Air Traffic Control Is Not the Real Cause of Airline Delays

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Originally published in the Mar/Apr 2017 issue of Managing the Skies, the FAA Managers Association magazine. Reprinted with permission.

Travelers check the Delta departures board at LaGuardia Airport, August 8, 2016, in the Queens borough of New York City. (Drew Angerer/Getty Images)

Airline delays are an ongoing problem and are hugely expensive for passengers, airlines, and the government. And while many search for solutions, where everyone goes wrong is primarily blaming the ATC system.

Delays are not the ATC system’s problem to solve. Yet, ATC gets and, very expensively, accepts the blame.

Airline delays are just that--airline delays, and can only be solved internally by the airlines. ATC is responsible for aircraft separation and safety, but should not manage or sequence an airline’s production assets--its aircraft--in and out of the nation’s airports, when the airline could do it much more efficiently and less expensively. Today, the only reason ATC does the sequencing task is that airlines have abdicated that role.¹

¹ Air footnote: A more fundamental abdication is by FAA; this agency refuses to impose simple regulations that guide the airlines away from their bad habits. As such, FAA’s main role has devolved into enabling an industry to expand two key bad practices (excessive hubbing, overscheduling) that create large inefficiencies and environmental impacts. All to accommodate shareholders, in a myopic pursuit of profit margins.
For passengers and airline shareholders, this misunderstanding about the roles of ATC and the airlines has led to little improvement in the airline’s on-time performance, even after the FAA has spent billions of tax dollars and airlines have added billions in annual costs by padding their flight/gate schedules with extra time to mask and institutionalize their dismal punctuality.

What other twenty-first century industry considers a 20 percent defect rate acceptable?

**FAA on the Right Train, Wrong Track**

Further, while FAA is on the right train (See “The Time Has Come for Time-Based Flow Management” by Steve Bradford, FAA Chief Scientist, in the Jan./Feb. 2017 issue of Managing the Skies), FAA is on the wrong track.

FAA misses that Time-Based Flow Management (TBFM), driven by an Airline Business-Based Flow Management solution (BBFM), has been available since 2006 as a commercial off the shelf (COTS) product for tens of millions, versus FAA’s proposed expenditure of billions of dollars.

Secondly, unlike FAA’s TBFM solution, airline-driven BBFM implementation does not require satellite-based tools, as the accuracy of the current navigation and communications tool is more than adequate to implement time-based arrival flows. Once the time-based process is in place using the current equipage, then, and only then, the new satellite tools become immediately beneficial.

While FAA maybe driving the right train on the wrong track, the airlines are simply passengers when it comes to managing their multi-million-dollar capital assets (See “Who Controls the Blue” by Michael Boyd in the Mar./Apr. 2014 issue of Managing the Skies).

The solution must not be about TBFM, or just speeding up/slowing down aircraft. It is about speeding up the “right” aircraft (gate available, late, connections) and slowing down the “right” aircraft (no gate, early, etc.), things only the airline knows. BBFM already does this.

Finally, while both the FAA and I agree that time-based flow is critical for aviation, we differ in that the FAA believes it is the government’s job, through a controller-centric solution, to control aircraft speed to manage the sequence of the arrivals.²

Conversely, I believe the airline must first decide the most profitable solution for each of its aircraft, based on internal business needs (schedule, connections, gates, crews, maintenance, etc.), and only then coordinate with ATC in real-time as the “Honest Broker.” With an airline chosen and ATC-coordinated aircraft target time agreed upon, the airline executes the target time using an aircraft centric solution. *(Required Time of Arrival can be set by the pilot via an onboard computer function, and then the Flight Management Computer will automatically adjust the throttles to achieve that RTA.)*

**The Why**

Having spent 35 years dealing with ATC and airline operational issues, as well as being a commercial pilot (now retired), my conclusion is that most delay and congestion problems reside

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² **aiR footnote:** And why does FAA believe in a controller-centric solution? Because the ATC union (PATCO until 1981, NATCA since 1989) works hard to maximize revenues by maximizing ATC pay and employment levels. And FAA managers benefit, as their pay levels are elevated to remain slightly above controller pay levels. In other words, it all reduces down to one word: money.
with the airlines, and can only be mitigated by real-time management of their assets, not as discrete parts, but rather from a whole-system perspective.

But, you say, this can’t be, as the U.S. Department of Transportation (DOT) reports Air Carrier Delays much lower. For example, in the chart below, DOT reports Air Carrier Delays at 5.01 percent of total flights (27.2 percent of total delays).

![On-Time Arrival Performance Chart](image)

**On-Time Arrival Performance**

**National (January - November, 2016)**

- Flight Delays by Cause
- Weather’s Share of Delayed Flights
- Weather’s Share of National Aviation System (NAS) Delays
- National Aviation System (NAS) Delay by Cause
- On Time: 81.94%
- Air Carrier Delay: 4.9%
- Weather Delay: 0.49%
- National Aviation System Delay: 5.25%
- Security Delay: 0.03%
- Aircraft Arriving Late: 6.01%
- Cancelled: 1.13%
- Diverted: 0.24%

*U.S. Department of Transportation*

So, how can I claim the airline is the cause of most flight delays?

First, look at a few delay examples attributed to the National Aviation System (NAS) and how proactive airline actions can mitigate them.

A flight lands into San Francisco (SFO) 20 minutes late and is reported as a NAS Delay because of congestion leading to a long approach path.

Instead of passively waiting for ATC to begin metering the arrival flow of aircraft when they are about 200 miles from the airport, once the congestion problem already is in place, an airline should, using a COTS BBFM process, apply speed adjustments to their aircraft 500 miles or more from the airport to avoid the obvious upcoming congestion. The tools to do this, using equipment already on the aircraft, have been readily available for many years.

Contrary to FAA’s TBFM proposal, the airline BBFM tool speeds up the “right” aircraft at the front of the tightly-packed SFO arrival queue (only the airline can determine the “right” aircraft), a unique BBFM difference. Moving that aircraft forward just a couple of minutes pulls the entire arrival queue forward.

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3 aiR footnote: The acronym stands for ‘commercial off the shelf Business-Based Flow Management’, discussed above. Noe, too, for this example, the delays will be attributed to ATC (an ‘NAS Delay’, not an ‘Airline Delay’). And ponder this: if and when an airline overschedules, creating congestion, why is it tagged an ‘NAS Delay’ and not an ‘Airline Delay’?
In other words, moving the “right” two aircraft forward a couple of minutes at the front end of a tightly packed arrival queue of 30 aircraft doesn't just save two minutes, it saves two minutes’ times every aircraft in the queue behind the first two flights, as the entire queue moves forward.

In this example, removing 60 minutes of flight time and delay as the entire queue is “pulled” forward, reducing delays, flight time, fuel, and carbon emissions. Plus, if the airline couples speeding up the “right” aircraft (late, gate available, etc.) with slowing down the “right” aircraft (early, no gate, etc.), the airport is never overloaded and congestion disappears.

Since this isn’t done, our SFO arrival is 20 minutes late. Compounding the problem, airlines schedule their planes, pilots, and flight attendants separately, so after landing, pilots go one way, flight attendants another, while the aircraft sits and waits for pilots and flight attendants from two other flights.

By the time the new crew arrives, does preflight checks, and boards, the aircraft leaves the gate 25 minutes late. Since each flight is planned independently, the flight from SFO to LAX is planned at normal speed/altitude.

But, given the pressure to reduce fuel costs (another airline cost center), the crew slows down to save fuel, landing 29 minutes late. Since the aircraft is arriving later than expected, no one is there to park the aircraft or open the cabin door, resulting in arrival at the gate 32 minutes behind schedule.

While it is hard to believe airline personnel don’t have accurate Estimated Time of Arrival (ETA), look at the ETA accuracy of any of the airline’s apps. How often have you personally waited to park an aircraft or open the jetway door? Can anyone imagine another industry that shuts down a $100 million “factory” (i.e., parks short of the gate) for the want of a $30 /hour employee?

Bottom line: in current airline operations, a late flight gets later throughout the day.

**Enter OPERATIONAL EXCELLENCE**

By deploying a proven process called Operational Excellence, an airline keeps crews and aircraft together, does a “fast turn,” and departs only 15 minutes late. Next, the flight plan gives pilots extra fuel to allow flying low and fast (BBFM), arriving into LAX only 10 minutes late (DOT On Time). Because ramp personnel are linked in real-time to a fluid, dynamic production process, they’re ready to guide the aircraft to the gate and move the jetway to open the aircraft door, enabling a “fast turn.”

By embracing Operational Excellence, instead of two legs late and getting later, after two legs the flight is back to on time.

In other words, although DOT labels many delays as NAS or Late-to-the-Gate delays, most can be prevented by the airlines real-time command and control actions in management of their aircraft and other assets (think logistics).

**Airlines Could, Airlines Should, Airlines Don’t**

We often hear from the FAA that the problem is the airline schedule, i.e., “You can’t schedule 10 aircraft to land at 8 AM. and expect everyone to be on time.” If all 10 aircraft show up at exactly 8 AM, this would be true, but typically this is not the case.
Even if airlines scheduled flights to the minute to avoid scheduled arrival overlap, given the airlines huge day-to-day arrival time variation (Standard Deviation of 8.6 percent), the chance of any flight arriving exactly on schedule is poor.

The answer to how an airline can schedule 10 aircraft to land at 8 AM, and assure all are on schedule, is for the airline to tactically drive the “day of” aircraft flow so the “right” one lands at 7:51 AM (assuming an airport’s 60 planes per hour arrival rate), the next “right” one at 7:52, the third at 7:53, and so on.

No congestion, no ATC delay. To do this requires a level of tactical, real-time control airlines currently have the tools to accomplish, but choose not to do so. Again, ATC is blamed for delays that can be mitigated by airline real-time, tactical actions.

**Airlines could. Airlines should. Airlines don’t.**

There is a common but inaccurate belief airports are too often at capacity, overloaded, and out of the airline’s control, driving poor on-time performance. Of course, airports are crowded at certain times of the day (even Boise is overcapacity when two aircraft want to land at the same time), but this doesn’t preclude reducing delays and congestion.

*Arrival time variation (ATH Group)*

For example, FAA’s real-time Airport Arrival Demand analysis shows available capacity—even at the busiest of times--but it is forward in time. Unfortunately for passengers, this forward in time capacity goes wasted, since airlines don’t “pull” the “right” aircraft forward in time from a
system perspective. There is no way for ATC to know what is the “right” aircraft, unless the airlines determine the “right” aircraft, and tell ATC.

**Airlines could. Airlines should. Airlines don’t.**

Or, consider a strong tailwind from west to east driving east-bound Chicago O’Hare (ORD) arrivals to be 30 to 40 minutes early. As I have experienced, these early arrivals, from airports all over the west, mostly without gates, force ATC to park the early arrivals all over the airport. This, in turn, creates congestion for the departures, who need to depart to free up gates for the early arrivals. End result: Gridlock, with the early arrivals ending up 20 minutes late. And, of course, ATC gets the blame for inadequate ramp management.

The airline BBFM solution is for airlines to hold the “right” upstream departures for ORD and slow the “right” aircraft once airborne (BBFM) to save fuel and have arrivals arrive on time, and, thus avoiding overloading the ATC system and creating gridlock.

Of course, the ORD ground ATC could have done a better job, but, like most congestion problems, the problem was obvious hours prior, and the airlines did nothing to mitigate it. Therefore, while ATC gets the blame, the airlines could have prevented the problem before it ever materialized.

**Airlines could. Airlines should. Airlines don’t.**

Or consider......but you get the idea. Bottom line, there is additional capacity and throughput available if the airlines removed much of the arrival variance by real-time, tactical control of their aircraft assets.

**The result of the airline’s inaction: Air Carrier Delays are a larger percentage than reported.**

**The ATC System**

Over the past 40 years, the U.S. government has spent billions of tax dollars trying to improve ATC and reduce flight delays. Yet, as the chart shows, airline on-time statistics, even in the face of the government’s billions of tax dollars spent and the airlines’ very expensive production buffers (added scheduled block/gate time), have not appreciably changed since 1998. What twenty-first century industry thinks a 20 percent defect rate is acceptable? But it is even worse, as DOT on-time performance is based on being up to 14 minutes late (A14). Actual on-time performance (A0) is approximately 15 percentage points lower at 65 percent, an unacceptable 35 percent defect rate.

Even the years that show year-to-year improvement had more to do with the economy (2001 vs. 2002 and 2007 vs. 2008/2009), than anything that the airlines or ATC system significantly improved.

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<th>A14 19-Year Average 77.9%</th>
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<tr>
<td>1998 77.2%</td>
<td>2005 77.4%</td>
<td>2012 81.9%</td>
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<td>1999 76.1%</td>
<td>2006 75.4%</td>
<td>2013 78.3%</td>
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<td>2000 72.6%</td>
<td>2007 73.4%</td>
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<td>2001 77.4%</td>
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<td>2002 82.1%</td>
<td>2009 78.5%</td>
<td>2016 81.6%</td>
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<td>2003 82.0%</td>
<td>2010 79.8%</td>
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<td>2004 78.1%</td>
<td>2011 79.6%</td>
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4 aiR footnote: Excellent point. Look closely at the vast improvements in these timeframes: from 2000 to 2002 (increased from 72.6% to 82.1%), and from 2007 to 2010 (increased from 73.4% to 79.8%)
From the 1970s until today, there have been numerous government led, less than successful, billion-dollar, alphabet soup ATC programs like MLS, AAS, ISSS, GPS, FANS, FreeFlight, CPDLC, Satcom, RNP, ADS-B, ADS-C, ITC, SESAR, NextGen, and now Privatization, many of which were touted by the ATC providers and airlines as the “end all, be all” to solve delays. During this 40-year period, FAA’s inability to improve flight delays has not been for lack of trying or funding. FAA has worked very hard to improve the ATC system to reduce delays and congestion, with lots of very smart people trying to solve the problem, and billions in tax expenditures, yet it has had little impact on delays.

So, let’s look at the problem from an ATC perspective. ATC sees lots of congestion and confusion (variance) at ORD, and resolves to fix it. They spend billions on ATC tools and new runways, yet there is little improvement.

The problem is the ATC system is looking at local symptoms--the congestion/chaos surrounding ORD. The real problem lies upstream with the unmanaged, highly variant flow of aircraft randomly approaching ORD.

Standard Queuing Theory Applies

![Graph showing queuing theory and its application](image)

*Standard queuing theory application to understand why variance creates congestion. (ATH Group Inc.)*

To truly understand why variance creates much of the congestion and chaos, thus decreasing airport throughput/capacity, airlines must work to understand queuing theory, i.e., time in queue increases exponentially as demand approaches capacity with increasing level of flow variance.
Further, while FAA’s TBFM plan could, in theory, “flatten” the arrival flow prior to arrival, it is predicated on billions in tax/airline expenditures, and still doesn’t move the “right” aircraft in the “right” direction.

FAA’s TBFM plan also represents a huge communication and controller workload problem. Imagine a nor’easter pounding the east coast from ATL to BOS, with each and every eastbound aircraft needing time sequencing by the controller.

This requires each controller to process numerous sequencing messages and time sequence 10 to 15 aircraft, all while providing separation. Conversely, the BBFM solution has one pilot read one message and meet one RTA (think Time on Target), giving controllers the time to safely provide separation, their ultimate task.

The arrival flow problem can be visualized by viewing the airport as a single entity, i.e., a box, described by a line drawn between the arrival fixes (typically 90 degrees apart, 35 miles from landing). If the box can accept 60 aircraft per hour (one per minute), randomly allowing a highly variant flow of 90 aircraft per hour (or 45 in 30 minutes) to enter the "box" assures very expensive aircraft warehousing--30 NM final.

Manage entry to the "box" with the “right” aircraft sequence, and much of the current arrival inefficiency and costs (congestion, delays, block time, fuel, crew time, noise pollution, etc.) disappear.

*The arrival flow problem, visualized (ATH Group)*
But wait--there are way too many variables to properly manage arrival flow. While true days in advance, the predictability of arrival flow hours prior to arrival increases exponentially.

The fact is that airport demand, arrival runway, and weather (yes, weather) are highly predictable a few hours prior to landing, when there is time to manage the arrival flow and mitigate or eliminate potential congestion.

Further, in this day of “smaller government” and budget problems, why would a government willingly accept the blame for the airline’s internal production problems and literally spend billions of tax dollars to do what the airlines could have done 10 years ago for tens of millions? Or, more importantly, why would any company so easily and unnecessarily abdicate control of its primary production assets to the government?5

Finally, measured against the billions spent versus the lack of airline delay improvement, the historical litany of mostly failed, multi-billion-dollar ATC programs is further proof the government (i.e., FAA, EuroControl, Nav Canada, etc.) can never, and will never solve airline flight delays. It is not their problem to solve. Only the airlines themselves can make that fix.

Solution

Fortunately for passengers, there is a solution. To dramatically reduce delays and costs quickly, airlines must commit to Operational Excellence--a tactical, real-time management of the airline’s assets (especially the aircraft), something so many other industries have embraced and successfully implemented (think Toyota).

Operational Excellence requires the airline to recast its “day of” operations from a system perspective, instead of the diffuse way it manages now. Operational Excellence demands that aircraft, crews, ramp service, catering, fueling, and other facets of the airline “day of” operation are managed as a real-time, highly coordinated system, i.e., right part, right place, right TIME (think logistics).

To be that much better operationally, and blow away the competition (again, think Toyota in the 1990s), airlines must move beyond their decades old, 1950s, silo-over-system production processes, and into the system-focused, big data, twenty-first century. Airlines must move beyond simply canceling flights to implementing a command and control process that allows going from a dead stop to 100 percent within 30 hours.

Although we all hope a Sept 11th event will never again test our country, having the capability of 100 percent within 30 hours requires real-time, tactical command and control within an airline's Operations Center, which will dramatically improve an airline’s A0 performance and prevent, or dramatically shorten, the all too familiar bad weather/recovery operations from days to hours.

Imagine an airline with the ability to reconfigure in real-time (agile manufacturing), use their weather idled aircraft, crews, etc., to bypass a weather impacted airport, and get the passenger where they were promised, much closer to when they were promised. No magic here, just sound business practices. Big task? Of course. Doable? Absolutely! Profitable? Highly.

Airlines could. Airlines should. Airlines don’t.

5 aiR footnote: Why? Simply because FAA is a captured regulator, serving industry, not the larger General Public. As such, FAA aims to enable airlines to do whatever they want, while also being a ready scapegoat for inefficiencies, environmental impacts, and other failures sourced in airline business strategies.
Unfortunately, as Mark Twain is reported to have said, “It’s what you know for sure that just ain't so that gets you in trouble.” For example, airlines know “for sure” that:

- Operational Excellence can't be done.
- Operational Excellence is too expensive.
- ATC will prevent Operational Excellence.

Yet, as industry after industry, as well as two universities at three airports proved in the FAA-funded Task J program, these three so-called facts above, “just ain't so.” All three truisms above are 100 percent false, inaccurate, and wrong.

**Solution: STEP 1, LEADERSHIP**

The overarching path to Operation Excellence is airline leadership and vision which means the leadership to implement system-focused internal change, and the vision to see beyond today’s current 1950s airline production process.

Step one is to put someone in charge. Unbelievably, airlines don’t have anyone specifically tasked with cross-departmental responsibility/authority, to put the smiling passenger/bag at the destination curb, on time, faster, better, and more profitably.

Until this happens, airlines will continue focusing on local (silos over System) and government-led solutions to the detriment of passengers, shareholders, employees, and the environment.

Further, Operational Excellence must be led top down to articulate the vison and goal, but implemented bottom up, using the expertise of those doing the job.

My suggestion is to take a page out of the production play book: Appoint a vice president of production.

**Solution: STEP 2, PROCESS**

From a “day of” perspective, the airline operation is a relatively simple production process. Airlines take in raw materials at the front end (people, bags, cargo, fuel, food, etc.), do lots of internal process to those materials, and then spits them out the other end as a finished product—passenger/bag/cargo, destination curb.

And, a quality airline product is a smiling passenger/bag/cargo, destination curb, on time.

An airline’s low product quality is not caused by today’s airline production process being run poorly. The sad fact is the airline’s “day of” production process is not run at all in real-time from a system perspective. It is simply allowed to be.

Once the aircraft is off the gate, the airline typically waits until it gets to the next gate. As the sad events surrounding MH370 showed, airlines don’t track or manage their aircraft in real-time.

*Airlines could. Airlines should. Airlines don’t.*

As decades of dismal airline on-time arrival performance proves, inertia is not a successful way to run a complex, interdependent production process.

Further, airlines look to local fixes - let’s save fuel, let’s improve baggage, let’s optimize pilot schedules, let’s charge for bags, etc. But these local fixes often negatively impact the overall result.
Conversely, as numerous industries have proven, it is systems thinking and logistics that will win the day for passengers and shareholders.

“If we have a system of improvement that is directed at improving the parts taken separately, you can be absolutely sure that the performance of the whole will not be improved, and that can be rigorously proven”. (Russ Ackoff)

Professor Ackoff’s statement perfectly highlights the problem with airline/ATC solutions for the last 40 years--local solutions trying to improve system operation/efficiency. In other words, when it comes to improving the current airline/ATC operation, we continue to mistakenly work to make the parts better, without regard to system affects. Think Whack-a-Mole.

Once the leadership is in place, with the cross departmental responsibility/authority to put the passengers where they were promised, when they were promised, the next step is the vision to implement the actual system process.

First, given that the aircraft is the airline’s core production process, it must be brought into Statistical Control, and not left to independent actions and random events (think Deming).

For example, while a fire-and-forget process may work for military missiles, it is disastrous for airlines. Interdependent supply chain and logistical processes are completely foreign to the daily operational side of the aviation industry, i.e., the airline’s curb-to-curb production process, especially when it comes to the movement of the aircraft.

Through use of Airline Business Based Flow Management (BBFM), a single airline could continually monitor each aircraft to know where the aircraft is at any given point in time, and, more importantly, accurately know where that aircraft will be and when it will be there into the future.

By taking ownership of their flight delays and applying internal business goals (schedule, gates, maintenance, etc.), speeding up the “right” aircraft and slowing down the “right” aircraft, the airline can reduce delays.

Once the airline decides what is best for its individual aircraft, considering their business needs as well as actual demand (airlines can already track all aircraft in flight), capacity, weather, etc., it would electronically pass its requested RTA to the ATC system acting as the “Honest Broker” to equitably allocate access. The “Honest Broker” would decide what is fair if two aircraft want the same RTA, and send the approved RTA back to the airline for implementation.

This use of the RTA and aircraft to execute the target time is critical, since this eliminates the communication and controller workload problem that makes FAA’s TBFM plan problematic at best.

Also, the RTA driven, BBFM solution allows real-time ATC coordination to let the ATC system know what the airline wants for each of their aircraft in a way that doesn’t broadcast the underlying business reasons for that decision. The system knows what the aircraft will do, but not the why.

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6 aIR footnote: Required Time of Arrival, discussed at page 2.
And while a single airline could independently implement BBFM profitably to reduce airline delays, as has been implemented and independently validated, the better solution would be an integrated solution where all arrivals into an airport participate.

The software and aircraft tools to choose the “right” aircraft and move it in the right direction, from a system perspective, and coordinate with ATC in real-time, is an operationally proven (10 years), independently validated (FAA Task J), COTS product, which has been available for years. (Airline Atila™ is a time based, business oriented aircraft flow management system. Atila™ optimizes the airline's business goals (schedule, on time performance, gate availability, fuel burn, speed, etc.) across the airline's arrival flow into a specific airport.)

Of course, I am not talking about the actual aircraft-to-aircraft separation process, which absolutely must remain with the ATC system.

But the sequencing task, a task only the individual airlines have the business information to profitably/efficiently accomplish, must be a shared process, starting with what the airlines tactically want each of their aircraft to do on a flight-by-flight basis through an internal BBFM process.
Airlines could. Airlines should. Airlines don’t.

Once each aircraft is stable and predictable and driven to the best business goal, airlines should then move to real-time management and assignment of gates. If gates are assigned three to five hours prior to landing, based on accurate ETAs for each aircraft, the gate congestion, changes, and overlap would drop to a minimum.

With the aircraft/gate package stable/predictable, the third-level process is for the airline to manage all the other “day of” operational elements (passengers, bags, cargo, ramp, crews, food, maintenance, fuel, etc.) in real-time to the aircraft/gate package.

Finally, airlines “know for sure” this is too difficult, too expensive, and can’t be done. The trouble is this “just ain't so.” Instead of just accepting ATC’s vision of the future, airlines must create their own future vision, built around Operational Excellence. At its heart, Operational Excellence is a relatively simple application of well-proven, real-time, supply chain logistics that increases profits.

The Payoff

Clearly, letting any complex, interdependent process operate on inertia will only lead to failure, something customers and employees see day in and day out, and, sadly, have come to expect.

Not only does this have a huge financial impact on the airlines, but also the resultant chaos and variance is the biggest part of the delay, environmental, and ATC problems.

By adopting Operational Excellence, airlines could boost their actual on-time zero performance (A0) to 85 percent from the current 65 percent, reduce daily on time variance to <3 percent and reduce scheduled gate/in-air time by eight to 10 minutes per flight, thus flying more flights for the same number of aircraft and save billions of dollars in the process.

Our analysis shows that the Cost of Poor Quality for individual airlines is billions annually. The largest cost is the lost opportunity cost, i.e., adding block/gate time to the printed schedule to absorb and institutionalize delays and/or parking aircraft during the day as schedule circuit breakers (i.e., less product produced for the same capital base).

While billions of dollars may sound high, consider that both American and United airlines stated their 1995 system inefficiencies cost them each $2 billion.

Of course, like General Motors in the 1980s, airlines will say that low on-time quality and added production buffers are absolutely required, which, in a sense is true, but only if airlines continue to run a 1950s, silo-over-system, internal, “day of” production process blindly, and accept that the government must manage their aircraft assets.

If an airline moved into the twenty-first century, big data, real-time logistics world of Operational Excellence (like Toyota, it only takes one), as FAA has already proven (FAA Task J, 2010 - 2012), tactical management of the aircraft by the airline:

- Improves on-time performance
- Reduces fuel burn/greenhouse emissions
- Reduces airspace/ATC complexity

Of course, not all the spoilage and buffers costed out in our analysis can be recaptured, but, with the right leadership and vision, hundreds of millions of dollars annually is possible within two to
three years. With full implementation of Operational Excellence (five to eight years), the bottom line benefit for an individual airline would be more than one billion annually (financial analysis available on request).

As outlined, the path to implementing internal airline Operational Excellence is a relatively simple industrial engineering problem that logistics, supply-chain management, and big data can solve. The only impediment to achieving this is a lack of leadership and vision at the airlines.

Right now, today, using BBFM, an airline can track and manage its aircraft much more efficiently and profitably, thus dramatically and rapidly mitigating their flight delays, improving quality, and reducing “defects” in their production process (late/bumped passengers, lost bags, wasted fuel, greenhouse gas emissions, etc.), all while increasing profits.

The Summary

Summarizing from an operational perspective:

1. An airline buys a $100 million capital asset—a new Boeing aircraft—and willingly turns it over to the government to manage when it is moving. In fact, the airline actively lobbies the government to control movement of its expensive capital assets. When that doesn’t work out, and airline delays continue (actual “on-time zero” arrival rate (A0), meaning a plane arrives at or prior to its scheduled time of around 65 percent), it tells the government to work harder, do better, spend billions more dollars on a fix.
2. When that still doesn’t work, airlines tell the government to change ownership of the process (ATC Privatization) to implement ATC-oriented, controller-centric control processes faster (i.e., NextGen, ATC-controlled TBFM, etc.), and lobbies even harder to have the government fully control its capital assets.
3. And the government says “Yes”.

In what way is this good for passengers, airlines, the ATC system, controllers, airline employees, the economy, the environment, and/or airline shareholders? It is long past time to bring the airline production process out of the 1950s and into the twenty-first century.

In conclusion, ATC will never and can never reduce fight delays. It is not their job. Yet, airlines can. All the tools and processes are readily available today to implement Operational Excellence to dramatically reduce flight delays. But they haven’t, which begs the question—why?

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