



# Mission: Blue Sky

**Porsche Consulting guides Delta Air Lines' pursuit of 365 days of perfection.**

Text Gabe Nelson

**A** stormy summer morning at Hartsfield-Jackson Atlanta International Airport, the world's busiest passenger aviation hub. Inside the command center of Delta Air Lines, it's clear from the torrent of green and yellow on the radar screens that today is going to be a challenging day.

A few hours ago, a tropical storm came ashore from the Gulf of Mexico, raising the possibility of delays across the American heartland. But it is as calm as blue sky inside the 500-person Operations and Customer Center, or OCC, where dispatchers guide over 800 aircraft around the world each day.

Dave Holtz, Senior Vice President of Operations Control at Delta, rattles through metrics at a morning meeting with the cheery tone of a pilot over the intercom. Delta completed all of its flights

yesterday. More than 90 percent of its flights arrived on time or early. "That was 10 percent better than our nearest competitor."

Staff from 28 different departments are working in close proximity inside the OCC to prepare for today's storms, adjusting flight and crew schedules and giving passengers the green light to rebook their flights in advance. This is the beating heart of Delta, and it sets the pace that has made Delta the best among U.S. legacy carriers at keeping its passengers on time. "We won the day yesterday," Holtz tells his team at the morning meeting. "Now let's do it again."

Running an airline is one of the most challenging optimization problems in all of business. To reduce downtime, airlines often assign pilots and flight attendants to complex rotations that involve hopping from city to city and switching aircraft multiple times per shift.

Aircraft have similarly complex schedules built around their need to visit a maintenance center at a certain airport every three days. Any deviation from the master schedule requires the consideration of dozens of variables. Dispatchers must consider such a volume of information that they have four screens open at all times, including a massive, custom-built spreadsheet that tracks thousands of Delta flights each day.

"Our work is like a four-dimensional chess game, and the fourth dimension is time," says Bill Tuck, a flight control supervisor in the strategic planning department at the OCC. "If you don't make your decision quickly enough, all of the options change. All of the pieces are always moving." As flight delays pile up, it can become impossible to fix the master schedules quickly enough to avoid propagating

further delays. This is the status known as "irregular operations," or IROP—and it is a multibillion-dollar problem. Domestic flight delays cost the U.S. economy nearly \$33 billion in 2007, with \$16.7 billion borne by passengers, according to a 2010 study by the University of California-Berkeley. Some of these costs are monetary, like food and hotel rooms, but that figure also includes the most tragic cost of all: the lost time that people—and companies when it comes to business trips—will never recover.

With its highly trained staff and culture of working relentlessly until the job gets done, Delta has consistently claimed the title as the four-dimensional chess master of the U.S. aviation industry. In 2016, its on-time performance was 84 percent, better than Southwest (81 percent), United (80 percent), or American (78 percent).





**THE STORY IN MOVING PICTURES**  
 First Officer Crystal Barrois is scheduled to fly from Atlanta to Miami when a storm comes up. The whole story here: [www.porsche-consulting.com](http://www.porsche-consulting.com)

Only boutique airlines such as Alaska and Hawaiian score better, mainly because their operations lack some of the size and complexity of the hub-and-spoke airlines. Of course, an 84 percent would still only earn a B grade in most schools. And in the airline industry, the pressure on performance has never been greater. Consumers have higher expectations than ever from logistics companies, between the rise of rapid shipping from companies such as Amazon and on-demand mobility services such as Uber. Delays are becoming increasingly unacceptable, and in the era of social media, they are swiftly punished.

Delta originally built the OCC in 1993 after a devastating storm in Atlanta shed light on the need for a central control room. Another such storm in early 2017 prompted the American carrier to take the next step. With help from Porsche Consulting, Delta is working to institutionalize the process the OCC follows during extreme events such as thunderstorms and blizzards. To test its readiness for the next big storm, Porsche Consulting and Delta are staging regular drills inside the OCC, just as Delta's pilots train for the unexpected in the cutting-edge flight simulator downstairs.

Periods of stress on the airline's schedule were ameliorated by increasing staff in the OCC to resolve the massive number of changes that must be made to bring the four-dimensional chessboard of the airline back into balance. By equipping staff with enhanced and more efficient tools and removing the organizational constraints that prevent them from doing the right work at the right time, Delta is learning to recover from storms and get customers to their destinations more quickly—thus mitigating financial and reputational costs that can reach into the tens of millions of dollars in a single day.

"Delta has an extremely skilled and dedicated team," says Ronny Rudzinski, Partner at Porsche Consulting in Atlanta. "Our job is to drive those people to outdo themselves, to help them find the bottlenecks in their storm response, and to guide them as they design an operation from top to bottom that will recover faster than the competition." The long-term challenge will be to strengthen the analytical capabilities that support Delta's people. Machine learning algorithms may someday handle the routine work of optimizing the airline's master schedule, leaving skilled humans to deal with tougher judgment calls. As Holtz puts it: "We want to spend less time watching what's working and more time solving problems."

But this probably won't be a story of artificial intelligence replacing humans—not for a long time, anyway. Delta's typical dispatcher has decades of experience and knows how to make trade-offs that computers will not fully understand. "While some people see optimization as a be-all and end-all, I see it as a better baseline from which our people can start to do that hard work," Holtz says.

Delta is already making progress, as is evident from its increasing ability to complete its entire flight schedule each day without cancellations. Delta had 241 days with a 100 percent completion factor in 2016, 242 days in 2017, and is expecting to exceed that in 2018 with 260 perfect days.

Nothing shy of 365 perfect days is good enough for customers. That's what Delta strives to deliver. "Historically, airlines have been in the same basket as cable companies and used-car dealers—those businesses that people love to hate," Holtz says. "Through improved reliability and customer service excellence, we're working our way out of it."



When an IROP reaches level four, the highest level, colleagues from different departments come together to coordinate their work as quickly as possible with each other.