

ANALYSIS OF MATERIAL SUPPLY PROCESSES FOR HEAVY AIRCRAFT MAINTENANCE AT SAS

BACKGROUND

An aircraft C-check is a comprehensive and resource-intensive maintenance activity. Efficient material planning and logistics are critical to ensuring on time completion and cost control. Inefficiencies in forecasting material needs or in managing logistics often lead to delays, increased freight expenses, and a higher number of deferred defects.

PURPOSE

The purpose of this project is to map and analyze SAS's material supply processes for heavy aircraft maintenance. The resulting report will discuss inefficiencies and their underlying operational drivers of delays and shortages.

SCOPE

The project will conduct an initial review and evaluation of material planning and logistics processes associated with aircraft C-checks. Specifically, the study will include analysis of:

- Material usage,
- Shipping of material,
- Percentage of jobs deferred,
- Accuracy of planning forecasts,
- Cost drivers, and
- Comparisons between pre-planned and on-demand work for the above factors.

Based on the findings of the initial review, the report will adopt either an analytical or a strategic approach.

ANALYTICAL APPROACH

The analytical approach will be more data-oriented, preferably resulting in a predictive model. The students may benefit from knowledge in Python and SQL.

Building on the initial findings, the report may include:

- Identifying operational drivers and analyzing their correlation to the initial findings.

- Developing an improved forecasting model to generate a pre-load of parts for each maintenance check, including finding and evaluating input features such as aircraft age and number of cycles.
- Evaluating the impact of planning deviations on delays, excess costs, and deferred defects, and quantifying the improvement potential.

STRATEGIC APPROACH

The strategic approach focuses on evaluating the organizational aspects of SAS's material supply processes for heavy maintenance. The report will discuss structural inefficiencies and strategies that can improve material availability and cost efficiency. Building on the findings from the initial analysis, the report may include:

- Assessing the effectiveness and collaboration of teams involved in each stage of the maintenance checks, using insights from the initial analysis.
- Identifying process inefficiencies within the planning and logistics workflows that contribute to delays, excess costs, or deferred defects.
- Benchmarking SAS's practices against industry standards or best practices.
- Supporting long-term success by establishing an operative framework for heavy maintenance.

EXPECTED RESULT

The project is expected to result in a comprehensive report addressing the points outlined above and providing actionable improvement recommendations. In addition to the written report, the students are expected to:

- Conduct interviews with personnel in planning, logistics, and maintenance to understand process realities and provide qualitative context to the analytical findings.
- Present findings and recommendations to relevant SAS stakeholders and the teams involved.
- Deliver supporting materials such as analytical models, forecasting scripts, and visualizations developed during the project.

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