FEDEX CORPORATION

Quality Operations Improvement for Online Grocery Delivery

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An industry leader in distribution, **FedEx Express** relies heavily on its fleet of approximately 680 aircraft to perform at the highest level to deliver consumer goods on-time. To put this in perspective, the number of aircraft flown by United Parcel Service (UPS) is around 260, roughly 2.5x smaller in quantity. Comparison to commercial airlines further demonstrates the magnitude of the FedEx airline. Ryanair, the largest airline in Europe, houses a fleet of around 450. United Airlines operates a fleet of 800 aircraft.

All aircraft are equipped with an Auxiliary Power Unit (APU), which is used to power the electrical system that moderate activities like air conditioning and starting the plane's engine. Unlike engines, APUs are not utilized when an aircraft is in-flight. Although FedEx currently has a sophisticated method of forecasting for engines, utilizing third-party software, the method it uses for APUs is far less robust and based on an outdated model.

The Tauber team focused on the Honeywell GTCP331-200ER APU, which is installed on both the Boeing 757 and 767 aircraft operated by FedEx. Through continual knowledge gathering on current best practices, processes, and tools, it became clear that there was an opportunity to significantly streamline and consolidate the process that was being used for APU forecasting.

Over 12 weeks, the Tauber team worked closely with members of Propulsion Planning & Analysis (PPA) and other related teams to develop an APU forecasting model. At a high level, the final APU forecasting model functions through a combination of SAS data, VBA coding, and other Excel functions and formulae.

Overall, the APU forecasting model produced by the Tauber team resulted in more accurate maintenance repair budgeting, process improvements, and time savings through the consolidation of information and automation of multiple data sources. The team was able to perform detailed analysis on maintenance repair costing from vendors, unscheduled engine removals, and the creation of a soft threshold to allow for increased accuracy compared to the current processes being used. Moving forward, this model will assist the PPA team with more precise budgeting for APU induction costs and the ability to visually track and manage spare APU components.