE HOUSE OF REPRESENTATIVES

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AIR TRAFFIC MANAGEMENT IN FOREIGN COUNTRIES

Wednesday, April 20, 2005

HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION ANDINFRASTRUCTURE, SUBCOMMITTEE ON AVIATION, WASHINGTON, D.C.

The Committee met, pursuant to call, at 10:00 a.m., in room 2167, Rayburn House Office Building, Hon. John L. Mica (chairman of the committee), presiding.

Mr. MICA. Good morning. I would like to call this hearing of the House Aviation Subcommittee to order.

Today's hearing will focus on air traffic management by foreign countries and look at some of the things that other countries are doing. We have two panels of witnesses. I have an opening statement and the order of business will be to recognize other members who have opening statements and then go to our two panels.

This morning the Aviation Subcommittee will review and obtain some perspectives on the governance, organizational structure, modernization efforts and system funding of commercialized international air traffic control providers. Before we get started, I want to thank our expert witnesses for being with us today. Dr. Gerald Dillingham, from the GAO, has done extensive work in looking at this issue and will be a tremendous resources for our panel today.

Also let me thank Mr. John Crichton, from NAV CANADA and Mr. Dieter Kaden, from Germany, for taking time from what I know are their busy schedules and traveling great distances to be with us. We look forward to hearing from both of these witnesses on their respective air traffic control efforts.

The questions surrounding how other countries have developed and implemented new air traffic control technologies is particularly important as we consider the current financial situation and changes to operations and management in our Federal Aviation Administration. After spending billions of dollars on an annual basis over a number of years, the FAA is now at a crossroads as it seeks new cost-effective approaches to modernize our Nation's air traffic control system.

That other countries are doing an air traffic control modernization is also important for competitive reasons. It is clear that the Europeans intend to be and certainly are fierce competitors with respect to aerospace.

I am concerned that a clear path for the United States to move forward with air traffic control modernization does not really exist yet. The exact level of funding that will be required to meet the anticipated demand for air travel still remains unknown. In fact,

much of the future now depends on the Joint Planning and Development Office that is expected to leverage Federal efforts with a view toward a 2025 time frame. The hearing before this Subcommittee last week clearly highlighted that much work remains to be done to determine exactly what the JPDO will do, what level investment will be needed and when new systems can be brought online. The hearing today is intended to gain insight into how the FAA could approach some of the challenges it faces and look at some different approaches.

I will be the first to admit that this is difficult to really compare the United States' national aerospace system with foreign systems. The United States in fact operates the largest and safest air traffic control system in the world. The United States has about 60 percent of the world's air traffic activity.

According to the FAA, and as the chart we have got up there indicates, if you combine the number of air operations in the U.S., Canada, Germany, Britain, Australia and New Zealand, the United States accounts for 92.9 percent of those operations or 159 million operations annually. Second is Canada with 2.5 percent, Germany is 1.6 percent. We will hear a little bit about what they are doing shortly.

Notwithstanding the size and complexity, there are a number of important issues to consider. First, for example, how have differences in governance and funding structure impacted technology development? Have other air service providers been successful in reducing operational costs?

So that my colleagues on the other side of the aisle, some other folks who might be concerned can sleep better tonight, let me say I do not believe we can simply adopt someone else's entirely different system. But I do believe that it is incumbent upon us in our responsibility to look for ways to bring efficiencies to the FAA, for that matter, any other Federal Government agency.

Over 30 air traffic control providers have gone to commercialized corporate structure over the past 15 years. With user fees, they faced very similar challenges like our own government-owned and operated system. As revenues fell as a result of September 11th, some of those systems have incurred debt and I am told some have had to go back to their governments for assistance. Today we will hear details about how they faced some of these similar challenges.

As I mentioned last week, we heard from the FAA and DOT on their challenges in the areas of operations, finances and modernization. In a few short weeks, we will look further into issues surrounding the financial conditions of the Aviation Trust Fund and discuss our current financing structure and see what efficiencies we can adopt.

Again, let me thank our witnesses for being with us today. I look forward to their testimony. I am pleased now to recognize our Ranking Member, Mr. Costello.

Mr. COSTELLO. Mr. Chairman, thank you. Mr. Chairman, I have a statement that I will submit for the record and would like to make brief comments concerning the hearing at this point.

Mr. MICA. Without objection, the entire statement will be made part of the record.

Mr. COSTELLO. Mr. Chairman, thank you for calling the hearing today. I want to welcome all of our witnesses, Dr. Dillingham was of course with us last week at a hearing. I am pleased to see that he is here today to talk about the GAO report and their findings. I also welcome our friends from Canada and Germany as well.

Let me say from the outset that I strongly oppose any suggestion that we should consider privatizing the air traffic control system here in the United States. Privatizing the air traffic control system here puts the user of the system in a position of setting policy and deciding how much money will be spent on the system and how the money will be spent. I do not believe that Congress should create a relationship between airline profitability and ATC spending and other decisions affecting safety.

Mr. Chairman, selling off our ATC infrastructure to a corporation that will borrow money to make the improvements necessary to sustain it is a bad idea. Some believe that only a commercialized service provider with an independent revenue stream such as a user fee will have the autonomy and access to private capital markets needed to make transformational changes within the system.

I hope as we hear our witnesses testifying here today that we will hear about the successes as well as the challenges that commercialized foreign service providers have faced. During recent airline industry downturns marked by declining traffic, some commercialized service providers experienced financial hardships that have resulted in debt, fee hikes, government funding infusion and capital cuts. I expect to hear testimony that some foreign service providers have deployed new technologies more quickly and efficiently and effectively than the FAA.

I would just want to remind everyone that these foreign countries appear to rely more heavily on commercialized equipment off of the shelf technology than the U.S. has. However, we must keep in mind that not always taking the technology off of the shelf works for the United States because of the scale and complexity of the U.S. system versus foreign systems.

In terms of operational scale and air space complexity, there is really no comparison between the United States and other systems around the world. Comparing the United States system to other systems, such as Canada and other countries, is comparing apples and oranges. In total, the U.S. represents about 60 percent of the world's air traffic activity. The FAA reports that there were over 159 million operations in 2004, 13 times the number of operations of the U.K., New Zealand, Canada, Australia, and Germany combined.

Congressman Oberstar and myself requested actually a breakdown from the FAA, an in-depth study comparing the U.S. system to foreign systems. I will submit the results of that information for the record, so that the American public can see for itself and appreciate the scale and complexity of the U.S. system versus other systems around the world.

Mr. Chairman, I agree with you in the statement that you just made that it is incumbent upon us, this Subcommittee, our full Committee and the Congress, to look for ways to improve the efficiency of the FAA. That is one of the reasons why I am pleased

that you have called this hearing today and I look forward to hearing from our witnesses and hearing their testimony.

Mr. MICA. Thank you.

Do other members have opening statement? Mr. Duncan?

Mr. DUNCAN. Mr. Chairman, I do not have a formal opening statement. I just thank you for calling this hearing and welcome the witnesses.

We have the best aviation system in the world, as all of us know. But we always need to be looking for ways to improve and do better, and if we can learn something from somebody else, that is a good thing. I am particularly interested in hearing what Mr. Dillingham has to say about the statement from the witness from Canada, who says we spend about one-half of what Transport Canada did and are generating three times the product twice as fast. Is that due to better and increased use of new technology or is that because of something better in their system? I think we can all learn from this hearing, and I thank you very much for calling it. Thank you.

Mr. MICA. Thank you. Ms. Johnson.

Ms. JOHNSON. Thank you very much, Mr. Chairman. I want to thank you and Ranking Member Costello for holding this important and timely hearing this morning, as we continue to explore various avenues to assist the FAA tackle existing and looming modernization challenges.

I feel it is important for us to take a look at international entities that have enacted successful modernization efforts. To ensure that the FAA remains the largest and safest air traffic control system in the world, we as policy makers have some tough decisions to make in order for us to ensure that modernization is realized. The U.S. lacks a clearly defined route to move forward with air traffic control modernization and time is not on our side. At FAA's annual forecast conference last month, the agency predicted that by 2015 1 billion passengers will board planes domestically each year.

Yet, cost growth and delayed systems acquisitions are handicapping the FAA's ability to enhance capacity and modernization. Finding additional and creative revenue streams also poses a major challenge. The evolution of the low-cost carrier has brought about a decline in average ticket prices. At the current pace, tax income isn't expected to keep pace with passenger traffic. By 2016, the FAA estimates that ticket prices per mile flown will have dropped nearly 40 percent from 2000 levels, further eroding potential income for the deployment of major initiatives.

So the challenges before us are real and we are going to have to take a hard look at what we can do to prevent a looming gridlock of our Nation's aviation infrastructure. As I close, I want to thank our witnesses that have come before us to testify this morning, and I look forward to that testimony, as I am particularly interested in learning more about their utilization of various user fees in expediting systems deployment and the use of new systems to reduce operating costs.

I thank you, Mr. Chairman.

Mr. MICA. Thank you.

Mr. Hayes.

Mr. HAYES. Thank you, Mr. Chairman.

I have a couple quick questions. Could we put that original chart back up? Is that easily available?

Mr. MICA. Yes, we could.

Mr. HAYES. The question, and I may have missed it, but what Mr. Costello said was kind of what I would have thought in terms of our operations. But if you, the way I read it the first time, we have less operations than England and Canada, am I reading that incorrectly? It says we have 159 million U.K. has—okay, I am sorry, you made it bigger, I can see now. You've got an extra number. That makes more sense.

Question, how do we define operations versus how do the Brits and the Aussies define operations? What's an operation as it relates to this chart? Is an operation an IFR flight plan that is filed and activated and used and closed?

Mr. MICA. If there is a difference, we can ask them, but we do not have them up yet. We can pose that question.

Mr. HAYES. You made the print bigger. That answered the first question. The other would be very helpful, because it does again point out how professional our controllers are and the amount of traffic that they do control.

Thank you, Mr. Chairman. Thank you for holding the hearing.

Mr. MICA. Thank you.

Any other comments? Ms. Norton.

Ms. NORTON. Thank you, Mr. Chairman.

I think this is an important hearing, because I do think we have a lot to learn and that in matters of this kind, particularly as we see the allied countries have moved to some commercialization, knowing about that and seeing how it might fit our own operations is a very worthwhile exercise that could lead somewhere. Indeed, on the Homeland Security Committee, where I sit, I would like to see a hearing that has business operations come in and testify before us, because I think some of them are more sophisticated about security than the Government. They have a very deep, vested interest and bottom line that has kept their eye on that matter for some time.

Of course, I would not suggest privatizing security, even though I think we have a lot to learn from them. And I do not suggest that you suggest that, Mr. Chairman. Especially post-9/11, privatizing parts of our air system would raise at least some skepticism, I think, among all of us. We know that there is no silver bullet to these cost issues.

I am interested in how commercialized operations have somehow been able to do investments, modernization investments, and we have not. I mean, I need to know exactly what it is that transforming to a commercialized operation enables a system comparable to ours to do what it does. I do think that Government agencies are always more cumbersome. Those of us who believe that there are certain services that it is necessary for Government control have a burden to make them as efficient as possible, or give them to somebody who can. I am not convinced that we have gone through the exercise with FAA.

And since we are focusing on how they save money and not on other aspects of what it took to save money, I am most interested to see how these efficiencies, how these economies have also helped

these systems to maintain the kind of security that certainly we would have to think about because of our unique position in the world. I think we have something to learn here, and perhaps a great deal than we realized. Therefore, I very much appreciate this hearing, Mr. Chairman.

Mr. MICA. I thank the gentlelady.

Are there other members who wish to comment? Mr. Poe.

Mr. POE. Thank you, Mr. Chairman, for having this Committee meeting today.

In Houston, where I live, Intercontinental Airport is a major hub for Continental. There are many concerns that we have. One of those is the fact that it appears the FAA cannot keep up with modernization. Congress appropriated money in 2003 for a new tracon facility, because ours tends to flood during hurricanes. That has yet to be built, even though the land was donated by the airport.

So I am concerned about the FAA's ability to modernize, especially with facilities like the tracon, to keep safe airways. The idea that we could have a new system, a new philosophy, is good.

I look forward to the testimony of the witnesses to see how maybe we can modernize and make our system safer, more efficient and all for the benefit of the American traveling public.

So thank you very much, gentlemen, for being here.

Mr. MICA. Thank you.

Any other opening comments?

If not, we will turn to our first witnesses. Before I do that, I just want to make a Subcommittee announcement. Actually for the whole Transportation Committee, if they are interested. At 2:30 today we will have a closed door, classified briefing from the Inspector General of DHS and also from GAO on their latest findings on the aviation security screening. I think you'll find that interesting. There's been a lot of commentary in the press lately, prior to the release of that information.

I encourage members to attend. And if you have a staffer who has the clearance, they are certainly welcome, to.

With that, we will turn to our first witness and panel, George Dillingham with GAO. He's been before us before, and we thank him for being with us and recognize him at this time.

TESTIMONY OF GERALD DILLINGHAM, Ph.D, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. DILLINGHAM. Thank you, Chairman Mica, Mr. Costello, Mr. Duncan, members of the Subcommittee.

We appreciate the opportunity to testify this morning about our ongoing work related to commercialized air navigation service providers, also known as ANSPs. Since 1987, 38 nations have commercialized their air traffic services. This generally means that the responsibility for providing air traffic services has shifted from the national government to an independent organization.

These new organizations generally operate as performance-based organizations and in accordance with traditional private sector business practices. In many cases, the countries were facing severe fiscal strains and years of under-investment in their aviation infrastructure. In some countries, air traffic services was one of a num-

ber of services, such as rail and telecom, that were moved from the national government to the private sector.

Today I am going to discuss how the countries that we selected for our study have commercialized their air traffic services, and how commercialization has affected those services. We are examining commercialization as it occurred in Australia, Canada, Germany, New Zealand, and the United Kingdom. Although our sample is not designed to allow conclusions to be drawn about ANSPs in general, we did select countries that illustrate the similarities and differences in the size, scope and governance of commercialized ANSPs.

The bars on this graphic show the relative size of the various ANSPs in terms of the number of air traffic controllers and total employees. For context, the bar on the far right represents the U.S. It shows that the United States has nearly twice as many controllers as the five ANSPs combined.

This snapshot of traffic over North America provides another bit of context. The graphic shows both U.S. and Canadian air space, with each dot indicating an aircraft. It shows that although Canada has a very large air space, the traffic is certainly more concentrated in U.S. air space. Overall, the U.S. handles at least six times more operational traffic than the next largest ANSP in the world.

With that context, I would like to discuss two dimensions of our study; specifically, some of the common characteristics of the ANSPs we reviewed and second, some initial observations that can be made about commercializing air traffic services. With regard to the common characteristics, first, flight safety was maintained as an organizational imperative for all ANSPs. And in all cases, the responsibility for regulating the safety of services remained with the government. Based on our review of the information available, the safety performance of all five of the ANSPs has remained the same or improved since commercialization.

Another characteristic is that each ANSP operates as a business rather than as a government organization, even though most are wholly or partially owned by their governments. As the graphic shows, three of our samples are government corporations, the U.K. is a public-private partnership and Canada's ANSP operates as a private, non-share company.

Furthermore, in operating as a business, each ANSP makes its own strategic operational and financial decisions without obtaining approval from the central government. Additionally, each ANSP generates and manages its own revenues through user fees to cover its costs and in some cases, to earn a profit.

Each is able to borrow funds from private markets and each has established financial and accounting systems to support its business operations. Each ANSP is largely a monopoly provider of air traffic services, but each undergoes some form of economic review or follow some guidelines for setting prices.

In terms of cost savings, each ANSP has taken steps to control its operating costs by eliminating some administrative and middle management positions or by consolidating facilities. With regard to modernization, all five ANSPs have invested in technologies and equipment which they say have improved productivity, lowered the

unit cost of delivering services and resulted in fewer and shorter delays.

With regard to pricing, in at least one case, the ANSP charges the airlines less than they were paying in ticket taxes under the prior system. On the other hand, some ANSPs have also instituted or increased fees for general aviation operators. For example, NAV CANADA charges a $72 annual fee and New Zealand charges $100 for 50 landings.

Finally, Mr. Chairman, we have several initial observations regarding ANSPs. First, having a contingency fund or other mechanism to offset a revenue shortfall can help an ANSP weather a decline in air traffic such as that which occurred after the 9/11 attacks. Second, because the ANSPs may be monopoly providers of air traffic services, economic monitoring or regulation by an independent third party can protect users and ensure a fair pricing process. Third, addressing the concerns of stakeholders, including providing some type of permanent forum for communications, is essential to initiate and sustain commercial operations.

Fourth, the inability of some airlines to pay the full cost of services to small communities and the ANSP's need to recover their costs means that special measures may be necessary to protect service to some locations. This is especially the case when aviation is the community's only form of transportation or there are safety-critical services at issue. Fifth, when a government sells its interest in a nation's air traffic control system, the system's assets have to be appropriately valued to protect taxpayer interests and create a basis for sound financial decision making.

Sixth, if functions such as safety regulation is separated from operations, it is important to ensure that the regulator can retain and attract sufficient personnel with the skills and expertise needed to provide uninterrupted safety oversight. And finally, Mr. Chairman, developing baseline safety costs and efficiency measures prior to commercialization will allow robust comparison of ATC services before and after commercialization.

Thank you, Mr. Chairman.

Mr. MICA. Thank you. We will have a few questions then we will go to other two witnesses.

In your examination of these other operations that are privatized, there certainly is a dramatic difference in scale of operation between the United States and any, in fact, all of those. Is there anything that you pick out that we can learn or take from these other privatized activities that we might consider for adoption by FAA that would increase either safety, efficiency, management, operation?

Mr. DILLINGHAM. Mr. Chairman, as we testified before you last week, one of the points that we made is that the FAA and the ATO seems to be turning around their modernization program. In fact, the report that we made to you was quite different than what we have been saying to this Committee for the last 10 or 15 years. The chief operating officer said he thinks he needs at two years to put all the systems in place that he thinks need to be in place for a performance-based organization.

So I think from our perspective, the business processes and the changes that are underway right now are similar business proc-

esses that are in place in these other countries. And we would argue that they need to play themselves out a little bit more.

Mr. MICA. NAV CANADA was probably the most privatized operation. One of the things that struck me when I visited there and looked at their operations is that their philosophy that the regulator and the policy maker be separated from operations. With FAA, we have both policy, regulation and operations all combined.

Do you see any potential to divide up, again, policy and regulation versus operation?

Mr. DILLINGHAM. Mr. Chairman, I think a little bit of that is currently taking place at FAA, that in fact they have set up a separate office of safety, sort of an arm's length from the ATO. It is not the same as what we see in the commercial systems, where one is government and one is private. But they are beginning to put that separation in process, recognizing the potential conflict of interest of it being all in one body.

Mr. MICA. Let me defer to Mr. Costello at this point.

Mr. COSTELLO. Mr. Chairman, thank you.

Dr. Dillingham, you would agree that comparing the U.S. system to Canada and the other countries that you reviewed is comparing apples and oranges.

Mr. DILLINGHAM. In many ways it is, Mr. Costello. Size, complexity, air space, in many ways. But I think some of the concepts, the business processes, concepts that have been instituted are in fact applicable to the U.S. case.

Mr. COSTELLO. So you are saying that we can learn from these examples and systems elsewhere in the world, but you wouldn't necessarily recommend that we duplicate Canada or any other country that you examined?

Mr. DILLINGHAM. No, sir, not at this time.

Mr. COSTELLO. Okay. I am just kind of amazed at the comparison here, the number of operations that we do in the United States, the complexity of the operation. I do not know if you saw the ad in Roll Call today with the dots that appeared up on the screen a minute ago. The number of operations here in comparison to Canada, it's amazing to me. My staff tells me that the number of operations in Canada last year, for instance, we handled more operations in Cleveland than the entire country of Canada last year and in 2003.

So I just want to make certain, and I agree with you in the statement that the Chairman has made that we can learn from other systems around the world. But you know, I want to make certain that everyone understands that we are looking at systems that last year handled the traffic that we handled here in the United States in Cleveland alone. So it is a complex system.

I have a couple of other just quick questions for you if I may. You talk, and I think in your testimony today, both in your written testimony and in what you just said, how commercializing, turning the system over to a private company can achieve the benefits of modernization faster and less cost by basically purchasing technology off the shelf. If I am not mistaken, in the past we attempted to do that, the FAA did, with the STARS program.

Again, given the complexity and the size of the U.S. system, could we, in your opinion, expect to achieve success in taking off the shelf technology that is available in other countries when in the

example of STARS, it didn't work for us because of the size of the system and how complex it is? I wonder if you would comment.

Mr. DILLINGHAM. We have read and talked to some of the principals from the various other air navigation service providers. And they would argue that commercialization has been a factor in them being able to modernize more quickly and to do other things more quickly.

We haven't been able, at this point, to verify that, that in fact that it was just commercialization. I think we would argue that it's a combination of the things that are inherent in commercialization as well as the business processes that were put in place.

With specific regard to your question about off the shelf, historically the U.S. has had a difficult time simply pulling things off the shelf and assuming that they could be readily instituted into the system. They have oftentimes run into serious problems that have led to schedule delays and cost overruns, based on that assumption that they in fact could do that. You were correct, and one of the reasons that you stated, that the system is so complex that many times, off the shelf equipment just won't do.

Mr. COSTELLO. I wonder if you might comment about, in reviewing these systems, how they were affected by economic downturns. In other words, if we run into an economy that slows down considerably, how it has affected these systems, and is there any way to ensure that the funding is stable going through an economic downturn.

Mr. DILLINGHAM. Yes, sir. I believe that every system we looked at experienced serious cash flow problems, particularly after 9/11 and to some extent because of the SARS incidents. Most of the organizations we looked at, or at least many of them, had a fund, sort of a rainy day fund that was established to take care of economic downturns.

However, I do not think any of the organizations were projecting 15 or 25 percent decrease in traffic. As a result of that, some of the ANSPs depleted their rainy day fund. In one case, in the U.K, because the organization had been recently formed and then 9/11 happened, I think they probably experienced the most difficult downturn with regard to having revenues come in and had to be recapitalized, including having the central government come in as a partner.

Clearly, one can establish a rainy day fund for those kinds of downturns. But again, if you get a downturn such as 9/11, I do not think there's any way that one can put away enough money to cover something like that. The systems that we have been looking at, the various organizations are looking at ways to handle that downturn, either by increasing their rainy day fund or we have heard suggestions that the airlines want to maintain the rainy day fund, rather than pass it on to the ANSP.

So that is clearly one of the issues that has to be addressed. Because as you know, the aviation industry is quite cyclical without a 9/11 or a SARS.

Mr. COSTELLO. Two other questions very quickly. One, can you tell us what impact privatizing the air traffic control systems has had on small operators and smaller, remote communities in your study?

Mr. DILLINGHAM. Yes, sir. With regard to small operators, I think it was generally the case that small operators pay the aviation fuel tax, and that was the extent of what they were expected to pay in the prior systems. However, in the new systems, there have been some flat fees established, taking into account the amount of activities that GA requires of the air traffic controllers. They found various and sundry ways of trying to make that an easy transition for small carriers or small operators.

And in some of the cases, by legislation the air navigation service provider is required to provide services in some remote areas, in those areas where aviation is the predominant or only mode of transportation, similar to the U.S.-Alaska situation, for example.

Mr. COSTELLO. Finally, I wonder if you would discuss a little bit, you mention in your testimony the concept of location-specific pricing and network pricing. Can you elaborate on that a little bit?

Mr. DILLINGHAM. Mr. Costello, that is something that we are looking it. They are two different kinds of ways that fees are determined, either to a specific airport or based on the network. So it's just two different ways in which fees can in fact be determined to be charged.

Mr. COSTELLO. Mr. Chairman, thank you.

Mr. MICA. Thank you. Mr. Duncan.

Mr. DUNCAN. Thank you, Mr. Chairman.

Dr. Dillingham, you heard me mention this comment by our Canadian witness, that we spend about one half of what Transport Canada did and they are generating three times the product twice as fast. Are those dramatic improvements just, were they primarily because Transport Canada was just doing an extremely bad job, or is there something in their system or their methodology that has led to those types of improvements?

Mr. DILLINGHAM. I think Mr. Crichton probably can give a better answer. But I will tell you what we learned, that it was a combination of the things you mentioned, Mr. Duncan, that prior to NAV CANADA coming on board, the business processes were not what they needed to be, as well as in terms of human capital issues. NAV CANADA was able to reduce its middle management and administrative staff, which saved some money. They also put in place a process of bringing ATC equipment into the system in a quicker fashion. They basically went with what does the customer need and what can we deliver under those circumstances.

So it was a combination of things that contributed to the changes that NAV CANADA is reporting.

Mr. DUNCAN. In our briefing memo, we have been given a chart showing that NAV CANADA, with 5,400 employees, handled 6 million movements. That is a little over 1,000 movements per employee. Australia it says with 2,900 employees, handled 2,723,828 movements. That is a little less than 1,000 movements per employee.

Now, we saw the chart there that said we have 159 million movements in the U.S. What is the comparable figure there? I've been trying to find out. What is our number of employees dedicated to this in the U.S. at this time, do you know?

Mr. DILLINGHAM. We have approximately 15,000 air traffic controllers and the total air traffic organization is about 35,000 to 38,000 people.

Mr. DUNCAN. So the comparable figure then, does anybody know, is this chart, is this just employees handling the air traffic control or is this all employees? Do we know? Just the controllers.

So about how many movements per year is the average air traffic controller handling in this country, do you know?

Mr. DILLINGHAM. I am not sure about what the average controller handles. That would be something I would have to get back to you on, Mr. Duncan.

Mr. DUNCAN. All right. And then, when these countries have gone to these new systems, what have they done in regard to their employees? Have they given some type of protection to the current employees? And then also, what's happened to salaries? Have the salaries gone up as fast as they did before or less fast, or have they gone down? I am interested in the employee situation.

Mr. DILLINGHAM. As far as the salary situation is concerned, if you will keep in mind that several years prior to commercialization, a lot of aviation related funding was frozen, including in some cases salaries for controllers and for others who were working in the air transportation areas. So that when these new companies came in, clearly they were able to raise the salaries and, based on the information that we were able to obtain, the employees are now saying that they are making more now than they would have been making under the old, federalized kind of system.

With regard to protecting employees, I am not entirely clear as to how each of them protected employees as such. But what I can tell you is that for those organizations that have reduced the number of employees, they have been middle management, administrative people, and from my knowledge, there has been little or no movement in terms of reducing the number of air traffic controllers.

Mr. DUNCAN. One last question. Are we making improvements, have we been making improvements over the last few years similar to or comparable to some of these other countries? In other words, we have been buying new technology right and left. I assume and hope that we are doing more with less now, or we are doing more per employee? I guess it goes a little bit back to, partially back to that question I asked a while ago. Do you know?

Mr. DILLINGHAM. That is a tough question. I think some of the technologies that have been introduced in some of the countries are in some ways, people would consider them ahead of ours in terms of bringing greater efficiency. But in other cases, some of the technologies that are being introduced are technologies that we already have and are trying to move to the next generation. So it's sort of a mixed bag, Mr. Duncan.

Mr. DUNCAN. All right, my time is up. Thank you very much.

Mr. MICA. Ms. Johnson, I think you're next.

Ms. JOHNSON. Thank you, Mr. Chairman.

Mr. Dillingham, you state that in places where government has sold its interest for commercialization, assets have to be appropriately valued to protect the taxpayer. Have we found that there

are enough skilled people attracted to the jobs after commercialization or privatization in any country?

Mr. DILLINGHAM. I think what we were referring to in our statement was an instance where a central government sold the assets of the air traffic control system to the new organization and in the process of that sale, our counterpart in that country indicated that they thought the valuation was significantly lower than the price that they received. So we made that point. It is important that in fact one gets an adequate evaluation.

The other part of your question refers to, in one of the countries that we studied, when the national government gave up the air traffic control, they sent most of the people that were federal employees over to the corporation. The problem that we saw was that some of the safety people who were previously into the federal system were now over in the new organization. Therefore, the federal government, which was still charged with safety regulation, did not have enough skilled people to carry out their prescribed safety inspections.

Ms. JOHNSON. Thank you. Another question. Did you find a change in service areas where the smaller airports left in or out of a system or were they just the large revenue points?

Mr. DILLINGHAM. The smaller airports were kept in the system oftentimes by legislative means. They were told that services will be in fact provided to these areas.

Ms. JOHNSON. Thank you. Thank you, Mr. Chairman.

Mr. MICA. Thank you. Mr. Hayes?

Mr. HAYES. Thank you, Mr. Chairman.

Dr. Dillingham, a couple of quick questions. I noticed kind of buried in your figures were a reference to other countries who supposedly had lowered their overall costs for the air carriers by charging general aviation a fee. Of course, I would question that. Do you have any thoughts what the present thinking at the agency is about charging additional fees to general aviation?

Mr. DILLINGHAM. Do you mean the FAA?

Mr. HAYES. A user fee, yes.

Mr. DILLINGHAM. Well, I want to start back from the piece in our testimony. I think the piece in our testimony says that one result of commercialization is that fees have been lowered. Now, I am not sure if we took the next step to say that they were able to lower those fees because they began to charge GA. Because our understanding is that for the most part, GA is a relatively small part of most of the other aviation systems besides the United States. We are of course a major player in the GA community.

I do not have any information with regard to FAA's thinking about charging user fees either to large commercials or GA airplanes.

Mr. HAYES. Thank you, sir. That was a very good answer. There's kind of a movement underway by some of the airlines to charge fees to general aviation. Of course, general aviation percentage of usage is far, far lower and what you said is correct, that it's not going to affect them at all. As soon as the airlines are prepared to pay property tax for general aviation, then maybe we can carry that discussion on.

One of the interesting things that comes out of this discussion this morning is the complexity of our system compared to the other systems, whether it be the amount of space in Canada, it just clearly to me at least points out the wisdom in continuing to take the system that we have, not privatize it, provide the personnel and the equipment to provide the service that we provide, which is excellent.

And one last point, Mr. Chairman, and I will yield back my time, as we increase through technology the ability of less number of folks to do more, that same increase in technology, we need to be aware of, also creates a larger workload for our controllers. Because as you look at RVSM, for instance, which technologically gives us the ability to move and separate traffic, but with closer tolerances, that raises the pressure and the stakes and the workload for the controllers. So technology does help us, but it also increase the need to have that professional work force.

Thank you, Mr. Chairman. I yield back.

Mr. MICA. Thank you. Ms. Norton?

Ms. NORTON. Thank you, Mr. Chairman.

Mr. Dillingham, I appreciate the background that you provided when you indicated that we had twice as many air controllers and hugely more traffic. The Ranking Member has indicated in one of his cities alone, they had more traffic than for example in Canada. And I note that in answer to I believe a question by a member before me, you indicated that there was no reduction in air traffic controllers. So whatever we are talking about, the number of controllers is not likely to be reduced no matter what we do, given what you have found if these efficiencies were not made by reducing air traffic controllers.

I must say to Ms. Johnson, you indicated that small communities were told, you will provide services to small communities, but my quick read of your GAO report indicated one, that there had been consolidation of facilities and two, that there had been subsidy of small communities. I do not think you can tell a private business, hey, you are going to provide services to this part of the country, which of course will lose you money. If you're going to do that, somebody is going to have to make up for that.

Do you agree that you couldn't command a business to provide service where the service is losing money and that somebody would have to pick it up and that what you found was consolidation helped to reduce that need, and if that there was anybody who stepped in it probably was the government itself to enable small communities to continue the service they received before?

Mr. DILLINGHAM. Yes, ma'am, that is true. In fact, as I said, the legislation that created some of these corporations or commercial exercises actually told them that they had to provide the service. In the United States, I am not so sure how this would all work out. Because we also have the notion that we have a national system and it's part of our national infrastructure and should have as much access as possible for all the population. So it would be, again, an issue that would have to be dealt with in terms of thinking about commercialization.

Ms. NORTON. I need to know how the government, you tell us and your report tells us that they sold their operation, the govern-

ments sold their operations or they are owned or partially owned. You owned that the government doesn't have to approve what these "private" corporations do. Now, the government, is there a board where the government has membership on the board? How does the government maintain its legitimate interests in its own traffic control system?

Mr. DILLINGHAM. For the most part, it's a hands-off for the government. The government still maintains the safety oversight part of air traffic control. But for the most part, it's hands-off for the government.

Ms. NORTON. What does that mean, partially owned by the government, then?

Mr. DILLINGHAM. It means that the government may be a share owner of the corporation as such.

Ms. NORTON. How much of a share? I am trying to understand, whether the government is just like every other shareholder with a few shares here, or whether the government is a major shareholder. Could you give me some examples of what interests, financial interests the government has here that would of course allow it to exercise a fair amount of control in that way?

Mr. DILLINGHAM. I think the most prominent example is in the U.K., where the U.K. government still owns about 49 percent of the air traffic control system.

Ms. NORTON. I just think that is very important. You can say that is hands-off if you want to, but in the commercial world, if you've got 49 percent of the ownership, you can have perhaps more to say than anybody else about what that corporation does. Very important piece of information.

You say on page two of the GAO report something that really caught my eye. I am reading, "Comparisons of performance of before and after commercialization are generally not feasible because data for assessing performance are typically unavailable for the time before commercialization," etc. You say furthermore, "Comparisons between or among ANSPs are difficult because each ANSP may define its measures of cost, safety and performance differently. We did not verify the data gathered and reported by the five ANSPs. However, their financial information is subject to independent audit."

Hey, sounds like to me that there's no basis, there's no before and after here, not because of anything you're responsible for but because the data, the information to know whether improvements in performance or declines in performance have taken place is simply unavailable. Certainly it would be difficult to make a judgment, given what your report says it eh absence of any measures to make a judgment about. That gives me some concern. I wonder if it gave you any concern as you looked at trying to assess these various systems?

Mr. DILLINGHAM. Yes, Ms. Norton. That is one of the things that we pointed out as a need. If anyone is thinking about moving from a government based operation to a private sector operation in order to know from before and after, you need to have those baseline measures. The situation that we walked into was that in many cases, the before data was not available. So we were left with, okay, let's talk about what has happened since commercialization.

And that is sort of what we were left with. So we agree with you that information is definitely necessary if you want to make those kind of before and after comparisons.

And in some cases, like Australia and New Zealand and to some extent NAV CANADA, they have been doing this for about 10 years now. So we do have sort of that kind of longitudinal data, but nothing that goes before they were privatized or commercialized.

Ms. NORTON. Thank you very much. Finally, I note that you indicate, of course, that there was financial information. Of course, we always have that kind of information and it's important information. And of course, looking at financial information alone, you can always say that something saves you some money.

But if you're talking about an operation that is as vital to the security of the country as your air operations, saving money is one in a very long list of factors that you would have to consider, particularly if you did not know that saving money might have had something to do with poor performance, would you not agree?

Mr. DILLINGHAM. Yes, ma'am.

Ms. NORTON. Finally, let me ask you, with the savings that were found that allowed better investments in modernization, which is of course most intriguing to us, because that also has a lot to do with security, can you tell us where the bulk of the savings occurred? How were the savings for the most part made? It doesn't seem to me you pluck out a few middle managers and all of a sudden you get a cheaper system. One, do you regard the savings as substantial? And two, would you give me the one or perhaps two or three factors that are the cause of what savings you found?

Mr. DILLINGHAM. Well, I will not try to speak for the people who are coming up after me. But our information is that indeed, it was a combination of consolidation of facilities, staff reductions and greater efficiency in passing traffic through the system. All of those things taken together were the contributing factors for cost savings.

Ms. NORTON. Of course, the greater efficiency in passing traffic through the system is hard to evaluate here, given what you say on page two about performance before and after. It just seems to me, Mr. Dillingham, doing the best you could, there's a lot of guesswork involved here, because the absence of data which you honestly report on performance, if we could somehow break into the cause of these savings, for example, and again, you tell me the controllers, have the same number of controllers, that is labor-intensive. We know that there is some savings from consolidation. That can happen here, maybe should happen here. But you know, there are a lot of members of this Committee that you would have to drag kicking and screaming, but nevertheless.

And we know that probably there was some subsidy when there were operations pulled out of small communities. So of course, that wouldn't figure into savings. As I hear you, we would somehow have to penetrate what the word efficiencies meant. That is very difficult to do, given the absence of performance data, even though I think your report is very informative. It would appear that that is where the bulk of the savings lie, and perhaps looking at these systems over time will allow us, as you say, given the longitudinal number of data, to come to some notions of how so radical a change

could be made. Obviously in the smaller systems that are not as subject to attack as ours, it may have made a great deal of sense.

What most intrigues me about your report is that without moving to privatization, I would like to at least adopt whatever efficiencies you have found in those systems that might be transferable to ours notwithstanding privatization.

Thank you very much, Mr. Chairman.

Mr. MICA. I thank the gentlelady.

Do other members have questions? Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman. I apologize for being late. I had a number of constituents in.

It is good to see you again, Dr. Dillingham, and discuss this important topic. I have a couple of concerns here, and I understand some of this has been discussed previously in terms of relative efficiency movement, size of system, those sorts of things. I concede at the beginning there's only one part of the Federal Government worse at acquisition than the Pentagon, and that is the FAA. That seems to me to be an area where we should be focusing all our major efforts at cost savings and reform when you look at the promises and the potential cost of the air traffic control system modernized, and where we are today. That is the greatest failing. I do not find the failing with the personnel, the controllers and the others who are putting up with the obsolete technology and trying to do their job and doing it more efficiently with, in many cases, a patchwork of technology.

A couple of questions. I am sure you've met Ms. Dunwoody, have you not? She's an MP from Britain, have you ever had the opportunity to meet her?

Mr. DILLINGHAM. I haven't had the opportunity.

Mr. DEFAZIO. Well, she's delightful. She chairs the Transportation Committee of Parliament. I have had the opportunity to spend some time with her. She thinks that their privatization has not been wonderfully successful. She points to a couple of things. She points to the fact that since it is traffic-dependent that it had to be bailed out after 9/11 when traffic dropped off rather dramatically. There had to be another injection of public funds into the system.

She raises concerns that profit motive could degrade safety and I would like you to comment on that. Efficiency targets and overstressing staff can also possibly jeopardize safety. And you know, they have really exposed, as she says, their system much more to the cycles of the market in terms of the industry because of the way it raises revenues. Could you comment on those things?

Mr. DILLINGHAM. Yes, sir. Without a doubt, the U.K. had to get an infusion of capital after 9/11. And again, I am not sure that that was any different than any other air navigation service provider, that those that didn't have

Mr. DEFAZIO. Well, excuse me, just one thing, though. We didn't have to increase our support of our system, we just maintained it as it was.

Mr. DILLINGHAM. Absolutely, Mr. DeFazio.

Mr. DEFAZIO. You said any other system.

Mr. DILLINGHAM. Any of the five that we looked at basically had problems with having enough funds to cover that situation of the

deep drop-off and the cyclical nature of traffic. One of the enduring issues that comes up when people talk about commercialization is sacrificing safety for profit. And from our work, what we have seen is that that is recognized by those countries that haven't commercialized their air traffic services and have maintained the safety function with the federal government. So that notion is at least addressed, not totally, but it's clearly addressed.

Mr. DEFAZIO. So do you, in quantifying the productivity or total costs, do you attribute the cost of the safety function back onto that and say, well, since previously they were integrated now they are separated, and the public is totally supporting that, do you add in the cost of that when you are figuring productivity and cost of the system?

Mr. DILLINGHAM. We have not done it that way.

With regard to staff, that is also a concern that we were able to get some information about. And in fact, the issue of controller fatigue and under-staffing are issues that are addressed in the various countries to prevent that from reoccurring. It did in fact occur early on, there were some problems in some of the countries, but that has been codified, and it shouldn't happen any more. If it does, it has to be reported to the central safety authority.

Mr. DEFAZIO. So the safety authority or some agency of those governments has set like work duty time requirements or things like that that are strictly enforced?

Mr. DILLINGHAM. Yes, sir. And if those things are breached, a report is made to that authority.

Mr. DEFAZIO. Okay. And then what about the exposure to market cycles? Given the fact we are about to see the collapse of a number of major airlines, well, they've already collapsed into bankruptcy, but perhaps whether they will continue or not, major changes that are pending in the industry, the industry saying it's paying too much now, how would that all work out?

Mr. DILLINGHAM. Well, as you know, Mr. DeFazio, when there are fat times in the aviation industry, nobody has a problem paying whatever the cost happens to be. But we are also into this cyclical kind of business, as well as those extraordinary events that happened over the last three or four years that took a hit on all of these ANSPs. I do not think there is any way that one could have taken enough money out of the system to sort of carry you through at that point in time.

So that is clearly one of the issues that has to be addressed. From our knowledge, most of the systems that we are looking at are trying to find a way to cover those cyclical downturns in some form or fashion. It is truly an unresolved issue. No one thought about it when these things were first formed, because you can handle 5, 6, 8 percent perhaps. But when you get 20, 25 percent drop, it's a different world.

Mr. DEFAZIO. Okay. Great. Thank you very much. My time has expired. Thank you.

Mr. MICA. Thank you. Any other questions for Mr. Dillingham?

Just a couple of quick questions. Did you do a comparison of cost per operation? Of course, the United States had many more operations, but you have an overall cost of the system versus these other costs per operation.

Mr. DILLINGHAM. No, sir, we did not do any unit cost pricing comparisons. We didn't do any comparisons, actually, between the United States and these others, or even among

Mr. MICA. Can you do that? Can you look at that?

Mr. DILLINGHAM. We can provide that information to you.

Mr. MICA. That would be interesting.

[The information follows:]

Supplemental Material for the Record from Gerald Dillingham, U.S. GAO
House Aviation Subcommittee on Transportation and Infrastructure
Hearing Transcript from April 20, 2005

Several studies have attempted to illustrate and compare system costs for individual ANSPs. In February 2005, the U.S. Federal Aviation Administration sponsored a pilot study to identify and analyze factors affecting the productivity and cost-effectiveness of terminal air traffic control facilities and developing a standard benchmarking framework for the terminal environment. The study used 2002 data to analyze pairs of U.S. and non-U.S. tower and approach control facilities at similarly sized airports. Overall, the U.S. facilities were found to be more productive as measured by annual movements per controller (4,664 vs. 4, 146) but less cost-effective as measured by total cost per movement ($36 vs. $27). Each of the performance indicators break down as follows:

Facility	**Annual Movements per Controller**	**Total Employment Cost per Movement**
New Orleans	4,368	$34
Dublin	6,496	$26
Washington Dulles	4,985	$36
Toronto	5,025	$20
Tampa	4,460	$39
Sydney	3,083	$33
Philadelphia	5,705	$31
Frankfurt	4,845	$31
Portland	4,478	$33
Copenhagen	3,255	$30
San Diego	3,360	$50
Auckland	3,247	$19

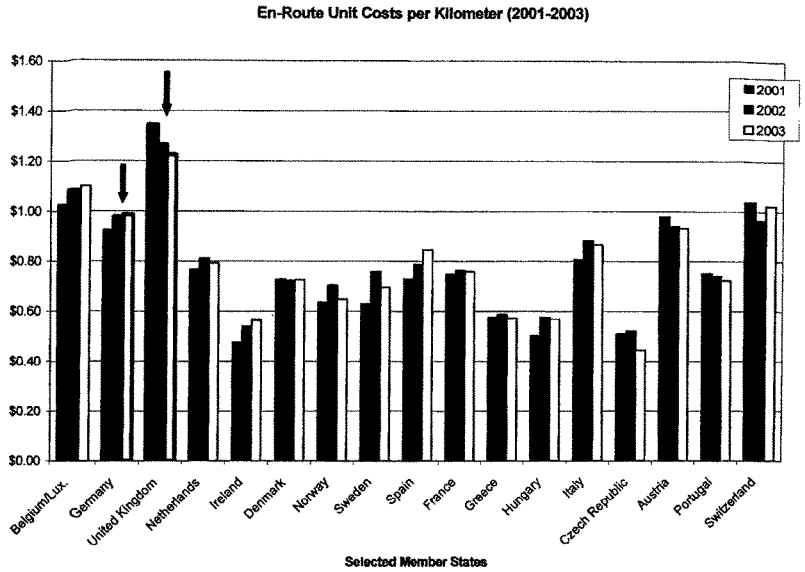
Similarly, in April 2005, EUROCONTROL's Performance Review Commission published its latest annual report assessing the performance of European ANSPs in terms of a number of key indicators including traffic, delays, safety, cost-effectiveness, and flight efficiency. The report includes information from all 34 European Commission member states.

The Commission used en-route unit cost per kilometer as the key performance indicator to measure en-route cost effective performance for individual member states.[1] The Commission calculated the en-route cost-effectiveness key performance indicator (KPI) by dividing the total real en-route costs by the number of kilometers charged. However, these figures also include costs for services such as meteorological services and EUROCONTROL charges which are not part of the core ANSP costs for air traffic service provision.

Significant differences exist among each of the member states for 2003 costs (the latest year for which data was available). The European average cost per km was $0.81, and costs ranged from $1.23 in the United Kingdom to $0.44 in the Czech Republic. En-route unit costs increased in 18 out of 29 States between 2001 and 2003 (although the EU average was unchanged between 2002 and 2003). The report points out that these variations are mostly due to the en-route costs increasing faster than traffic. Over the same period (2001-2003), unit costs have decreased in the UK and risen slightly in Germany.

The Commission notes that not all ANSPs/member states operate under the same conditions (e.g. cost of living) and/or operational complexity. Lower unit costs on the right hand side of the figure might be a reflection of lower cost of living and/or lower operational complexity rather than the result of best practice management.

[1] This metric is used here as it is the most relevant from an airspace user viewpoint. The Commission notes that distance data are readily available from EUROCONTROL's Central Route Charges Office.



[2] Source: EUROCONTROL

[2] All figures are in 2003 U.S. dollars.

Mr. MICA. The other thing, were any of the controller benefits reduced after this privatization? Did you see any of the benefits?

Mr. DILLINGHAM. I do not have any knowledge of that, Chairman Mica. When we talked to the controllers, in all the places that we talked to, they basically were in favor of this commercialization, and in part, they were in favor of it because of the wage freeze and other under-investment that had taken place.

Subsequent to that, there is a little angst out there from some of the controllers, about their work conditions and the like. But we didn't hear any salary issues.

Mr. MICA. You put a chart up that showed the number of controllers to the number of personnel and FAA versus the other entities. We had many more people actually doing air traffic control work than we had total. The percentage was very, very low in the United States compared to the others, is that correct?

Mr. DILLINGHAM. Yes, sir.

Mr. MICA. Okay. I noticed when I visited NAV CANADA, the working conditions for the Canadian air traffic controllers were a thousand times better than what I saw when I visit the air traffic controllers—did you visit any of the NAV CANADA facilities? Are they all privatized?

Mr. DILLINGHAM. Yes, sir.

Mr. MICA. Did you see the same thing, or was that just an aberration? May they just showed me the nice stuff.

Mr. DILLINGHAM. I do not know, that could be the case, Mr. Mica.

Mr. MICA. I saw an exercise room, large screen TV place, coffee bar, nice facilities. It is a pretty stressful job, but what they showed me was more attuned to what the private sector offers as amenities to workers as opposed to the, any time you walk into a government building, including down the hallway here, I get a little bit repulsed by what I see.

Mr. DILLINGHAM. I have been in many U.S. air traffic control facilities, and I have not seen any that fit the description that you just gave of the NAV CANADA facility that they showed you. And I would assume that not much of that exists, since in the last hearing that you had, you heard the story about the need for X billions of dollars for facility modernization.

Mr. MICA. I was just stunned at the conditions for their air traffic controllers under the private system.

Mr. DEFAZIO. Mr. Chairman, just for a second?

Mr. MICA. Did you go with me? I can't remember.

Mr. DEFAZIO. Not on that trip, Mr. Chairman. But I suggest maybe we could just not privatize the whole system, but we could buy private health club memberships for our air traffic controllers.

Mr. MICA. That sounds like a suggestion that would come from your side of the aisle. I appreciate that.

[Laughter.]

Mr. MICA. Redundancy of systems. Our system has many multipliers of additional traffic. Was there less emphasis on redundancy of systems that you observed in any of the other privatized or semi-privatized operation?

Mr. DILLINGHAM. We didn't get into the details of the amount of redundancy. But just knowing how air traffic control works and has to work and the required safety elements, I would be totally

surprised if there was not redundancy in both the foreign air navigation service providers and clearly, with our system.

Mr. MICA. Any others? Mr. Costello, any last questions?

Mr. COSTELLO. Dr. Dillingham, in looking at the system in Canada, you mentioned a few minutes ago that there is a lack of involvement with the government with the air traffic control system. I wonder if the lack of involvement or the leadership on the part of the government, did you detect any problems in the system? In other words, do you think that there should be more involvement by the government or not?

Mr. DILLINGHAM. I think that Canada has chosen to set itself up in the way that this corporation is set up. So I am not sure that we can comment on that.

In terms of the people that we talked to while we were there, there is a certain amount of angst that we hear from the major carrier in Canada with regard to how things are being run at this point in time. But it was not the overwhelming message that we got from the stakeholders in Canada.

Mr. COSTELLO. Let me give you a quote from a speech on Monday of this week that appeared in Commercial Aviation Today for April 19th, 2005. It quoted the CEO of Air Canada, Robert Milton. This is what he said to a group of Montreal business leaders, part of his speech. He said, "The damage inflicted by the lack of government leadership in the airline industry over the past few years will be felt for many years to come." There are a number of other things

Mr. MICA. Could I interrupt and add—he also said an abysmal lack of governance over air traffic control in airports. Are you aware of this and is it true?

Mr. COSTELLO. That is a part of it. But you have to look at the article. It says—I could read it if you'd like me to.

Mr. MICA. No, no. I wanted to make sure the rottenest, meanest part got in there.

Mr. COSTELLO. Well, it says, the damage inflicted by the lack of government leadership. I think it's a serious comment and that is why I asked the question. I mean, would you agree, he is saying here that the government should be more involved in the air traffic control system than what it is, and that the damage inflicted by the lack of government involvement will be felt. He also goes on to say, and Chairman Mica referred to it, he also goes on to say in the speech that to make matters worse, there is an abysmal lack of governance over air traffic control and airports. I could go on and on.

Yesterday he said in this speech, on Monday, that the fees in Canada are among the highest in the world. So I would just one, ask unanimous consent to enter this statement into the record and two, to ask you at some point, Dr. Dillingham, to look at this article and statement and get back with us with your response.

Mr. DILLINGHAM. Yes, sir.

[The information follows:]

Supplemental Materials for the Record From Gerald Dillingham, U.S. GAO

House Aviation Subcommittee, Committee on Transportation and Infrastructure

Hearing Transcript from April 20, 2005

Mr. Costello, I am familiar with the article in question. It appeared in the publication Commercial Aviation Today. It was entitled Air Canada Chief: Canada a Leader in High Fees and Taxes. On its face, the article seems to indict both the airport fees that are charged by airports as well as the navigational fees charged by NAVCANADA. The issue of airport fees was beyond the scope of our work. Our work focused only on the provision of navigational services. However, we did follow up since navigational fees were mentioned in the article. We determined that the primary focus of Air Canada's CEO concerns were airport fees. In the course of our study, we did interview officials from Air Canada. They were concerned about the navigational fees. Their concerns were not about the amount of the fees but that fees had been raised by NAVCANADA at a time when the airlines could least afford it. Specifically, fees were raised as a result of the downturn in traffic that resulted from 9/11, SARS, and other factors. NAVCANADA's implementing legislation requires that it recover the cost of providing its services. Our research showed that over time, the total fees paid by air carriers in Canada were less than what they would have paid if the navigational services were still being provided by the federal government. Additionally, we followed up with NAVCANADA to get their response to the article. Their response and the evidence they provided to support their position was consistent with what we determined to be the case.

Mr. MICA. Without objection, that statement will be included in the record. Maybe we could also get our NAV CANADA folks to respond.

Thank you so much for your work and for being with us. We will probably see you again soon.

Mr. DILLINGHAM. Next week.

Mr. MICA. Thank you.

Okay, we have got our second panel here, Mr. John Crichton, President and Chief Executive Officer of NAV CANADA; and Mr. Dieter Kaden, Chief Executive Officer and Chairman of the Board of Managing Directors of DFS Deutsche Flugsicherung GmbH, German Air Navigation Services.

So Mr. Kaden and Mr. Crichton, welcome. Mr. Crichton, we will hear from you first. President and Chief Executive Officer of NAV CANADA. We have stirred it up a bit, and we are anxious to hear your testimony.

TESTIMONY OF JOHN W. CRICHTON, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NAV CANADA; AND DIETER KADEN, CHIEF EXECUTIVE OFFICER AND CHAIRMAN OF THE BOARD OF MANAGING DIRECTORS, DFS DEUTSCHE FLUGSICHERUNG GMBH (GERMAN AIR NAVIGATION SERVICES)

Mr. CRICHTON. Chairman Mica, Ranking Member Costello, other members of this very distinguished Committee, on behalf of NAV CANADA's 5,400 employees, I am very pleased to accept the invitation to testify here today.

Our dedicated employees are justifiably proud of what NAV CANADA has accomplished since the company began operating the Canadian air navigation system in November 1996. On their behalf, I appreciate the chance today to describe the background of NAV CANADA, our structure and our continuing successes improving safety, lowering fees and accelerating air traffic modernization.

At the outset, let me emphasize that we have an excellent working relationship with the FAA. We work seamlessly with the FAA on a daily basis, safely and efficiently exchanging the highest volume of transborder traffic in the world. It is a partnership that works very well. No day was the strength of our cooperative relationship illustrated more clearly than on September 11th, 2001. Working with the FAA and NORAD, we safely cleared Canadian skies of more than 1,500 aircraft, including hundreds of jumbo jets inbound into the U.S. from Europe and Asia.

Our employees are deeply grateful for the appreciation expressed by both President Bush and Secretary Mineta in recent speeches. We are very pleased that we were able to stand by the U.S. on that fateful day.

Attached to my testimony, Mr. Chairman, are a number of slides that elaborate on several key points. First, NAV CANADA is a private corporation that operates on a not-for-profit basis. Transport Canada, which prior to November 1996 owned and operated Canada's air navigation system, now functions solely as our arm's length, independent safety regulator. The Canadian government designates three directors to serve on our 15 member board. The Federal Government, however, does not fund NAV CANADA, nor

does it guarantee our debt or function as a financial backstop. We are financially self-sufficient in all respects.

NAV CANADA is organized as a non-share capital corporation. We have no equity and, accordingly, no need or pressure to generate financial returns for shareholders. Instead, our four "members"—commercial carriers, the Canadian Government, our unions and general aviation—participate in the governance of the company by appointing directors in varying numbers. We rely on debt financing in the public markets, which is less expensive than equity funding.

In 1998, the Canadian Government repealed the Air Transportation Tax that previously funded air navigation services provided by Transport Canada. In its place, we phased in a service-based fee system developed in consultation with customers and approved by the stakeholder board of directors. Those fees are designed to recover our costs. For commercial carriers, who provide the vast majority of our fee revenue, we use a weight and distance formula based on ICAO principles, which is essentially the value of service principle, to recover all of our costs.

Safety has improved on NAV CANADA's watch. As measured by actual losses of separation, safety is better today than when air navigation services were provided by Transport Canada. Among the key contributing factors are rigorous safety oversight by Transport Canada, which now functions as a independent arm's length safety regulator; internal safety initiatives we implemented that did not exist previously and the deployment of safety enhancing modern technologies.

Fees have declined. Today, commercial customers pay around 20 percent less than they would have under the old Air Transportation Tax. Prior to September 11th, 2001, fee savings were even greater than they are today. However, in the wake of September 11th and other air traffic depressing events, such as SARS, we were forced to raise fees since cost mitigation efforts alone were not sufficient to offset lower movement-based fee revenue.

However, with the return of traffic growth, we anticipate that we can return to our strategy of managing costs to be less than traffic growth so that our customer charges will decline over the long term as they were doing prior to 9/11.

Modernization has accelerated and NAV CANADA has gained recognition as a world-class developer and vendor of leading edge ATC systems. We have fully implemented numerous modernized systems that enhance safety, increase system capacity and improve efficiency. There are other, new modernized systems in the pipeline. We have made such progress in modernization that we are now selling our systems to leading air navigation service providers, such as the U.K.'s National Air Traffic Services, which purchased both our oceanic and automated tower/terminal systems.

NAV CANADA has also dramatically streamlined its capital spending and system development processes. We spend about one-half of Transport Canada did and are generating three times the product twice as fast.

Mr. Chairman, I will just make one comment based on the previous discussion. There was quite a lot of discussion about traffic volumes and I will have to talk to Gerald afterwards in terms of

where he got the figures. But the figures that we work with, and we do this in conjunction with our counterparts at the FAA, the actual movement comparisons between the U.S. and Canada is somewhere between 45 and 50 million in the U.S. and 6.5 million in Canada. Where these other figures came from, I am not sure. But certainly somebody should rationalize that for you. I just wanted to point that out.

But I will conclude my remarks, again, Mr. Chairman, by thanking you and other members of the Committee, and I will be pleased to answer your questions.

Mr. MICA. Thank you, and we will hear from Mr. Kaden with the German Air Navigation Services. Welcome, sir, and you are recognized.

Mr. KADEN. Thank you very much, Chairman Mica and Ranking Democratic Member Costello, members of the Subcommittee. First of all, I would like to thank you very much for your kind invitation and for the opportunity to once again, after 10 years, give you an overview on DFS, the German air navigation services organization. At this time, I will also elaborate on the planned privatization of the German organization as well.

Let me have a short look back. While airlines and major airports were operating according to private sector principles, the German air navigation services organization was structured as a federal authority, like the FAA, for 40 years after 1992. Due to this bureaucratic structure, the air navigation services in Germany lacked the required flexibility and increasingly proved to be a bottleneck within the air transport system.

Believe it or not, ATC projects continuously experienced problems in terms of cost, schedules and performance and the organization was thus unable to deliver value for money. An organizational culture to encourage collaboration with customers was not in place. For these reasons, politicians, the ATC associations, as well as all our users, strongly advocated the corporatization of the federal authority as early as in the 1980s in an effort to modernize the nation's air traffic management system.

Parliament then amended the German Constitution and the Aviation Act in 1991 to corporatize the air navigation services along the lines of which we are operating today. On January 1st, 1993, DFS began to operate as a corporatized enterprise in line with private sector principles as what we call in Germany a GmbH.

What have we achieved? First, the management of air navigation services. The Ministry of Transport has the regulatory oversight as stipulated by law. The MOT is responsible for the legal and functional supervision and plays a supervisory role in all issues relating to safety, user charges, information and liability. In accordance with the Chicago Convention, the MOT is still the authority for international agreements as well as for participation in supranational and international organizations, such as ICAO.

The DFS supervisory board, based on the private law, consists of six representatives of the owner, the state, and six representatives of the employees. The chairman of the executive committee is, in the meantime, a former minister of transport and now a vice president of an international industrial consulting firm. Concerning the organizational management setup, we have set up a process struc-

tured organization with six business units, a group of corporate development centers and corporate service centers following the key principle: "structure follows strategy."

DFS is financially absolutely autonomous. It finances itself mainly by drawing on the capital market program. The program amounts to 1 billion Euro. The net financing volume after deduction of the financial investment is currently about 90 million Euro. In addition, DFS disposes back-up credit lines between 100 and 200 million Euro.

The interest rates we are paying are based on the existing rating, which up until now has been affirmed as AAA by Standard and Poors and Moody's and similar, like NAV CANADA. DFS has not received, from 1993 up until today, any Federal subsidies, since the initial restructuring. On the contrary, DFS pays the government for all ANS related costs, especially the costs of the Department in the Ministry of Transport, dealing with ANS as well as the fictitious pension costs of those civil servants who used to work for the air navigation services, as well as tax dividends and amortization of a loan. Revenue in our organization stems mainly from user charges for enroute and terminal services and of non-core business.

Concerning safety, our primary corporate objective, which is the safety of air traffic, has by no means suffered. On the contrary, it improved dramatically. In 1995, we introduced a corporate safety strategy which led to the development and implementation of our today's safety management system, which is in line with international standards and best practices. In addition, the Euro controlled safety regulation commission, which was established in 1998, adopted several safety regulatory requirements on ATM safety management to be fulfilled by the member states.

In 2004, last year our safety management system was formally audited by an external company and certified by our regulator to be fully compliant with the Euro control safety regulatory requirements.

Efficiency. Our efficiency has, from our point of view, significantly increased. Despite the rise in traffic, Europe has seen a general reduction in delays caused by air traffic flow management measures. This is thanks to capacity increases by the air navigation services organizations.

Certainly one important aspect is that since 1994, we in Germany have been able to use the scarce resource "airspace" in a more flexible and efficient way, because regional military air traffic control is entirely integrated into our corporation, which is still, from my point of view, a unique situation in the world of ANSPs. It is one organization using one sky according to the flexible use of airspace.

DFS in Germany and Europe is synonymous with punctuality. Over 96 percent of all flights controlled by DFS reach their destination without any ATC related delays. Numerous cost and efficiency control measures which have been presented to the GAO as well, along with a balanced score cord, have been implemented, which could not have been implemented at that time as a Federal agency in former times.

Concerning stakeholder issues and customers, the corporatization of the air navigation services in Germany in the early 1990s was

in line with the political mandate to become more productive. To meet our customers' requirement to perform efficient air traffic services, DFS has taken far-reaching action to reorganize the company. This has led to optimized airspace structures and enhanced operational processes.

An essential part of the reorganization was in the first step up through 1998 the integration of 17 approach control units with the 4 area control centers. The follow-up step is the consolidation of the control centers by reducing the number of these centers by two, transferring Dusseldorf to Langen in 2002 and Berlin to Bremen in 2006.

When the center consolidation concept was approved in 1996, cost savings of up to over 50 million Euro were envisaged, and in the meantime, had really been achieved. Our customers benefitted two ways. Firstly, they are able to operate their aircraft even more efficiently; and secondly, we pass on our cost savings to airspace users. One should have in mind that when the former agency was corporatized, our customer knew that we would lose government subsidies of up to 100 million Euro per year, and this would lead to an initial increase of user charges to offset the expenses.

And their support has paid off. Productivity has increased. Between 1993 and 2005, the enroute traffic increased by 175 percent, whereas the user charges only increased by 0.6. So almost flat. For the terminal area, it was in the same period, 1993 to 2005, air traffic increased by roughly 50 percent, whereas user charges were reduced by 37 percent. So it pays off.

A few words about the employees. A project such as the corporatization could only be successful with the support of motivated employees. For 40 years, German air traffic controllers had really been at the lower end of the European pay scale. Today, air traffic controllers worldwide are earning salaries which are at the top of the scale. In Germany, they are able to earn up to 25 percent more in net terms than prior to corporatization. However, not all employees in the operational services reach the top salary. For the first time in the history of the air navigation services, our collective agreements with the unions take account of the employee's work location, their performance and the workload. Salaries of employees in non-operational areas are oriented toward market conditions.

Concerning modernization, the technical modernization, as Mr. Dillingham reported, we use state of the art tools, for example, the SAP for a structured project management process. We built up an R&D unit to evaluate new technologies and simulate new systems operations. We established in-house capabilities for software development and modernized the entire ATM system and the entire CNS technical infrastructure. The whole capital expenditure program, which was realized between 1993 and 2004, amounted to up to over 1.5 billion Euro. This corresponds, ladies and gentlemen, really with the modernization of almost everything.

Concerning our organizational setup, apart from these, we modernized our entire organization as well. We developed a financial investment strategy which is based on the principle that all shareholdings or corporations have to provided an added value to DFS, and of course consequently to the shareholders and the stakeholders. This added value may be accomplished in different ways,

such as reducing costs for support processes, a defined return on investment in the form of dividend payments, investment into future markets and technologies to secure revenue in the future, just to name a few.

Following this rationale, up to the present day DFS has founded a 100 percent subsidiary to hold shares in the EGNOS, which is comparable to the GPS and the future system of Galileo, the EGNOS operational model. We furthermore founded an organization which is responsible for flight calibration. It is a joint venture company where shareholders are DFS, 55 percent, and the Austrian and Swiss ANSPs hold the rest. We founded a European group, AID, with all the necessary information for flights, putting it together. This company is located in Spain, in Madrid, a joint venture once more with DFS with the Spanish organization, AENA, and an Austrian high-tech company.

With the implementation, which you might pretty sure know of, of the Single European Sky drives of the European Union, ANSPs in Europe will have to become more competitive in future in order to safeguard their future existence in the long run. This entrepreneurial approach, ladies and gentlemen, can only be achieved by a company where government holds a minority stake only. This is based on political principles of the government in Germany.

Since 2004, the German Ministry of Transport has been preparing for the privatization of DFS. The relevant government decisions were published on the 15th of December last year. The key elements in the privatizations are the government wants to sell 74.9 percent of DFS, retain 25.1. Air traffic services remain still a state task, it's a sovereignty issue. The civil-military integration of ATC will be maintained. A national supervisory authority will be established. And the cost, which is very fundamental, for the supervision will be financed by user charges.

Ladies and gentlemen, to sum it up, the corporatization of DFS in 1993 has marked the beginning of a new era in the history of air navigation services in Germany. We changed the entire civil-military airspace structure, reducing the number of sectors and increasing their efficiency. We modernized almost all CNS and ATM systems. We reorganized our organizational structure, changed half of all management in the beginning and increased productivity while enhancing the safety. We handled a traffic increase of 175 percent while user charges increased by 0.6 percent. We changed the corporate culture from a Federal authority to a company operating in a competitive environment.

And the driving force, if you would ask me, behind all of this is, we want to deliver value for money for the benefit of all of our stakeholders. Chairman Mica and Ranking Democratic Member Costello, members of the Subcommittee, thank you very much for your kind attention. I am happy to answer your questions.

Mr. MICA. Thank you.

I have a couple of quick questions. First of all, as far as your air traffic controllers, are they all members represented by unions or some employee representational group, yours?

Mr. KADEN. Yes, all of them, 100 percent.

Mr. MICA. And yours?

Mr. CRICHTON. Yes.

Mr. MICA. A hundred percent? Okay. And you said they experienced a 25 percent increase in pay. Over what period?

Mr. KADEN. Over the last almost 10 years.

Mr. MICA. Okay. What about yours, Mr. Crichton?

Mr. CRICHTON. It is about 50 percent over the last eight and a half years.

Mr. MICA. Okay. Is it true that NAV CANADA handles all of the TransAtlantic in the northern Atlantic corridor air traffic, NAV CANADA?

Mr. CRICHTON. A little over 90 percent of the North America-Europe traffic passes through

Mr. MICA. A little over 90 percent?

Mr. CRICHTON.—through our oceanic system, yes.

Mr. MICA. The other question I had is, there was an accident some time ago over Germany where a couple of planes collided. I think it was over the German territory. Can you explain what happened there, and did privatization have any contributing responsibility for that?

Mr. KADEN. No, not at all. It happened in the German airspace in 2002, first of July, under the responsibility of a delegation of that air navigation service of our Swiss colleagues. So it was Sky Guide responsible for that air traffic control measures over the Lake of Constance. It was based on an agreement between the state of the Federal Republic of Germany in the beginning of the 1950s, an agreement with the government of Switzerland, where this small region above the Lake of Constance is still under the responsibility of Switzerland.

Concerning liability, both of our organizations, Sky Guide in Switzerland and DFS in Germany, more or less have an assurance in taking care of that from both sides through an insurance company.

Mr. MICA. Thank you. Mr. Costello.

Mr. COSTELLO. Thank you, Mr. Chairman.

Mr. Kaden, you mentioned that your controllers have seen about a 25 percent increase over a 10 year period, is that correct?

Mr. KADEN. Yes.

Mr. COSTELLO. Which averages about 2.5 percent a year over a 10 year period. I am wondering, as far as benefits are concerned, pensions and other things of that nature, how the benefits received by the air traffic controllers since DFS took over compares to what the benefits were before the takeover.

Mr. KADEN. One of the major changes indeed was that when we took over in 1993, all the employees, one of the reasons were that they have to leave the clerical working conditions of the former agency, they left that, they moved into a private company, based on a private contract which we negotiated with the unions at that time. Believe it or not, in the meantime, out of our entire organization, it was roughly 5,500 people, only roughly 400 did not change. Out of the controllers, we had roughly 2,400 including flight data assistants. There were 24 controllers which remained as clerical services employments. And we take care of the full pensions, as to the historic data up to the change, and then from the 1st of January 1993 onwards, we did it on a private base. It is much better than the year before.

Mr. COSTELLO. How did you deal with the downturn of the economy after September 11th? Were you forced to increase user fees, postpone capital improvements? Did you receive any government loans or an infusion of cash?

Mr. KADEN. The first decision after the downturn of 2001, 2002 and even the beginning of 2003 was more or less to very limited increase our user charges, in agreement with the customers, and in agreement with the government. This entire, even small increase of the charges affected our equity. We created a loss as a company, which at that time were more than 30 percent of our equity. So we created a private company loss based on that downturn.

From 2003-2004 onward then we increased in one step, once more, in small steps the user charges. Then from 2004-2005 and onward we are reducing, as I mentioned, once more the ATC entire user charges below the level of the downturn phase of 2001.

Mr. COSTELLO. Mr. Crichton, same question for you as well for NAV CANADA.

Mr. CRICHTON. I guess we were the hardest hit of anybody. We had 9/11, we had SARS, we had traffic dampening effect of the Iraq war, and then we had our biggest customer go into chapter 11. So I do not think any other ANS in the world was hit as hard as we were over the last three years.

We had money in reserve, Gerald referred to it as a rainy day fund. We used that up first. We did increase our rates in a measured way, bearing in mind the industry was suffering at the time. We also ran a deficit for two years. We have the financial strength to do that, so we did it.

And we just managed it, we managed expenses and we are back on the beach now, we are back into a positive balance in the rate stabilization fund, the traffic is back to normal. It was a very manageable situation.

Mr. COSTELLO. And the fee increases, can you give us some examples of how you were forced to increase fees by percentage or dollar amount?

Mr. CRICHTON. At the time 9/11 happened, the fees at that time had a 6 percent discount, sort of a rebate, if you will, attached to them. We let that rebate lapse at the end of 2001. Then over the course of the next two years, we increased fees by 12 percent. Prior to that, we had reduced them by 11 percent.

If you look at our costs today, on a unit cost basis, on a cost per weighted charging unit, put it on the same basis that airlines measure their costs for available seat mile, our costs in real terms are 15 percent less than they were when we started in 1996.

Mr. COSTELLO. Did you receive an infusion of cash from the government at the time, in addition to increasing the fees?

Mr. CRICHTON. Zero.

Mr. COSTELLO. And capital improvements, were you forced to either delay or postpone capital improvements?

Mr. CRICHTON. We deferred a few things that impacted our capital spending by maybe 10 percent, just through deferrals.

Mr. COSTELLO. Mr. Chairman, I do not have any other questions.

Mr. KUHL. [Presiding] Gentlemen, I have just a couple of questions, do not want to delay your presentation any longer than necessary. But I am quite interested, number one because of the size

differences of the various organizations, particularly that of this country compared to yours. I am interested to know really what the major, what the biggest impediment to the transfer or transition over to commercialization was in each one of your operations.

Mr. CRICHTON. I think the biggest challenge, and we are still dealing with it to a certain extent, is the culture of the people. It is taking what previously had been a government organization since the very beginning of air traffic control, 50, 60 years, and turning it into a private business and getting people, management and employees alike, to think in a performance-based fashion of a business and relating it to what they are doing, that we have customers, they pay us for the service, we are obligated to provide the service, we are obligated to do it in a safe way and an efficient way.

And just to break that mind set of being a government and that we are going to do things differently, we are going to do procurement differently, we are going to do R&D differently, there is accountability to deliver on time, on budget, and so on. That is probably the biggest challenge we deal with. We are coping with it successfully in terms of the rest of it. It is all the usual business challenges that you will find in any business, whether high tech or otherwise. It is simply the application of sound management principles to deal with those issues.

Mr. MICA. Mr. Kaden?

Mr. KADEN. I would fully support that. It was one of my major mistakes when I took over the organization in the beginning of the 1990s, where I estimated that this cultural change, by getting rid of the bureaucratic systems and decision making processes and taking over responsibilities and being a more customer-driven organization will take time, at least five to seven years. After looking back in the meantime now I know it sometimes happens, you need a decade or even more for that.

We are a small organization. When we started, we changed almost half of our management. They had to run through an assessment center and we changed them. Then we hired a couple from the outside. Then in the meantime, based on the pension funds of controllers, half of them had really changed and had been hired from the outside and trained in our own organization. It takes time to exactly change the mind set of being a monopoly organization instead of preparing for a competitive environment where are a couple of ANSPs are developing the future. That is the major challenge.

One minor point might be that management positions in Germany, we are lacking of some ladies.

Mr. KUHL. And along the same vein, you both speak, at least what I am hearing, as though these transitions have been successful. If you were to look at that success, what would you say was the most acceptable successful part of the transition to the general public in your country?

Mr. KADEN. I might say that from my point of view, with all due respect to my colleagues, it's leadership. You have to start from the top. If you are hiring some new management people and you have to really put that and push that through to the organization. Give them the vision, try to define a mission statement and then live it. Try to day by day underline that what you are talking, at least the

president or CEO of an organization, and try to convince the people to do it.

Mr. KUHL. Mr. Crichton?

Mr. CRICHTON. Mr. Chairman, the motivating factor behind the privatization of the Canadian ANS was first and foremost a rather decided opinion on the part of the customers, the commercial aviation industry, that the system was breaking down. They were convinced that leaving it within the government framework that over time, things would only get worse and that something had to be done, something fundamental had to be done to change the equation.

That is why that was a motivating, driving force behind ultimately what was privatization. Before that happened, there was a government study participated in by all of the various stakeholders in the industry. They looked at six different corporate models, three of which were government controlled in one form or another. They looked at a fully privatized shareholder driven for-profit entity, they looked at ultimately the non-share capital that we settled on.

But there was very much a moment in time there where the political will existed, where the customers were lined up, the employees were lined up, all the stars aligned and we acted, took advantage of that. I do not think we have looked back since. It has produced, everybody has been a winner. The customers are getting better service, we have virtually eliminated the delays in the system. They are paying less than they did before. The employees are making more money. There are fewer of them, I grant you that, but they are making more money. We are well on our way to totally modernizing the system.

And it is a safer system. It is a demonstrably safer system. We have a safety regulator now who is actually doing safety regulation. One of the amazing things that I discovered one day was our controller's union came to me and said, hey, Transport Canada just fined one of our controllers in the Montreal Tower for doing something wrong. He was instructing another controller and should not the company pay the fine. I was kind of intrigued by that and I looked into it, because I did not think it was fair to fine a guy when he is trying to teach somebody, because you have to let them make mistakes.

I looked into it, so I said to my VP of operations, I said, well, what happened in the past when the system was in Transport, how did they do it? Oh, they never fined anybody. They did not enforce any regulations.

So we have a safer system and we can prove that we have a safer system. But it is a question of—it is a high tech business. This is what this is. The ANS is a high tech business. It has customers, they have to pay for it. And if they have to pay for it, they want to see demonstrable efficiency. That is what we try and deliver. We have a board where a third of the board is in fact appointed by the customers. They hold their feet to the fire to make sure we do.

Mr. KUHL. So you do not feel really that there has been anything that you have had to give up through this process of commercialization, then, relative to productivity, safety, any of the other items?

Mr. CRICHTON. Oh, absolutely not. Everything has been enhanced. I would say the only losers in our experience have been the system vendors. I do not think Lockheed and Raytheon like me very much, because I do not spend very much money with them any more. But everybody else has won.

Mr. KUHL. Obviously your experience is very helpful to us as we look at our system continuously. I am just curious as to, given the size, and perhaps Mr. Crichton, this is a better question for you, and the experience that you have had with certainly our system, whether or not you think there is any transferrable experience to the system as you see it from an outside standpoint. I am talking about the U.S. system. I do not want to put you on the spot here, but we are obviously looking always for ways to improve. I am not saying there are any deficiencies, but certainly you may have a different perspective on that.

Mr. CRICHTON. You are asking me an essentially political question, which I always try to avoid. But we are in a political body here. That is a decision that each individual country has to make. All I can tell you, from the Canadian point of view, they bit the political bullet back there in 1996 and decided this is the way to go. Government does not have to do this, government's role should be as the assurer of safety and the feeling was that the government should no more run the air traffic control system than it should own the airlines or the airports. They backed out.

So when I heard various people earlier today talk about differences in traffic volume, that simply means the opportunity is bigger. The opportunity for efficiency is bigger. That has absolutely nothing to do with running the business. Nothing.

In fact, if I were trying to make money off air traffic control, my mouth would water at the opportunity of the efficiencies I could produce and the shareholder value that I could produce, because it is so much bigger.

Mr. KUHL. Okay. Mr. Kaden, did you want to make any comment on that?

Mr. KADEN. One comment, as an additional one, small indeed. As Mr. Dillingham mentioned, over 80 percent in the meantime of the world's air traffic is in the hands of commercialized, corporatized organizations, and we all together founded an association which we call the Commercial Civil Air Navigation Services Organization. In the meantime, over 40 member organizations are really the members of it, and we are happy that the FAA decided to become an associate member.

So with all due respect, as my friend John mentioned, it is a political decision to follow up and to benchmark how other organizations are doing, at least once more the same type of business. We are all together, based on the Chicago Convention. We are all together, using the same type of separation management.

We are all together responsible for safety and to do it in the best way, based on modernized equipment and based on highly motivated people. What are the differences then between the United States and, once more, with all due respect, it is not the number of operations. It is the way of treating two airways safe through a certain airspace. Whether you do it 1 billion, 2 billion or 45 billion times a year makes no difference. Therefore, we very much appre-

ciate that the FAA becomes a member of the organization where they can really once more, if I may be very provocative, learn from the best.

Mr. MICA. Mr. Crichton, I just had one other question. I think Mr. Costello has another question.

When you made your transfer over to privatize your operation, did you consider selling your systems? I noted in your comments that you say you have sold your systems to other countries. Was that part of the original plan? If it was, what was the motivation for it then, or if it was not, what is the motivation for it now?

Mr. CRICHTON. To tell you the truth, in the early days no, we were too busy trying to do the transition. But as we got into the business, we certainly knew in the due diligence leading up to the transaction, when we bought the system from the government, that we were buying a high tech business that depended to a great degree on the successful development and implementation of technology. As we got into that and started to fix it, because it was very much broken in terms of the way it was being run under the government, it occurred to us as we looked around like any good business would in the procurement world, and we said, well, you know, why should I make something here, maybe I should look outside and see if somebody else has already invented this, and get rid of all the risk and development costs.

It dawned us at a given point that with some of those systems that we had no choice but to develop ourselves, it would only make sense to replicate those and license them or sell them to others, because we looked out and we saw other ANSs around the world basically duplicating the same technology at great expense. So why keep re-inventing the wheel over and over again. And then we said, what makes it even worse is we had the same customers. Why should they pay us to develop something then turn around, pay the U.K. to develop something, the exact same thing, when we can incur the development costs once and everybody is a winner.

That is what led us to this solution. As it turns out, we are just levering off the investments we had to make anyway to the mutual benefit of the other ANSs and our common customers.

Mr. KUHL. Thank you.

Mr. Costello.

Mr. COSTELLO. Mr. Chairman, thank you.

Mr. Crichton, I have one question then I will give you an opportunity to make a comment to the statement attributed to Mr. Milton, the chairman and CEO of Air Canada.

But first, the question of liability. Is liability either shared by your company and the government, what is the government's responsibility from a standpoint of liability? Are you insured for any type of an accident, or did the government do some type of hold harmless agreement when they gave you the contract?

Mr. CRICHTON. We purchase insurance on the market, aviation insurance. We actually have the third largest aviation liability policy in the world, I think next to Boeing and Airbus. We have $2.3 billion U.S. covered right now. That is a straight commercial transaction.

Since 9/11, when the international insurance markets canceled their war risk and terrorism insurance for everybody, ANSs, air-

lines, airports, the Canadian government stepped up and has provided the aviation industry with an indemnity for war risk and terrorism. So we depend on that indemnity the same way the airlines and the airports do. But the basic insurance is a strictly commercial transaction, the same way the airlines do and the aviation insurance markets.

Mr. COSTELLO. In fairness to you, I would like to give you an opportunity to respond, Mr. Milton had some very harsh words on Monday of this week when he spoke to a group of Montreal business leaders. I quoted earlier quotes attributable to him that "Unfortunately, Canada has become a world leader, not in creating an environment where airlines can flourish, but in charging some of the world's highest airport fees, security fees and other fees and charges. The damage inflicted by the lack of government leadership in the airline industry over the past few years will be felt for many years to come."

Then he goes on to criticize the system further in this speech. In fairness to you, I would like to give you an opportunity to respond.

Mr. CRICHTON. I have not actually seen that speech. I saw a press report. But just based on what you quoted, I do not think he mentioned the air traffic control system. He was criticizing the airport fees.

Mr. COSTELLO. Actually, this is a statement attributed to him and it says, "To make matters worse, there is an abysmal lack of governance over air traffic control and airports," which seems to imply that he believes that there should be more government control or influence both over the air traffic control system and the airports.

Mr. CRICHTON. In terms of the governance issue, I am a bit puzzled, because Mr. Milton appoints two of the directors to our board. One of those directors is the former CEO of Air Canada. Another director is a former vice president of Air Canada. All I can tell you at this point is that I think there is some confusion on this issue. But you will never win a fight with your customers, so I will leave it at that.

Mr. COSTELLO. Thank you.

Thank you, Mr. Chairman, and I thank our witnesses for appearing here today.

Mr. KUHL. Okay. Well, being that there are no other members here to fire up some really difficult questions for you two gentlemen, let me tell you how much, on behalf of Chairman Mica and the Ranking Subcommittee Chairman Costello and the rest of the members who have been in and out how much we really appreciate your traveling. We know that you have come from afar and we really appreciate your written testimony and the testimony you have given us. We know you shortened it up so we could get a chance to ask some questions and have some answers and some dialogue.

We appreciate your sharing your experience, certainly, of your countries. Obviously it is a huge, complex issue and question. Obviously there is a lot involved, and a lot of attention being paid to how well you all perform and how well we perform here in this country.

So thank you for coming and sharing your experiences with us. Thank you for your testimony.

[Whereupon, at 12:15 p.m., the subcommittee was adjourned.]

STATEMENT OF JOHN W. CRICHTON,
PRESIDENT AND CHIEF EXECUTIVE OFFICER,
NAV CANADA
BEFORE THE HOUSE AVIATION SUBCOMMITTEE
APRIL 20, 2005

Chairman Mica, Ranking Member Costello, and other Members of this distinguished Subcommittee, on behalf of NAV CANADA'S 5,400 employees, thank you for the opportunity to testify today. Our dedicated employees are justifiably proud of what NAV CANADA has accomplished since the company began operating the Canadian air navigation system in November 1996. On their behalf, I appreciate the chance today to describe the background of NAV CANADA, our structure and our continuing successes improving safety, lowering fees and accelerating air traffic modernization.

At the outset, let me emphasize that we have an excellent working relationship with the FAA. We work seamlessly with the FAA on a daily basis safely and efficiently exchanging the highest volume of transborder traffic in the world. It is a partnership that works very well. No day was the strength of our cooperative relationship illustrated more clearly than on September 11, 2001. Working with NORAD and the FAA, we safely cleared Canadian skies of more than 1,500 aircraft, including hundreds of jumbo jets inbound to the US from Europe and Asia. Our employees are deeply grateful for the appreciation expressed by both President Bush and Secretary Mineta in recent speeches. We were very pleased that we could be of assistance to our US friends on that tragic day.

Mr. Chairman, attached are a number of slides that elaborate on several key points I wish to make today:

- NAV CANADA is a private corporation that operates on a not-for-profit basis. Transport Canada, which prior to November 1996 owned and operated Canada's air navigation system, now functions solely as our arm's length, independent safety regulator. The Canadian Government designates three directors to serve on our 15 member Board of Directors. The Federal Government, however, does not fund NAV CANADA, guarantee our debt or function as a financial backstop. We are financially self-sufficient in all respects.

- NAV CANADA is organized as a non-share capital corporation. We have no equity and, accordingly, no need or pressure to generate financial returns for shareholders. Instead, our four "members" – commercial carriers; the Canadian Government; our unions; and general aviation – participate in the governance of the company by appointing Directors in varying numbers. We rely on debt financing which is less expensive than equity funding.

- In 1998, the Canadian Government rescinded the Air Transportation Tax that funded air navigation services previously provided by Transport Canada. In its place, we phased in a service fee-based system developed in consultation with customers and approved by the stakeholder Board that seeks to fully cover the cost of services provided. For commercial carriers, who provide the vast majority of fee revenue, we use a weight and distance formula based on International Civil Aviation Organization (ICAO) principles to recover the cost of terminal, en route and oceanic services.

- Safety has improved on NAV CANADA's watch. As measured by loss of separation, safety is better today than when air navigation services were provided by Transport Canada. Among key contributing factors are: rigorous safety oversight by Transport Canada which now functions as an independent, arm's length safety regulator; internal safety initiatives we implemented that did not exist previously; and the deployment of safety-enhancing modern technologies.

- Fees have declined. Today, commercial customers pay around 20 percent less than they would have under the old Air Transportation Tax. Prior to September 11, 2001, fee savings were even greater. However, in the wake of September 11 and other air traffic depressing events such as SARS, we

were forced to raise fees since cost mitigation efforts alone were not sufficient to offset lower movement-based fee revenue.

- However, with the return of traffic growth, we anticipate that we can return to our strategy of managing costs to be less than traffic growth so that our customer charges will decline over the long term as they were doing prior to 9/11.

- Modernization has accelerated and NAV CANADA has gained recognition as a world-class developer and vendor of leading-edge ATC systems. We have fully implemented numerous modernized systems that enhance safety, increase system capacity and improve efficiency. There are other new modernized systems in the pipeline. We have made such progress in modernization that we now are selling our systems to leading air navigation service providers such as the United Kingdom's National Air Traffic Services which purchased both our oceanic and automated tower/terminal systems.

- NAV CANADA has also dramatically streamlined its capital spending and system development processes. We spend about one-half of what Transport Canada did and are generating three times the product twice as fast.

Mr. Chairman, let me conclude by again thanking you, Ranking Member Costello and other Subcommittee Members for the opportunity to testify today. I am pleased to respond to your questions.

House Aviation Sub-committee

John W. Crichton
President and CEO
NAV CANADA

Who We Are

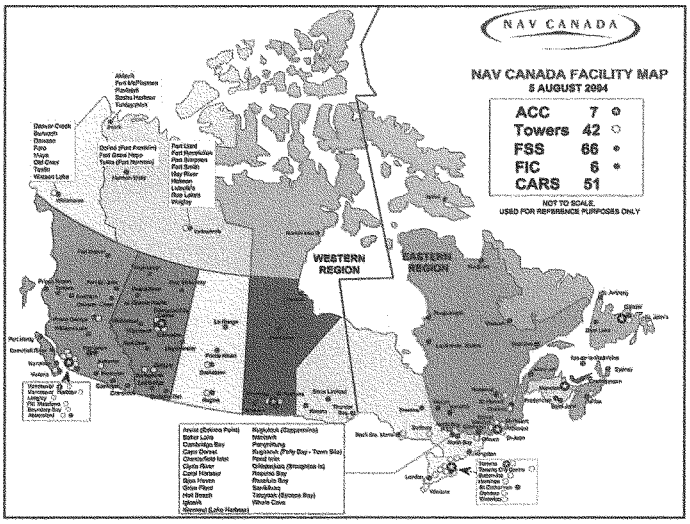
- Country's provider of civil air navigation services
- 5,400 employees
- 6.5 million IFR movements per year
- Second largest ANS in world
- Regulated by federal government (Transport Canada) on safety performance

2

Our Business

- Civil Air Navigation Services (ANS)
- Air traffic control
  - Domestic, International, Transborder
- Flight information and advisory services
- Weather briefings
- Electronic navigation aids
- Engineering and systems development
- Technical operations
- Training

3



Who We Are

NAV CANADA

- A Private company: Part II of the *Canada Corporations Act*
- Purchased the ANS from the Federal Government for $1.5 billion: November 1996
- Employees transferred from Government
- No equity
- Supported through service charges – no government subsidies
- Financed through bond markets: $2.2 billion in fixed income securities

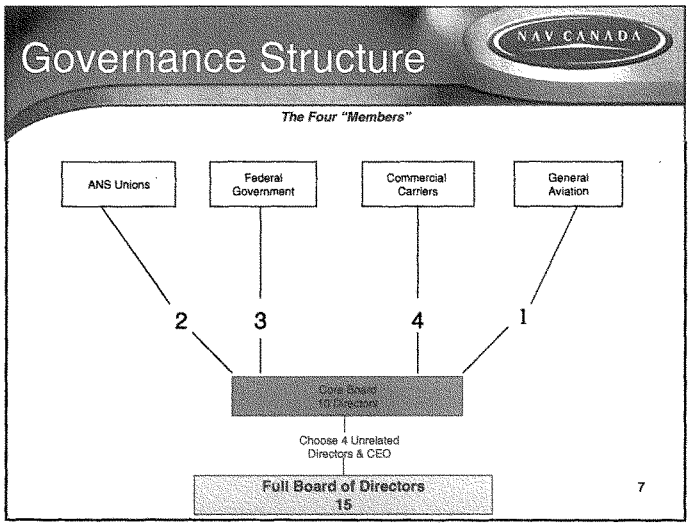
5

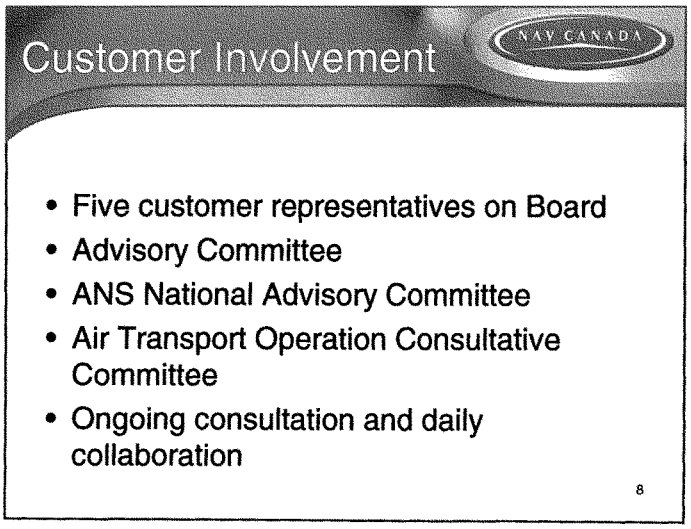
Corporate Structure

NAV CANADA

- Legislated monopoly for ATC
- Essential service mandate
- Statutory charging principles
- High credit ratings, AA across the board
- One of the lowest costs of capital in North America

6


Governance Structure
NAV CANADA
The Four "Members"
ANS Unions
Federal Government
Commercial Carriers
General Aviation
2
3
4
1
Core Board (10 Directors)
Choose 4 Unrelated Directors & CEO
Full Board of Directors 15
7


Customer Involvement
NAV CANADA
• Five customer representatives on Board
• Advisory Committee
• ANS National Advisory Committee
• Air Transport Operation Consultative Committee
• Ongoing consultation and daily collaboration
8

Why ANS Commercialization

NAV CANADA

- Separate system operator from regulator
- Improve customer service; reduce delays
- Address system underinvestment
- Modernize through culture of innovation
- Improve operational efficiency; reduce overhead
- Eliminate political interference in decision-making
- Address employee issues due to wage freeze, bureaucratic culture

9

Non-Share Capital Model: Benefits

NAV CANADA

- No perceived conflict between profits and safety
- Key stakeholder/customer representation replaces profit motive as efficiency driver
- Economically self-regulating
- Natural monopoly, nature of essential service make it "finance-able" at a low cost
- High credit ratings provide for lower cost of capital than equity
- Directors/officers subject to common law obligations as fiduciaries: act in good faith and in best interests of the corporation

10

Service Charges

- Cost recovery through a system of charges for services provided
- Terminal, enroute and oceanic charges
- General aviation is a small component of system costs (< 5%)

11

Charging Principles

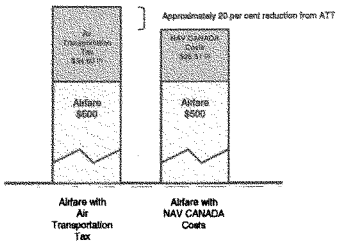
- Ensure:
  - Cost-based, non-discriminatory pricing
  - Avoidance of "unreasonable or undue" charges to General Aviation (GA)
  - No negative impacts to safety to avoid a charge
  - Charges based on weight and distance
  - GA charges based on flat fee approach
  - Equitable charging for Northern and remote locations

12

NAV CANADA Charges vs. Air Transportation Tax

NAV CANADA Charges versus the Air Transportation Tax:

Typical $500 round trip airfare from St. John's to Toronto

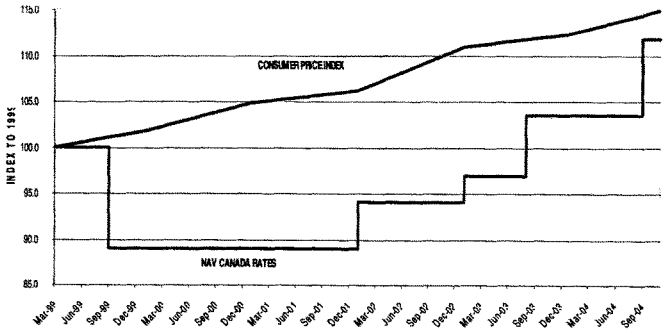


[1] Adjusted to reflect connecting passengers

[2] NAV CANADA cost expressed on a per passenger basis, assuming a load factor of 75 per cent

13

History of NAV CANADA Rate Changes vs. Consumer Price Index



1. AVERAGE CHANGES SINCE CHARGES WERE FULLY IMPLEMENTED ON MARCH 1, 1999

14

Cost Effectiveness

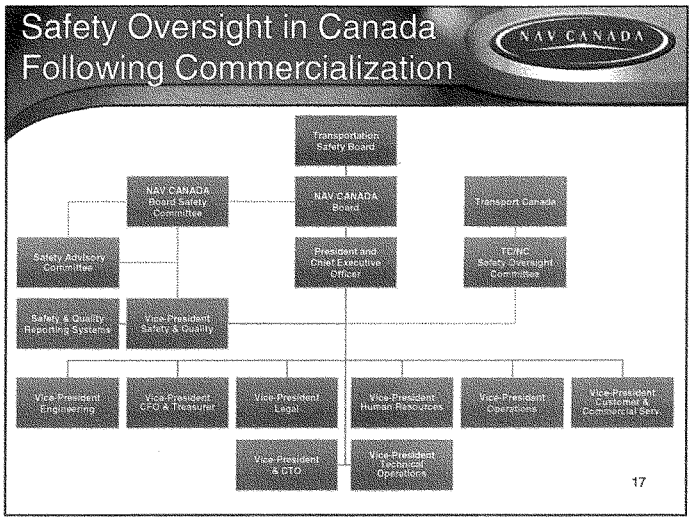
- Overhead reduced by $100 million/year from 1997 to 2001
- Regional offices consolidated (6 down to 2)
- Business processes centralized
- Administrative costs reduced from 22% to 9% of total
- Ongoing initiatives to reduce costs through process improvement
  - ATC training
  - Multi-site management
  - Controls on overtime, travel, administration expenses

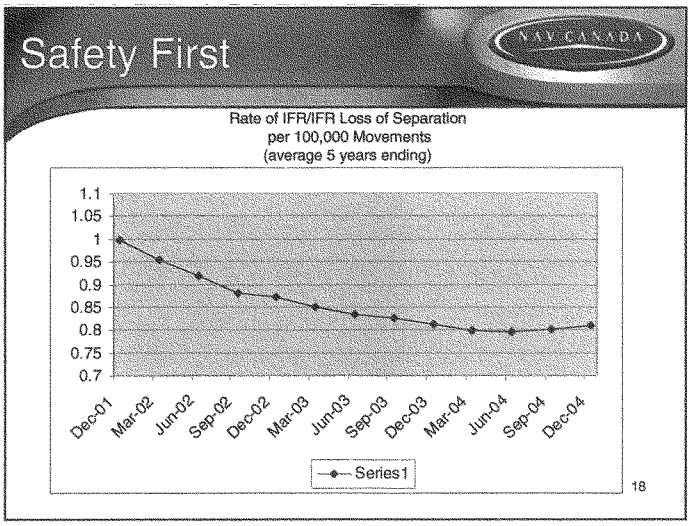
15

Safety

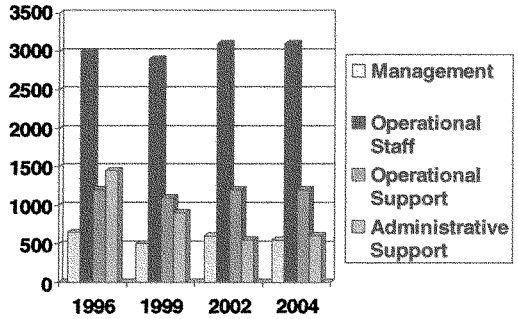
- Safety trumps all other business and corporate issues
- Safety is not motherhood, it is an absolute business imperative
- Enhanced safety oversight

16


Safety Oversight in Canada Following Commercialization
NAV CANADA
Transportation Safety Board
NAV CANADA Board Safety Committee
NAV CANADA Board
Transport Canada
Safety Advisory Committee
President and Chief Executive Officer
TC/NC Safety Oversight Committee
Safety & Quality Reporting Systems
Vice-President Safety & Quality
Vice-President Engineering
Vice-President CFO & Treasurer
Vice-President Legal
Vice-President Human Resources
Vice-President Operations
Vice-President Customer & Commercial Serv.
Vice-President & CTO
Vice-President Technical Operations
17


Safety First
NAV CANADA
Rate of IFR/IFR Loss of Separation
per 100,000 Movements
(average 5 years ending)
1.1
1.05
1
0.95
0.9
0.85
0.8
0.75
0.7
Dec-01
Mar-02
Jun-02
Sep-02
Dec-02
Mar-03
Jun-03
Sep-03
Dec-03
Mar-04
Jun-04
Sep-04
Dec-04
Series1
18

Staffing



19

Employee Issues

- Substantial salary increases in first round of bargaining
- 33% for ATC
- Second round limited by aviation industry downturn: cost of living
- ATC staffing increases to address historic shortages: over 100% on system basis

20

Technology/System Development

- Capital expenditures under government: $200 million/year
- Reduced by approx. 50%,but 3 times more products developed and deployed
- $1 billion invested since 1996
- Global leadership in several key areas
- Flexible model: COTS/In-house/Contractual approaches, depending on requirement and capabilities

21

Technology Initiatives

- Leading-edge technology solutions
  - Gander Automated Air Traffic System*
  - Extended Computer Display System
  - Canadian Automated Air Traffic System
  - Converging Runway Display Aid
  - Collaborative Web-based Flight Planning Tools

  *Note: CPDLC and Automatic Waypoint Reporting in North Atlantic 50% of total traffic

22

Infrastructure Renewal

- Northern Radar Program
- ILS Replacement Program
- New and refurbished towers
- Flight Information Centre project
- New voice switches, power systems
- Montreal Area Control Centre expansion, modernization
- Vancouver Area Control Centre relocation, modernization
- GPS/WAAS in conjunction with FAA

23

Special Mentions

- IATA Eagle Award winner 2001,2002
  - NAV CANADA "a unique example of ...an efficient corporate operation"
  - Honoured for: productivity improvement, use of technology
- Technology Systems: UK NATS purchased oceanic system, automated tower system (EXCDS) 2003/2004
- Tenth anniversary: November 2006

24

OPENING STATEMENT OF
THE HONORABLE JERRY F. COSTELLO
AVIATION SUBCOMMITTEE
AIR TRAFFIC MANAGEMENT BY FOREIGN COUNTRIES
APRIL 20, 2005

- ▷ I want to thank Chairman Mica for calling today's hearing on *Air Traffic Management by Foreign Nations.* Today's hearing focuses on countries that have adopted user-fee based commercialized management structures for air traffic control.

- ▷ While I warmly welcome Dr. Dillingham and our distinguished panelists from Canada and Germany, I should say at the outset I strongly oppose any suggestion that we should consider privatizing air traffic control here in the U.S.

- ▷ Any plan to privatize ATC systems contemplates that system users, principally the airlines, will play a role in setting corporation policies and deciding how much the corporation will spend. I do not believe that Congress should create a relationship between airline profitability and ATC spending and other decisions affecting safety.

- ▷ Unfortunately, the Bush Administration has driven the deficit so high that it is now seeking to cut the FAA's capital budget to the bone. Last week, the DOT Inspector General testified that the FAA's "current budget level for the capital account is not sustainable."

- ▷ I sincerely hope that this Administration has not led us to point where we would even consider the possibility of selling-off our ATC infrastructure to some corporation that will borrow money to make the improvements necessary to sustain it.

- ▷ Some believe that only a commercialized service provider with an independent revenue stream, such as a user-fee, will have the autonomy and access to private capital markets needed to make transformational changes.

- ▷ Yet, I hope that the record of this hearing will reflect both the successes *and challenges* that commercialized foreign service providers have faced.

During recent airline industry downturns marked by declining traffic, some commercialized service providers experienced financial hardships that resulted in debt, fee hikes, government funding infusions, and capital cuts.

- ▷ I also expect to hear testimony that some foreign service providers have deployed new technologies more quickly and effectively than the FAA. It has been widely observed that foreign countries appear to rely more heavily on commercial-off –the-shelf technology than the U.S. However, we must keep in mind the sheer scale and complexity of the U.S. system versus foreign systems.

- ▷ In terms of operational scale and airspace complexity, there is really no comparison between the U.S. National Airspace System (NAS) and foreign systems. The developmental requirements for a system designed for Australia's airspace clearly will not mirror the requirements for a system designed for U.S. airspace.

- ▷ In total, the U.S. represents about 60 percent of the world's air traffic activity. The FAA reports that there were over 159 million operations in 2004, 13 times the number of operations of the U.K., New Zealand, Canada, Australia, and Germany *combined.*

- ▷ At the request of Congressman Oberstar and myself, the FAA has performed an in depth study comparing the U.S. system to foreign systems. I will submit the FAA's data to the record of this hearing so that the American public can see for itself and appreciate the scale and complexity of the U.S. system versus other systems.

- ▷ Despite the United States' preeminent position in air traffic management, there are clearly lessons that we can learn from other countries. For example, if Congress decides to consider overhauling our aviation tax system and switch to a user-fee based system, both Mr. Crichton and Mr. Kaden can provide valuable insights.

- ▷ Thank you once again, Mr. Chairman, for holding this hearing. I look forward to hearing from our witnesses.

United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Aviation, House Committee on Transportation and Infrastructure

For Release on Delivery
Expected at 10:00 a.m. EDT
Wednesday, April 20, 2005

AIR TRAFFIC CONTROL

Preliminary Observations on Commercialized Air Navigation Service Providers

Statement of Gerald L. Dillingham, Ph.D.
Director, Physical Infrastructure Issues

GAO-05-542T

April 20, 2005

GAO
Accountability · Integrity · Reliability

Highlights

Highlights of GAO-05-542T, a testimony before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives

AIR TRAFFIC CONTROL

Preliminary Observations on Commercialized Air Navigation Service Providers

Why GAO Did This Study

In the past, governments worldwide owned, operated, and regulated air navigation services, viewing air traffic control as a governmental function. But as nations faced increasing financial strains, many governments decided to shift the responsibility to an independent air navigation service provider (ANSP) that operates along commercial lines. As of March 2005, 38 nations worldwide had commercialized their air navigation services, fundamentally shifting the operational and financial responsibility for providing these services from the national government to an independent commercial authority.

GAO selected five ANSPs–in Australia, Canada, Germany, New Zealand, and the United Kingdom–to examine characteristics and experiences of commercialized air navigation services. These ANSPs used different ownership structures and varied in terms of their size, amount of air traffic handled, and complexity of their airspace.

This testimony, which is based on ongoing work, addresses the following questions: (1) What are common characteristics of commercialized ANSPs? (2) What do available data show about how the safety, cost, and efficiency of air navigation services have changed since commercialization? (3) What are some initial observations that can be made about the commercialization of air navigation services?

www.gao.gov/cgi-bin/getrpt?GAO-05-542T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gerald L. Dillingham, (202) 512-2834, dillinghamg@gao.gov.

What GAO Found

The five commercialized ANSPs that GAO selected for review have a number of common characteristics: Each operates as a business, making and carrying out its own strategic, operational, and financial decisions. Each generates and manages its own revenue to cover its costs, charging fees to users and borrowing funds from private markets instead of relying on annual governmental appropriations. Each has also put commercial financial and performance data systems in place. All five ANSPs have retained safety as their primary goal, and each is subject to some external safety regulation. Each ANSP is largely a monopoly provider of air navigation services and undergoes some form of economic review or follows some guidelines for setting prices.

The ANSPs report that, since commercialization, each has maintained safety, controlled costs, and improved efficiency. Data from all five indicate that safety has not eroded. For example, data from New Zealand and Canada show fewer incidents involving loss of separation (the required distance between an aircraft and another object). All five ANSPs have taken steps, such as consolidating facilities, to control their operating costs. Finally, all five ANSPs have invested in new technologies that the ANSPs say have lowered their costs by increasing controllers' productivity and produced operating efficiencies, such as fewer or shorter delays. Such measures have generally resulted in lower fees for major carriers, but some smaller, formerly subsidized users now pay new or higher fees and are concerned about future costs and service.

GAO's work to date suggests a number of observations about commercialized ANSPs: A contingency fund can help an ANSP cover its costs without greatly increasing user fees during an economic decline; economic regulation by an independent third party can ensure that an ANSP sets prices fairly; providing a forum for stakeholders gives attention to their needs; and special measures may be necessary to reconcile the inability of some users to pay the full costs of services at some small communities and the ANSP's need to recover its costs.

Size and Scope of Five Commercialized ANSPs Reviewed

Country	ANSP name	ANSP ownership	Employees	Movements handled (year)
Australia	Airservices Australia	Government corporation	2,900	2,723,828 (2004)
Canada	NAV CANADA	Private company	5,400	6,000,000 (2003)
Germany	Deutsche Flugsicherung GmbH	Government corporation	5,400	2,720,000 (2004)
New Zealand	Airways Corporation of New Zealand, Ltd.	Government corporation	680	1,004,161 (2004)
United Kingdom	National Air Traffic System, Ltd.	Public-private partnership	3,758	2,000,000 (2004)

Source: GAO presentation of data from ANSPs.

Mr. Chairman, Ranking Democratic Member, and Members of the Subcommittee:

Thank you for the opportunity to testify before you today on our work related to commercialized international air navigation service providers (ANSP). Since 1987, 38 nations have commercialized their air navigation services, fundamentally shifting the responsibility for providing air navigation services from the national government to an independent ANSP that operates as a performance-based organization along commercial lines.[1] In the United States, of course, the Federal Aviation Administration's Air Traffic Organization was created as a performance-based organization in 2000, but has not been commercialized and remains entirely within the federal government.

In the past, governments worldwide owned, operated, and regulated air navigation services, viewing them as a governmental function. But as air navigation technologies grew more complex and as nations faced increasing financial strains, many governments reevaluated existing structures for providing air navigation services, and some decided that shifting the responsibility for operating and, in some cases owning, the services to an independent commercial authority could produce efficiencies that would benefit both users and the government. In general, the responsibility for regulating the safety of the services is independent of the ANSP.

Today I will discuss how different countries have commercialized their air navigation services and how commercialization has affected those services. Specifically, my statement addresses the following questions:

- What are common characteristics of commercialized ANSPs?
- What do available data show about how the safety, cost, and efficiency of air navigation services have changed since commercialization?

[1]For additional information on performance-based organizations, see GAO, *Federal Student Aid: Additional Management Improvements Would Clarify Strategic Direction and Enhance Accountability*, GAO-02-255 (Washington, D.C.: Apr. 30, 2002); *Performance-Based Organizations: Lessons From the British Next Steps Initiative*, GAO/T-GGD-97-151 (Washington, D.C: July 8, 1997); and *Performance-Based Organizations: Issues for the Saint Lawrence Seaway Development Corporation Proposal*, GAO/GGD-97-74 (Washington, D.C: May 15, 1997).

- What are some initial observations about the commercialization of air navigation services?

To address these questions, we reviewed the characteristics and performance of five ANSPs, which we selected as illustrative of similarities and differences in the size and scope of commercialized ANSPs. These ANSPs—Australia's Airservices Australia; Canada's NAV CANADA; Germany's Deutsche Flugsicherung GmbH (DFS); New Zealand's Airways Corporation of New Zealand, Ltd.; and the United Kingdom's (UK) National Air Traffic Services, Ltd. (NATS)—were commercialized between 1987 and 2001 and have been operating ever since as performance-based organizations along commercial lines. Because of the size of our sample, our results cannot be generalized to other commercialized ANSPs, and our purpose is not to assess or evaluate the selected commercialized organizations.

Comparisons of performance before and after commercialization are generally not feasible because data for assessing performance are typically unavailable for the time before commercialization, or the measures have changed in the years following commercialization. Furthermore, comparisons between or among ANSPs are difficult because each ANSP may define its measures of cost, safety, and performance differently. We did not verify the data gathered and reported by the five ANSPs; however, their financial information is subject to independent audits, and their safety and operating performance data are publicly reported. As a result, we considered the data sufficiently reliable for the purposes of our review. The information presented in this testimony is based on ongoing work and may be updated as additional information becomes available. At the request of the Senate Committee on Commerce, Science, and Transportation, its Subcommittee on Aviation, and Senators John McCain and Trent Lott, we are planning to issue a more detailed report later this year on the topics discussed in this testimony. We performed our work in accordance with generally accepted government auditing standards from August 2004 through April 2005.

Let me turn now to the results of our review. In summary:

The five commercialized ANSPs that we selected for review have a number of common characteristics: Each operates as a business rather than a government organization, making and carrying out its own strategic, operational, and financial decisions. Additionally, each generates and manages its own revenue to cover its operating and capital costs. Each assesses fees on users of air navigation services (e.g., major

commercial air carriers, regional air carriers, and in some cases general aviation operators) and is able to borrow funds from private markets, instead of relying on annual appropriations from the government. All five ANSPs have retained safety as their primary goal, and each is subject to some external safety regulation. Finally, each ANSP is largely a monopoly provider of air navigation services and undergoes some form of economic review or follows some guidelines for setting prices.

Available data from the five ANSPs we reviewed indicate that since commercialization, the safety of air navigation services has remained the same or improved, each has taken steps to control costs, and each has reportedly lowered costs and improved efficiency through modernization. Though some opponents have raised concerns that commercialization would compromise safety, data from all five indicate that safety has not eroded. For example, data from New Zealand and Canada show fewer incidents involving loss of separation (the required distance between an aircraft and another object). Additionally, anecdotal information suggests that safety regulation improved when the regulator was separated organizationally from the ANSP. All five ANSPs have taken steps to control their operating costs, whether by eliminating some administrative and middle management positions or by consolidating facilities. Furthermore, all five ANSPs have invested in and benefited from new technologies and equipment, which the ANSPs say have lowered their costs by increasing controllers' productivity and produced operating efficiencies, such as fewer or shorter delays. As a result, some ANSPs have been able to lower the prices they charge the airlines for certain services. However, the ANSPs have also instituted or increased fees for general aviation operators. In Australia, a government subsidy for services to smaller airports is scheduled to expire later this year, raising concerns about the affordability and availability of services to those airports.

Our work to date suggests a number of initial observations about commercialized ANSPs. First, having a contingency fund or other mechanism to offset a revenue shortfall can help an ANSP weather a decline in air traffic such as the aviation industry experienced, particularly after September 11, 2001. Second, because the ANSPs are largely monopoly providers of air navigation services, economic monitoring or regulation by an independent third party can protect users and ensure a fair pricing process. Third, addressing the concerns of stakeholders, especially air traffic controllers, is essential to initiate and sustain commercial operations, and providing a forum for communication can ensure subsequent attention to their needs and priorities. Fourth, the conflict between the inability of some users (e.g., smaller air carriers or

general aviation operators) to pay the full costs of providing services to small communities and the ANSPs' need to recover their costs means that special measures may be necessary to protect service to some locations. Fifth, when a government sells its interest in an ANSP to private investors as part of the commercialization, the ANSP's assets have to be appropriately valued to protect taxpayer interests and create a basis for sound financial decision-making. Sixth, when operations are separated from regulation during commercialization, it is important to ensure that the regulator can attract and retain sufficient personnel with the skills and expertise needed to provide uninterrupted safety regulation. Finally, developing baseline safety, cost, and efficiency measures prior to commercialization will allow the ANSP and others to compare the performance of the ANSP before and after commercialization and over time.

Background

Before commercialization, air navigation services under government control faced increasing strain. Many were underfunded, as evidenced by air traffic controller wage freezes and insufficient funds to replace aging technologies. In some instances, the country as a whole faced widespread fiscal problems and the commercialization of air navigation services was simply part of a larger movement to reform government enterprises such as rail, telecommunications, and electricity.

With commercialization, the government typically retains full or partial ownership of the air navigation system and continues to regulate operational safety,[2] but an independent ANSP is responsible for operating the system. The independent ANSP is subject to corporate financial and accounting rules and, in line with today's current management theories, is generally designed as a performance-based organization—that is, an organization that develops strategies, goals, and measures and gathers and reports data to demonstrate its performance. In the five countries whose air navigation services we reviewed, the ANSP continued to provide nationwide services after commercialization and, with certain exceptions, remained the sole provider of air navigation services.

Each ANSP offers en route, approach control, and terminal air traffic services. However, in some cases, an ANSP may not be the sole provider

[2]In the UK and Australia, safety and economic regulators are "statutorily independent of the government."

of approach control and terminal services in a country. Although technical definitions may vary slightly among ANSPs, these services broadly correspond to the services provided in U.S. air traffic centers, approach control centers, and towers. All but Germany's DFS also offer oceanic air navigation services. All five ANSPs are responsible for providing air traffic services to both civil and military aviation. In addition, the ANSPs may offer other air-navigation-related services, such as meteorological services, fire and rescue, training, and consulting. The ANSPs also charge for these services.[3]

Discussions about the commercialization of air navigation services often use a number of terms interchangeably. Among these terms are restructuring, privatization, outsourcing, and corporatization, as well as commercialization. The Civil Air Navigation Services Organization (CANSO), which represents the interests of ANSPs worldwide, uses the term corporatization. Others, such as the International Civil Aviation Organization (ICAO), which establishes international civil aviation standards and recommends practices and procedures for ANSPs, use the term commercialization. Some note that an organization can be "commercialized" but not "corporatized" (i.e., established under prevailing company law). For this statement, we will use "commercialization."[4]

Two of the countries we examined–Germany and the UK–are members of the European Union and EUROCONTROL.[5] As parties to these international organizations, the two countries follow the policies and regulatory framework of the European Commission's "Single European

[3]NATS includes charges for meteorological services in the charges for en route services.

[4]According to ICAO, commercialization is the ability of an organization to operate like a commercial business, whether it is wholly or partly owned by the government or fully privatized. A commercialized organization should function as an autonomous body and, compared with a government organization, have greater freedom from the government in conducting its financial affairs and developing infrastructure funding. In addition, it should be self-financing, subject to the usual business taxes, and required to seek a return on capital. The safety of its operations should still be regulated by the government, and it should be encouraged to be as competitive, efficient, and cost-effective as any other commercial business.

[5]EUROCONTROL is a European organization responsible for regulating the safety of air navigation, monitoring the performance of air traffic management systems, and developing a seamless air traffic management system in Europe.

Sky" initiative.[6] Under this initiative, EUROCONTROL is mandated to develop implementing rules, one of which specifies that each member state is to develop an independent safety and economic regulatory authority to oversee the ANSP. To this end, Germany is planning to develop such an authority, and the UK has already established one. Table 1 summarizes information on the size and scope of the five ANSPs in our review:

Table 1: Summary Information on Five Commercialized ANSPs Reviewed

	Australia	Canada	Germany	New Zealand	United Kingdom
Agency	Airservices Australia	NAV CANADA	Deutsche Flugsicherung GmbH (DFS)	Airways Corporation of New Zealand, Ltd.	National Air Traffic Services, Ltd. (NATS)
Year of commercialization	1988	1996	1993	1987	2001
Type of ownership	Wholly government-owned	Privately owned company	Wholly government-owned	Wholly government-owned	Partially government-owned
Approximate number of employees (Number of controllers)	2,900 (1,100)	5,400 (2,300)	5,400 (2,098)	680 (340)	3,758 (1,380)
Approximate number of aircraft movements handled (Year)	2,723,828 (2004)	6,000,000 (2003)	2,720,000 (2004)	1,004,161 (2004)	2,000,000 (2004)

Source: GAO presentation of data from ANSPs.

[6]The "Single European Sky" initiative, approved by the European Parliament in January 2004, is a legislative package consisting of four regulations that address (1) the framework for the creation of a single European sky, (2) the provision of air navigation services in the single European sky, (3) the organization and use of the airspace in the single European sky, and (4) the interoperability of the European Air Traffic Management network.

Common Characteristics of Five Commercialized ANSPs

The five commercialized ANSPs that we reviewed have a number of common characteristics: All operate as businesses rather than as government organizations, all focus on safety, and all are largely monopoly providers that are subject to some form of economic review or guidelines for setting prices.

Five Commercialized ANSPs Operate as Businesses

All five commercialized ANSPs operate as businesses, although they differ somewhat in their ownership structures. (See table 1.) Three of the five—Airservices Australia, Airways Corporation of New Zealand, and DFS—are currently state-owned corporations—that is, companies wholly owned by the government. The UK's National Air Traffic Services (NATS) is a public-private partnership, that is, a cooperative venture between the public and private sectors that is designed to meet defined public needs with the risks and rewards divided between both parties. The government holds the largest share of NATS (49 percent), and the remaining shares are divided among a consortium of seven UK airlines (42 percent), NATS staff (5 percent), and a private airport company[7] (4 percent). By 2006, Germany plans to change the ownership of DFS, selling 74.9 percent of its equity to private investors and reorganizing it as a public-private partnership, along the lines followed in the UK. NAV CANADA is a nonshare capital, private corporation—that is, it has "members" instead of shareholders. These members represent the airline industry, the government, and general and business aviation, and they also include employees such as air traffic controllers and engineers.

ANSPs Make and Execute Their Decisions and Follow Corporate Practices

Each ANSP makes and carries out its own strategic, operating, and financial decisions. A supervisory board oversees policy making and operations and, when applicable, has fiduciary responsibilities to shareholders. The members of this board may represent key stakeholders, such as the airlines, employees, general aviation, and the national government. An executive officer implements the board's policies and is in turn, accountable to the board. Individual business units within the ANSP report to the executive officer and are directly responsible for various aspects of the ANSP's day-to-day operations.

As commercial organizations, the ANSPs follow corporate practices. Each ANSP has established performance measures and gathers and reports

[7]This private company, BAA, plc., owns seven UK airports, including London's Heathrow, Gatwick, and Stansted, and has interests at 13 airports overseas.

financial and other performance data. Each ANSP also publishes an annual report, which makes financial information available to the public to ensure transparency. Financial statements are typically subject to third-party audit to ensure that adequate accounting records have been maintained and that internal controls have prevented and detected any fraud and error in the accounting policies and estimates. In addition, the UK and Germany report their data to EUROCONTROL's Performance Review Commission, which collects data for benchmarking and publishes comparative studies of members' performance.

Before commercialization, two of the five ANSPs "purchased" the ANSP assets from their government. NAV CANADA negotiated a selling price with the Canadian government, rather than going through a formal competitive bidding process, and purchased the air navigation system in 1996 for C$1.5 billion.[8] In the UK, according to information from the National Audit Office, a collection of seven UK airlines known as "The Airline Group" provided £795 million of funds, partly from its own resources ($65 million) and from a loan taken out with a consortium led by four main banks. The group used these funds to acquire NATS and meet associated transaction costs, leaving £3.5 million of cash in the business. In total, the government received £758 million in cash proceeds from the transaction.[9]

ANSPs Generate Revenue and Have Borrowing Authority

All five commercialized ANSPs rely on user charges as their primary source of revenue and on private capital markets for additional funding. Before commercialization, governments funded air traffic control services through annual appropriations from their national government.

All five ANSPs collect and manage their own revenues, charging fees for services. Their air navigation service fees are based on ICAO's cost recovery principles, which call for recovering the ANSP's operating costs.[10] Despite some variation across ANSPs, the fees are generally as follows:

[8]Unless otherwise noted, all financial amounts are expressed in local currencies. As of April 13, 2005, 1 U.S. dollar was equivalent to 0.78 euro, 1.29 Australian dollars, 0.53 UK pound sterling, 1.24 Canadian dollars, and 1.39 New Zealand dollars.

[9]National Audit Office, *The Public Private Partnership for National Air Traffic Services Ltd.*, Report by the Comptroller and Auditor General, HC 1096, Session 2001-2002, July 24, 2002.

[10]Fees for the European ANSPs also include a contribution to cover the expenses of EUROCONTROL.

- The air navigation fees cover operating and capital costs associated with both en route and terminal services. These charges are based on a weight-distance formula.[11] If applicable, ANSPs also levy charges for oceanic control.

- ANSPs may also charge for tower-related services. However, not all ANSPs are the sole providers of tower services. In the UK and Germany, for example, private firms may provide tower services. These tower charges are distinct from the landing fees typically charged by airports, which are usually weight-based.

- ANSPs may charge general aviation operators a flat fee for services or additional fees in particular circumstances rather than charging the weight-distance fees typically assessed to larger air carriers.

- ANSPs may also charge additional fees, as applicable, for other services, such as meteorological, aeronautical information, training, and consulting services.

The five ANSPs vary in their treatment of any operating profits or losses. If an ANSP generates revenues from charges in excess of its costs (i.e., operating profits), it may rebate them to the users, lower the charges for the next year, pay some form of dividend to shareholders, or retain them in reserve to protect against future losses. If costs exceed revenues, ANSPs use different strategies to meet those shortfalls. For example, NAV CANADA established a "rate stabilization fund," which it used to store revenues when the aviation industry was healthy. The fund could then be used to cover costs and keep rates stabilized when the industry was ailing. The fund was capitalized by operating profits earned before September 11, 2001, but depleted following the economic downturn caused by the events of September 11 and the SARS outbreak of 2003.[12] In 2003, the rate stabilization fund had reached a cumulative deficit of C$116 million. According to NAV Canada's 2004 annual report, the C$116 million deficit has been reduced to C$32 million. In the UK, NATS, which experienced a

[11]The standard weight-distance formula is a single charge per flight for en route services based on the distance flown by the aircraft within a defined area and the aircraft's weight. This formula is based on ICAO's policies on charges for air navigation services.

[12]Concerns about the in-flight transmission of SARS (severe acute respiratory syndrome), a highly contagious respiratory disease that appears to be transmitted by close personal contact, affected passenger traffic on international flights to and from Asia, compounding the economic downturn in the aviation industry that began in 2000.

major decline in transatlantic traffic after September 11, first obtained a £60 million short-term loan from its lending banks and then refinanced, bringing in a new equity partner (BAA, plc.).[13]

To pay for capital projects, the five ANSPs can either use current operating revenues or borrow funds. Before commercialization, the ANSPs relied on annual appropriations for capital projects; now, all five can borrow funds through access to private capital and debt financing. For example, NAV CANADA can seek debt financing in private markets. NAV CANADA has a borrowing capacity of C$2.9 billion. In Germany, DFS mainly finances its capital expenditures by drawing on a capital market program, which issues short-, medium- , or long-term notes (i.e., debt issuance and commercial paper) each amounting to € 500 million for a total of € 1 billion to private investors in the market. DFS can also draw on an annual credit line of €161 million from its bank.

ANSPs Have Mechanisms for Stakeholder Involvement and Communication

Stakeholders, including employees, as well as the airlines, general aviation operators, airports, the government, the public, and others, may be involved in their ANSP through a variety of mechanisms. In Europe, for example, the Single European Sky initiative directs member states to establish a consultation mechanism for involving stakeholders. Germany and the UK have followed this direction by including stakeholder representatives on their ANSP's board of directors. For example, in Germany, DFS employees, government ministries, and the private sector are represented on a supervisory board. In the UK, government appointees, the airlines, and BAA, plc. (the airport consortium) are represented on NATS's board. In Australia, the aviation community (e.g., the airports, airlines, safety authorities, and others) has a role in the air traffic procurement process through the Australian Strategic Air Traffic Management Group (ASTRA).

Common Focus on Safety Among the Five Commercialized ANSPs

For all five commercialized ANSPs, safety remains the primary goal. In some countries, government policy requires that the ANSP consider safety in any and all decisions affecting operations and service. For example, in Germany, legislation requires DFS to observe ICAO's standards and

[13]Total new investment made in NATS as part of the refinancing arrangement was £130 million—£65 million from BAA, plc., matched by an additional £65 million from the UK's Department for Transport.

recommended safety practices, as well as adhere to the objectives and policies of international organizations where the German government is represented, such as EUROCONTROL. Similarly, in Canada, legislation requires NAV CANADA to maintain a fixed level of safety. Under the Civil Air Navigation Services Commercialization Act, the Minister of Transport has the authority to direct NAV CANADA to maintain or increase levels of service in the interest of safety. Although it can alter operations in accordance with business principles, it must demonstrate that the changes meet the required level of safety through an aeronautical risk assessment.

All five ANSPs are subject to external safety regulation. A separate authority conducts safety regulation and issues relevant certifications or licenses to air traffic controllers and technicians. In New Zealand, for example, the Civil Aviation Authority (CAA) is an independent regulatory authority that establishes civil aviation safety and security standards and monitors adherence to those standards. CAA carries out accident and incident investigations and uses information from these investigations to establish an industrywide safety picture and develop safety initiatives ranging from education campaigns to increased monitoring and regulatory action.

All five selected ANSPs have established formal safety programs. For example, Airservices Australia employs a surveillance model, which includes incident investigation, trend analysis, system review, and internal audit. Similarly, DFS and NATS apply a systematic Safety Management System to all of its operational activities. The system forms the basis for risk assessment, safety assurance, safety control and safety monitoring through standards that comply with national and international obligations.

Five Commercialized ANSPs Undergo Some Form of Economic Review or Follow Price-Setting Guidelines

Each of the five commercialized ANSPs is its country's sole provider of en route navigation services.[14] There is no opportunity for more than one organization to provide competing air navigation services. Thus, operators cannot choose alternative providers by changing routes. To forestall the abuse of monopoly position and address concerns about the level of prices or charges, the five ANSPs are subject to the following:

[14]Although the ANSP for each country is the only provider of en route air navigation services and thus functions as a monopoly, some other air navigation services may theoretically be open to competition. For example, in the UK, NATS provides tower services—won on a competitive basis against other service providers—for only 14 UK airports.

- In the UK, the Civil Aviation Authority (CAA) exercises economic regulation over NATS. CAA's Economic Regulation Group sets price caps for 5-year periods, basing them generally on the retail price index[15] and the group's own analyses of allowances for NATS' estimated operating and capital costs.

- The Australian Competition and Consumer Commission (ACCC), an independent commonwealth authority, monitors primarily monopolistic public and private service industries, including Airservices Australia. ACCC oversees Airservices Australia's process of setting user fees for air traffic services and decides to accept or reject price changes on the basis of public consultation and its own evaluation of Airservices' pricing proposals.

- Airways Corporation of New Zealand operates under a memorandum of understanding with its airline users. Under this memorandum, Airways uses the principle of "Economic Value Added" (EVA) to self-regulate its pricing. EVA is the difference between net operating profit after taxes minus the cost of capital. EVA above a certain level is returned to users in the form of a rebate.

- The German Transport Ministry reviews and approves any changes in user fees, but does not independently evaluate the price-setting process or pricing changes. According to the Transport Ministry, Germany plans to create an independent economic regulatory authority by next year to comply with the requirements of the forthcoming Single European Sky initiative.

- The Canadian Transportation Agency (CTA) reviews the price-setting process against an established set of principles. However, CTA does not respond to user grievances about existing prices. NAV CANADA is legislatively required to place all revenues in excess of costs in its rate stabilization fund.

[15]The retail price index is the average measure of change in the prices of goods and services bought for consumption by the vast majority of households in the UK.

Available Data Indicate That Since Commercialization, the Five ANSPs Have Maintained Safety, Controlled Costs, and Achieved Efficiencies

Based on information from each of the ANSPs we reviewed, following commercialization, air navigation safety has not declined, and all five ANSPs have taken steps to control costs. In addition, the ANSPs have improved the efficiency of their operations through the implementation of new technologies and equipment. According to the ANSPs, some of these outcomes would not have been feasible in a government organization.

Since Commercialization, Safety Performance Has Not Been Compromised

At a minimum, safety has not eroded since commercialization, according to the available data from of each of the five ANSPs. For example, data from Airways Corporation of New Zealand indicate a downward trend in incidents involving loss of separation[16] for the years following commercialization. Similarly, according to NAV CANADA's annual report for 2004, the rate of loss-of-separation incidents decreased from 1999/2000 through 2003/2004. Officials at Transport Canada, the safety regulator, confirm an overall decline in aviation incidents since commercialization.

Additionally, stakeholders have anecdotally reported that they believe the air navigation system is as safe as it was when the government provided air navigation services. According to some, the separation of operating and regulatory functions has strengthened safety regulation and diminished any potential conflict of interest between promoting the financial interests of aviation operators and protecting safety.

As improved technology and system upgrades have allowed individual controllers to handle increasing levels of air traffic, concerns have arisen about the potential for controllers' fatigue to compromise safety. Data are not available to assess this potential, but some ANSPs have taken steps to limit and monitor controllers' workload. For example, the UK's CAA has regulated the hours of civil air traffic controllers, and its Safety Regulation Group must be notified of any breach by NATS or by controllers. In New Zealand, as air traffic has increased, some airspace sectors have been subdivided so that controllers are responsible for a smaller piece of airspace.

[16]Loss of separation is an occurrence or operation that results in less than the prescribed separation between aircraft, vehicles, or objects.

Five Commercialized ANSPs Have Taken Steps to Reduce Operating Costs

To lower their personnel costs, all five ANSPs have reduced their administrative staff or flattened their management organizations. For example, NAV CANADA closed most of its regional administrative offices and centralized corporate functions to its headquarters, reducing mostly administrative staff by 1,100 people (17 percent of the workforce). Airways Corporation of New Zealand also reportedly reduced its personnel costs by eliminating some middle management and administrative positions. In general, the ANSPs have not reduced their air traffic controller staffs.

To lower their facility operating costs, all five ANSPs have closed, relocated, or consolidated facilities. For example, Airways Corporation of New Zealand reported consolidating four radar centers into two over 8 years and is planning to consolidate these two into a single radar center by 2006. DFS has also integrated operations and consolidated facilities. Seventeen approach units have been integrated from the airports to the four air traffic control centers. It relocated the Dusseldorf control center to the Langen control center in 2002, a year earlier than planned, and transferred and consolidated its headquarters from Offenbach to Langen. DFS reports that, because its supervisory board now makes major investment decisions, rather than a parliamentary committee, it has been able to make key strategic decisions that would have been politically difficult when DFS was under government control.

In the UK, NATS reduced its net operating costs by almost £96 million during 2002 through 2004, in part through direct management actions. For example, it consolidated two operations into one at the new air navigation services center called the Swanwick Center. According to NATS, it reduced its staff costs by £12 million and its costs for services and materials by about £11 million between 2002 and 2003, after placing this new center in service. Between 2003 and 2004, NATS reported reducing its operating costs for air traffic services by another £13 million through cost control measures.

Five ANSPs Say They Have Improved Efficiency through Modernization

All five ANSPs have purchased new equipment and technologies that they say have improved productivity. For example, Airservices Australia reported increases in controllers' productivity following the introduction of the Australian Advanced Air Traffic System (TAAATS). This system replaced conventional radar screens with more advanced computer screens that display data from a range of sources, including ground based surveillance equipment and satellite-linked navigational equipment on aircraft, among others. TAAATS replaced handwritten paper flight progress strips with screen-based information that is updated

automatically. DFS is also eliminating systems that depend on paper strips and anticipates productivity gains and cost savings as a result. In New Zealand, according to the union that represents air traffic controllers, individual controllers are now able to handle much more flight activity because of improved technology.

Besides improving productivity, modernization, together with airspace redesign, has produced operational efficiencies, including fewer and shorter delays, according to the ANSPs.

Access to Cash Flow and Borrowed Funds Has Facilitated Modernization

Commercialization has allowed the ANSPs to implement modernization projects more efficiently. Formerly, the uncertainty associated with the annual appropriations from national governments made it difficult to plan over multiple years. With access to cash flow and borrowed funds, the ANSPs report that they have been able to plan and execute projects more efficiently and have seen improvements in delivering projects on time, within budget, and to specification. For example, Airways Corporation of New Zealand deployed its new oceanic system, FANS1, in less than a year. The management of NAV CANADA estimates that it is producing new technology faster than the government once did and at half the cost.

Some of the commercialized ANSPs maintain that they have achieved the benefits of modernization faster and at less cost by purchasing commercially available systems and upgrades or by modifying off-the-shelf technologies to meet their needs, rather than developing their own systems from the ground up. NATS purchased its oceanic system and automated tower/terminal control system from NAV CANADA. To achieve further purchasing efficiencies, some commercialized European ANSPs have developed an alliance to procure systems. For instance, Germany has developed a strategic alliance with Switzerland and the Netherlands for the joint procurement of a new radar system.

Focus on Cost Control and Operational Efficiency Has Affected User Charges

Through their cost control initiatives and modernization efforts, some of the ANSPs have been able to lower their unit costs and, in turn, lower their charges to major commercial airlines, which pay the largest proportion of user fees and therefore are the primary users served by the ANSPs. Airservices Australia, for example, reported lower unit costs resulting from the increases in controllers' productivity that followed the introduction of TAAATS. NAV CANADA estimates that it is saving the airlines approximately C$100 million annually in reduced aircraft

operating costs. According to NAV CANADA, the airlines are now paying 20 percent less in user fees than it formerly paid in ticket taxes when the government provided air navigation services.[17] In Germany, Lufthansa stated that except in business years 2001 through 2003, it has paid less in user fees than it paid during the initial commercialization of Germany's air navigation service. According to Airways Corporation of New Zealand, it reduced en route charges by 22 percent in 1995 and another 13 percent since 1997, resulting in an overall reduction of more than 30 percent.

However, for general aviation operators, commercialization has sometimes meant an increase in fees. Before commercialization, many only paid taxes on fuel. Some countries, such as Canada and New Zealand, have tried to make the fees affordable for small operators by charging a flat fee. NAV CANADA, for instance, charges general aviation operators a flat annual fee of C$72. According to the Aircraft Owners and Pilots Association—New Zealand, Airways Corporation of New Zealand charges general aviation operators a fee of NZ$100 for 50 landings. In addition, Airways eliminated the en-route charge for light aircraft.

Some governments have subsidized air navigation services at small, remote, general aviation, and regional airports, viewing such services as a public good. Australia, for instance, provides a subsidy for service to some remote areas under the Remote Air Subsidy Scheme. Similarly, to protect service to remote locations and ensure equity of service to smaller communities, Canada legislatively requires NAV CANADA to maintain service to such locations. For instance, service to the Northern region, which is designated as "remote," is guaranteed under the legislation. In addition, NAV CANADA is required to price services to remote locations on the same basis as service to the rest of the country.

Initial Observations on Commercialized ANSPs

Through our research, we made a number of initial observations about the commercialization of air navigation services in the five countries we selected. The following paragraphs summarize these observations.

[17]While Australia, Canada, and New Zealand collect both en route and terminal fees themselves, Germany and the UK collect terminal fees themselves and receive en route fees collected for them by EUROCONTROL.

Having a Contingency Fund Can Help, but May Not Be Sufficient, to Protect Against an Industry Downturn

Following commercialization, two changes—shifting the source of funding from appropriations to user fees and allowing the ANSPs to borrow money on the open market—have generally enabled commercialized ANSPs to cover their operating and capital costs. However, user fees and borrowing may not be sufficient to cover an ANSP's costs during an industry downturn. As a result, a contingency fund or other mechanism may help to offset the effects of a downturn, although it may not do so completely if the effects are severe.

When the economy began to stagnate in 2000 and air traffic began to decline, revenues from ANSP user fees began to fall. These revenue losses grew as transatlantic traffic declined after September 11, particularly affecting some ANSPs. In the UK, as a result of both these losses and the relatively high debt that it had assumed to commercialize, NATS's solvency was threatened. Ultimately, NATS refinanced its debt with the concurrence of the Department for Transport and other shareholders. In Germany, DFS also experienced revenue losses, but to a lesser degree. DFS reported a loss of more than €33 million in 2001, when air traffic declined by 0.9 percent over the previous year. In 2002, it sustained a loss of more than €21 million, when air traffic levels fell 2.9 percent below 2001 levels. To address these deficits, DFS modified investments, canceled projects, and ultimately raised fees, thereby increasing financial pressures on the airlines. However, when air traffic increased again in 2003, DFS recorded an operating profit of more than €80 million and reduced fees for 2005 en route by 19.5 percent and terminal charges by 28 percent. DFS has begun to consider the benefits of a reserve fund, but German legislation governing air navigation service charges must be changed before DFS will be allowed to develop such a reserve. NAV CANADA had banked up to C$75 million in its rate stabilization fund before September 11 and the concerns about SARS. However, following the severe industry downturn resulting from these two events, the fund was quickly exhausted.

Some Economic Review or Guidelines May Be Needed to Ensure Fairness in Pricing

Because the ANSP is typically the sole provider of en route and approach control services in a country, some mechanism may be necessary to keep prices in check. Since user fees constitute the ANSP's primary source of revenue, economic monitoring and regulation by an independent third party can protect users and ensure a fair pricing process. Such an entity can ensure that all parties' interests are taken into account and a variety of alternatives are considered. It can also provide assurance to users that price levels are appropriate, do not reflect overcharging, and are consistent with competitive practices.

ICAO recognizes the need for an independent mechanism to provide economic regulation of air navigation services. According to ICAO, the objectives of economic regulation should include the following:

- Ensure nondiscrimination in the application of charges.
- Ensure that there is no overcharging or other anticompetitive practice.
- Ensure the transparency and availability of all financial data used to determine the basis for charges.
- Assess and encourage efficiency and efficacy in the operation of providers.
- Establish standards for reviewing the quality and level of services.
- Monitor and encourage investments to meet future demand.
- Ensure user views are adequately taken into account.

Australia and Canada have taken different approaches to reviewing their ANSPs' user charges and price setting. In Australia, the Australian Competition and Consumer Commission (ACCC) oversees price changes. Airservices Australia must notify ACCC whenever it wants to raise fees. Following a formal notification and vetting process, ACCC decides to accept or reject the price change on the basis of its evaluation of Airservices' pricing proposal; and if they reject the proposed price, they can set a lower price. Recently, the ACCC rejected a proposal by Airservices for a temporary fee increase to address the revenue losses that followed September 11 and the SARS outbreak, as well as the collapse of Australia's second largest airline. In rejecting the proposal, ACCC considered the fact that the industry took exception to these increases, raising concerns about the need for longer-term price certainty. ACCC ruled in favor of the industry and rejected the temporary price increases, instead deciding that a longer-term arrangement be considered. ACCC directed Airservices to focus on 5-year pricing plans to encourage long-term planning, emphasizing that the robustness of the airlines should be taken into account when a price is set.

Canada has no formal regulation of fee setting. According to the Office of the Auditor General, the Canadian Transportation Agency (CTA), the formal appeal agency, can intervene only in matters concerning the price-setting process, not price levels or price changes. CTA was not given authority over price-setting issues to ensure that NAV CANADA could

maintain a good credit rating, thus making NAV CANADA appealing to financiers. (As of April 2005, NAV CANADA's bonds were rated AA–nearly as high as the government's AAA-rated bonds.) NAV CANADA's board of directors, which includes air carrier representatives, is the main venue for the industry to express any grievances over pricing issues. However, according to Air Canada, its input on the board is limited and, because the public has comparable representation on the board, the public and the industry cancel out each other's input. When NAV CANADA raised prices after its rate stabilization fund was exhausted during the economic downturn, air carriers argued that this move further disrupted their business cycle during a time of financial strain.

Early and Continuous Stakeholder Involvement Is Key

CAA officials said they must ensure that society's broader interests are protected. In particular, GAO believes addressing the concerns of air traffic controllers was essential because they play a vital role in the air navigation system. For several of the ANSPs we reviewed, controllers' support of commercialization was crucial to move the process forward. In New Zealand, controllers supported commercialization when faced with an aging system and inadequate public funds to acquire new equipment. Controllers in Canada supported the transition following a 5-year salary freeze and hiring freezes. However, Canadian controllers' support for commercialization has diminished, mainly because of differences over collective bargaining issues such as wage increases, the right to strike and controller fatigue. The Canadian controllers have acknowledged that they were instrumental in pushing for change, but they have also noted that the results of commercialization have fallen short of their expectations.

ANSPs have also noted the importance of involving stakeholders in efforts to design, acquire, and deploy new technologies. According to Airservices Australia, its air traffic controllers have come to understand the commercial imperative to make a return on investment. Similarly, Airways Corporation of New Zealand notes that it is essential to involve the same controllers throughout the design process so that there is consistency in requirements and a thorough understanding of the project's ongoing specifications. In Airways' experience, it is essential for controllers, manufacturers, and the ANSP to reach agreement in order to establish realistic expectations for system design from the very beginning.

Steps May Be Needed to Balance Public and Business Interests

Hypothetically, small or remote communities, that rely primarily on aviation for transportation, may be threatened by location-specific pricing. Under this pricing scheme, an ANSP charges a fee for service that matches the cost of providing that service to a specific location. As a result, some communities may be subject to higher charges than others. By contrast, two ANSPs have used network pricing, a scheme that charges the same fee for air navigation services to every airport, regardless of size or location, even though the costs of providing the services to some airports may be greater than to others. Under network pricing, the service to heavily used airports subsidizes the service to others.

Two of the ANSPs have adopted location-specific pricing for some air navigation services. (Airport services are provided by competition in the U.K., which may result in different prices.) Often, the minimum costs of service to small or remote communities are higher per plane than the costs of service to large communities because the cost of air navigation services must be spread among fewer operators, usually with smaller aircraft. If airlines decide that service to such communities is not commercially viable, they may ultimately discontinue service to these communities. Similarly, general aviation operators may be threatened if they are required to pay fees that cover the full costs of the air navigation services they receive. Continuing to serve small communities and operators may require special efforts to balance public service needs and business interests.

In addition to the Remote Air Subsidy Scheme mentioned earlier, Australia also provided a subsidy that allowed prices to be capped at most general aviation and regional airports. This subsidy was designed to ease the transition to location specific pricing for select airports and is scheduled to end in June 2005. Consequently, Airservices Australia reported that, in order to compensate, it will be increasing charges over the next 5 years at these locations and that these increases have been approved by the regulator. These increases have been moderated to balance the effect on aviation at airports frequently used by general aviation operators. As a result, concerns persist about the implications of further price increases and any future need to close or reduce services at these locations. Some fear that needed air services to remote bush locations will be lost while others fear that secondary services such as flight school training will be affected.

Hypothetically, the impact on small operators and remote communities is difficult to assess. Theoretically, costs may go up as a result of implementing user fees, but charges may not necessarily be prohibitive.

Where service to small communities is legislatively mandated, ANSPs may ultimately be forced to take a financial loss if they are not able to fully recover their costs. Airservices Australia is seeking to control costs at some of those locations by deploying new lower-cost technologies to serve small communities. For example, Airservices Australia is planning to install Automatic Dependent Surveillance Broadcast (ADS-B) ground stations, which will allow air traffic surveillance services over remote regions of Australia where radar is not a cost-effective solution.

Appropriately Assessing the Value of Assets Is Essential for Sound Pricing and Cost Accounting

To protect taxpayers' interests, the countries that commercialized their air navigation services needed to have an appropriate valuation of their facilities and equipment before selling these assets to the newly established ANSP. According to the Office of the Auditor General (OAG) in Canada, Canada did not properly value its ANSP assets and infrastructures. The C$1.5 billion value that the government negotiated with NAV CANADA in 1996 fell short of the C$2.3 billion to 2.4 billion estimate developed in 1995 by a third party hired by the OAG. NAV CANADA reported, however, that both it and Transport Canada disagreed with the OAG's estimate and its underlying assumptions. In a study of the NATS reorganization, the National Audit Office (NAO) found that the UK government had raised some £758 million from the sale of the ANSP to a consortium of seven UK-based airlines. However, these proceeds were realized by increasing the level of NATS's bank debt. As a result of this debt, NATS was extremely vulnerable to the decline in air traffic after September 11. DFS is currently undergoing a valuation of its assets in preparation for selling 74.9 percent of its equity to private investors in a formal competitive bidding process.

Maintaining Staff Levels and Expertise During Commercialization Can Prevent Disruptions in Regulatory Functions

Some countries experienced difficulties in retaining a sufficient number of staff to carry out safety regulation. For example, in Canada, many of the safety staff moved to the newly established NAV CANADA after commercialization, leaving the government regulator, Transport Canada, with insufficient staff to carry out timely safety inspections during the first 6 months after commercialization. Germany faces a similar challenge as the government prepares to develop a safety regulatory authority in accordance with the Single European Sky initiative by the end of this year. According to the Transport Ministry, it may be difficult for the government to recruit safety staff on a civil service salary and compete with the salaries of safety inspectors from the private sector.

Developing Baseline Measures before Commercialization Will Enhance Performance Measurement

Obtaining baseline measures before commercializing a country's air navigation services will allow the government and others to assess the new ANSP's safety, cost, and efficiency. Some of the countries whose ANSPs we reviewed did not collect baseline data or measure performance as extensively as the commercialized ANSPs have since done. As businesses, commercialized ANSPs must assess the progress they are making toward their goals to access private funding, and therefore they need extensive performance data. In addition, international organizations, such as CANSO and ICAO, support commercialized ANSPs and ICAO, for example, emphasizes the importance of having transparent financial data available for economic oversight.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions that you or the other Members of the Subcommittee may have.

GAO Contacts and Staff Acknowledgements

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Statement by Dieter Kaden

Chief Executive Officer and Chairman of the Board of Managing Directors

DFS Deutsche Flugsicherung GmbH

(German Air Navigation Services)

Hearing in the U.S. House of Representatives

Subcommittee on Aviation, Washington D.C.

20 April 2005

LONG VERSION

DFS Deutsche Flugsicherung

U.S. House of Representatives
Committee on Transportation and Infrastructure

Congressional Hearing

Washington, 20 April 2005

Mr. Chairman, Ranking Democratic Member, Members of the Subcommittee,

First of all, I would like to thank you very much for your kind invitation and for the opportunity to once again give you an overview of DFS Deutsche Flugsicherung. This time I will also elaborate on the planned privatization of the German air navigation services organization.

The Federal Republic of Germany, the entire staff of DFS and I myself consider this invitation to Washington, the capital of the world's leading aviation nation, as a privilege and a very special honor. Thank you very much!

I want to explain briefly what DFS has achieved in less than twelve years since its foundation.

While airlines and major airports were operating according to private sector principles, the German air navigation services organization was structured as a federal authority for forty years (from 1953 to 1992). Due to this bureaucratic structure, the air navigation services in Germany lacked the required flexibility and increasingly proved to be a bottleneck within the air transport system.

The disadvantages of these structures became all the more apparent with the boom of the air transport system. Projects continuously experienced problems in terms of costs, schedules and performance, and the organization was, thus, unable to deliver

value for money. An organizational culture to encourage collaboration with customers was not in place.

Delays had reached an intolerable level and the technical equipment of the air navigation services could no longer keep pace with technological developments.

Major steps in the process from a federal authority to a to commercial enterprise

1. Establish the legal basis: e.g. change of Constitution in 1991
2. Draw up legal framework for the commercial company in 1992
3. Adjust aspects of taxation
4. Founding of DFS in 1993
5. Capital appreciation
6. Fill the official bodies of DFS
7. Establish certain regulations, e.g.
   - ATC staff requirements
   - Requirements for professional training
   - ATM regulations
8. Lay down principles, e.g. for
   - Government duties
   - Allocation of tasks between different bodies (MOT, MOD)
9. Determine the organizational structure (processes and management)
10. Establish certain policies and negotiate wage agreements
11. Work out conditions for the staff transfer into the commercial enterprise
12. Establish a finance and controlling system
13. Define corporate development (corporate strategy, development of organisation)
14. Implement safety and quality management, e.g. Critical Incident Stress Management (CISM), employee incentive scheme (DIPOP)

DFS Deutsche Flugsicherung GmbH
Dieter Kleden, April 2006

For these reasons, politicians, ATC organisations as well as all our users strongly advocated the corporatization of this federal authority as early as in the eighties in an effort to modernize the nation's air traffic management system.

Parliament amended the German Constitution and the Aviation Act in 1991 to corporatize the air navigation services and make them a corporation wholly owned by the Federal Republic of Germany.

On 1 January 1993, DFS began operating as a corporatized enterprise in line with private sector principles. Today, DFS is a not-for-profit organization and financially autonomous.

What have we achieved?

1. Management of Air Navigation Services

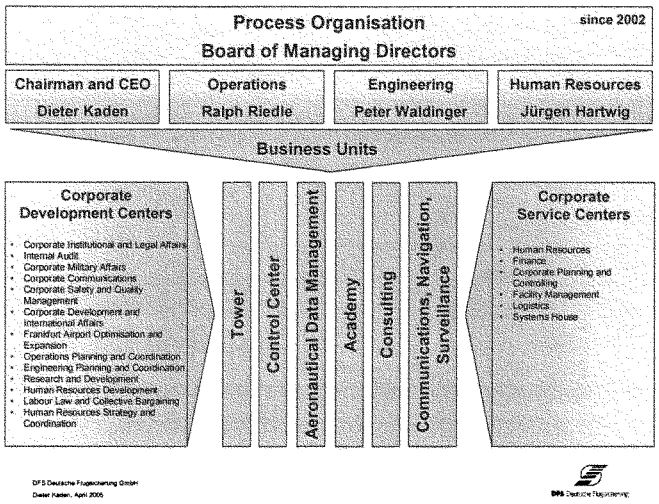
The Ministry of Transport (MOT) has the regulatory oversight as stipulated by law. The MOT is responsible for the legal and functional supervision and plays a supervisory role in all issues relating to safety, user charges, information and liability.

In accordance with the Chicago Convention, the MOT is still the authority for international agreements, as well as for participation in supranational and international organizations (such as ICAO and EUROCONTROL). To do this, it draws on the technical and operational expertise of DFS. Due to the civil-military integration, DFS will be subordinate to the Ministry of Defense (MOD) in times of tension or defense.

The DFS Supervisory Board consists of six representatives of the employer and six representatives of the employees. One of the employer representatives is the Head of the Supervisory Board – a former Minister of Transport, who today is a member of the executive committee of an international industrial consulting firm – two members belong to the Ministry of Transport, one to the Ministry of Finance and two to the Ministry of Defense. The employees are represented by the spokesman of the executive employees, by the chairman of the staff council, by three air traffic controllers and by a union representative.

DFS has a process structured organization with 6 business units, corporate developments centres and corporate service centres, following the key principle: "structure follows strategy".

Process-oriented organisation



The realization of DFS objectives and strategies required an efficient and well-performing organization. This organization has to ensure the marketability and quality of services, enabling entrepreneurial initiative, flexibility and manageability.

It has to consolidate its strategic position, enabling DFS to be a key player on a European and international level in the future.

Principles of the DFS process-oriented organization are:

- External as well as internal customers are the focal points of all activities
- All activities which contribute to well-defined business processes are integrated to reduce the number of interfaces and related work
- A top-down approach is taken towards planning processes to ensure better assignments and higher individual responsibilities and self-control
- Customers, service attitude and value chains are the key factor to achieving continous process improvements

They all follow the key principle "structure follows strategy"

Based on these process principles, the following organizational processes were set up:

1. Business units, like Control Center, Tower, CNS (Communications, Navigation, Surveillance) focus on external customers.
2. Corporate Service Centers (CSC) like Human Resources, Finance, Corporate Planning and Controlling are important supporting processes which focus on internal customers.
3. Corporate Development Centers (CDC) like Corporate Development and International Affairs, Corporate Safety and Quality Management, Corporate Institutional and Legal Affairs are consultants focusing on the further development of DFS.

Financing

1. DFS finances itself mainly by drawing on a capital market program
2. All airspace users must be treated equally when it comes to providing services and calculating user charges in Germany
3. DFS has not received any federal sibsidies since the intial restructuring in 1993
4. In future, user charges will be subject to economic regulation

DFS Deutsche Flugsicherung GmbH
Dieter Kaden, April 2005

DFS Deutsche Flugsicherung

2. Financing

DFS finances itself mainly by drawing on a capital market programme. The total program amounts to € 1.0 billion (€ 0.5 billion for the commercial program, € 0.5 billion for the medium-term note program). The currently outstanding volume of the medium-term note program is € 310 million, the commercial paper ony being issued for arbitrage purposes. The net financing volume after deduction of the financial investments is currently about € 90 million. In addition, DFS disposes of a back-up bank credit line of € 161 million.

The interest rates are based on the existing rating which up until now has been affirmed as AAA/Aaa by Standard & Poor's and Moody's. Depending on the tenors, the spread to the market rate is almost flat. With regard to the privatization, we expect credit spreads to rise according to the extent of the downgrading.

The en-route charges are calculated and billed by EUROCONTROL according to the "Principles for establishing the cost base for route facility charges".

When DFS took over the provision of air navigation services from the former federal authority BFS, this did not change. Terminal charges were introduced in Germany on 1 July 1990. They are billed by DFS itself and not by EUROCONTROL. This facilitates optimal control of accounts receivable. Between 1990 and 1992, terminal charges ensured a 50 per cent cost recovery, while in 1993 cost recovery was 100 per cent.

All airspace users must be treated equally when it comes to providing services and calculating user charges in Germany. Classification of users would be against the law. There are only two exceptions: the first one is the flat rate which applies to general aviation, and the second one is made for military operational air traffic (OAT). The military also reimburses DFS for military-related costs but this is based on a separate agreement between DFS and the Ministry of Defense.

DFS has not received any federal subsidies since the initial restructuring in 1993. On the contrary, DFS pays the government for all ANS-related costs, especially the costs of departments in the Ministry of Transport dealing with ANS as well as fictitious pension costs of those civil servants who used to work for the air navigation services, as well as tax, dividends and amortization of a loan.

Next to safety and service quality, the level of user charges is of the utmost importance. The incentive to keep user charges competitive stems from tough competition in Europe. This is promoted by EUROCONTROL with its Performance Review Commission and its Performance Review Reports as well as the Enlarged Committee for User Charges in which airspace users participate. Airspace users and other stakeholders are heard in many other fora in Europe as well.

In future, user charges will be subject to economic regulation. Regulated user charges will allow the "necessary" costs of service to be recovered.

3. Key Performance Indicators

SAFETY

1. Changes Made to Ensure and Improve Safety

- Continuous, active involvement in the EUROCONTROL Safety Team and as Advisor to the German Commissioner in the Safety Regulation Commission

- 1995 Adoption of "DFS Safety Strategy" in line with EUROCONTROL Standards
- 1996 Adoption of "DFS Safety Policy and Principles" and start of "SMS Project"
- 1997 Establishment of "DFS Safety Management Directorate"
- 1998 Establishment of "DFS Safety Management System (SMS)"
- 1999 Process-oriented reorganization of SMS and integration of security management into one management system

- 2000 Adaptation of SMS to the new EUROCONTROL ESARR3 requirements
- 2001 Establishment of procedure "DFS Reporting and Assessment of Safety Occurrences in ATM" according to ESARR2 requirements
- 2002 Establishment of procedure "DFS Risk Assessment and Mitigation" according to ESARR4 requirements
- 2004 Establishment of procedure "ATM Services Personnel" according to ESARR5 requirements

- 2004 Formal certification of the DFS SMS by national regulator (done by an accredited organization)

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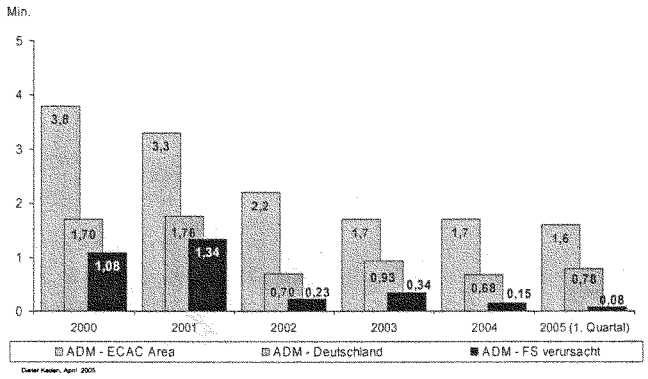
Dieter Kaden, April 2005

Our primary corporate objective – the safety of air traffic – has by no means suffered. On the contrary: while 265 aircraft proximities were investigated in Germany in 1971, there were only 33 airproxes of the risk-bearing categories A and B in 1994, of which 14 were ATC-related. And from 1995 until today the number of ATC-related airproxes of these categories has decreased to 5 or even less every year, despite a cumulated traffic growth of 35 per cent within the same period.

In 1995, we introduced a corporate Safety Strategy, which led to the development and implementation of our Safety Management System in line with international standards and best practices. In addition, the EUROCONTROL Safety Regulation Commission, established in 1998, adopted several Safety Regulatory Requirements on ATM Safety Management to be fulfilled by the Member States. In 2004, our Safety Management System was formally audited by an external company and certified by our regulator to be fully compliant with the EUROCONTROL Safety Regulatory Requirements (ESARR).

EFFICIENCY

Average ATFM delay per movement (ADM)



Our efficiency has significantly increased. Despite the rise in traffic, Europe has seen a general reduction in delays caused by air traffic flow management measures. This is thanks to capacity increases by the air navigation services. Certainly, one important aspect is that since 1994 we have been able to use the scarce resource "airspace" in a more flexible and efficient way because regional military air traffic control is entirely integrated into our corporation. One organization using one sky according to the Flexible Use of Airspace (FUA) concept.

In terms of delays caused by air traffic flow management measures, 2004 has the best record since the EUROCONTROL CFMU was established. DFS is synonymous with punctuality. 96 per cent of all flights controlled by DFS reached their destinations without any ATC-related delays and the ADM (average delay per movement) at DFS is 0.15 minutes, whereas it amounts to 1.7 minutes within the States of the European Civil Aviation Conference (ECAC).

The corporatization generally paved the way for opening airspaces including military airspaces, implementing more cost-effective flight profiles and optimising control procedures between neighboring countries, air navigation services units and sectors.

KPI – Cost-control Measures

- **Establishment of an internal accounting unit / controlling process**
- **Establishment of an efficiency programme**
- **Introduction of bonus schemes for all employees (Company bonus, "Faktor X") rewarding individual and company performance**

- **Outsourcing of flight calibration services into a joint venture company (FCS)**
- **Outsourcing of AIS database services into a joint venture company (EAD)**
- **Development of commercial activities outside ATC (turnover app. € 25 million p.a.) to use resources in times of overcapacity**

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Operating efficiency is being assessed in comparison with other European air navigation service providers. DFS has provided operational data to EUROCONTROL's Performance Review Commission (PRC) since 1999. The most important Key Performance Indicators are cost-effectiveness and efficiency of production.

Numerous cost-control measures along a balanced scorecard have been implemented which could not have been implemented by BFS, for example the establishment of an internal accounting unit/controlling process, the establishment of an efficiency programme, introduction of bonus schemes for all employees rewarding

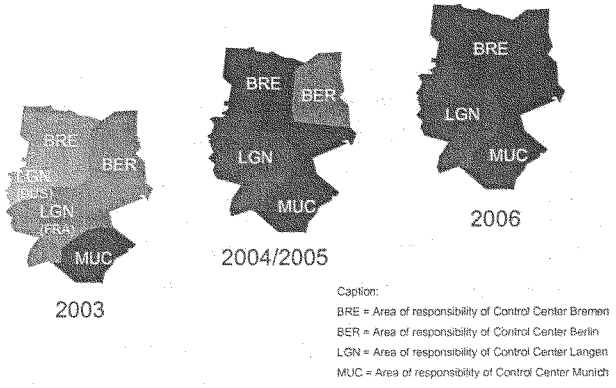
individual and company performance, outsourcing of flight calibration services into a joint venture company (FCS), outsourcing of AIS database services into a joint venture company (EAD), development of commercial activities outside ATC to efficiently utilize resources in times of overcapacity.

4. Stakeholder Issues

Customers

The corporatization of the air navigation services in Germany in the early nineties was in line with the political mandate to become more productive. It aimed to increase economic benefit while maintaining or improving the service level for DFS customers.

Areas of responsibilty of DFS area control centers (ACC) and their future development



To meet our customers' requirement to perform efficient air traffic services, DFS has taken far-reaching action to reorganize the company. This has led to optimized airspace structures and enhanced operational processes. An essential part of the reorganisation was, in a first step, the integration of 17 approach control units with area control centers. The follow-up step is the consolidation of the control centers by

reducing the number of control centers from six to four, by transferring Düsseldorf to Langen in 2002 and Berlin to Bremen in 2006.

DFS aimed to realize synergy effects and, thus, reduce the administrative and technical sections of the control centers. Furthermore, the consolidation of control centers has led to savings in the field of systems development since fewer systems have to be upgraded. The major aspect of the center consolidation concept was making sure that the size of a control center would still be manageable.

When the center consolidation concept was approved in 1995/1996, cost savings of up to € 50 million were envisaged. This calculation did not take account of savings due to higher efficiency levels. Dynamic developments in Europe (Single European Sky) have made it necessary to carry on with the center consolidation planning process and the systems development planning.

Our customers benefit in two ways: firstly, they are able to operate their aircraft even more efficiently and, secondly, we pass on our cost savings to airspace users.

Furthermore, customers are represented in the Advisory Board of our cooperation. Through a number of official and personal contacts with users of the air transport system, we know what they expect of us. For example, a Customer Relationship Management system was established to provide our customers with newsletters, initiate customer surveys and include the results in a quality management process. It also organises customer hearings and participates in international ATM working groups.

In contrast to a large centralised authority, a corporation under private law, where short communication channels exist and where the responsibilities with regard to manpower and finances are clearly defined, can more easily make necessary reorganizations which, in certain cases, can be very complex. Our customers who are also organized in corporations under private law were well aware of this. This is why they supported us in our corporatization process. When BFS was corporatized, our customers knew that we would lose government subsidies of up to € 92 million per year and that this would lead to an initial increase in user charges to offset expenses. And their support has paid off. Productivity has increased. Between 1993 and 2005, en-route traffic increased by 175 per cent, whereas the user charges only increased by 0.6 per cent. For the terminal area within the same period, air traffic increased by 47.8 per cent, whereas user charges were reduced by 37 per cent.

Employees

A project such as our corporatization could only be successful with the support of motivated employees. For forty years, German air traffic controllers had been at the lower end of the European pay scale.

Today, air traffic controllers worldwide are earning salaries which are at the top of the scale. In Germany, they are able to earn up to 25 per cent more in net terms than prior to corporatization. However, not all employees in the operational services reach the top salary. For the first time in the history of the air navigation services, our collective agreements take account of the employee's work location, performance and workload. During our negotiations with the trade unions, we also succeeded in pushing through the lifting of the age of retirement and the reduction of paid breaks by 2.5 hours per week. Salaries of employees in non-operational areas are oriented towards market conditions. Increases in efficiency within the whole company are ensured through a large-scale promotion and further training program and through an Integrated Quality Management Approach. Therefore, only 24 out of 2,400 air traffic controllers have decided to retain their civil servant status.

At the same time, other organizational and personnel reforms have been made, such as the improvement of working conditions and processes. New employees have been hired. As a result, employees have become more motivated and the German public has taken notice of the good work performed by the air navigation services.

Communicating the change process has helped to keep the positive spirit among DFS employees alive. Besides a continous flow of information, we have integrated the associations and the staff council into the change process, and we have set up task forces to involve employees in the development of our vision and strategy.

The entire cultural change took place by a bottom-up approach, including the company's constitution and the management vision.

5. Modernization

When we require new technical equipment, we make our decisions in line with operational cost-benefit considerations within the shortest time possible and not in line with lengthy procedures and the bureaucratic constraints of a State budget. Flat hierarchies, a new corporate culture, well-trained and, above all, motivated employees, a large-scale technical overhaul and economic prudence are our maxims.

Modernization

- Modernization of most of the technical infrastructure
- Expansion of none-core activities
  - Consulting, data management, production of maps and charts, maintenance, simulations and training
- Development of a financial investment strategy
  - DFS ESSP
  - FCS Flight Calibration Services GmbH
  - GroupEAD Europe S.L.
- Single European Sky
- Privatization of DFS

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Technical modernization: We use state-of-the art tools, for example SAP/PS for a structured project management process. We built up an R&D unit to evaluate new technologies and simulate new system operation, established inhouse capabilities for software development, modernized the entire ATM system and the CNS technical infrastructure. The whole capital expenditure program, which was realised between 1993 and 2004, amounted to € 1.5 billion. This corresponds to the modernization of almost everything.

Not only have we increased efficiency in our core business of air traffic control, but we have also expanded our non-core activities. Between 1993 and 2005, DFS has explored and taken business opportunities in the fields of consulting, data management, production of maps and charts (mainly for VFR flights), maintenance, simulations and training.

In 1995, DFS established a separate business unit called "Consulting" in order to respond to market requirements outside the core business area. According to an agreement with the Supervisory Board, DFS Consulting is authorized to sell DFS expertise to interested customers. Actual full costs are the calculation basis in order to avoid cross-subsidising with user charges; highly competitive market prices are the ongoing challenge. Products and services focus on air traffic control and the relevant interfaces to airports. The services performed by Consulting further include studies,

system implementation and technical support, organisational concepts, airspace planning and restructuring, procedures planning, training, safety analyses, cost-benefit analyses, tendering support and general consulting for all mangement levels.

Another example is the DFS business unit Aeronautical Data Management. In a business-oriented approach, we have used our expertise to develop and produce aeronautical charts for the national German airspace, and we have joined forces with the Spanish and Polish ANSPs to produce harmonized charts for the whole of Europe across national European borders. Market-oriented contractual solutions and multinational commercial services such as airspace and airport simulations help not only to enhance know-how but also to build up confidence in DFS abilities. This non-core business is conducted independently of taxpayer monies and user charges.

DFS subsidiaries and affiliated companies

Apart from these modernization issues, DFS also developed a financial investment strategy, which is based on the principle that all shareholdings (or cooperations) have to provide an added value to DFS (and consequently to the DFS shareholder).

This added value may be accomplished in different ways, such as reducing costs for support processes, a defined return of investment in the form of dividend payments, investment in future markets and technologies to secure revenue in the future, just to name a few.

Following this rationale, up to the present day, DFS has founded a 100% subsidiary to hold shares in the EGNOS operation model, together with seven other ANSPs.

We founded

1. FCS Flight Calibration Services GmbH (FCS), a German limited liability company based in Braunschweig. It is a joint venture company and the shareholders are DFS (55%) and the Austrian and Swiss ANSPs. By joining forces, the partners were able to considerably reduce their process costs, i.e. the cost per flight hour for calibration. For example, DFS has successfully cut 40 per cent of costs over the years.
2. GroupEAD Europe S.L. (GEAD), a Spanish limited liability company based in Madrid, a joint venture company by DFS (36%), AENA and Frequentis, an Austrian high-tech company, with the objective to permanently secure the contract for the operation of the Eurocontrol-owned European AIS Database (EAD). The first 5-year contract started in mid-2003. The goal of receiving a 6

per cent dividend on the invested share capital of € 360,000 has been achieved so far (dividend payments in 2002 and 2004).

Another reason for modernization certainly is the Single European Sky (SES). At the end of the nineties, the European Commission put the harmonization of European ATC back on the political agenda. This was mainly due to the steady increase of delays in Europe and the related negative publicity in the newspapers during holiday seasons.

With the implementation of the Single European Sky Directives of the European Union, some elements of competition will be introduced in future European ANS. Air navigation service providers (ANSPs) will have to be certified and – in theory – any certified air navigation service providers may bid for services in any State of the European Union if the State chooses to call for tenders for ANS in its airspace. Therefore, ANSPs will have to become more competitive in future in order to safeguard their further existence in the long run. This entrepreneurial approach can only be achieved by a company where government holds a minority stake only – this is based on political principles in Germany.

DFS Plan for Privatisation

Main points of the government decision of 15 December 2004

The government intends to sell 74.9% of DFS

Air traffic services remain a task of the State (sovereignty issues)

Civil-military integration of ATC will be maintained

A national supervisory authority will be established

The cost for supervision will be financed by user charges

The privatization shall be completed by 2006

MoT is tasked with the preparation work for the legal changes

DFS Deutsche Flugsicherung GmbH
Dieter Kaden, April 2005

DFS Deutsche Flugsicherung

Since 2004, the German Ministry of Transport has been preparing for the privatization of DFS. The relevant government decision was published on 15 December 2004. The key elements in the privatization are:

- The government wants to sell 74.9 per cent of DFS
- Air traffic services remain a State task (sovereignty issue)
- Civil-military integration of ATC will be maintained
- A national supervisory authority will be established
- The costs for the supervision will be financed by user charges
- The privatization shall be completed by 2006
- The MOT is tasked with the preparation work for the legal changes

DFS supports this decision because it will help us to prepare ourselves for the challenges posed by the European liberalization process.

Conclusion

Since 1993 – From BFS to DFS

- We changed the entire civil-military airspace structure
- We modernized almost all CNS and ATM systems
- We re-organised our organizational structure, while enhancing safety and productivity
- We handled a traffic increase of 175%, while user charges increased by only 0.6%
- We changed the corporate culture from a federal authority to a company operating in a competitive environment

The driving force behind all of this is:

Delivering value for money
for the benefit of all stakeholders

DFS Deutsche Flugsicherung GmbH
Dieter Kaden, April 2005

To sum it up, the corporatization of DFS in 1993 has marked the beginning of a new era in the history of air navigation services in Germany:

- We changed the entire civil-military airspace structure, reducing the number of sectors
- We modernized almost all CNS and ATM systems

- We re-organised our organizational structure, while enhancing safety and productivity
- We handled a traffic increase of 175%, while user charges increased by 0.6%
- We changed the corporate culture from a federal authority to a company operating in a competitive environment

The driving force behind all of this is: We want to deliver value for money for the benefit of all stakeholders!

Aviation in Europe has taken on a new perspective. DFS will do its utmost to ensure that the air navigation services in Germany will never again become a limiting factor in the air transport system.

Mr. Chairman, Ranking Democratic Member, Members of the Subcommittee, thank you very much for your kind attention. I hope my statements will be useful to you and I will be pleased to answer your questions.

OPENING STATEMENT OF
THE HONORABLE JAMES L. OBERSTAR
AVIATION SUBCOMMITTEE
AIR TRAFFIC MANAGEMENT BY FOREIGN COUNTRIES
APRIL 20, 2005

I want to thank Chairman Mica and Ranking Member Costello for calling today's hearing on *Air Traffic Management by Foreign Countries*. Today's hearing focuses on countries that have adopted user-fee based commercialized management structures for air traffic control.

Let me say at the outset, that I strongly oppose privatizing air traffic control. Any plan to privatize or corporatize the ATC systems contemplates that system users, principally the airlines, will be saddled with a fee structure to pay for the corporation. This means that that ATC system will be an expense for airlines, affecting their profit and loss. At the same time, airlines will play a role in setting corporation policies and deciding how much the corporation will spend.

Do we really want to have a relationship between airline profitability and ATC spending and other decisions affecting safety? To be blunt, when airline profit margins start to influence ATC practices, the safety margin may be eroded, and that would not serve the public interest.

Unfortunately, the Bush Administration has driven the deficit so high that it is now seeking to cut the FAA's capital budget to a completely unsustainable level. I sincerely hope that this Administration has not led us to point where we would even consider the possibility of selling-off this country's critical air traffic control infrastructure to some private company that will merely borrow money to keep it running.

Mr. Chairman, our air traffic control system is both a modern marvel and a national treasure. In terms of operational scale and airspace complexity, there is really no comparison between the U.S. National Airspace System (NAS) and foreign systems. There is nothing else like it in the world. The U.S. operates the largest and safest air traffic control system. The fatal accident rate for commercial aircraft in the last three years is .021 per 100,000 flights, or one fatal accident for every 5 million flights. In total, the U.S. represents about 60 percent of the world's air traffic activity.

At the request of Ranking Member Costello and myself, the FAA has performed an in depth study comparing the U.S. system to foreign systems. I will submit the FAA's data to the record of this hearing so that the American public can see for itself and appreciate the scale and complexity of the U.S. system versus other systems. In the meantime, here are two statistics that should provide some context --

- The FAA reports that there were over 159 million operations in 2004, 13 times the number of operations of the U.K., New Zealand, Canada, Australia, and Germany *combined.*

- In terms of airspace complexity, the New York TRACON, the second busiest in the U.S., handled 750,000 more operations than Canada's five largest facilities – Toronto, Vancouver, Calgary, Montreal and Boundary Bay – *combined.*

Some believe that only a commercialized service provider with an independent revenue stream, such as a user-fee, will have the autonomy and access to private capital markets needed to make transformational changes. Yet, I hope that the record of this hearing will be balanced, and will reflect both the successes *and the challenges* that commercialized foreign service providers have faced. During recent airline industry downturns marked by declining traffic, some commercialized service providers experienced financial hardships that resulted in debt, fee hikes, government funding infusions, and capital cuts. After September 11th, U.K. National Air Traffic Services (NATS) drew on a £60 million ($114 million) short term-loan and underwent a substantial restructuring that included a £65 million ($123 million) bail-out from the British government. Similarly, NAVCANADA depleted its "rate stabilization fund,"

at one point incurring a negative balance, but had to raise rates anyway as well as cut back on capital expenditures.

I also expect to hear testimony that some foreign service providers have deployed new technologies more quickly and effectively than the FAA. It has been widely observed that foreign countries appear to rely more heavily on commercial-off –the-shelf technology than the U.S.. Again, I think that we must consider the sheer scale and complexity of the U.S. system versus foreign systems. Size does matter. The developmental requirements for a system designed for New Zealand's airspace clearly will not mirror the requirements for a system designed for U.S. airspace.

Moreover, while other countries favor commercial-off-the-shelf equipment, it is unclear how safety assessments are done, what back-up systems are in place, or how trade-offs are made. With regard to oceanic systems, the Department of Transportation Inspector General will attempt to address many of these issues in an upcoming report.

I also warmly welcome our distinguished visitors from Canada and Germany. Despite the United States' preeminent position in air traffic management, there are clearly lessons that we can learn from these two countries. For example, if Congress and the Administration decide to overhaul our aviation tax system and switch to a

user-fee based system, both Mr. Crichton and Mr. Kaden can provide valuable insights. I look forward to hearing how these two countries forged across-the-board industry consensus regarding the acceptance of user-fees.

Thank you once again, Mr. Chairman, for holding this hearing. I look forward to hearing from our witnesses.

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