CASE STUDY

Keeping planes safe.
While saving $240 million

WHO WE WORKED WITH

An aviation company that keeps 35,000 airplane engines running.

WHAT THE COMPANY NEEDED

To keep its customers—and their profits—flying high, the company needed to cut costs, turn 100 million flight records into insight, and make enginesensor alerts more accurate.

HOW WE HELPED

With our Lean Digital℠ approach, we helped reimagine the organization's maintenance systems from nose to tail. Accelerated, risk-free transition from multiple incumbent vendors to an advanced operating model to enable Data-to-Insight-to-Action for predictive and proactive maintenance.

WHAT THE COMPANY GOT

The company increased customer satisfaction, detected 400 issues that could have grounded planes, slashed false alerts, and saved $240 million. All in the first year.

An airplane's engine has thousands of sensors that generate terabytes of data every hour—recording everything from temperature to altitude to tire pressure. If airlines and manufacturers could harness this data, they could do amazing things. Use less fuel. Stay in the air longer. Lower maintenance costs. And keep passengers safer.

But it's not easy to wade through so much data or figure out what to do with it. In fact, for this aviation company it's been nearly impossible. Until now. We helped it sift through 100 million flight records from 35,000 planes. With us as a co-pilot, it was able to turn data into insight—and insight into action. All in the first year.

CHALLENGE

Keep the engines running. Cut costs. Stay safe.

That's the blue-sky vision that drives our client, an aviation company which keeps the engines running for thousands of airlines. These customers (and their passengers) depend on it. And so do their profits.

Double the planes. Double the work.

The problem is, it expects their number of engines to double in three years, up to 70,000. That would double the work for its 100-person maintenance team—which already struggled to keep up with the current load.

Data might hold the key—if it could unlock it

Instead of working more, the company wanted to work smarter. It had more than 100 million flight records coming in from sensors across 35,000 engines. And it wanted to use this data to fix problems up front—before it grounded a plane. But before it could harness this much data, the maintenance systems needed some maintenance of their own.

The business' fleet support was a medley of legacy systems from different vendors, criss-crossed by disconnected, manual processes—somehow all patched together by tribal knowledge.

False alerts kept it spinning its wheels

The aviation firm had no single way to add new engines to its customers' system, watch for issues, or tell the difference between alerts. So when a sensor tripped, a technician had to go in and manually look at each engine. This sucked up tons of time and money. Even worse, 96% of the time, nothing was even wrong.

SOLUTION

We helped it get lean. And smart.

We jumped on board as the company's co-pilot, helped turn data into insight and action, and reimagine its maintenance systems from nose to tail. Our Lean Digital℠ approach landed that perfect mix of industrial internet of things (IIoT), digital technology, design thinking, and smart analytics. All of which helped the company harness its sensors and systems better. Here's how it worked.

Manage everything from one place

The first step was to whittle the business down to a lean, mean flying machine. Which means it had to move away from its mishmash of vendors and tools, and had to get everyone on the same system. Also, it needed its technicians to all do the same things.

We helped the company use lean principles by setting up an integrated fleet support engineering and analytics center of excellence (CoE), that leverage process re-design, global delivery and automation to effectively handle high volumes and velocity of machine-to-machine and other data, at scale, to enable Data-to-Insight-to-Action for predictive and proactive maintenance.

The company started by documenting 400 of its processes—everything from how to extract an engine to how to change a flat tire. It also created backups for more than 90% of their processes.

Soon, the company was ready to route everything through its new CoE. But it couldn't safely make the switch overnight and it took three months to get it off the ground. We started with several soft launches before the planned start date. This let the business do dry runs of the new controls and make sure it could handle any real-world scenario that came up.

Turns out, the company could. So it made the switch from its traditional processes to the new system on schedule, with no surprises. Now, the aviation firm manages everything from the CoE. And with 25% fewer people.

Measure and track what matters

From its brand-new bird's eye view, it could start tracking what was important to the business and its customers. For that, it needed our Digital Smart Enterprise Processes (SEP^{SM}), a framework where we use granular data analysis, benchmarks, and metrics to identify how our clients can get the most from digital.

Out of its 400 processes, we found 12 key performance indicators (KPIs) to watch weekly. These ranged from how long it takes to put engines back into a plane to how quickly it answers customer questions.

The company can now give its customers peace of mind that it is doing everything as quickly and safely as possible. And has the numbers to back it up.

Make alerts more accurate

Before, the sensors in engines worked in a vacuum. Each one kept an eye on its own numbers and was quick to trip if something went out of range. If the temperature dipped below a certain degree, a temperature alert would go off. Even if the altitude sensor showed that the plane was up high, where it's supposed to be cold.

That's why 96% of the time, it was a false alarm. To bring that number way down, we tied the sensors together with advanced analytics and machine learning. Now, if the temperature dips, the altitude sensor says it's okay because the plane is flying.

This made alerts more accurate—and less likely to cry wolf.

Auto-respond to customer questions

The aviation firm's customers ask more than 5,000 questions a month. Before, it had to respond to each one by hand, after tracking down the answer.

We channeled queries through a single web portal and introduced robotic process automation. Now, a robot does the time-consuming work. It uses text mining to match a customer's question with the best answer. Then it generates a response based on natural language programming.

Which means technicians spend more time servicing engines. And customers get their answers quicker.

Add new engines—in hours instead of days

The web portal is now a one-stop shop for customers. It's made it much easier to add new aircraft. Customers used to fill out a long, manual form about their engine. And it could easily take days to track down all the details. Now, they can use a quick web tool that pre-populates most of the fields. Which means that they now record 99% of their engine changes within 24 hours.

IMPACT

Savings soar. While false alerts plummet.

Only a year in, and the aviation company has racked up some impressive stats. It's harnessed IIoT data to make better decisions, save money, be efficient, and keep its customers happy. Our advanced digital solutions helped turn data to action. Or in some cases, into inaction, like not having to chase down so many false alerts.

In the first year alone, the company:

- Detected 400 issues that could have grounded a plane

- Slashed false alerts by 50%

- Started using KPIs to track how its customers feel about different services provided and improved them by 50%

- Saved $240 million (shared between the company and the airlines it works with)

- Cut maintenance costs by 40%

- Saved customers 2,000 hours of work adding new engines to the company's systems

The aviation company no longer has to scramble to keep its engines running. It has set its sights on the most important horizon—keeping its customers flying high.

We think with design. Solve problems with data. Dream in digital. Obsess over operations and sweat the small stuff. All 77,000 of us.

From New York to New Delhi (and 20 countries in between), we have the end-to-end expertise to connect every dot. Reimagine every process. And rethink your ways of working. How?

We design, transform, and run intelligent operations, with digital and analytics embedded at every step. And by building on our deep expertise from running thousands of processes for Fortune 500 companies, we deliver digital-led transformation through our extensive digital, analytics, and consulting capabilities.

For additional information, contact, industrial.manufacturing@genpact.com and visit, www.genpact.com/what-we-do/industries/industrialmanufacturing

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Happens Here**

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