

Op-Ed: Say No To This 'New Normal' And Embrace Real ATC Evolution

Robert W. Mann, Jr. December 21, 2023



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The U.S. air traffic control (ATC) system's recent shortcomings, spotlighted as airlines cut schedules to accommodate constrained airspace, underscore that a true modernization is well past due.

The root cause of delays and cascading cancellations isn't an inability to handle demand. Rather, it continues to be the regular stream of random, highly variable, unmanaged, "fire and forget," day-of-flight trajectories. They temporarily overload demand in enroute, terminal area, and airport surface sectors, many times per day.

The solution? Proactive air carrier management via day-of-flight system optimization for airline hubs that, at the very least, incorporate individual carrier business rules for a complex, multi-carrier terminal airspace. Ideally, they take into account the entire National Airspace System (NAS), with the agency (FAA) brokering multiple, carrier-generated system optima (a tested and validated case, in FAA-funded trials).

The concept isn't new. In fact, it's been independently validated multiple times. Delta used commercial software to prove the concept at several of its hubs, and US Airways did the same at Charlotte, North Carolina. Both examples show that managing and stabilizing aircraft flows—eliminating randomness and variability—reduced delays, block times and dwell times in the terminal area. It also cut fuel burn, emissions and operating costs while expanding airport handling rates and capacity.

The programs operated with the FAA's full knowledge. Each reduced ATC system complexity and terminal area controller workload. Neither program required any new airline, aircraft, or FAA equipage.

As computing power and aircraft connectivity increase, scaling such systems becomes easier.

Unfortunately, neither the industry nor the FAA wants to implement a readily available, scalable, inexpensive "NowGen" system that exists on the shelf. Industry and FAA are invested in long-term, hideously expensive, multi-billion dollar "NextGen" systems. Touted for decades, Congress, industry, academia, even agency watchdogs agree these so-called advances have never produced the expected benefits or delay relief.

And, they represent an evergreen, multibillion-dollar annual overhang on the national economy, customer utility, airline productivity and safety; an evergreen boogeyman to point fingers at and complain about at FAA reauthorization time.

How can this be changed? By embracing some fundamentals of trajectory-based operations (TBO). Simply put, TBO uses aircraft trajectory—expressed in the four dimensions of latitude, longitude, altitude, and time—from pre- to post-flight. The day's set of planned trajectories defines demand. As day-of-flight conditions change, such as weather or operational challenges, trajectories are updated, and the system responds.

Incorporate airline business rules and the system optimizes trajectories to time and sequence each flight. This would cut delays, flying minutes, emissions, and costs. It also frees up capital, labor assets and latent utilization by continually driving the achieved benefits of optimization back through the planning process.

The best part? It doesn't need decades to implement. In fact, it can be done in months at the single airline network level and perhaps a few years for the entire U.S. system.

All constituencies benefit. The partial list of improvements includes airline reliability, costs and earnings, FAA controller workload, investor returns, customer reliability and on-time utility, communities served, and the national economy via reduction of delay costs.

The bottom line: airlines and the FAA must stop "Waiting for Godot," for their own good.

Delays cascading into cancellations and driving considerable, consistent economic harm to airlines, the FAA, and the economy cannot be the new normal. And it does not have to be.

There is a readily available, inexpensive, scalable, constructive solution on the shelf.

Robert W. Mann, Jr., a former airline executive officer, is currently a consultant to the aviation industry.

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