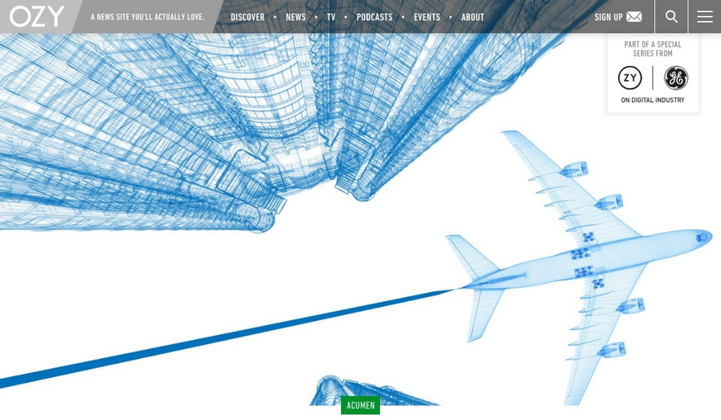

ACUMEN

BIG DATA–FUELED FLIGHTS REACH NEW HEIGHTS

WHY YOU SHOULD CARE

Because anything that improves the airline industry's bottom line could mean shorter lines for the rest of us.

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OZY and Predix from GE — the cloud-based development platform built for industry — have partnered to bring you an inside look at the future of digital industries, where people, data and productivity meet.

When business summons Henry Harteveldt to Washington, D.C., the travel analyst and cofounder of San Francisco's Atmosphere Research Group always tries to make time to visit the Smithsonian's National Air and Space Museum. He never tires of seeing historic planes, like the Wright brothers' 1903 Flyer, or the Boeing 247 from 1933 — the first all-metal plane with retractable landing gear. And don't get him started on Apollo 11's space module. "Those mainframes they used to send astronauts to the moon have less computing power than last year's cellphones," Harteveldt says.

Most of us consider airplanes just another mode of transportation. To some folks, though, airplanes are more like massive flying computers. After all, they generate and transmit an astounding amount of data — on passengers and cargo, on engine vibrations and angle of takeoff, not to mention runway length and fuel consumption. Believe it or not, a 787 Dreamliner jet transmits almost one terabyte of data in a single flight; in contrast, the entire print collection of the U.S. Library of Congress can be stored in 10 terabytes.

Now consider that on any given day, more than 100,000 airplanes ply their routes, and you might get a sense of the industry's challenges, which are broad enough to put legroom crunch in context. So much data, and so few ways to separate the signal from the noise.

> INEFFICIENT FUEL USAGE, DELAYS AND CANCELLATIONS AND UNPLANNED DOWNTIME COST A WHOPPING $25.5 BILLION A YEAR.
>
> —Tammy Jones, spokesperson for the FAA

The silver lining here? Airlines have much to gain from the right technology, and, as it turns out, the industry has at last landed in the era of predictive analytics and big data. Companies such as GE, Rolls-Royce and Pratt & Whitney have already infused their industrial manufacturing muscle with cutting-edge computing prowess. The Predix platform, for example, builds data visualization apps made in partnership with Cisco, Intel and Oracle to pull data out of siloed legacy systems, pinpointing waste and flagging problems before they happen. If the companies and their airline partners are successful, flight plans could become a lot more efficient, and airlines could see significant savings in fuel and maintenance costs.

Already, transparency into flight processes is reaching new heights, revealing valuable insight about when cancellations are most common (summertime, says the FAA), which routes are most disrupted (globally, Beijing to Shenzhen; domestically, Philadelphia to New York, according to AirHelp) and even what time of day is most problematic (dinnertime, when flights are delayed roughly one-third of the time, according to the Bureau of Transportation Statistics).

ONE AIRLINE, AFTER RECOGNIZING THAT CANCELLATIONS WERE THE BIGGEST DRIVER OF COMPLAINTS, DECIDED TO LEVERAGE BIG DATA AND BY JUNE HIT A MAJOR MILESTONE: 100 DAYS OF NO CANCELLATIONS ON DOMESTIC FLIGHTS.

Pilots are being evaluated for efficiency based on fuel usage over time, says Bob Mann, president of airline industry analysis and consulting firm R.W. Mann & Co. Moreover, possible maintenance glitches are being anticipated earlier than ever so that customized spare parts can be waiting in all the right locations. "If the flight was late, then nothing about that flight was good," Mann says, explaining that when surveying passengers after a late flight, there's a much greater chance they'll also complain "that the flight attendants were rude and the plane was dirty."

Deploying better analytics will yield many more gains. As a result, airlines, when knowing where anomalies exist, are better equipped to navigate more efficient paths. One airline, after recognizing that cancellations were the biggest driver of complaints, decided to leverage big data and by June hit a major milestone: 100 days of no cancellations on domestic flights. The airline is also in the process of implementing RFID tags for checked luggage. Passengers will soon get real-time updates on an app that alerts them when their bags have been stored in the plane or have reached baggage claim. AirAsia, after identifying that 50 percent of the airline's cost comes from fuel usage, is enlisting analytics to better measure consumption and ensure the cost to fly remains low.

Indeed, when it comes to efficiency, bottlenecks often keep the aviation industry from truly soaring. But some airlines, fueled by big data, are reaching new insights in record time.

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