

TRANSFORM EXPERIENCE. TRANSFORM BUSINESS.

Predictive Services for
Aircraft Engines with SAP
Cloud Platform and IoT

MRO in Aerospace Industry is Moving Towards Predictive Maintenance

Current State

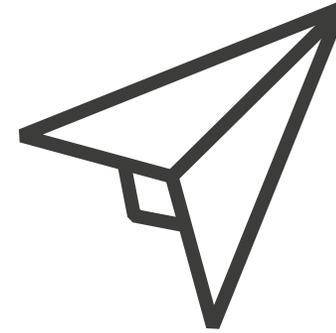


- All reporting, diagnosis, planning and servicing happen on ground
- Siloed and disparate resources/systems
- Unavailability of spare- parts and skilled labor
- Manual or basic automation procedures and documentation
- Costly delays and possible cancellations
- Interrupted Airplane Service Availability



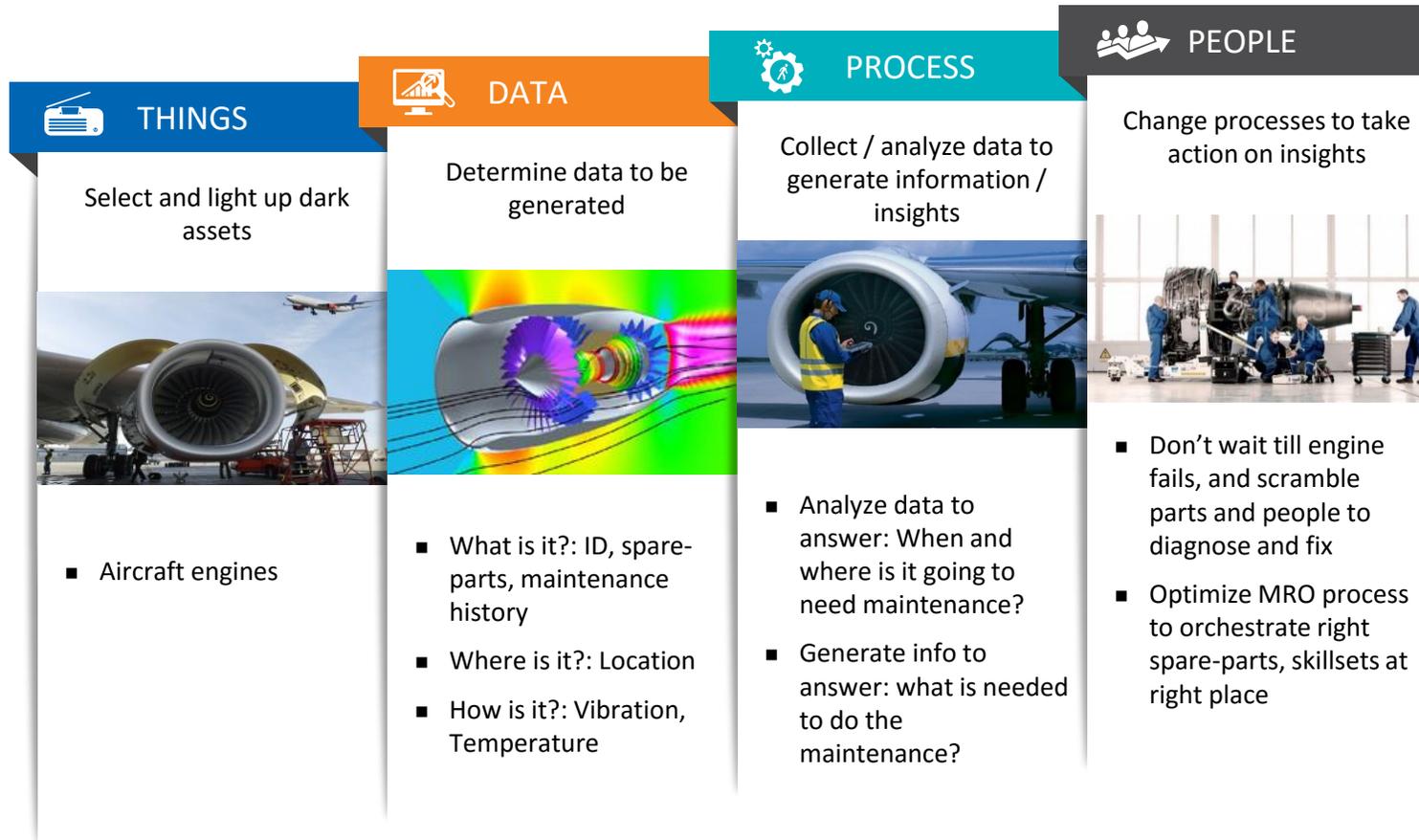
“The daily cost of a grounded A380 Airbus to be **\$1,250,000**”

- Source Airbus China



“ Global MRO spend in 2014 was valued at **\$62.1billion**, excluding overhead. This represented around **9%** of total operational costs. With a **3.8%** increase per annum, the spend is estimated to reach **\$90 billion** in 2024. ”

IoT Accelerates the Pace to the Future



- Predictive fault reporting, diagnosis, planning
- Light solution (e.g. micro services) with ability to integrate with existing systems
- Role-based reports and dashboards
- Integrated resources (human as well as material) with auto assignment to a maintenance activity
- Optimized maintenance expenditure and aircraft services

KEY TO THE VALUE CREATION:

IoT implementation that goes beyond just connecting things but transforms business processes and people practices

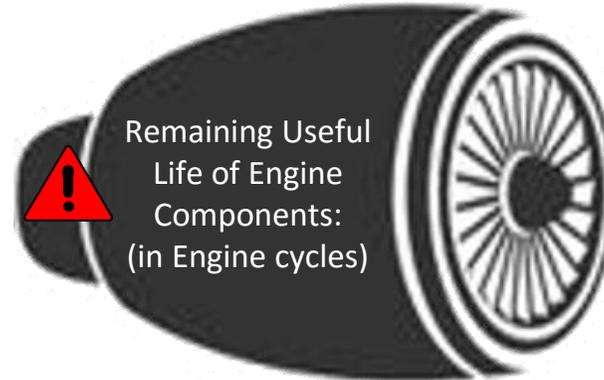
Solution: Predictive Maintenance, Track and Trace

Predictive Analytics + Track and trace for **On Time Delivery, Reduced Maintenance & Aircraft On Ground time.**

1 Data is gathered from various sources such as Aircraft, GIS, Weather, Histogram, Airport/Hangars which is analysed in the cognition enabled predictive maintenance model



2 Cognitive event modeling predicts very low Remaining Useful Life(RUL) for an Engine Part.



3 Global Field Support & Analysis Center and spare part supplier is notified about the event. System recommends optimized steps to coordinate movement of required parts and technical resources based on :-

- ⦿ aircraft schedule
- ⦿ severity of predicted event
- ⦿ parts
- ⦿ technician location



4 Spare parts are identified and shipped. Engineer(s) with right skillset is /are auto assigned for the maintenance activity



5 Technician fixes the event with the help of detailed information and required spare parts provided to him prior to the predicted failure time.



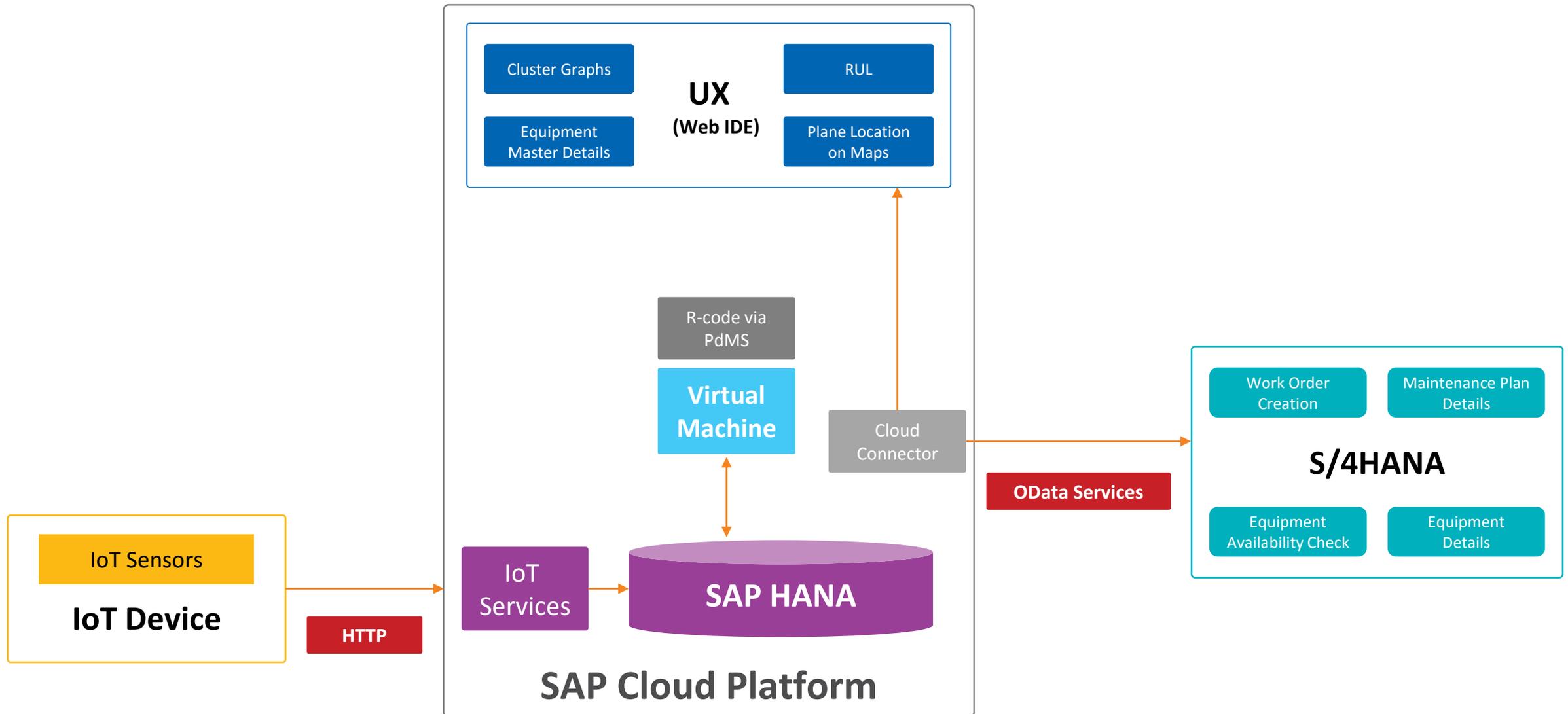
6 Maintenance is completed in a shorter period of time reducing the maintenance/ Aircraft on Ground (AOG) time.



7 Airplane is ready to do what it is meant to do. Fly in the skies. Prevent/minimize the requirement of replacement airplane.



HCL Aircraft Predictive Analytics - Solution Architecture



HCL

*Relationship*TM
BEYOND THE CONTRACT

\$7.3 BILLION ENTERPRISE | 115,000 IDEAPRENEURS | 32 COUNTRIES

 **WATCH THE FILM**