With only seven short years left until 2025, the clock is starting to wind down for NextGen's big deadline. As most of us know, that's not a lot of time in our industry. So, what comes next? How much will aviation's landscape change in the next seven years, and what does the future of aviation look like after that?

You know that old saying “time flies?” Well, it does. It’s hard to believe that we’ve passed the halfway point to the original 2025 target date. Our industry has become desensitized to the term NextGen. Originally, it was a cool term, and there was so much passion in looking to the future of our air transportation system. However, at this point, any conversation about NextGen is really one about how best to modernize the current NAS. Very little is being done to look beyond what has been planned for NextGen, including how to leverage the investments already made — especially the large infrastructure projects — in a way that allows us to keep up with the pace of change in technology.

ATCA’s Blue Skies project — named for the technologies that emerged seemingly “out of the blue” since NextGen’s birth — doesn’t look to answer “what comes next?” That is because there is not just one answer. Conversely, there is more than one question. As we look to move beyond both the timeline and the concepts designed for NextGen, there are a multitude of questions we need to start asking ourselves: Do we close the book and say we are done with NextGen and come up with another name? Are the original strategies and concepts even still valid? What is privatization’s role? With the rapid pace of technology development, how do we keep up? The Blue Skies project is simply meant to highlight the fact that our industry is quickly approaching a crossroads, so we need to start having the conversations about a post-NextGen environment — and it needs to start now!

The conversations should start by examining how we create a holistic, fully integrated approach to modernization, which creates an environment conducive to the rapid adoption of the latest technology developments.
NextGen has taught us it’s not easy or timely to turn concepts into fielded capabilities.
Before we talk about the future, let’s look back for just a moment. First, we need to identify and capitalize on lessons learned from NextGen so we avoid repeating mistakes. The original strategic plans submitted to Congress were based on some fundamental challenges we were facing within our industry in 2004 and some that we thought would happen in the future. One of those was shared situational awareness for security. This led to concepts and operational change that enforced inter-agency collaboration on sharing information. The forecast of tripled demand and very light jets that were going to darken the skies and wreak havoc on commercial operations never came to fruition. Instead, a few things happened that we never expected: unstable fuel prices, financial crisis, and sequestration. So, over the last 13 years we started to change our focus from looking at the future to worrying about each day’s operational challenges. We never gave up on NextGen; we just got distracted at times.

Then, somewhere along this journey, our industry was hit with something we hadn't adequately anticipated: drones! It’s caused us to rethink the current NAS paradigm we live in today. Let’s be perfectly clear on something: we are way behind the curve on this. We as an industry are still trying to figure out how we are going to manage the full integration of drones into uncontrolled and controlled airspace. There are questions that we still struggle with like: Who pays? Who governs? Who enforces? The FAA, NASA, and many industry stakeholders are diligently working the problem, but we have yet to come up with a complete solution. Market research shows the world UAS market could grow to $127 billion by 2020. That figure can only be achieved if our airspace enables the market to grow.

**Conversations Need to Start Now!**

Our current situation reminds me a little of the 1990s movie *Groundhog Day* with Bill Murray. As much as I enjoy that movie, it’s time for us to quit living it and move on. We keep having the same talks over and over. How many more times are we going to have conferences, meetings, and industry days with speakers talking about realizing NextGen, Data Comm, and ADS-B benefits? I’m not saying that we forget about these or abandon NextGen, but we are past the point of planning for any new technologies and significant operational change within the NextGen framework. It is time for us to break this pattern and start focusing on the future beyond NextGen.

The American Institute of Aeronautics and Astronautics (AIAA) Aviation Forum 2018 referenced 130 different initiatives taking place within NextGen. That’s impressive. One of my mentors offered this advice: “We should never focus on activities. We should only focus on outcomes.” Let’s look at it this way: out of those 130 initiatives, how many will lead to a policy, operational change, or a new capability that benefits airspace users? For those activities that might deliver a new capability, how soon before the change is in place and users start seeing the benefits?

**Technology Shift Should Lead to New Business Structure**

Welcome to the age of The Jetsons. Who would have thought all those years ago, one of television’s best cartoons could start to look like our common everyday environment? With the increasingly rapid pace of change in technology, we need to transform how we do business to include policy, operations, and technology. We already have the safest and most secure aviation system in the world. Our aviation system is stuck in a holding pattern with legacy technology platforms with limited capabilities. The FAA does have several NextGen modernization programs underway, which will eventually help lead to an updated NAS infrastructure. Our ability to adapt to—and most importantly, implement—technological advances will determine how competitive we will be in the decades to come. With the creation of artificial intelligence, autonomous and remotely piloted vehicles, smart airports/cities, and commercial space, we need to focus on how we can exploit current technology and quickly integrate future technology to move our aviation industry forward.

Technology no longer appears to be the barrier to a future vision. One example is Google co-founder Larry Page, who founded a startup company called Kitty Hawk. They have developed a personal flying-car called the Flyer. With their current fleet of Flyers, they have conducted over 1,500 test flights. Kitty Hawk has a very strong commitment...
to safety, but it is also looking hard at societal acceptance. One thing that the company has promised is that anyone can learn how to fly this vehicle within an hour (for a steep price, of course). What happens if this takes off (literally and figuratively)? It’s not a remotely piloted or autonomous vehicle—a human flies it. Currently, there is no requirement for a pilot’s license. What impact would this have on our airspace system? This just scratches the surface of what private industry is planning for urban air transport (UAT). One day we might see a large Uber sign on the side of a heliport garage.

Another example is something I said in a recent interview. Eleven years ago, Apple came out with the first iPhone. Now, I admit that it took me a while to let go of my BlackBerry. When I did purchase my first iPhone, I used it like my BlackBerry—I just made phone calls. Now, I use the phone function the least. My house, cars, and life are completely connected using this one device. I can do anything—see what my family and friends are doing on Facebook, change my thermostat settings, turn lights in my house on and off, start my car, and open and close my garage doors—from anywhere in the world. All through my iPhone.

Again, technology is not the barrier here. Having the right business structure to more quickly adopt new technology is the biggest challenge. Today, we spend a lot of time and focus on developing a set of requirements or specifications, and then it’s contracted out to develop and deploy. This traditional waterfall approach to developing a capability is outdated, expensive, and restrictive. We should allow vendors to deliver capabilities using commercial best practices.

NextGen has taught us it’s not easy or timely to turn concepts into fielded capabilities. How do we create a new business structure to enable quicker access to new technology that safely meets the needs of the new airspace user communities? Conversations and ideas abound regarding what business structure would best foster an increased pace in technology adoption and enable the operational changes our aviation system needs to remain the largest, safest, and most efficient in the world. Regardless of funding or FAA organizational changes, the entire aviation community is facing a fundamental paradigm shift in our airspace system’s operational, functional, and performance requirements.

Does this give privatization more significance now? We need to create an environment that is agnostic to whoever is at the helm. Blue Skies needs to look at how we create a business structure that includes acquisition and funding models that drive the flexibility needed to integrate technology into our airspace system at the same pace of change. The FAA is currently not structured this way. NextGen also taught us that collaboration is essential. This new business structure needs to enhance the collaboration between all stakeholders and airspace users.

It is my belief that we, the current aviation industry, must drive what the future should look like—or our future will be decided for us. So, let’s start right now. Let’s have Blue Skies drive the conversations and debates about how to start planning what that future look likes beyond NextGen. My call to action for you is get involved!

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