

Leading Rotorcraft Maker Gets Set To Go the Digital Way

European helicopter manufacturer uses Digital Payload Optimization solution to improve in-flight safety

Client background

The company, a leading rotorcraft manufacturer, has an in-service fleet of about 12,000 helicopters that is operated by more than 3,000 customers. With a turnover of more than 6 billion euros and a global workforce of over 20,000, the company's range of commercial and military helicopters is among the world's largest.

Industry landscape

Digitalization has entered the cockpit in a big way today. Pilots are, thus, switching from the traditional flight bags to the electronic ones. The aviation industry is increasingly adopting more digital tools to modernize and improve in-flight management. Helicopter operators and pilots too, are looking for interactive solutions to save time, improve safety and increase business efficiencies.

The opportunity

The client wanted to bring digitalization to flight operations by automating complex calculations and optimizing the pilot workload. The helicopter manufacturer realized that bringing in digital solutions for weight (payload) and balance optimization could improve flight safety, reduce fuel expenses and increase engine and airframe life span.

The solution

Wipro developed a state-of-the-art mobile application for Digital Payload Optimization. It helps the client easily and safely compute helicopter weight and balance for a specific mission profile, payload and optional equipment. The application was developed on iPad, using a hybrid Cordova framework, and will eventually be ported to Windows and Android tablets. Agile methodology was applied to meet fast growing pilots requirements.

The key features of the solution were:

- **Mission and route planning:**
 - Providing advanced mission and routes planning using Google Maps API
- **Payload and balance optimization:**
 - Automatically calculating the centering position of the passengers in the aircraft
- **Fuel optimization:**
 - Determining the minimum fuel required to achieve a mission and immediately sending the balance report to operations team (required before each flight)
 - Providing dynamic range and endurance on the mission map
- **Real-time flight preparation:**
 - Enabling purchase and transfer of aircraft-specific data (in-app purchase) via Internet on tablets, notifying the pilot when an update is available

The information on payload optimization, minimum fuel required, route planning generated by the application served as a pre-flight requisite to significantly improve flight planning for helicopters.

Business impact

- Improved end-user experience: The application's user-friendly interface came in handy as a time-saving digital tool for the pilots. It now takes 10 seconds to perform the balance check instead of the 10 minutes earlier, using a common spreadsheet tool
- From manual to automation: The payload optimization solution fixed weight-balance errors and automated the calculation of balance and fuel, thereby forecasting a 1% to 2% reduction in number of accidents
- Flight safety significantly improved due to regular validations and updates of manufacturer data for 7 aircraft families and versions

- The application provides mission design with unlimited customized waypoints, range and endurance functionalities integrated with Google Maps
- Endless customization possibilities: Providing clients and pilots the ability to design their own interior configurations (seats and equipment) instead of relying solely on manufacturer-defined configurations

Wipro's Digital Payload Optimization solution was a strategic lever that helped the client improve their flight safety levels. The mobile application offered data-driven weight and balance visualizations, while significantly increasing operational efficiencies. We are proud to be a trusted partner in the client's digital transformation journey

Scott Crislip

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About Wipro

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