



## Airlines Reduce Costs with New Airplane Health Monitoring System

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### Abstract

In order to expand their product line, enhance revenues, shorten flight delays and increase customer loyalty/satisfaction, the client instituted an airplane health management program within their services and support organization. The focus of this program was to create a product to automate the use of historical fault data to accurately predict future component failures on the aircraft. Airlines used this product to accurately forecast maintenance activities on the airplane, leading to shortened gate delays, cost savings, better inventory management and increased customer satisfaction. Currently the product supports multiple airplane types and is monitoring thousands of aircraft across a variety of external customers.

To increase customer adoption, optimize team resources, and better define the release process for ISO compliance in their expanding customer base, the client company sponsored the move to Agile and Lean methodologies.

### The Challenge

- The timeframe for the initial product release, which was driven by marketing pressure and customer expectations, was extremely tight.
- The size and complexity of the algorithm for processing terabytes of historical fault data and patterns to predict future failures required creative development efforts.
- Constructing a collaborative team with industry experience that could rapidly deliver software proved difficult to accomplish.
- The rapid rate of onboarding new external customers heightened the demand for migration to a rapid methodology and training of existing personnel.
- The client's procurement organization enforces a rigorous adherence to detailed processes and procedures which must be factored into the planning process.
- Requirements coming from different customers varied greatly in business processes and priorities, making it difficult to combine specific customer requests while keeping focus on overall strategic business direction.
- Maintaining development velocity while overcoming skepticism of a new methodology drove additional organizational change management challenges.

### How We Helped

- We brought analytical, database and lead development expertise of successful rapid product development to the client's team.
- We provided scrum master expertise and training to assess existing business processes and provide a roadmap to migrate to agile processes.
- We developed quality assurance processes, best practices and guidelines and introduced unit testing to the team.
- We mentored and facilitated the effort of architectural refactoring to increase product extensibility as the product matured.
- We fostered a productive and positive environment by leveraging a history of healthy relationships within and outside the client company.
- We coordinated between the customers, executive management, client company mathematical group and application development team.

- We provided onsite technical consultation to their external customers on behalf of the client.

## **End Result**

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- The product was completed on time and within budget, becoming one of the key revenue generating products within the client's services and support organization.
- The client increased revenue and customer base through better maintenance practices and cost savings that were immediately realized by their customers.
- The product allowed the client company to surpass its competitors' offerings.
- The product increased market penetration by allowing expansion to assets not originally thought capable of such functionality.
- Through the adoption of Agile and Lean methodologies and enhanced testing, development cycles were significantly reduced and quality of releases substantially increased; as a result, the team was identified as a positive example of effective rapid product development within the client company.