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App Composer

GE Aviation Maintains Cutting-Edge Tech Advantage

Potential Savings: Tens of Millions of Dollars

A Decisyon App Composer Asset Optimization Use Case

GE Aviation, a global provider of jet engines, components and integrated systems for commercial and military aircraft, wanted its engineering teams to work more efficiently on jet engine test rigs.

They needed a digital capability that empowered them to aggregate and analyze massive amounts of data to obtain insights quickly, and make the right decisions and react without delay. Just as important, the company required a way to continually and easily evolve the solution over time, without experiencing lengthy development cycles.

The company selected Decisyon App Composer (DAC) for an initial application for the GE Coatings Development team. The solution needed to streamline data collection, analysis and collaboration around testing the durability of new ceramic coatings for jet engine parts.

AT-A-GLANCE

Asset Optimization Use Case for GE Aviation

- GE Aviation, a global provider of jet engines, components and integrated systems for commercial and military aircraft, required a digital capability to aggregate and analyze huge volumes of data from jet engine test rigs.
- The company wanted to move away from the complex processes that were often needed to bring together the huge volume of data that was stored in various formats across multiple drives.
- DAC enabled a small team of 15 coatings engineers to create a solution in a matter of weeks.
- The initial implementation alone is expected to save more than $200,000 annually from the productivity increases and reduced repeat testing for this small team.
- GE Aviation expects productivity savings of up to 50 percent in R&D time and costs in the next five years, and when use of the solution is expanded within the company, the technology benefits could yield tens of millions of dollars in savings per coating/engine line.

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decisyon App Composer

Decisyon App Composer (DAC) is the flagship product of Decisyon, providers of the industry's only visual app-building environment with rich built-in services to accelerate the design, development, sale and deployment of IoT solutions, without requiring coding.

THE CHALLENGE

Moving from Manual to Digital Capabilities, Analyzing Massive Amounts of Data

The GE Coatings team simulates different flights in the lab by heating and cooling samples of the coated parts thousands of times. That testing process collects data points from multiple sensors every second throughout the tests. With most tests lasting months, this work yields tens of millions of data points. Before the DAC Solution, GE Aviation researchers used Excel, Matlab and Minitab software to collect and analyze test data, and email was the primary collaboration tool. These are manual, fragmented, and error-prone methods. Additionally, having data stored in multiple formats on various hard drives added too much time and complexity to its processes. GE Aviation needed a digital capability its team could use to collaborate, share and make decisions "in context" around the massive amount of data generated by the jet engine test rigs.

DAC met these requirements, and enabled a small team of 15 engineers to create the initial solution in a matter of weeks.

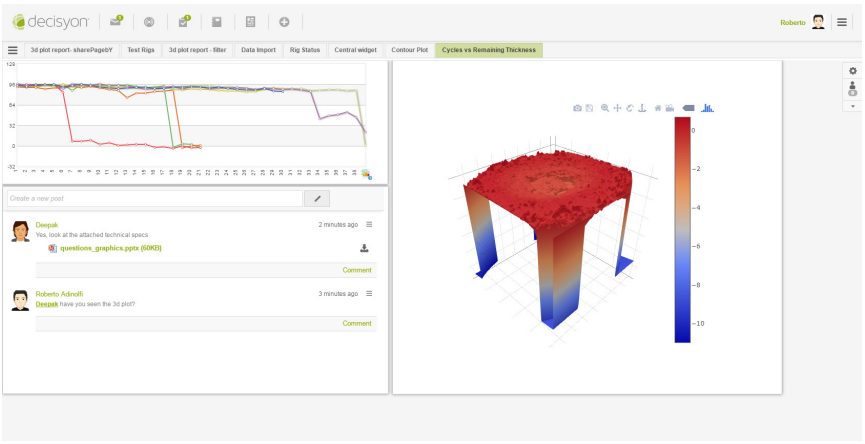
THE SOLUTION

A Predix-Based, Custom Solution that's Easy, Fast and Smart

The DAC, Predix-based Jet Engine Test Rig solution allowed the GE Aviation team to easily build its custom solution in a very short time. Using DAC's simple app-building environment, the team was able to drag and drop "widgets" to quickly create apps with the required functionality and data.

The Jet Engine Test Rig solution provided the Coatings Development team with intuitive visualization and advanced analysis of the test data, and eliminated copying and pasting data from multiple Excel sheets into a Minitab file. With only a few hours of work, the GE engineering team automated these previously manual activities by designing a page in DAC. Statistical analysis of multiple tests instantly became far less cumbersome. By clicking on a particular test, the team members could drill down into detailed test data, while in-context social collaboration functionality makes communication and real-time decision-making — down to the level of the individual data cell — much easier.

Going far beyond the analysis and visualization of test data, the Jet Engine Test Rig solution has built-in functionality to easily set alerts, so GE can now detect, plan for, and fix problems before they happen. The application also includes the ability to expand beyond lab test data to connect to manufacturing data, engine operation data and hardware performance. Because DAC's visual interface virtually eliminates coding, the app can be easily extended to include these additional data sources, without incurring lengthy development cycles.

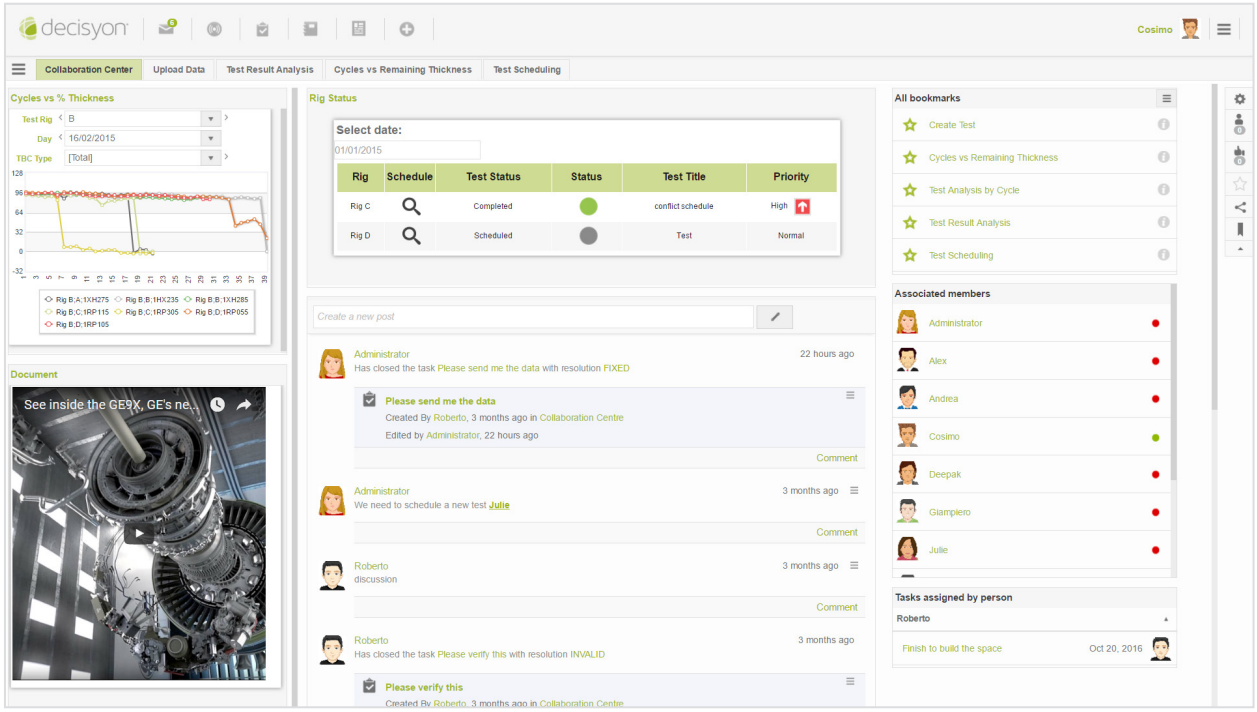


COLLABORATION CENTER PAGE

A Unified Framework for Knowledge Sharing and Collaboration

DAC's collaboration capabilities have helped boost the team's productivity. Instead of tracking action items via Excel and email, tasks are assembled, assigned, filtered and managed right in the app's Collaboration Center page. For instance, the Collaboration Center allowed GE to easily develop a scheduling application for priority-based management of shared resources. This capability eliminates manual task assignment, tracking and management.

The DAC solution allows the team to spend its time on higher-value work such as analysis, making better decisions and taking the right actions in a highly collaborative environment.



The Collaboration Center page enables the team to learn more about:

- Data and results about ongoing testing
- Schedules of rigs and next tests
- Communication shared with the team
- Unstructured content, like video, meeting notes, documents, etc.
- Tasks assigned to single team members, grouped by due date

OVERALL BENEFITS

Boosting Productivity, Enhancing Competitiveness, Potentially Saving Millions

For GE Aviation, the DAC Jet Engine Test Rig solution enables faster validation of new coating systems and shorter implementation timelines, which translates into earlier contract savings from the introduction of new coating solutions. With this initial implementation of the DAC solution alone, GE Aviation's 15-person engineering team expects to save more than $200,000 annually in productivity increases and reduced repeat testing. For some coating introductions, this benefit could add up to tens of millions of dollars. With further development of the app and expanded use throughout the company, additional ROI in the next five years may include:

- **Productivity Savings:** Up to 50% reduction in R&D time and costs as a result of streamlined data analysis, reduced repeat testing and improved team collaboration.
- **Technology Benefits:** Analytics connecting coating processing with lab testing and engine performance could accelerate coating introduction by several years, yielding tens of millions of dollars in savings per coating/engine line.

ABOUT DECISYON

Decisyon, Inc. provides enterprises and global brands a Visual App Development environment with built-in services to design, develop and deploy end-to-end IoT solutions without coding. Founded in 2005, Decisyon software is currently used in over 200 companies globally, including the pharmaceutical, financial services, banking, media, fashion, manufacturing, retail, transportation, telecommunications and automotive industries. Headquartered in San Francisco, CA, the company markets its software solutions in the United States and Europe through partners and direct sales.

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