TEAM 3 – Bombardier Toronto

Pre-Flight Status Tracking System

<u>EXECUTIVE SUMMARY</u>

Aircraft manufacturing programs generally involve huge investments in machinery and resources. Hence, to augment production capacity and to ensure efficient use of expensive machinery, manufacturers run multiple shifts. A major part of productivity depends on the efficiency of the task hand-over process between shifts. Inefficient communication between shifts may either result in re-doing an already completed task or halt progress due to lack of critical information. This was the problem identified at Bombardier Toronto, a world leader in business jet manufacturing. The pre-flight testing operations are currently being performed on 5 aircrafts on a 7-day shift. The crew members meet between shifts to share their progress, which serves as the only input for the next shift to work on the aircraft. Currently, the shift change meeting does not have a standard process that has to be followed, hence, the communication gap is highly evident. This involves missing critical information in the meeting, resulting in repeated activities being performed on the aircraft. Optimizing the shift handover procedure thus becomes the aim of the project. The aim of the solution is to prevent data/knowledge drop between shifts by providing a common platform containing all the relevant data and metrics such as Task status, planned timeline, Planned effort, Actual effort, Issue (if any), Project Gantt chart, and criticality. Minimum effort spent on the tool by the supervisors, maximum productivity improvement, and elimination of communication gaps are the major factors considered for the solution proposal. Hence, a centralized project management tool capable of displaying an easily readable dashboard with the above-mentioned data is proposed in this project.

Initially, the team proposed the use of Trello/Clickup an online-based micro-level project management tool. Unfortunately, this tool was not in line with the client's requirements due to Bombardier's Quality Management System (QMS) policy. Upon further research, four data visualization tools were discovered which were easy-to-use and user-friendly. Excel, Power BI, Monday.com, and Tableau were proposed to tackle the problem of ineffective information flow during shift change. The four tools met the client's requirements of being easy-to-use and not having supervisors/managers spend most of their time by the desktop. The input medium is to be changed from paper to Excel sheets and the output medium is to be changed from the current use of whiteboards to smartboards and projectors. Making Excel the input medium ensures that the data is standardized and ensures easy access to previous data. After analyzing the data visualization tools proposed, the team recommends using Tableau as it does not need continuous uploading of data, unlike the other tools. Once the excel sheet is linked with the dashboard and the charts are mapped, the data is pulled automatically and requires no additional tasks from the user. The dashboard in Tableau is easy to build and is straightforward to understand.