



The Case for ATC Reform

By Bill Shuster

The United States has led the world in aviation for over 110 years. Our leadership comes from the ingenuity, hard work, and vision of our forbearers, and has been carried forward by subsequent generations of Americans. As a result, aviation is an integral part of America's heritage, including decades of accomplishments and "firsts" in which we as a people can take pride. However, the pursuit of excellence is a continuous one, and we cannot rest on our laurels. Unfortunately, we have become complacent in one critical sector of our aviation system: air traffic control (ATC). American leadership in ATC, once the global gold standard, has eroded, and now new ground is being broken elsewhere.¹

ATC, at its core, is a technology business, and this noticeable decline in American leadership is happening despite the United States being home to the world's finest air traffic controllers, pilots, and most technologically savvy entrepreneurs. The culprit is an obsolete organizational structure; we essentially have a high-tech service provider trapped in a government safety regulatory bureaucracy—the Federal Aviation Administration (FAA). As the current ATC provider, the FAA oversees and regulates itself, and does so under the micromanagement of what is effectively a 535-member board of directors known as the U.S. Congress. Unsurprisingly, the results have been increasingly dismal: billions of dollars squandered on "ATC modernization," deadlines missed, and failed reforms. This article describes the evolution of our ATC system, its long-term problems, and our proposal to liberate ATC from the federal government to resolve these otherwise insurmountable issues.

Early History of ATC

The precursor to modern ATC began in 1929 in St. Louis, Missouri. An individual named Archie League, widely considered to be the world's first air traffic controller, equipped with a "wheelbarrow, chair, umbrella, note pad, water and lunch" used colored flags to clear pilots for takeoffs and landings at Lambert Field.² Within a few years, as traffic volumes grew, a group of airlines created Aeronautical Radio Inc. (ARINC), a not-for-profit corporation, to operate the first ATC centers in Chicago, Cleveland, and Newark.³ Each center controlled traffic within a 50-mile radius of the airport.⁴ ARINC also pioneered key aviation technologies, despite the resistance of the Bureau of Air Commerce (a predecessor of the FAA). Several of these technologies remain in use today,

including instrument landing systems (ILS), VHF omnidirectional radio (VOR), and airborne VHF radio.⁵

The Government's Role

The federal government also played an important role in the development of air navigation. In 1921, the Postal Service, with the assistance of ordinary citizens and others, began lighting bonfires to support nighttime navigation of aircraft carrying mail.⁶ As the promise of aviation grew beyond carrying mail, Congress passed the Air Commerce Act of 1926, which charged the Department of Commerce with leading the development of the aviation industry.⁷ In 1936, the Bureau of Air Commerce took over ARINC's privately owned facilities to ensure uniformity in the system.⁸ The decision was not mandated by statute, but rather was a policy choice. After the federal takeover of ARINC facilities, local government authorities continued to operate airport towers until those were also placed under federal control around the beginning of World War II.⁹ At this time, Congress passed the Civil Aeronautics Act of 1938, removing oversight authority from the Department of Commerce and creating an independent agency to "encourage and foster the development of civil aeronautics and air commerce."¹⁰

The next notable ATC-related legislative action was passage of the Airways Modernization Act of 1957.¹¹ This act created the Airways Modernization Board to correct the federal government's lack of coordination in the development of civilian ATC and air defense systems, which had resulted in waste and inefficiency, and also in response to a 1956 mid-air collision over the Grand Canyon that killed 128 people.¹² The Federal Aviation Act of 1958 created our contemporary aviation framework, including the FAA.¹³ This Act consolidated the government's civil aviation-related functions into a single agency and repealed the Airways Modernization Act of 1957.¹⁴

The Status Quo

Since the early days of League and his signal flags, our ATC system has become the world's busiest. It handles about 25 million flight operations each year and covers an area well beyond all 50 states: the

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westernmost boundary of U.S.-controlled international airspace nearly reaches the Philippines to the west, and stretches into the Atlantic Ocean to the east.¹⁵ Modern ATC is a combination of sophisticated technology and the expert skills of air traffic controllers, pilots, and many other professionals. However, our ATC, unlike the rest of aviation, has changed very little over the last several decades. Paper strips are still used in towers to manage flights, World War II-era aircraft tracking technology persists, and there is a notable lack of automation. Equally striking is the fact that ATC in many other countries has progressed faster than it has here.

Since 1981, the FAA has been engaged in a series of continuous programs to “modernize” ATC. In 1999, the General Accounting Office (GAO, now the Government Accountability Office) reported that the FAA would spend \$41 billion between 1981 through 2004 on these projects.¹⁶ Whether the FAA ultimately spent \$41 billion, what exactly the taxpaying public received for the investment, and whether the benefits were at least matched by the level of investment are questions that sadly do not have clear answers. What is known is that the FAA spent a significant amount of money, and induced others to do the same, on technology programs that ultimately failed to deliver promised benefits and were abandoned in multiple cases.¹⁷ Beyond the waste of time and money, the FAA harmed its credibility.¹⁸ The GAO noted in a subsequent report that, “[o]ver the years, systemic management issues, including inadequate management controls and human capital issues, have contributed to the cost overruns, schedule delays, and performance shortfalls that FAA’s major ATC projects have consistently experienced.”¹⁹

In 2003, Congress directed the Secretary of Transportation and the FAA to begin development of the next iteration of ATC modernization—the Next Generation Air Transportation System (NextGen).²⁰ NextGen was conceived as a “transformation,” intended to signify a fork in the road rather than a continuation of past efforts.²¹

However, 13 years into NextGen, little has changed. While there are pockets of progress where the FAA has partnered with the private sector on pilot programs and demonstrations, the agency has spent billions of dollars with little or no meaningful benefits that are demonstrable on a *repeatable, consistent basis*. The FAA still does not even have a grasp of the total costs of the program, or even the necessary capabilities or schedules for NextGen.²² The National Academies observed:

NextGen . . . was designed to overhaul the U.S. air transportation system through procedural and technological improvements, including the use of newer technologies such as precision satellite navigation systems and a digital communications infrastructure, to increase capacity, reduce delays, and improve safety. Instead, NextGen today is a set of incremental changes that primarily emphasizes replacing aging equipment and systems.²³

In other words, NextGen devolved from a forward-looking, transformational program to a replacement program for old equipment. The reports cited above are far from exhaustive. Many other reports over the past three decades have documented how the FAA has squandered billions of dollars on botched modernization efforts.

The FAA currently claims that NextGen will cost \$35.8 billion, a cost to be shared between the FAA and private industry, and will generate \$160 billion in benefits by 2030.²⁴ Despite over 100 years of overwhelming evidence to the contrary, some still cling to the notion, perhaps motivated by their own parochial interests, that federal bureaucrats will succeed in delivering a remarkable “3-to-1” return on investment.²⁵

Missions and Statutory Intent

Why does history keep repeating itself at the FAA? The short answer is that the agency is *not* a business, but ATC is a technology service business. As such, it requires the same commercial freedoms, including freedom from political interference, enjoyed by other companies. In contrast, the FAA is a political appointee-led safety agency with a budget and mission controlled by Congress. Regulating safety in the public interest is a decidedly different mission than managing a 24/7 technology service business.

As it happens, Congress did not intend federal agencies to be primary providers of ATC or related services. In the Air Commerce Act of 1926, the Secretary of Commerce was charged with encouraging “the establishment of airports, civil airways, and other *air navigation facilities*.”²⁶ The Secretary was simultaneously “authorized to designate and establish civil airways and, *within the limits of available appropriations hereafter made by Congress*, . . . to establish, operate, and maintain along such airways all necessary *air navigation facilities* except airports.”²⁷ Similar authority was also included in the Civil Aeronautics Act of 1938.²⁸ This statutory language strongly suggests that federal agencies were not intended to be the exclusive—or even primary—provider of navigation facilities or services.

The same can be said for the Federal Aviation Act of 1958. The law distinguishes between activities that the FAA “may” and “shall” do. For example, the law states that the Administrator “*shall* promote safe flight of civil aircraft in air commerce by prescribing . . . regulations and minimum standards.”²⁹ Another section states that “[t]he Secretary of Transportation *shall* prescribe regulations on standards for installing *navigational aids*, including airport control towers.”³⁰ In other sections, the Administrator has discretion: “[t]he Administrator of the Federal Aviation Administration *may* inspect, classify, and rate an *air navigation facility* available for the use of civil aircraft on the suitability of the facility for that use.”³¹ The FAA may also issue “air navigation facility” certificates to private persons, lending further credence to this interpretation.³² Again, these authorities together strongly suggest that Congress

intended private persons to play a central role in operating these services and equipment.

Solutions

Stakeholders almost unanimously agree that the status quo is an unacceptable and untenable failure. This view is even shared among those who oppose the Transportation and Infrastructure Committee's recent ATC reform proposal (described below). Some have proposed limited FAA reforms to give the agency discretion to operate more like a business. This approach has already been tried. It failed spectacularly.

In 1995, Congress enacted reforms to relieve the FAA from many of the federal personnel laws. The intent was to provide greater flexibility in light of the "unique demands on the agency's workforce."³³ Congress also relieved the FAA from federal acquisition laws and directed it to develop its own acquisition management system (AMS) that "addresses the unique needs of the agency and, at a minimum, provides for more timely and cost-effective acquisitions of equipment and materials."³⁴ In 1996, Congress passed additional legislation to require the FAA to collectively bargain and establish a cost-accounting system.³⁵

The results of these reforms are telling. Between 1996 and 2012, the FAA's productivity "decreased substantially" while its budget increased by 95 percent, according to a Department of Transportation (DOT) Inspector General report.³⁶ In 1996, the FAA's goal for the new AMS was to reduce costs by 20 percent and the time it takes to acquire new systems by 50 percent.³⁷ Between 1996 and 2004, "major system acquisitions averaged 38 percent over budget and 25 percent behind schedule," which was consistent with FAA performance prior to AMS.³⁸ Although the FAA improved its performance in acquisitions since 2004, as noted above, the FAA has no clear picture of its total costs or requirements for its modernization program.

Other piecemeal reform ideas being circulated include converting the entire FAA into a government corporation separate from the federal budget, granting the agency greater contracting authority, and providing it with multiyear appropriations. It is unclear what problems these proposals would solve; the same dysfunctional bureaucracy would be even less accountable than it is today.

Proposal to Separate ATC from the FAA

On June 22, 2017, Transportation and Infrastructure Committee (Committee) leaders and other members of Congress introduced the bipartisan 21st Century Aviation Innovation, Reform, and Reauthorization (21st Century AIRR) Act.³⁹ Among other important reforms, the bill contains our proposal to create a not-for-profit entity to operate ATC in the United States. To develop the 21st Century AIRR Act, the Committee sought the input of numerous stakeholders on how our 2016 bill could be improved to reauthorize and reform the FAA.

The not-for-profit entity will:

- Be independent of the federal government;
- Provide ATC services;
- Be governed by a board of directors nominated by system users, but with a fiduciary duty only to the new entity;
- Be directly regulated by the FAA and the DOT, and be subject to congressional oversight like every other transportation business;
- Recoup its costs through user fees;
- Have access to capital markets for financing of capital projects and other business requirements; and
- Comply with presidential orders for the Department of Defense to assume control of the airspace in times of war.

The not-for-profit will not or cannot:

- Regulate or "own" the airspace;
- Regulate or oversee itself;
- Regulate aircraft operations;
- Deny or otherwise determine access to airspace by any aircraft operator;
- Receive federal appropriations or be able to request funds from the Treasury;
- Have the backing of the federal government for any of its financial obligations;
- Set or collect taxes; or
- Issue stock.

This spectrum of functions is integral to the success of the entity as is explained further below.

Governance Structure

Under the 21st Century AIRR Act, the new ATC entity would be governed by a board of directors comprised of individuals, nominated by certain representative stakeholders, including the federal government. Board members would have a fiduciary duty only to the new organization,⁴⁰ insulating ATC management from any parochial interests that could otherwise unduly influence directors. Additionally, this governance structure would enable ATC users and other stakeholders to ensure that qualified individuals serve on the board. The entity will be led by a chief executive officer with broad discretion to manage the operation like the leader of any other technology business.⁴¹

User Fees

Under the 21st Century AIRR Act, the new entity would set its fees subject to statutory principles, limits, and conditions. For instance, general aviation and public aircraft operations would be exempt from fees.⁴² Fees would also have to be consistent with the United States' international obligations.⁴³ The 21st Century AIRR Act takes into consideration, among other things, the invaluable role played by general aviation in America's aviation system, the global nature of aviation, and the importance of connectivity to rural America. Under the proposal, the DOT would adjudicate fee disputes.⁴⁴ Importantly, the entity would be *prohibited* from denying ATC service to compel payment during the dispute

resolution process, as well as from denying system access to any user based on the amount of fees paid.⁴⁵ The issue of user fees has naturally drawn a lot of attention. Again, the Committee is gathering further input from stakeholders on this and other provisions of the proposal.

Safety Oversight

Currently, the FAA is in the undesirable position of being both the ATC service provider and its own regulator.⁴⁶ This construct creates a classic conflict of interest. The 21st Century AIRR Act would establish an arm's-length relationship between the ATC provider and the regulator.⁴⁷ This has been the model for aircraft operations, maintenance, and manufacturing. ATC should be no different. The 21st Century AIRR Act includes streamlined regulatory processes and special procedures for airspace changes triggered by closures of contract air traffic control towers.⁴⁸ To ensure business continuity and system safety, regulations concerning the ATC safety management system would be based on the existing system.⁴⁹ In addition to their continuing regulatory control, the Secretary of Transportation and FAA Administrator would at all times retain the ability to direct any airspace action necessary to respond to emergencies or other needs.⁵⁰ Contrary to some misinformation, the ATC entity could not represent or negotiate on behalf of the United States with foreign governments or at international bodies such as the International Civil Aviation Organization (ICAO).⁵¹

Labor and Employment

In drafting the 21st Century AIRR Act, the Committee's goal was to encourage retention of our air traffic controllers, a large number of whom—the most seasoned and skilled controllers—are eligible for retirement. Therefore, employees transferred to the new entity wishing to retain their federal health insurance and retirement benefits would have that right.⁵² The new entity would pay the employer contribution for such benefits. Existing collective bargaining agreements entered into by the FAA would become obligations of the new entity and remain effective through their respective terms.⁵³ The Federal Labor-Management Relations Statute (FLMRS), which applies to the FAA and its employee groups, would also apply, in significant part, to the new entity and its employees.⁵⁴

Finally, proposed section 91109 of the 21st Century AIRR Act would prohibit strikes and other disruptive labor actions against the new entity.

Innovation

Innovation arises from entrepreneurial environments, not government bureaucracies. Because this service has been government-operated, American innovation in ATC has suffocated. The history of the U.S. government botching technology projects goes all the way back to the Wright brothers. Their remarkable invention, which was developed entirely with their own resources, was initially rejected by federal government bureaucrats, who instead

favored a project led by Samuel Pierpont Langley of the Smithsonian Institution, to whom they provided \$50,000 of public money (nearly \$1.4 million in 2017 dollars).⁵⁵ The government abandoned Langley's project after his aircraft crashed into the Potomac River twice upon takeoff.⁵⁶ At the time, the *Washington Post* advised that the government "promptly sever its relations with the experiment that had covered eight to ten years and involved a very large outlay of public money without disclosing a single ground for hope."⁵⁷ This all sounds hauntingly familiar.

As noted above, the privately owned ARINC pioneered ILS and VOR in the 1930s, in the face of resistance from the federal government. These technologies are still used by the FAA. Today, virtually all of the transformative ideas in ATC continue to come from private companies. Perhaps most dismaying is that some cutting-edge technologies conceived in the United States are first deployed—or only deployed—overseas because the FAA is unwilling or unable to utilize them. This begs the question, what potential ATC innovations have been lost to the United States and the rest of the world because our ATC service provider is trapped within our bureaucratic regulator? As long as the U.S. government operates *and* regulates the ATC system, real innovation will continue to be stifled.

Conclusion

Separation of ATC from the aviation regulator is not a new idea. It has been discussed in the United States for over four decades.⁵⁸ In the meantime, nations around the world have successfully pursued this reform and achieved enviable results that have been recognized by the ICAO.⁵⁹ Among the countries that have done so, there has been no desire to revert to a government-operated ATC system according to an FAA-initiated study.⁶⁰ Unless we take this opportunity to reform our own system, the United States will continue its descent toward an increasingly expensive but mediocre ATC system. Failing to change our course will inevitably cost us our hard-earned global leadership in aviation. My hope is that all stakeholders will put aside their differences, come to the table, and take action for the future of our entire aviation system and the good of our country, before more decades slip by and our leadership vanishes.

Endnotes

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