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## **AIR TRAFFIC CONTROL: THE PRIVATE SECTOR OPTION**

### INTRODUCTION

The 1981 strike by members of the Professional Air Traffic Controllers' Organization (PATCO) was not an isolated incident. It was merely the latest crisis in the troubled history of the U.S. air traffic control (ATC) system. A reading of the system's history reveals an ongoing pattern of technological lag, lack of costeffectiveness, unresponsiveness to user needs, absence of longrange planning, political interference, and labor problems.

These problems are not the fault of particular people, such as Federal Aviation Administration officials. Nor are they the fault of the ATC system's congressional overseers per se. Rather, the cause of the problem is systemic, stemming from the way the ATC system has been organized and operated--as a government bureaucracy.

Evidence at home and abroad suggests that there are alternative ways of providing ATC services. In several countries, air traffic control is provided by private, not-for-profit corporations, funded by user fees. Elsewhere, the service is provided by a profit-making firm under contract. The U.S., in fact, has several profit-making firms operating airport control towers under contract. And a not-for-profit firm provides nationwide computer and communications services to airlines and other air-space users.

Many of America's ATC problems would fade were the present ATC system replaced by a two-level system, consisting of a not-for-profit ATC System Corporation which contracted out the operation of individual control centers to profit-making ATC operating companies. This would provide (1) uniform nationwide operating procedures and (2) the benefits of competition in the provision of services. In short, the current government operated American air traffic control system should be converted to a private sector system.

## THE PROBLEM

The ATC "system" is a complex assemblage of people, equipment, facilities, and procedures. It is owned and operated by the Federal Aviation Administration (FAA), a government bureaucracy whose duties also include setting and attempting to enforce safety standards affecting the design and testing of aircraft, the operation and maintenance of aircraft, and the licensing of pilots and mechanics. As a government service the ATC system is (1) operated as a monopoly, with no competition, (2) paid for via taxes (both user and general), (3) governed by civil service rules, and (4) subject to political control and interference.

A large body of literature in the past two decades has addressed the costs and effectiveness of government services characterized by the four features listed above.<sup>1</sup> In contrast to private sector organizations which face competition, sell services directly to users, set their own personnel policies, and are reasonably free of political interference, bureaucratic entities suffer from inherent problems. Lack of competition removes strong incentives for economic efficiency. Obtaining revenue via taxation precludes the direct feedback from users inherent in buyer-seller relationships in the marketplace. Civil service regulations significantly restrict the efficient use of personnel. And political control makes long-range planning difficult. Given its structure, it is hardly surprising that we find such problems in the ATC system.

The history of the ATC system provides ample evidence of the drawbacks of government operation. One of the most serious indicators is the historical pattern of technological lag. Few outside the aviation industry realize that most of the fundamental advances in air navigation technology have been developed outside the FAA. During the 1930s, airborne VHF radio, omnidirectional navigation beacons (VOR), and blind-landing systems (ILS) were developed by electronics firms under the leadership of Aeronautical Radio, Inc. (ARINC), a not-for-profit company set up in 1929 with the airlines as its stockholders.<sup>2</sup> These innovations were pushed by ARINC despite the reluctance and conservatism of the FAA's predecessor agencies, the Bureau of Air Commerce and

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<sup>1</sup> See, for example, F.A. Hayek, The Road to Serfdom (Chicago: University of Chicago Press, 1944); Anthony Downs, Inside Bureaucracy (Boston: Little, Brown & Company, 1966); Gordon Tullock, Private Wants, Public Means (New York: Basic Books, 1970); William A. Niskanen, Jr., Bureaucracy and Representative Government (Chicago: Aldine-Atherton, 1971); James M. Buchanan and Robert D. Tollison (eds.), Theory of Public Choice (Ann Arbor: University of Michigan Press, 1972); Thomas Sowell, Knowledge and Decisions (New York: Basic Books, 1980); James T. Bennett and Manuel H. Johnson, Better Government at Half the Price (Ottawa, Illinois: Caroline House, 1981); E. S. Savas, Privatizing the Public Sector (Chatham, New Jersey: Chatham House, 1982).

the Civil Aeronautics Authority. ARINC also set up the first air traffic control centers, in 1935 and 1936. After World War II ARINC pioneered the replacement of radiotelegraph communication with voice radio for overseas flights--again, over the opposition of the CAA.<sup>3</sup>

During the 1950s, the CAA resisted the implementation of radar separation of air traffic, known as the "positive control" of airspace, to reduce the likelihood of mid-air collisions. The gradual introduction of positive control came in response to a series of mid-air collisions in 1956, 1958, 1960, and 1965. Outside advisory committees--the Radio Technical Committee for Aeronautics in 1948, the Huff Committee in the 1950s, and the Alexander Committee in the 1960s--laid out evolutionary plans for making full use of state-of-the-art electronics and communications technology, but their recommendations were not systematically followed by the CAA or the FAA.

In the 1960s and the 1970s, the FAA began using computers in air traffic control. Its initial automation plan was based on IBM 7090 computers which even IBM protested would be obsolete by the time they were installed. The second-generation computer system (using IBM 9020s) installed in the 1970s has been the subject of ongoing controversy, especially over the frequency of system outages and the inadequacy of the back-up equipment and procedures.<sup>4</sup>

In addition, today's primary navigation aid remains the old-fashioned network of VOR stations. Aircraft flying under instrument flight rules (IFR)--which means all commercial flights and many private planes as well--must generally fly along radial paths from one VOR to another, in zigzag fashion. The modern alternative is to use an on-board computer to plot a straight-line course from origin to destination, using the VOR signals merely as references. Widespread use of this technique, known as "area navigation," has been possible for over a decade. It would greatly expand the capacity of the airways. But the FAA's ATC system is still not equipped to handle large numbers of pilots setting their own courses.

Knowledgeable observers long have faulted the FAA for inept management. In 1970, Aviation Week editor Robert Hotz criticized the FAA's lack of meaningful progress on ATC automation, citing the "technical incompetence and slothful leadership of the FAA

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<sup>2</sup> Paul Goldsborough, "A History of Aeronautical Radio, Inc., from 1929 to 1942," July 2, 1951 (unpublished).

<sup>3</sup> Robert W. Poole, Jr., "Toward Safer Skies," in Robert W. Poole, Jr., ed., Instead of Regulation (Lexington, Massachusetts: Lexington Books, 1982).

<sup>4</sup> U.S., Congress, Senate, Committee on Appropriations, Investigations Staff, "FAA's En-Route Air Traffic Control Computer System" (Report of the Subcommittee on Transportation, October 1980).

and its predecessor agencies."<sup>5</sup> The House Government Activities Subcommittee, studying ATC problems in 1970, stated that "The FAA simply does not move forward. All too often in the past, progress has been the result of tragedy."<sup>6</sup> In 1975, the FAA's bureaucracy was termed "large and unwieldy and may serve as a detriment to FAA's performance of its safety mission" by a ten-man task force appointed by Transportation Secretary Claude Brinegar.<sup>7</sup> Furthermore, the task force described the agency's advanced technology program as "relatively immediate and short-term in outlook." Serious FAA planning and management problems, such as a lack of cost-effectiveness analysis, were also identified by the General Accounting Office in a 1976 report on air traffic control system improvements.<sup>8</sup>

One of the most serious indictments of the ATC system was made by the Special Air Safety Advisory Group, six retired airline pilots appointed by the FAA in 1975. They concluded that the ATC system itself is "too dependent on the human element.... [and] has grown from old concepts with complex fixes applied to it in an attempt to accommodate its inadequacies."<sup>9</sup> This, in turn, created "a monster of procedures, rules, methods" which has actually "created hazards, slowed traffic, restricted productive flight...and used energy in frightening amounts."

Why this history of a lack of effective long-range planning, technological lag, unconcern with cost-effectiveness, and unre-sponsiveness to user needs? To what extent are these problems inherent in the nature of air traffic control? To what extent are they a function of the ATC system as a government bureau-cracy? Would the same problems exist were ATC being provided by, say, ARINC or Bendix Field Services?

### Inadequate Long-Term Planning

Why can't the FAA make and carry out long-term plans for ATC that provide the services airspace users need? One reason is a lack of continuity in top management. Between 1961 and 1981, the FAA had seven administrators, serving an average term of 35 months (plus a number of short-term acting administrators). Each

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<sup>5</sup> Robert Hotz, "A Lagging Bureaucracy," Aviation Week & Space Technology, July 20, 1970.

<sup>6</sup> U.S. Congress, House of Representatives, Government Activities Subcommittee, "Problems Confronting the Federal Aviation Administration in the Development of an Air Traffic Control System for the 1970s," July 16, 1970.

<sup>7</sup> U.S. Department of Transportation, "Report of the Secretary's Task Force on the FAA Safety Mission," April 30, 1975.

<sup>8</sup> U.S. General Accounting Office, "Issues and Management Problems in Developing an Improved Air Traffic Control System," December 15, 1976.

<sup>9</sup> U.S. Special Air Safety Advisory Group, "Report to the Federal Administration," July 30, 1975.

sought to put his own stamp on the agency, resulting in frequent shifts of emphasis and direction. None of them had real long-term commitment to the ATC system because the job is a political appointment, not a career position. Real reform is blunted because each new administrator can place the blame for mismanagement on his predecessors, assuring Congress that this time things are finally under control. No one suggests that it may be the system itself that prevents continuity and so discourages reform.

A second cause of planning failure is congressional oversight. Unlike a private business where feedback from the users is expressed directly, ATC user and employee dissatisfaction gets filtered through the political system. The result is continual interference from Members of Congress. Much of this criticism may be in response to genuine problems, as the many GAO and congressional committee reports attest. But political grandstanding by vote-seeking congressmen does not produce a climate conducive to rational, long-term system planning and management. Instead it creates an atmosphere of crisis response and bureaucratic self-preservation.

These constraints would disappear if ATC services were transferred to the private sector. Complex, continuously operating systems such as the telephone system, gas and oil pipelines, chemical process plants, and airline communications and computer systems are all managed successfully by private sector firms which engage in routine long-term planning for system improvements. There is no reason to think that similar planning would be any less successful in an ATC corporation.

### Technological Lag

Historically the FAA has failed to develop new technologies and resisted their implementation. One reason may be simple bureaucratic sloth. An organization that is insulated from the marketplace, faces no competition, and whose revenues come from taxes rather than directly from its customers, simply has no strong incentives to seek out new and better ways of doing things. Instead, the internal incentives of preserving the status quo and protecting bureaucratic fiefdoms usually dominate. This tendency is reinforced by the civil service system, which makes it extremely difficult to fire incompetent employees. "The FAA as an organization has more independent empires than medieval Europe," concluded the House Government Activities Subcommittee in 1970, and there is little reason to believe that the situation has changed materially in the meantime.<sup>10</sup>

A second reason for technological lag is political. There are inherent conflicts between the interests of different air-space users. The most important of these conflicts is between

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<sup>10</sup> Note 6, supra.

private pilots of light aircraft (referred to as "general aviation") and the airlines. The general aviation community has opposed numerous advances in air safety, such as positive control, airborne transponders, and collision-avoidance systems, because they would restrict the amount of airspace available to light aircraft whose owners refused to spend the money needed to add new safety equipment. In a free marketplace setting, the large economic interests of airline and business-jet users would be served most effectively by an ATC system that readily took advantage of new safety technology. General aviation users, who mainly fly for pleasure, would either have to pay the price of flying in the more sophisticated regions or be relegated to out-of-the-way locations where they would not pose a hazard to properly equipped aircraft.

But the ATC exists in a political, not marketplace, setting. The 250,000 general aviation aircraft owners, located in every congressional district, exert considerable pressure on the FAA, via Congress, to compromise on safety requirements. The most recent instance concerned the FAA's decision to reject the Airborne Collision Avoidance System (ACAS), developed by Honeywell, in favor of an FAA-developed system called TCAS, which will be available many years later at five times the cost of ACAS. The principal reason for the decision, according to former FAA official James Pope, was the opposition to ACAS expressed by general aviation interests. To be effective, ACAS would have required restrictions on the operation of non-ACAS-equipped aircraft, a requirement missing from TCAS.<sup>11</sup> The implementation of a nationwide collision avoidance system, therefore, has been delayed five to ten years, and its cost raised substantially, because of the pressures inherent in the ATC system's present political nature.

#### Lack Of Cost-Effectiveness

According to the GAO report previously cited: the FAA, as of 1976, did not know "whether programs to develop the [ATC] system are cost-effective"; the FAA's development plans for the system "do not use savings techniques such as life-cycle costing and design-to-cost goals"; furthermore, "cost-benefit analyses were not done to anticipate the needs of decision-makers" but only after the fact.<sup>12</sup> Once again, the FAA's insulation from the marketplace is at fault. With no stockholders to satisfy, no financial markets to deal with, and no customers to risk losing, the FAA simply does not have the incentives for cost-effectiveness that exist in corporate entities. It can virtually allow engineers to design whatever they like, and then present the tab to Congress as a fait accompli.

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<sup>11</sup> John Doherty, "Collision Course," Reason, Vol. 14, No. 2, June 1982.

<sup>12</sup> Note 8, supra.

