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**Transportation Research Forum**

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Book Review: [Managing the Skies: Public Policy, Organization and Financing of Air Traffic Management](#)

Book Author(s): Clinton V. Oster and John S. Strong

Review Author(s): Kevin Neels

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Oster, Jr., Clinton V., and Strong, John S. *Managing the Skies: Public Policy, Organization and Financing of Air Traffic Management*. Williston, VT: Ashgate Publishing, 2008. ISBN 078-0-7546-7045-2

## Managing the Skies

by Kevin Neels

Air traffic management has always been one of the un-sexier corners of aviation. Airlines have always evoked the romance of flight, even when relentless economic pressures have forced them to cut costs and reduce on-board services standards to levels only marginally better than what one might find on a city bus. Airports conjure up visions of sleek architectural marvels and the excitement that has always surrounded terminals where people arrive from and depart for distant destinations. Airframe manufacturers produce exciting new products using dazzling technologies. While the aviation sector has expanded, air traffic management has operated quietly in the background. Its only physical manifestations are the towers that overlook airfields. Its accomplishments often go uncelebrated. Indeed, its goal and its success are to make sure that nothing remarkable happens. Air traffic management occupies center stage only when something remarkable does happen – a near-miss, a runway incursion, or a mid-air collision – and the consequences are frequently tragic. And so it is a good thing that air traffic management generally operates in obscurity.

But air traffic management plays an essential role in making sure that the other more visible, flashier, and sexier parts of the aviation sectors are able to function effectively. Without effective air traffic management to guide gleaming jetliners smoothly to the ground and safely to gates, the whole system would come to a quick and potentially tragic halt.

The very success of the aviation enterprise has created enormous challenges for air traffic management around the world. Traffic in many parts of the world has grown to the point where congestion is a serious problem, where existing systems have trouble keeping up with demands, where major upgrades to procedures and technologies are crucially needed, and where the ability of existing organizations to respond effectively to these challenges has come into serious question.

This challenge is especially acute in the United States, home of one of the most highly developed air transportation systems in the world, and one of the few major air traffic management systems still operated as a government department. Whether the Federal Aviation Administration in its present form can effectively meet the challenges it faces, or whether it needs to be reorganized along more commercial principles has been a hotly debated topic within U.S. aviation circles.

In the book *Managing the Skies* professors Clinton Oster, Jr., and John Strong have done a wonderful job of explaining this sometimes arcane world to aviation professionals who want and/or need to know more about its inner workings. Air traffic management organizations around the world – and especially in the United States – face serious challenges in the years ahead. How they respond (or fail to respond) to them will shape the future evolution of aviation. Professors Oster and Strong explain clearly the nature of these challenges, the choices we must make in facing them, and the consequences of failure. This book is an important resource for anyone concerned about the future of aviation.

The book begins with a useful overview of the field. The authors outline the basic challenge facing air traffic management organizations around the world: how to finance and implement the new technologies and procedures needed to accommodate steadily growing volumes of traffic while maintaining around-the-clock access to users and meeting increasingly stringent safety standards. This overview is followed by a brief but useful “language lesson” that introduces those new in the

field, concepts, technologies and acronyms they need to understand in order to follow the debate. They describe the forces behind the transition taking place from ground-based to satellite-based air navigation systems, and lay the foundations for a discussion of the organizational challenges that this transition is creating. For context, they also provide an overview of the evolution of air traffic management around the world, describing the emergence of the more commercially oriented Air Navigation Service Providers (ANSPs – the acronym they use to refer to providers of air traffic management services), and defining a framework for evaluating their effectiveness in meeting their multi-dimensional responsibilities.

The last decade has seen many efforts around the world to reform and reorganize the organizations responsible for air traffic management. These efforts provide a valuable laboratory for studying the relationships between organizational, management, ownership and financial structure on the one hand, and the ability of ANSPs on the other to implement new technologies and procedures, meet the needs and expectations of users of air traffic management services, and control costs. The authors review the history of these developments, focusing, in a series of case studies, on some of the crucial milestones in the evolution.

The book recounts the transformation of Airways New Zealand, the first ANSP to be restructured as a government corporation operated on commercial principles. This step, taken in 1987 as part of a broad effort to reduce government involvement in the New Zealand economy, “spurred many other countries to rethink long-held ideas about the best way to organize and manage air navigation services.” A switch to user fees provided much needed funding for modernization, and gave a greater voice to commercial and private aviation in setting performance and cost objectives. Airways New Zealand was able to achieve significant cost savings through consolidation and closing of facilities and adoption of more business-oriented management practices. The net result was a successful modernization program, a reduction in costs and charges, a more responsive and user-oriented culture, and an outstanding safety record.

The results of other restructuring efforts reviewed in the book – Airservices Australia, NAV CANADA, and Nationals Air Traffic Services in the United Kingdom – generally mirror those of Airways New Zealand, and illustrate a number of issues and themes that recur throughout the book. All involved a transition from operation as a government department to operation on a more autonomous and commercial basis. All were spurred by recognition of the need to upgrade technology, facilities, and infrastructure, and concern over the inability of the government entities in charge of these systems to secure stable sources of funding and to carry out these improvements. This review also highlights some of the risks unique to commercially oriented ANSPs – in particular, the difficulties that a user charge financed organization encounters when external events cause its customers to drastically curtail their activities. In this regard, the stories of the substantial cutbacks at NAV CANADA and the forced financial restructuring of NATS following the events of 9/11 make interesting reading.

The authors follow their recounting of the comparatively well-known stories of Airways New Zealand, NAV CANADA and NATS with a series of case studies of ANSPs in emerging markets. This review focuses on four countries and two continents: Russia, China, India, Africa and South America. These case studies illustrate a number of common problems, and a number of unique challenges. In China and India we follow the struggles of central and regional governments and traditional ANSPs to keep up with the management demands of exploding growth in air traffic. We see a series of sensible proposals, often only partially implemented, that offer a degree of relief but often fall short of what is needed. We see efforts to integrate modern technologies and procedures, and struggles to come up with the funding to pay for these improvements. In contrast, in Russia we see a sharp drop in air traffic following the collapse of the Soviet Union, and a tremendous amount of organizational turmoil driven by the separation of the former Soviet Union into separate countries and the breakup of Aeroflot, a monolithic entity formerly responsible for all aspects of civil aviation, along regional and functional lines. In Africa and South America we see problems of inadequate

system coverage and performance, outdated technologies, inadequate funding, and underdeveloped organizations charged with improving the situation.

Following this trip around the world we come to what one senses is the main event – the United States, which is, as the authors point out, “the last major country in the world where air traffic services are still provided by a government agency and funded by excise taxes and general tax revenues.” In a series of comprehensive chapters the authors review the history of the provision of air traffic services in the United States, the history of the problems encountered, and the history of recommendations for reform – recommendations that have so far remained unheeded.

In a thoughtful review they also describe what they see as the key problems facing the Federal Aviation Administration, the agency charged with providing air traffic services. The first is the disconnect between cost drivers and revenue drivers. While the costs of operating the system are driven largely by the number of aircraft operations the FAA must manage, under the present system of financing its revenues are driven largely by the amount of revenue generated from commercial air passengers. The result has been a growing imbalance between costs and revenues. The trend among commercial airlines towards use of smaller aircraft has caused costs to rise more rapidly than revenues. And because business aviation pays only a fraction of the costs it imposes on the system, the growth of this sector has exacerbated the problem.

The second challenge identified by the authors is diffused accountability. Decision making authority over the FAA is divided, the authors persuasively argue, among too many cooks. Crucial decisions about technology, investment, operations and facilities are made jointly by Congress, the administration, Department of Transportation leadership, and FAA management. A significant byproduct of this divided authority is that no one is ultimately responsible for getting things done, and no one is accountable when needed programs are not carried out. The result, the authors argue, has been a long history of programs that deliver less than was promised, that cost more than was promised, and that were implemented far later than was promised, if at all.

The third challenge identified by the authors is lack of organizational independence. As a federal government agency funded as part of the federal budget process, the FAA is subject to a variety of fiscal pressures that bear no relationship to its mission. The result has been a series of stop and start budgetary decisions that have wrought havoc with upgrade program management and, at times, basic service provision.

Over the course of this broad review of a complex field a number of significant themes emerge. In a chapter devoted to the subject the authors analyze the difficult issue of labor relations, describing how the bilateral monopoly that exists between the air traffic controller workforce and the air traffic management organization that employs them creates a high potential for conflict. Over the course of the book a number of other themes emerge, including the tensions that exist between civil and military air space management requirements, the hesitancy many countries have about surrendering control of their airspace to any sort of foreign or transnational entity, the resulting fragmentation and inefficiency that plagues many areas of the world (including Europe), the enormous pressures created by ever-growing levels of air traffic, the difficulties of carrying out large scale modernization programs while maintaining uninterrupted system operation, and the ongoing difficulty of matching revenues to costs. Reading the book, one comes away with a fresh appreciation of what a good job ANSPs around the world have been doing in the face of all these challenges, and of the magnitudes of the tasks they still face.

The book concludes with a review of the strengths and weaknesses of the various organizational forms that have been employed by ANSPs around the world. Although the authors offer a balanced assessment, their sympathies for user charge finance, organizational independence and commercial operation are clear. However, the evidence they offer and upon which those sympathies are based is compelling.

The book has some weaknesses. The editing is, in places, a bit uneven. One sometimes has the sense that they are over-generalizing from a limited number of examples. For instance, when they

attribute the relatively benign labor relations enjoyed by NAV CANADA to its non-share capital corporate form one has to wonder about the true significance of that factor relative to Canadian culture or to the unique circumstances surrounding NAV CANADA's creation. While the authors are quite sensitive to the potential for abuse of monopoly power by private entities, they ignore the potential for similar abuse by public entities that might be tempted to siphon off funds generated with the aviation sector to devote to non-aviation uses.

Their treatment of safety issues is superficial in places, and this superficiality sometimes leads them astray. For example, in their summary they give government agencies high marks for their ability to assure safe operations. They seem to ignore the contributions that more automated and satellite-based navigation technologies can make toward the achievement of safety goals. The well-documented difficulties that government agencies have in implementing these technologies in a timely manner should count more heavily in the grades they are given for their safety performance.

On the whole, however, I have to commend the authors for producing a comprehensive and timely book on an important subject. The issues they analyze are likely to be with us for some time, and I would recommend this book to anyone wishing to understand the debate over the modernization and reform of the air traffic control system.

*Dr. Kevin Neels, a principal at the Brattle Group, has more than 25 years of research and consulting experience with the aviation industry. His clients have included airlines, airport operators, airframe manufacturers and government agencies. He has a long-standing interest in air traffic management dating back to work carried out on behalf of the Air Transport Association on the implications of the Clinton Administration's proposal to corporatize the air traffic control system. He recently collaborated with his colleague Dorothy Robyn on preparation of a paper for the Brookings Institution on reform of the air traffic control system, and he is currently directing the Brattle Group's work as part of a major project for the FAA on the economic costs of air travel delays.*