

AER1601 Final Project

Developing Operations Monitoring System to Improve Visibility and Pre-flight Operations Planning

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Executive Summary

Bombardier is a global aerospace and transportation company that specializes in the design, manufacture, and sale of aircraft, including business jets. At their Downsview facility in Toronto, they manufacture the Global Express 7500 and 5500 aircraft and conduct pre-flight operation checks. The Pre-Flight Operations Group at Bombardier is responsible for ensuring that the aircraft is ready for flight and meets all the necessary regulatory standards. This group has about 5-6 days to complete all the checks and send the aircraft to the paint shop at Bombardier's plant in Montreal, Quebec, where it is prepared for delivery to the customer.

During their analysis of the pre-flight operations process, the team found that 75% of the work is currently unplanned, with a significant portion of this work falling under the Daily Inspection. The Daily Inspection process is currently tracked manually on physical boards, making it difficult to track progress and plan the pre-flight operations status. In contrast, the data for fuel flow & engine runs, BOIs (Break of Inspection) & NCRs (Non conformal report), and certification is stored electronically and is easy to access.

To address this issue, the team focused on developing a system to improve the visibility of the Daily Inspection and automate the documentation process. The team conducted interviews with supervisors and visited the facility to observe the various stages of the pre-flight operations process. Based on the findings, the team developed a visualization dashboard to bolster the current status-tracking of aircraft. This dashboard is currently being implemented by the BI team at Bombardier but is only a temporary solution for now. The team also recommended implementing a project management tool to improve the efficiency of the pre-flight process. To do this, they suggested developing a customized project management toolbox and training technicians and supervisors on how to use the system. This would allow for the creation of a critical path for each aircraft, as the varying number and complexity of snags makes each aircraft an individual project. A system to capture the snags electronically is currently being tested in Montreal facilities, and once it is implemented, further progress can be made.

The team's recommendation for a project management tool aims to streamline the manual processes that are currently in place and improve the overall efficiency of the pre-flight operations group. By implementing this tool and training the technicians and supervisors, Bombardier will be able to easily track the progress of each aircraft and identify bottlenecks in the process. This will allow them to make more informed decisions about how to allocate resources and prioritize tasks, ultimately leading to a more efficient and effective pre-flight operations process.

In addition to implementing a project management tool, the team also recommended improving the electronic access to data. By digitizing the manual processes and storing the data electronically, Bombardier will be able to more easily track the progress of each aircraft and access the necessary information in a timely manner. This will help to reduce the reliance on physical boards and paper documentation, improving the overall efficiency of the pre-flight operations group.