

Concept Note - Maintenance, Repair, and Overhaul (MRO) Solution

Executive Summary:

In the aerospace industry, Maintenance, Repair, and Overhaul (MRO) operations are critical for ensuring aircraft efficiency and minimizing turnaround time. These processes involve handling numerous documents, including Tally Sheets and Job Cards, which are essential for effective management. AIQoD Intelligent Document Processing (IDP) solution leverages Gen AI technology and RPA to automate the extraction and integration of data from these vital documents, enhancing operational efficiency and accuracy.

Objective:

To deliver a robust automated solution for MRO companies that ensures precise data extraction from various document formats, integrate seamlessly with existing MRO / ERP systems, and optimizes maintenance workflows.

Business Needs:

- Need for accurate and timely data extraction from diverse document formats to streamline maintenance processes.
- Demand for enhanced compliance with regulatory standards through precise documentation and reporting.
- Necessity for real-time tracking of maintenance metrics to improve decision-making and operational efficiency.
- Importance of reducing turnaround times in maintenance operations to enhance aircraft availability and performance.

Current Challenges Faced by MRO Organisations:

- **Inconsistent Document Layouts:** Variations in formats complicate data extraction.
- **Manual Data Entry:** Time-consuming processes increase the risk of errors and operational delays.
- **Integration Issues:** Difficulty in incorporating extracted data into ERP systems hampers efficiency.
- **Compliance Risks:** Inaccurate data management can lead to regulatory non-compliance.
- **Human Resource Limitations:** High dependency on personnel for data entry results in burnout and hinders strategic focus.

Proposed Solution:

AIQoD IDP solution employs a Gen AI technology-based platform and RPA to automate the extraction of data from Tally Sheets and Job Cards. This robust solution adapts to various document formats, ensuring high accuracy and seamless integration with ERP systems.

Types of Documents Involved in the Process:

- **Tally Sheets:** Track key metrics for work packages such as start and end times, quantities, performance indicators, and customer work package details. These ensure accurate reporting and tracking of maintenance activities.
- **Job Cards / Task Sheets:** Contain detailed information about specific maintenance tasks, including task descriptions, assigned resources, completion status, and any additional notes. These help manage daily operations efficiently.

Entities to be Extracted:

Tally Sheet Entities	Job Card / Task Sheet Entities
Customer Work Package (Customer Tally #)	Customer Task Card #
Customer Work Package Description	Task Description
Aircraft ID	Task Category
Task Type (Customer Tally Type)	Task Reference # (Job Card / Task #)
Model Type	Customer Tally Sequence
Task List (Tabular Form)	ETOPS
Customer Tally Seq #	Panels
Customer Task Card #	Zones
Status	Engineering Instructions
Task Reference # (Job Card / Task #)	Part Requirements
Task Description	Tool Requirements
Task Additional Attributes supplied in Tally Sheet	Aircraft ID (Key)
	Customer Work Package (Customer Tally #)
	Customer Work Package Description

Key Features:

- **Multi-Dimensional Data Extraction:** Supports various data types, including text, barcodes, tables, and images.

- **Business Rules Application:** Extracted data is validated based on predefined business rules, ensuring data integrity.
- **Seamless ERP Integration:** Utilizes APIs for easy data posting into ERP systems.
- **Customizable Dashboards:** Offers tailored reporting based on client-specific parameters.

Benefits:

- **High Accuracy:** Achieves an extraction accuracy rate of 90+% through intelligent algorithms.
- **Time Savings:** Reduces manual data entry time by up to 75%.
- **Error Reduction:** Minimizes data entry errors by 90% through automated processes.
- **Compliance Assurance:** Improves documentation accuracy to support regulatory compliance.

Flexibility & Scalability:

The AIQoD solution is designed to adapt to changing document formats and layouts, ensuring ongoing accuracy and efficiency. Its scalable architecture supports growing data volumes and evolving business needs.

Conclusion:

AIQoD Intelligent Document Processing solution transforms document management for MRO organizations in the aerospace industry. By automating data extraction and integration, it reduces manual entry and errors while ensuring compliance. With high accuracy and seamless ERP integration, the solution empowers MRO teams to enhance efficiency, improve decision-making, and ultimately support optimal aircraft performance.