Singapore Airlines AppChallenge 2019

Challenge statement Infobrief - Engineering: Aircraft Maintenance

How might we enable our engineers achieve higher productivity in aircraft maintenance?

Opportunity Areas

- Provide easy access to maintenance logs and information during aircraft inspection

- Visual aids and recommendations for engineers to interact when navigating through aircraft maintenance manuals

- Data Analytics for pre-emptive maintenance that allow efficient scheduling of maintenance

- Other innovative technology or digital enhancements for the maintenance processes

Detailed information

1. Background

The SIAEC group provides extensive aircraft maintenance, repair and overhaul services to more than 80 international airlines carriers. With more than 70 years of experience in the aviation MRO industry, we strive to provide high quality work as safety as the cornerstone of the company. Engineers in SIAEC are constantly required to perform maintenance task which are time sensitive whilst upholding safety standards.

We wish to leverage on digital technologies to equip our engineers with applications to access critical maintenance information, location and serviceability of our equipment with technology and make data driven decisions.

2. Business Impact

Allowing engineers to be able to access and visualise important information during maintenance to reduce time taken to travel between office and the aircraft thereby saving man hours.

3. Current processes, pain points, constraints, and opportunity pockets

Maintenance work are carried out in the hangars and airport. Currently engineers and technicians go through a four stage process in maintenance:

1. *Preparation and review of documentation*
2. *Aircraft inspection*
3. *Aircraft maintenance*
4. *Certifying Aircraft is fit for flight*

Opportunities lies in the aircraft inspection and maintenance stages:

Aircraft inspection:
During inspection, engineers carry out walk around checks and surface inspection to determine whether the aircraft systems and structural integrity has been compromised. Equipping engineers with easy access to information, inclusive of previous surface defects and maintenance log during inspection, improves the process.

Aircraft maintenance:
After inspecting the aircraft, the engineers will carry out the required maintenance work. An intuitive approach to retrieve information from historical database and reduce physical movements between the aircraft and the computer terminal will aid the maintenance process and reduce travelling time. We are open to solutions that can assist engineers to locate instructions within the maintenance manuals on-the-go with ease. Innovations that are able to recommend and identify parts required during the maintenance process would further improve productivity.

As aircraft maintenance is heavily regulated by airworthiness authorities, please note that:

- *Aircraft manuals (e.g. AMM, CMM) are provided by OEMs (Boeing & Airbus) and are frequently revised (e.g. every 3 months).*

- *Approval is required for any deviation of approved maintenance procedure and methods.*

We welcome technologies such as computer vision, pictorial analysis, IOT sensors, data analytics and other technologies that provide assistance in terms of visual/voice aids, recommendations or data analytics maintenance.