

IATA WORLD MAINTENANCE & ENGINEERING SYMPOSIUM

**Madrid, Spain
24 – 25 June 2026**



**IATA WORLD
MAINTENANCE
& ENGINEERING
SYMPOSIUM**

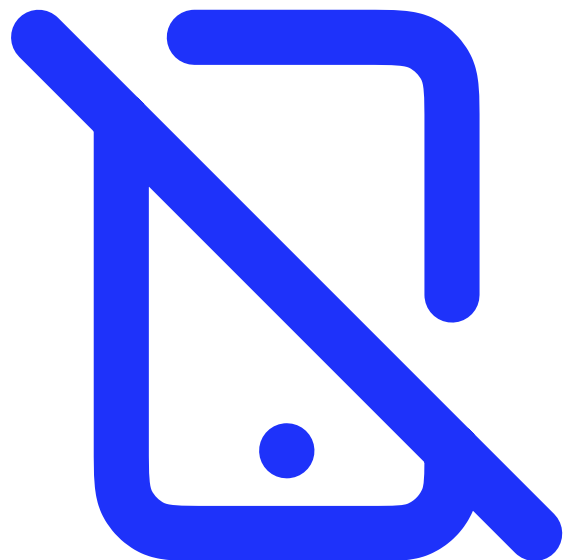
WELCOME BACK

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Apple Store



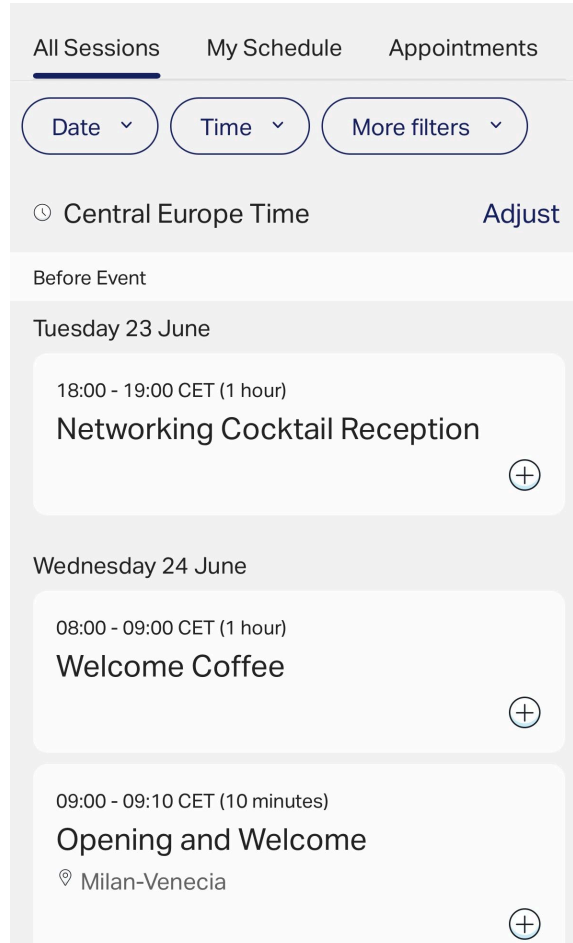
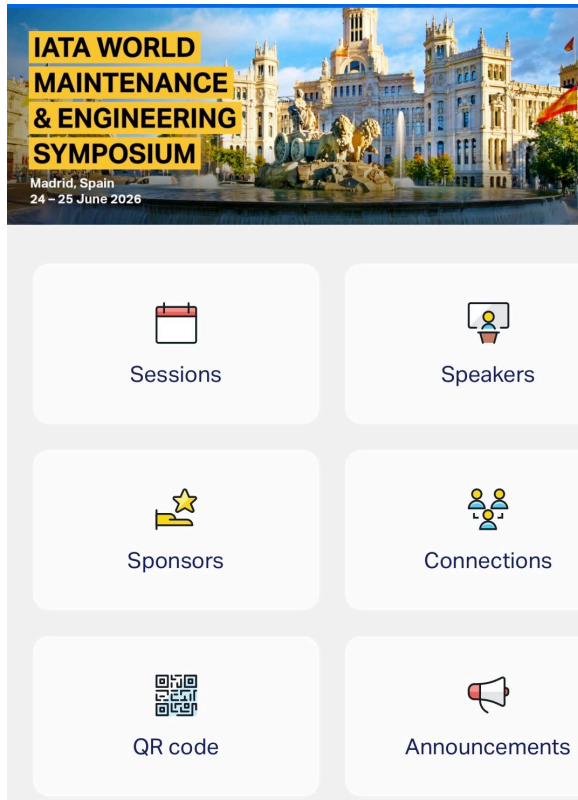
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Event ID: **IATAWMES2026**

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IATA WORLD MAINTENANCE & ENGINEERING SYMPOSIUM



WMES App, Q&A & Survey.

**Add session to calendar
and scroll down to access
Q&A and Survey.**

From crisis to constraint:
The new normal for the
aviation supply chain

Wed 24/06, 09:10 - 09:30 CET
20 minutes

Milan-Venecia

+ Add to calendar

Add session

Speakers



Stuart Fox
Director Flight and Technical
Operations, IATA

About this session

Plenary Session

About this session

Plenary Session

Live Q&A Hasn't started

Survey



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Event hashtag

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PMAs and Part 21/ DER repairs

Chris Markou,
Head Technical Operations, IATA
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Approved Alternative Solutions

PMA and Part 21 & DER Repairs

#IATAWMES



Approved Alternative Solutions

Parts and Repairs

- **Alleviate the industry pain from the current supply chain issues**
- Clarify uncertainties between lessors and airlines during aircraft leasing and transitions; provide current industry practices
- Keep the aircraft operational while maintaining asset value and transferability; worldwide acceptance
- Provide alternatives and options to market monopolization



Pathways to Wide Acceptance

Approved Alternative Solutions as the Standard

Objectives

Acceptance of:
Approved Alternative
Solutions (Parts & Repairs)
Ease of Aircraft Transitions

Roadblocks

Transferability
OEMs + OEM Contracts
Warranty concerns
Asset Value



Stakeholders

Airlines
Lessors
PMA Vendors - MROs
Part-out Companies
Role of OEMs

Market

Supply and Demand
Current Crisis
Lease Return - Transitions

IATA GUIDANCE

Approved Alternative Solutions (PMA-Repairs)

FAA PMA Parts and EASA Part 21 / FAA DER Repairs

- OEM Part shortages
- Obsolescence and unavailability of OEM parts
- Sustainability; Replace vs. Repair
- Cost Management

Incorporate the FAA PMA database into the  for easy access of PMA

Next Steps in Industry Engagement



- Develop communications plan to promote awareness about approved alternative solutions
 - Publicize materials such as Guidance Material and Best Practices
 - Engagement such as webinars, seminars, conferences, social networks, and the press

- Provide broad “menu” for airline options (Guidance Letter revisions)
 - From simple products  to very complex parts 

- Need industry support to further engage in similar agreements with other OEMs (beyond the IATA – CFM agreement)

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PMAs and Part 21/ DER repairs

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Airline Perspective

Alexander Gorinsky,

Managing Director, Supply Chain Operations & Material Management, Alaska Airlines

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Alaska[®]
AIRLINES

HAWAIIAN[®]
AIRLINES

Alex Gorinsky

MD Aircraft Supply Chain Operations & Material Management, Alaska Airlines



Alaska
AIRLINES

HAWAIIAN
AIRLINES

HORIZON
AIR

McGee
Air Services

Who we are

- Alaska and Hawaiian Airlines achieved Single Operating Certificate in October
- Alaska and Hawaiian will maintain two unique brands while operating together as a single carrier with a combined workforce
- Atmos Rewards is our unified loyalty program for guests.



By the numbers

5th largest U.S. airline

15th largest airline in the world by revenue

\$14.2B annual revenue (2025)

55M annual passengers (2025)

140+ cities served

400+ aircraft in our fleet

1,700+ peak daily flights summer 2026

30K+ employees

7 hubs SEA, HNL, PDX, ANC, LAX, SFO, SAN

Global Reach 29 international markets across North America, Latin America, Asia, the Pacific and Europe. Plus, 1,200 destinations with oneworld Alliance and 30+ Global Partners.



Our vision



Connect our guests to the world
with a remarkable travel experience
rooted in safety, care and performance

Connect our guests to the world.

We're in our global era.

Get ready to go nonstop from Seattle to Europe*.



*All flights mentioned in this announcement are subject to government approval.

Alaska
AIRLINES



We are a 4th global carrier in the U.S.

2026

Peak Daily departures **1,700**

Cities served **140+**

Fleet count **413**



737-700		11
737-800		59
737-900ER		79
737 MAX 8		14
737 MAX 9		80
717-200		19
A321neo		18
A330-200		24
787-9		5
E175 Horizon		47
E175 SkyWest		42
737-700F/800F		5
A330-300F		10

With 7 gateway hubs anchored along the Pacific



With a remarkable travel experience.

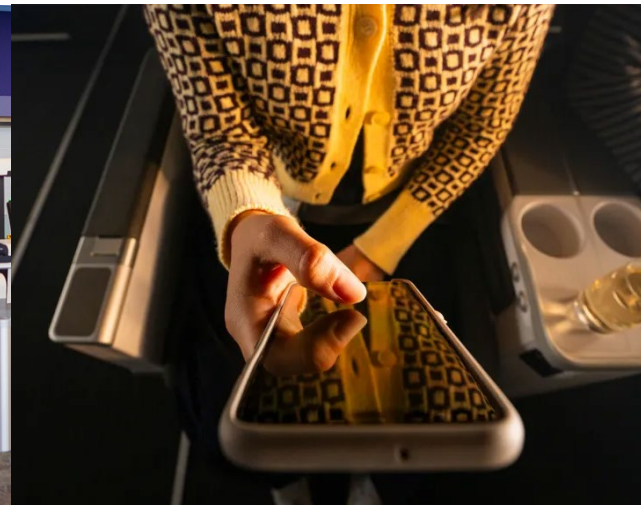
Premium experience at every step of your journey



Up-leveling our Lounges



Investing in lobby tech



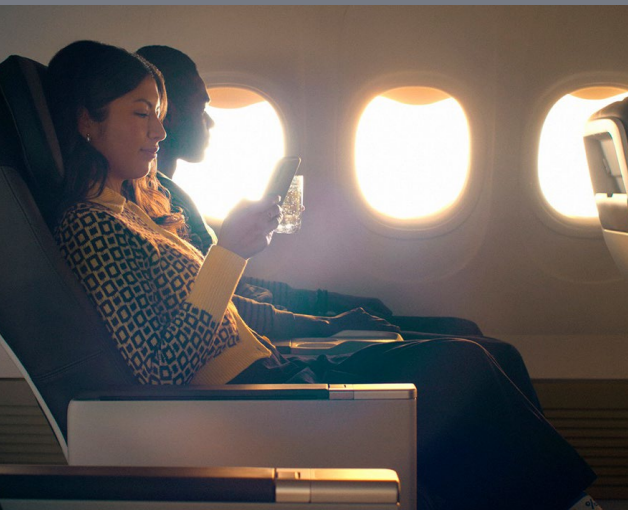
Starlink ultra-fast Wi-Fi



Free movies & texting



Lie-flat suites on 787s



First Class & Premium



Fresh hot meals



West Coast wine & brews

Rooted in safety, care and performance.

Employees are empowered by our values.

Own
safety.

Do the
right thing.

Be caring
& kind.

Deliver
performance.



Mālama

We care deeply for the people and places we serve while preserving, honoring and strengthening the spirit of Hawai'i



Ho'okipa

As hosts we welcome you into our home. We create genuine moments of connection by sharing our culture, stories, and aloha



Po'okela

We commit to excellence, challenging ourselves to make every journey an effortless and remarkable experience





From Alternative to Essential

PMA's, OOPPs & DER Repairs in Airline Operations



Alaska

HAWAIIAN



Global Supply Chain Reality in Aviation

Systemic Supply Chain Challenges

The aviation industry faces global supply chain constraints impacting operators, MROs, OEMs, and lessors worldwide.

Impact on Airline Operations

Supply chain performance directly influences aircraft availability, schedule integrity, and passenger experience.

Supporting Legacy and Next -Gen Fleets

Operators manage both aging and new aircraft amid constrained material ecosystems and increasing complexity.

Alternative Approved Solutions

Regulatory-approved PMA & OOP parts and DER repairs are essential for risk mitigation and operational reliability.

Why This Matters Now

Alternative solutions are now part of the operating reliability conversation.

Supply constraint

Persistent global disruptions continue to pressure availability.

OEM lead times

Longer queues make single-path sourcing operationally fragile.

Cost escalation

Material categories continue to face upward pressure.

Fleet sustainment

Aging and new fleets both need reliable material paths.

Operational Reliability & Supply Chain Resiliency

Material availability is a direct reliability dependency.



Aircraft availability

Aircraft ready when the schedule needs them.



Schedule integrity

Operational reliability protects the network.



Passenger experience

Guests feel reliability, not the supply chain.

Alaska's Approved Alternative Solutions Program Objectives

(PMA, Owner-Operator Produced Parts (OOPP) & DER Repairs)

Secure Supply

- Diversify our supply base
- Ensure that we have the **right part, at the right place, at the right time**

Control Unit Costs

- ...**at the right cost**
- Increase competition
- Deliver value back into the business

Drive Reliability

- Support the operation with reliable parts, components and aircraft
- Insist on Quality products & processes

Secure Supply: Diversifying Supply Sources

“Right Part, Right Place, Right time” needs more than one viable material path.

Reduced dependency

Less exposure to a single OEM supply channel.

Disruption options

Additional sourcing paths when constraints hit.

AOG flexibility

More ways to keep aircraft moving during urgent events.

In many cases, PMA becomes the only viable path to keep aircraft flying during supply disruptions.

Control Unit Costs: A Measurable Financial Impact

\$ Millions Saved

Annual impact across most fleets and several ATA chapters.

Repeatable

Consistent year-over-year increase in cost savings as the opportunity pipeline matures.

Scalable

Savings realized across PMA, OOPP, DER and component repair opportunities.

In this environment, controlling non-fuel costs is essential.

Drive Reliability: Resilience Protects the Operation

Reduced AOG exposure

More sourcing paths when disruption hits.

Shorter lead times

Better paths around long OEM queues.

Fleet-fit response

Closer alignment to in-service issues impacting fleet-unique challenges.

Supplier responsiveness

More options and faster operational engagement.

Cost matters - but resilience is what protects the operation.

Approved Alternative Solutions: Operator Challenges



Constraints and Practical Solutions

OEM-dependency has been the result of both internal and external adoption challenges.

The barriers are internal capacity and adoption.

❑ Engineering Resource Constraints

Limited engineering resources reduce approval throughput as fleets grow, network expands and regulations evolve.

❑ Adoption Gaps & Approval Backlogs

Gaps exist in some ATA chapters and fleet-types; high-value candidates can stall without prioritization.

➤ Pragmatic Solutions for Progress

Focus on high-impact opportunities, supplier & Engineering education, and cross-department alignment.

➤ Importance of Change Management

Successful PMA and DER adoption depends on organizational commitment and effective change management.

Industry Alignment: Lessors, OEMs & the Path Forward



Leasing Acceptance and a Complementary Ecosystem

Industry Alignment Progress is Encouraging

IATA-led efforts to clarify leasing acceptance with frameworks and flowcharts to enhance industry alignment and understanding.

Importance of Transparency

Airlines prioritize transparency, early engagement, and standardized criteria to reduce uncertainty in PMA parts usage with lessors and OEMs.

OEMs and Aftermarket Roles

OEMs and PMA suppliers both drive innovation while PMA, OOPP & DERs enhance fleet sustainment through agility and specialized repairs.

Balanced Ecosystem Benefits

A complementary ecosystem with regulatory support offers the most resilient future for the aircraft industry.

Approved Alternate Solutions: Closing Perspective



From Strategy to Adoption

Essential Alternative Solutions

Approved alternative solutions are crucial for managing supply chain risks and maintaining reliable airline operations.

Execution & Overcoming Constraints

Successful implementation depends on governance, prioritization, and cross-functional teamwork to overcome internal and external constraints.

Industry Alignment Benefits

Improved alignment among airlines, lessors, OEMs, industry trade associations & regulators fosters consistent and transparent use of solutions.

Passenger Reliability Impact

Passengers benefit daily from the reliability and resilience enabled by PMA parts and DER repairs, though often unseen.



Mahalo | Thank you



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Airline Perspective

Alexander Gorinsky,

Managing Director, Supply Chain Operations & Material Management, Alaska Airlines

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MRO Perspective

Oscar Pérez Vázquez,
Managing Director, Globalia MRO

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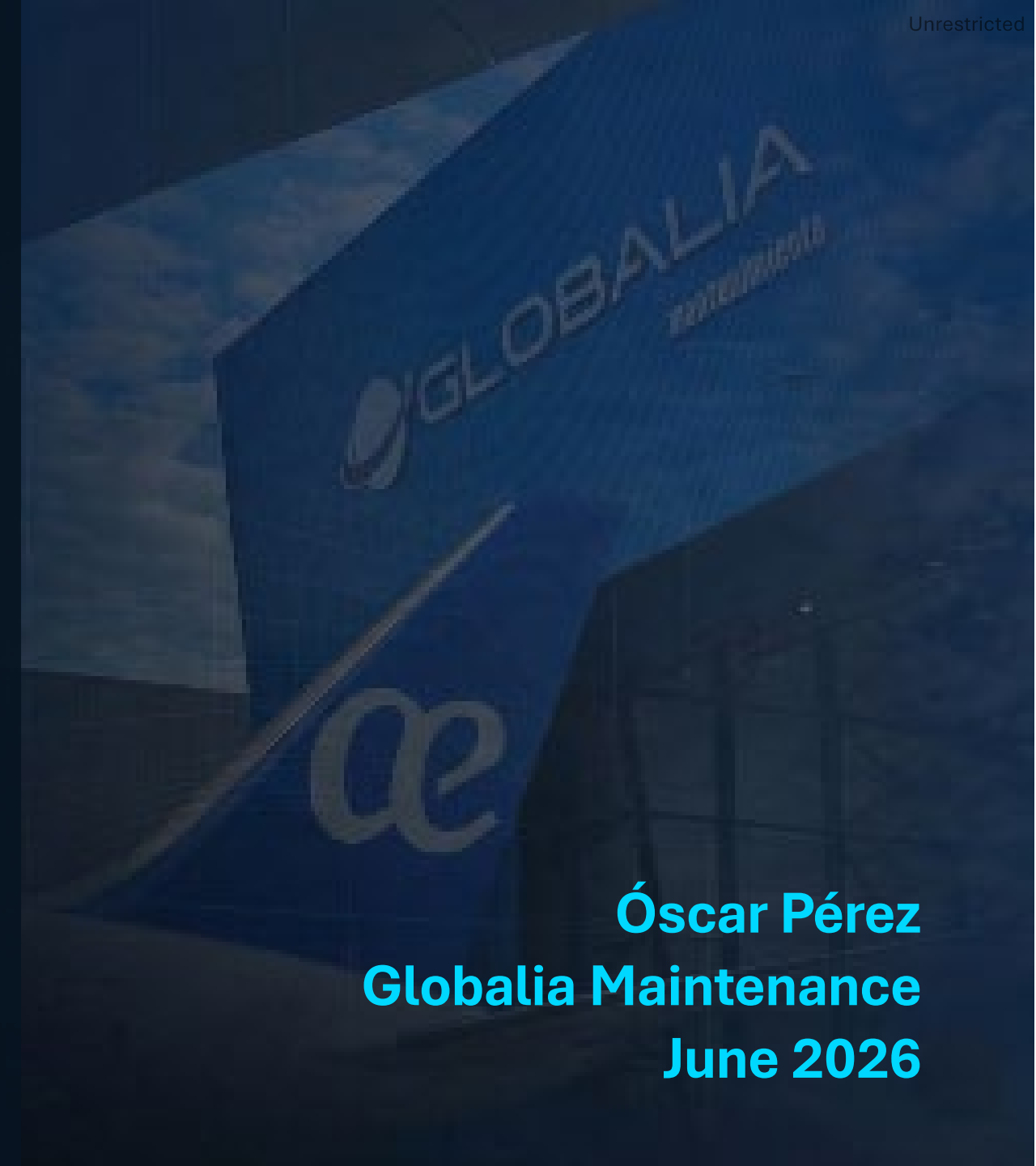
IATA FORUM DISCUSSION - MADRID

Approved Alternative Parts

PMA / DER use in airline MRO

Core question: where does PMA/DER add value without compromising compliance, records or asset value?

The Airline MRO view

The background of the slide features a large, stylized logo for Globalia Maintenance. The logo consists of a blue square with the word "GLOBALIA" in white, uppercase letters, and the word "Maintenance" in a smaller, white, lowercase font below it. A large, white, stylized "ae" monogram is also visible on the blue square.

Óscar Pérez
Globalia Maintenance
June 2026

GLOBALIA MAINTENANCE: airline MRO



B787



B737



A330



A320



+430
people



4 wide body



3 narrow body



vueling

Eurowings

55%
other
airlines



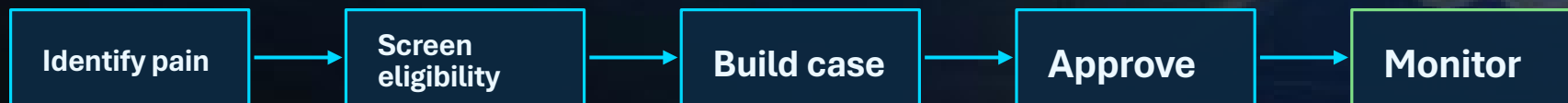
45%
AirEuropa

Does the MRO propose or initiate the use of PMA?

- MRO usually plays influential advisory role
- MRO role:
 - Identify part shortages
 - Support cost reduction initiative
 - Support engineering evaluations
 - Proactive approach to help customers
- Airline / customer
 - Operator CAMO/engineering approval
 - Procurement and customer-contract review before installation.



AIRLINE CONTROLLED INITIATION WORKFLOW



As a Part-145 MRO, are we restricted to use PMA for customers?

Acceptance varies significantly:

- Low-cost carriers are generally more open to evaluating PMA solutions
- Legacy airlines increasingly assess PMA on a case-by-case basis
- Some operators maintain restrictive policies due to historical preferences, internal engineering standards, OEM relationships, warranty considerations

The strongest restrictions are mainly commercial

Lessor agreements are definitely an influence

- Language requiring OEM parts
- Imposing additional approval processes before PMA installation

DECISION GATES BEFORE INSTALL

Regulatory eligibility

Approved part + eligible installation

Customer authorization

Work order and maintenance instructions

Asset constraints

Lease, warranty and redelivery impact

MRO position: “permitted if approved, eligible, accepted and fully traceable.”

74%

airlines using PMA

IATA survey, 46 airline responses

82%

cost / availability cited

both top evaluation criteria

59%

lessor restrictions cited

key adoption constraint

94%

consumables usage

among PMA users surveyed

Advantages of using PMA from an MRO perspective

An alternative to support our customers: Quality, Delivery, Cost

- Reduced material costs
- Response to supply-chain constraints
- Reduced dependence on a single supplier
- Improved parts availability during periods of OEM shortages
- Enhanced competition, thus reducing overall maintenance costs
- Greater flexibility in supporting customers with different budget and operational requirements

Customer profile: airline seeking to extend asset life while controlling maintenance cost in mature fleet

Higher value

Selective cases

Engine / APU
Landing gear

Scale next

Airframe items
Component shop parts

Quick wins

Consumables
Cabin / interior

Higher acceptance complexity

Industry reports cite 30–40% savings in some engine PMA / DER repair contexts
The actual case depends on part, program and approval route

What are the challenges and how do we address them

The challenge is for both MRO and airline:
not only “is the part approved?”; it is whether the whole installation, record and commercial lifecycle is controlled.

Challenge

MRO response

Technical eligibility

engineering assessment: applicability, approved data and criticality

Customer / lessor acceptance

Written consent, lease review and redelivery disposition before installation

Traceability and release docs

Incoming inspection package: approved source, certificates, batch and records retention

Warranty / OEM program impact

Commercial review before install; avoid hidden penalty in PBH or support agreements

Stakeholders awareness

Promoting industry education and best-practice sharing through organizations

Geographical solution: US / Europe

Providers need to widen European approach on PMAs to boost availability vs non PMA parts

Quality should no longer be a challenge, as the concern has already been overcome

Summary

AIRLINE MRO PERSPECTIVE

Approved alternative parts are a safe, certified tool

Although first approach is usually OEM solutions, PMA/DER provide:

- Alternative to parts shortages
- Immediate Cost reduction
- Higher availability
- Wider customer options

01 PMA / DER repairs are strategic choices

Use when OEM supply, cost or asset-life pressure affects fleet continuity

02 Control is a must

Approved data, customer/lessor consent and records

03 Alignment is key

Engineering, CAMO, procurement and customer agree the repair route before execution

Globalia Maintenance approach: selective PMA & DER repairs, full traceability and customer/lessor alignment.

Thanks for your attention

Time for answers

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Managing Director, Globalia MRO

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Provider Perspective

Pat Markham,
VP Technical Services, HEICO Aerospace

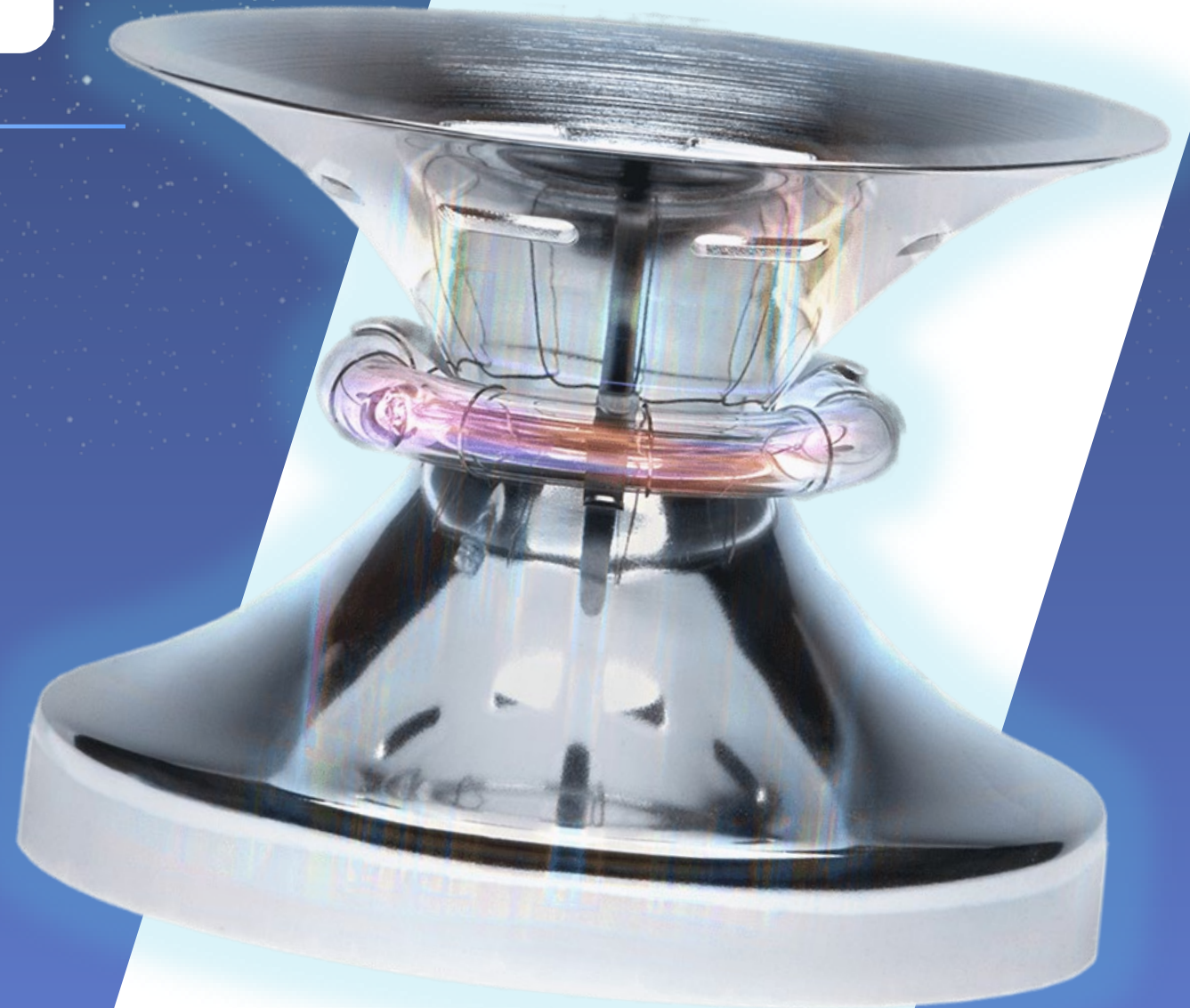
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HEICO

FAA-PMA & DER Repair International Acceptance

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ABOUT HEICO

HEICO Corporation is a rapidly growing aerospace and electronics company focused on niche markets and cost-saving solutions for our customers.

Our products are found in the most demanding applications requiring the highest reliability parts and components, such as aircraft, spacecraft, defense equipment, medical equipment, and telecommunications systems.



Founded in 1957, **68 years in business**



NYSE listed (HEI, HEI.A)



Market Capitalization of **over \$46.7 Billion**



Annual Revenue of **over \$4.13 Billion**



Nearly 10,000 Team Members in 100+ facilities, across 29 US states and 16 countries

RANKED BY **Forbes**



Forbes List Of The "100 Most Trustworthy Companies In America"
Transparency Of Accounting/Governance



Forbes "Best Small Companies" Five Years In The Top 100



Forbes "World's Most Innovative Growth Companies"



HEICO'S EXTENSIVE PMA & DER PARTS

ENGINES

- CFM56-5 / -7
- CF6-50 / -80
- CF34
- GE-90
- GENx
- RB211 / Trent
- PW2000
- PW4000
- V2500

- Gears
- Shafts
- Bearings
- Starters
- Rings
- Spacers

- Fan Exit Guide
- Vanes
- Shrouds
- Heat Shields
- Insulation
- Blankets
- Fuel Pumps
- Nozzles

INTERIORS

- In Flight Entertainment
- Lavatories
- Seat Parts
- Tray Tables
- Galleys
- Overhead Bins

COCKPIT/AVIONICS

- INUs, IRUs
- Display Units
- DGAs
- Instruments
- Autopilots
- Battery Packs
- Cockpit Paper
- Lights
- Sensors

COMPONENTS

- Electro-mechanical
- Hydraulic
- ACMs, CSD/IDG
- Batteries
- APUs
- Fuel
- Electronic
- Pneumatic/Bleed Valves

AEROSTRUCTURES

- Thrust Reversers
- Engine Cowlings
- Flight Control Surfaces
- Radomes
- Exhaust Nozzles
- Doors

WING

- Flight Controls
- Actuation Systems
- Flex Shafts
- Guides

LANDING GEAR

- Wheels & Brakes
- Landing Gear Components

SAMPLE PARTS

Vane Actuation Arm



OEM P/N 1834M58G02
HEICO P/N KT1834M58G02

Aft HPT Stator Seal



OEM P/N 1318M99P01
HEICO P/N JA1318M99P01

**Fuel Pump Gears,
Matched Set**



OEM P/N 5009927
HEICO P/N 5009927AFI

Battery



OEM P/N 3214-31
HEICO P/N AD-3214-31

Latch Assy



OEM P/N H3479-5
HEICO P/N H3479-5KT

Water Separator Assy



OEM P/N 840751
HEICO P/N 840751DEC

Hinge



OEM P/N H854-9
HEICO P/N H854-9KT

Proximity Switch



OEM P/N 8-935-01
HEICO P/N 8-935-01FS

Body Assembly



OEM P/N C72146-2
HEICO P/N C72146-2JA

**Fuel Pump Gears,
Matched Set**



OEM P/N 219958-1
HEICO P/N 219958-1AFI

SAMPLE PARTS

Latch Assembly



OEM P/N 9781-2
HEICO P/N 9781-2KT

Seal, Precooler Assy



OEM P/N 91B065-01
HEICO P/N 91B065-01DEC

Mainship Battery



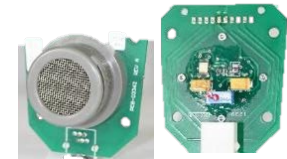
OEM P/N 2758
HEICO P/N AD-2758

Lav Motor Assy



OEM P/N 14330-062
HEICO P/N 14330-062JA

Microphone Assy



OEM P/N 1168610-2
HEICO P/N 1168610-2FS

Boeing Emergency Battery



OEM P/N D717-01-100
HEICO P/N AD-D717-01-100

Wear Disk



OEM P/N 860525-001
HEICO P/N 860525-001JA

Light Assy-Ind.



OEM P/N 65-0294-21 / -23
HEICO P/N 65-0294-21FS / -23FS

Wiper Blade Assy



OEM P/N 90-0327-1
HEICO P/N KT90-0327-1

Water Drain Valve, Outer



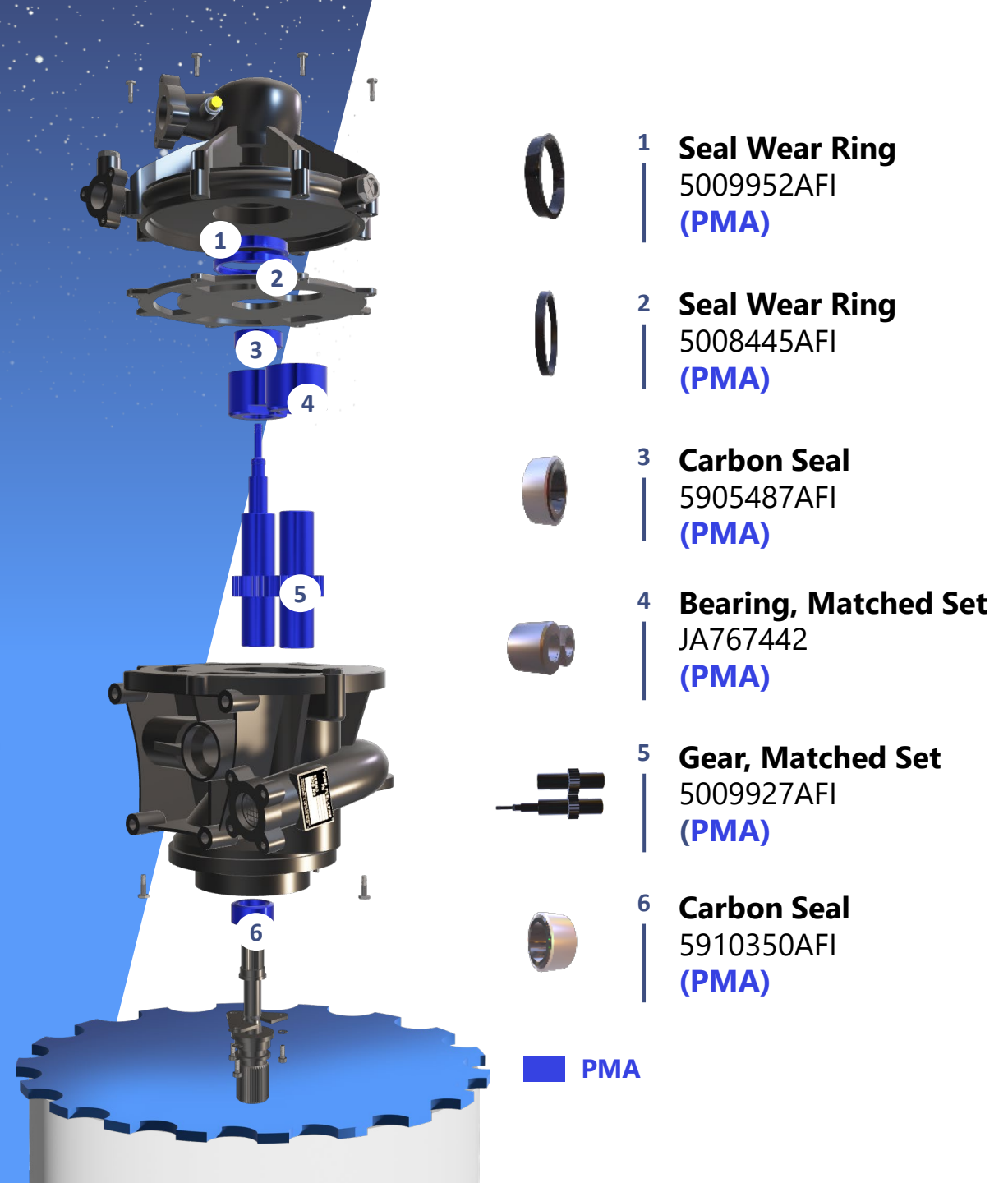
OEM P/N 4L83-046
HEICO P/N 4L83-046SD

PMA USED IN COMPONENT REPAIR

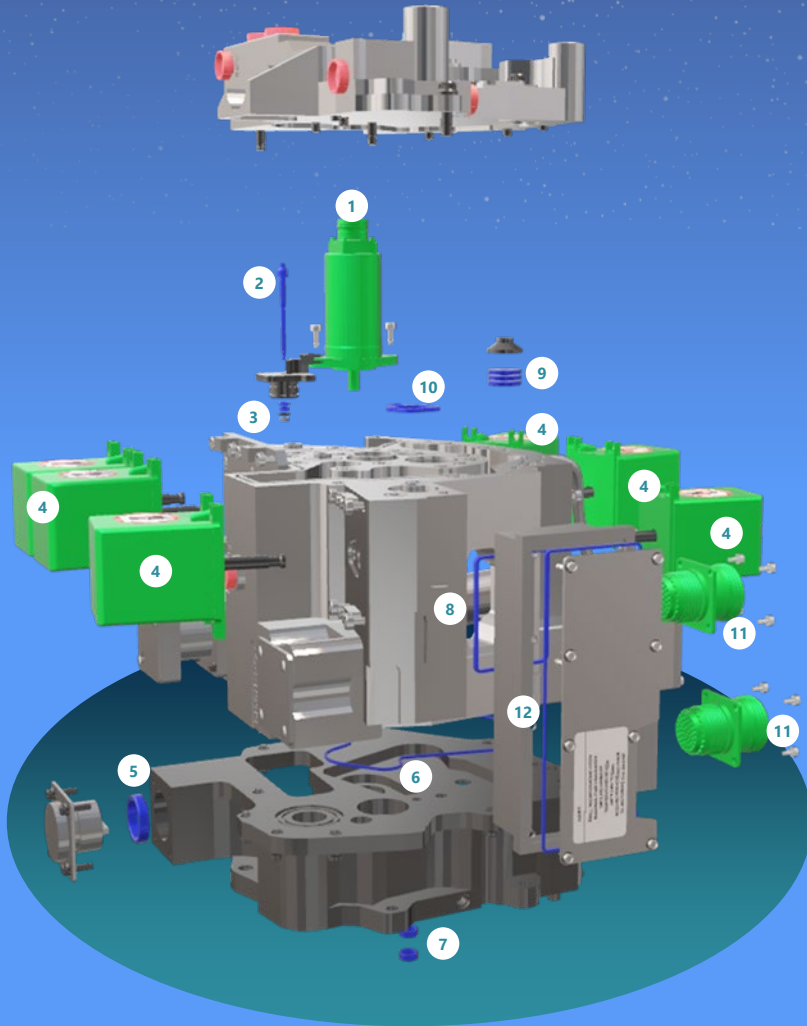
Part Number	: 5009913x
Description	: LP / HP Fuel Pump
Aircraft	: A320
Engine	: V2500
ATA	: 73 - Engine Fuel & Control
OEM	: Hamilton Sundstrand

HEICO PMA for the high cost items:

- Matched Set Gear
- Matched Set Bearing
- Carbon Seals
- Seal Wear Rings



PMA & DER USED CFM56 HMU



Part number

8061-53x



DER



PMA



1 Latching Solenoid
1734-108
(DER)



7 Carbon Bearing
1404-334JA
(PMA)



2 Pressurizing Valve Rod
JA3100-1062
(PMA)



8 Trapezoidal Seal
3051-1049DEC
(PMA)



3 Seal
1391-0055SD
(PMA)



9 3PC Thrust Bearing
180327WD
(PMA)



4 Torque Motor
1886-392
(DER)



10 Seal
3051-1052DEC
(PMA)



5 Spring-Loaded Seal
JA1382-150
(PMA)



11 Connector
1631-162 & -164
(DER)



6 Seal
3051-1048DEC
(PMA)



12 Trapezoidal Seal
3051-1050DEC
(PMA)

PRESSURE SENSOR DER REPAIR

PART NUMBER(S):

1151072-2, 1151474-2

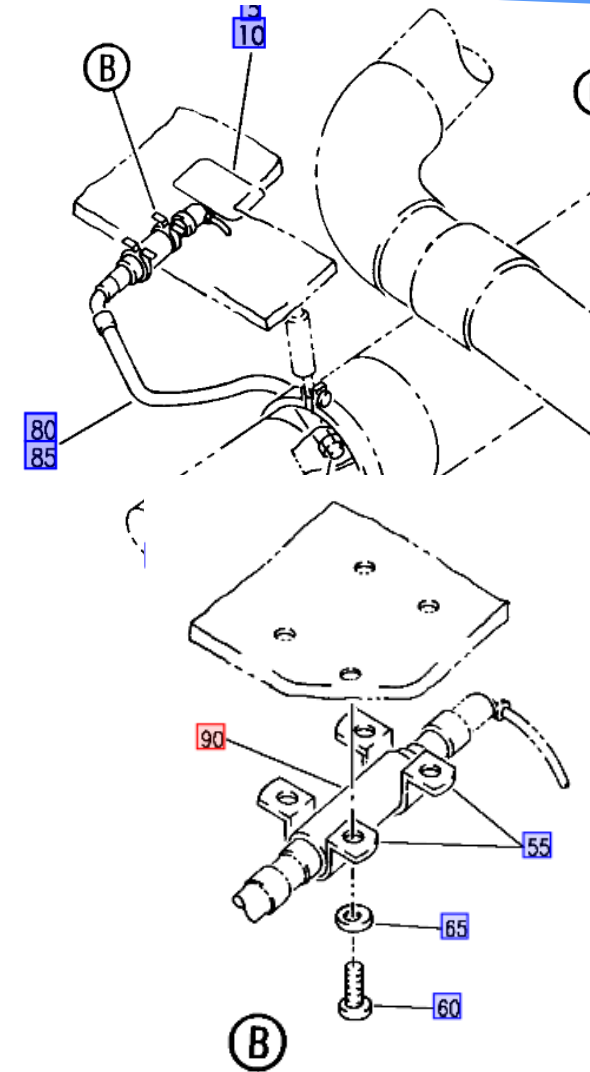
AIRCRAFT: 777

ATA: 36

IPC: 36-21-03

SUMMARY:

- Discard and replace the electrical connector.
- Perform recalibration on Sensor as required by soldering or cutting rungs from the trimmable resistors.
- Solder new EMI Filter PCB Assembly to the new Electrical Connector
- Weld new connector to the Sensor Housing.



TIRE PRESSURE SENSOR DER REPAIR

PART NUMBER(S):

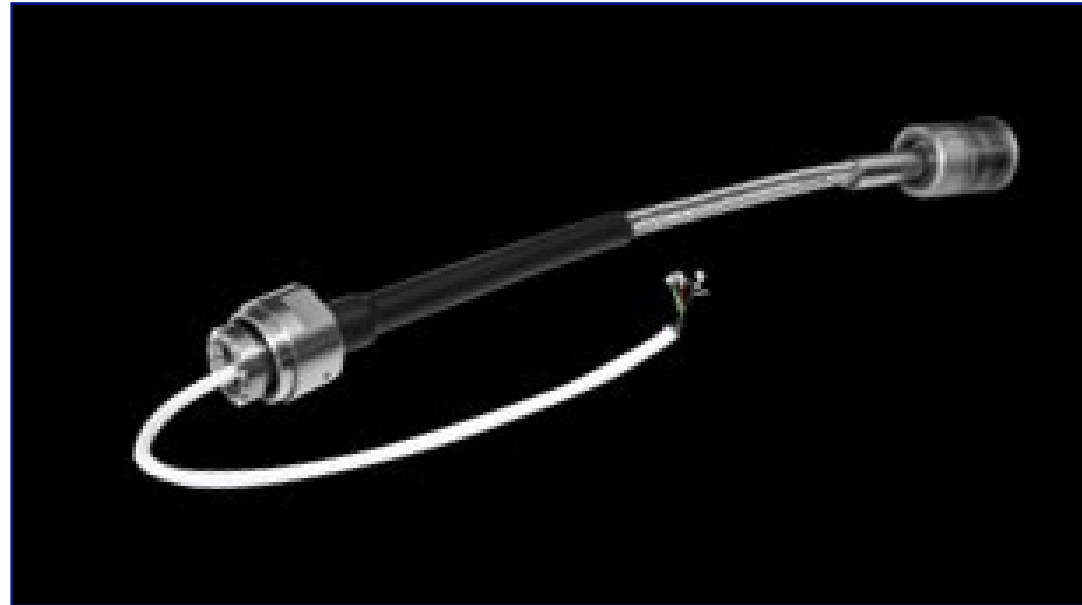
4305990050, 4305990071,
4305990100, 4133801030,
1338-1450

AIRCRAFT: A320 Series, 777, 757

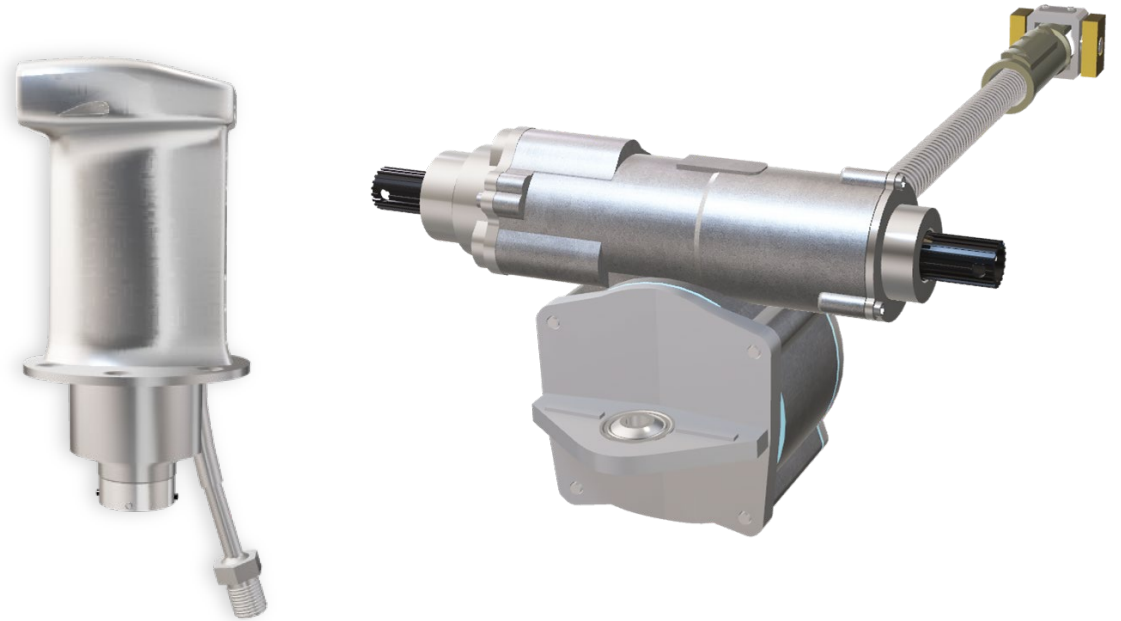
ATA: 32

SUMMARY:

- Remove the connector and cranked support
- Remove the screening assembly
- Repair the sensor per ARC DER Repair R99-031-RS
- Repair the screen assembly per ARC DER Repair ARC-R99-018
- Reassemble, clean, test and inspect to ensure compliance with the test requirements listed in the CMM.



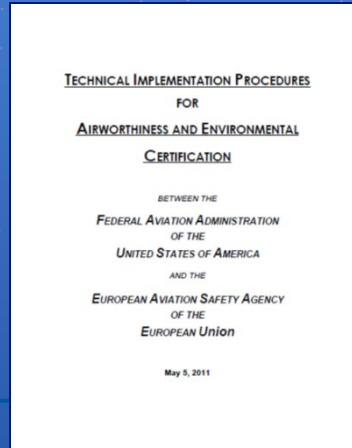
OTHER TYPICAL DER REPAIRS



OTHER REPAIRS INCLUDING PMA AND DER



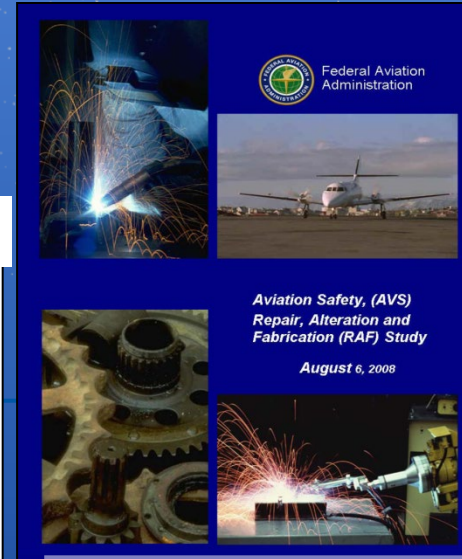
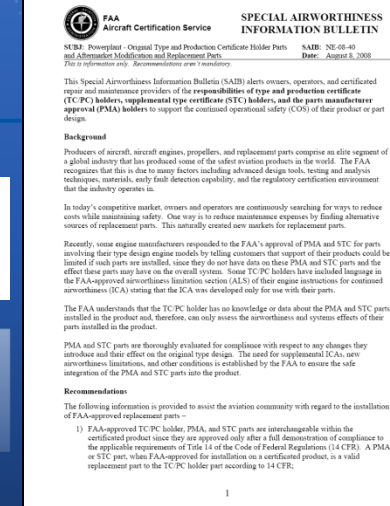
Global Regulatory Support



EASA/FAA TIPS
2011 BASA

2011 BASA
EASA/FAA TIPS

FAA SAIB NE-08-40



FAA RAF Study

FAA RAF Study

Korea / FAA

China / FAA

Hong Kong / FAA

Argentina / FAA
IMPLEMENTATION PROCEDURES

UK / FAA

IMPLEMENTATION PROCEDURES

Türkiye / FAA

WORKING PROCEDURE FOR THE
TYPE VALIDATION AND
CONTINUED AIRWORTHINESS
OF U.S. AERONAUTICAL PRODUCTS
BETWEEN THE
FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA
AND THE
DIRECTORATE GENERAL OF CIVIL AVIATION
OF THE
REPUBLIC OF TÜRKİYE

- Purpose**
The purpose of this Working Procedure is to define the procedures by which the Federal Aviation Administration (FAA) of the United States (U.S.) shall support the Directorate General of Civil Aviation (DGCA) of the Republic of Türkiye in approving aeronautical products and articles reported from the U.S. to Türkiye. This document also sets forth the procedures for cooperation between the FAA and the DGCA in the areas of continued airworthiness, including approval of design changes, service difficulty reporting, and accident or incident investigation.
- Scope**
This Working Procedure applies to all U.S. type certificated and manufactured aeronautical products (aircraft, aircraft engines, and propellers), aeronautical articles (materials, parts, components, processes, or appliances). Additionally, it applies to changes to the aforementioned U.S. products and aeronautical articles and changes to non-U.S. State of Design (SoD) products being reported from the U.S. to Türkiye for which the DGCA requires or requests to be issued Export Airworthiness Approvals.
- Protection of Data**
3.1 When the FAA provides information to the DGCA, including but not limited to personal information, pursuant to this Working Procedure and in accordance with applicable U.S. laws and regulations, the FAA shall identify whether that information is sensitive or confidential and the nature of that sensitivity or confidentiality. The FAA, subject to U.S. laws and regulations, may impose limitations on the use or disclosure of information to the DGCA. The DGCA may

¹ Non-U.S. SoD products with FAA approved modifications are eligible for import to Türkiye if the product type design has previously been accepted by the DGCA.

FAA / DGCA Working Procedure

September 26, 2022

HEICO formed as Heinicke Instruments
We are not aware of any country that does
not allow PMA parts and DER repairs.



PMA Parts Safety Record

- ▶ Since 1941 the total number of ADs on small and large aircraft is approx. 19,310 (thru March 2023)
- ▶ A MARPA review of ADs issued on PMA parts¹ since 1941 has found that...
 - ▶ There are 26 ADs that apply exclusively² to PMA products
 - ▶ 14 are on GA (piston) applications, 4 on rotorcraft, 4 on biz jets
 - ▶ 3 are on heavy airframe (hose nut, fire ext. cartridge and fuel cell)
 - ▶ 1 is on a large commercial engine

Source: Aviation Data Research (w/ subsequent updates)

- ▶ Over the past 82 years on PMA replacement parts, 3 ADs issued on Large Airframe and 1 AD on Large Engines.

Notes:

1. Includes all PMA Replacement Parts (not HEICO exclusive) Approved by a) Test and Computation and b) Identity
2. Exclusive means either a design or manufacturing defect unique to the PMA part

PMA RESTRICTIONS

Myths & Misconceptions

MYTH



Lessors will not allow the use of PMA parts



PMA parts decrease the value of your asset



Using PMA parts voids the warranty



PMA parts are of inferior quality to the OEM parts



PMA's / DERs are not safe



OEMs are the experts in maintenance

FACT



Certain lease agreements do allow the use of PMA parts. Others have been renegotiated, to allow the use of PMA parts.



The use of HEICO PMA parts do not decrease the value of your asset. HEICO parts are not life limited critical parts



HEICO will warranty their parts at the same level as the OEM



The FAA approval process and the stringent HEICO reverse engineering process guarantees that HEICO's PMA parts are equal or better than the OEM



The FAA would not approve the parts if they were deemed unsafe



They are experts, but they are not the only experts

Different Types of Approval Basis for PMA

STC (Supplemental Type Certificate)

Major Change to Type Design

Separate approval for Design and Production

Identity by License

Design is approved with the Aircraft / Engine

Typical for Sub-Tier OEM

Test and Computations (Typical PMA)

Reverse Engineered Parts.

Must be Equal to or Better than the “OEM” part

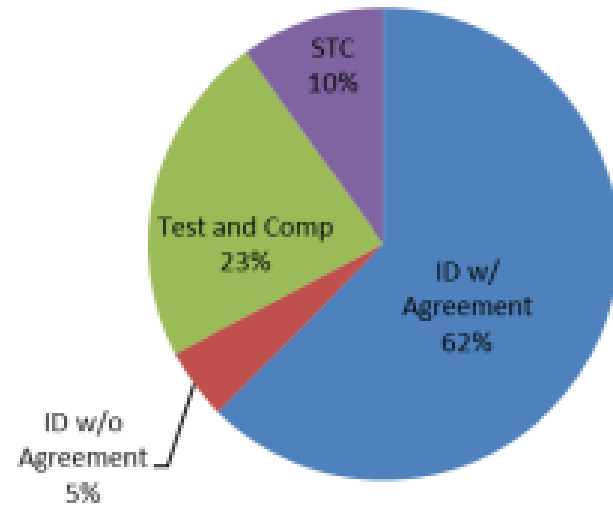
Identity without a License

Design is identical to TC Holder but used without agreement

PMA Industry Volume

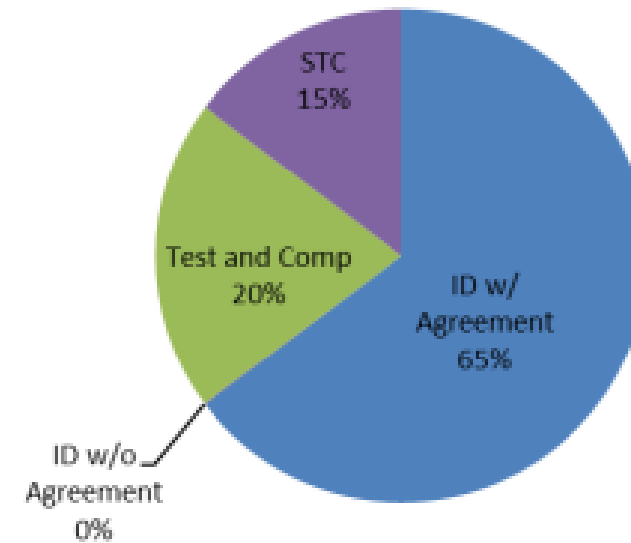
Parts Manufacturer Approval - Totals

1,506,956 PMA articles as of 12/21/2023



Parts Manufacturer Approval - Totals

18958 PMA articles in 2023



Global Commercial Aircraft PMA estimated at \$11.4 Billion for 2024

EASA EU & FAA



Technical Implementation Procedures

For

Airworthiness and Environmental Certification

Between the

Federal Aviation Administration of the United States of America
and the
European Union Aviation Safety Agency

Revision 7 and Revision 7 Amendment 1 Combined

This is a combined version of the TIP for information purposes. The published signed versions of the revision and amendment are the official released version.

TECHNICAL IMPLEMENTATION PROCEDURES

3.3.4 PMA Parts

EASA shall directly accept all FAA PMA approvals, without further showing, for modification and/ or replacement parts for installation on products certified or validated by EASA in the following cases:

3.3.4.1 The PMA part is not a “critical component” (see definition, paragraph 1.13) and the PMA design was approved via:

- (a) Identity without a licensing agreement per 14 CFR section 21.303; or
- (b) Test reports and computations per 14 CFR section 21.303.

3.3.4.2 The PMA part conforms to design data obtained under a licensing agreement from the TC or STC holder according to 14 CFR section 21.303 and the TC or STC has been validated by EASA.

3.3.4.3 The PMA part is a “critical component” and the PMA design was approved via:

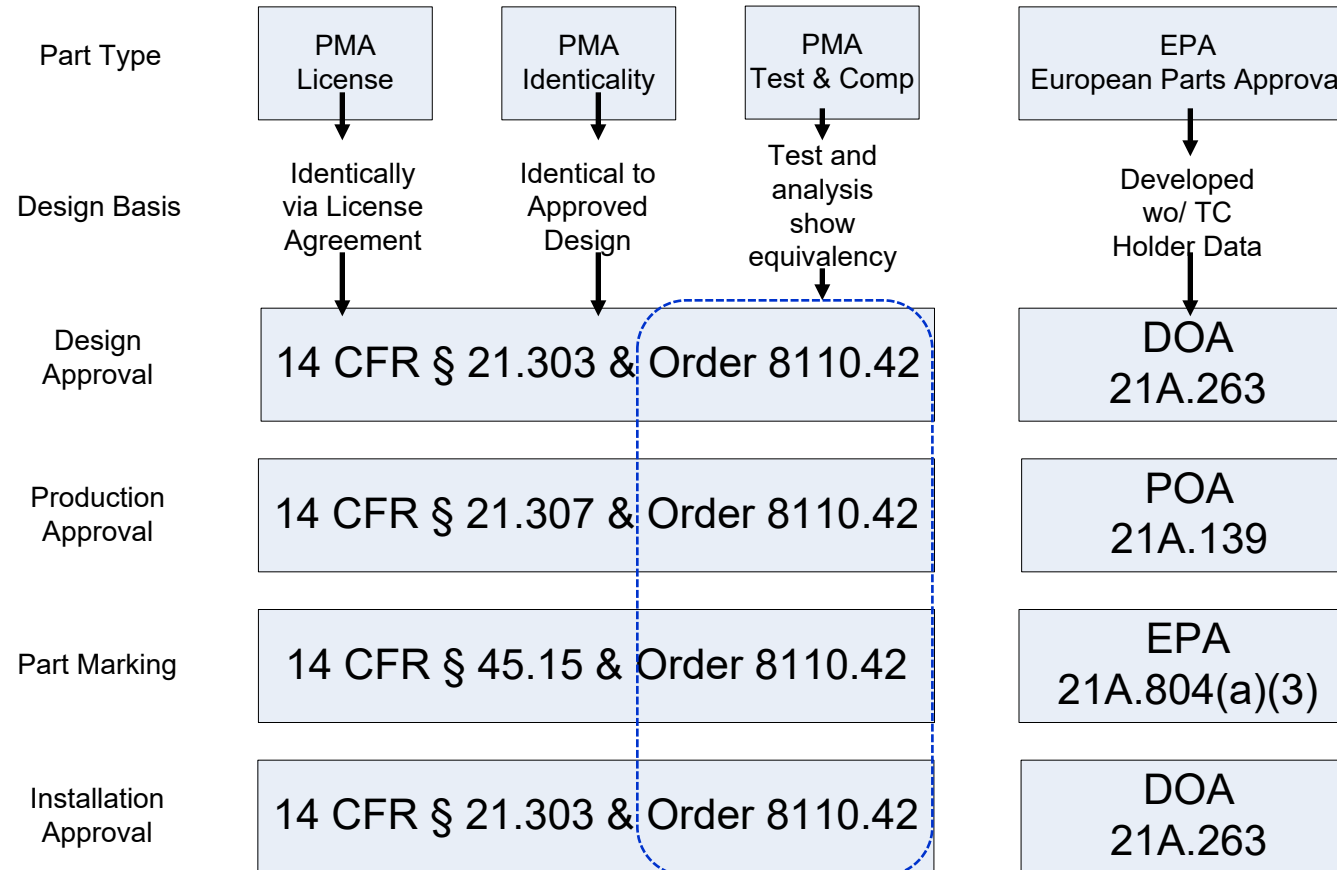
- (a) An FAA-issued STC and EASA has validated the STC; or
- (b) Identity without a licensing agreement per 14 CFR section 21.303 and EASA has issued an equivalent STC; or
- (c) Test reports and computations per 14 CFR section 21.303 and EASA has issued an equivalent STC.

7.11 Additional Documentation Requirements for FAA PMA Parts

For a PMA part that shall be installed on a product which has been certified or validated by EASA, one of the following statements should be written in the remarks block of the FAA Form 8130-3, as applicable:

7.11.1 For a PMA part which is not a “critical component” (see definition paragraph 1.13.16), the following statement should be written in the remarks block of the FAA Form 8130 3: *“This PMA part is not a critical component.”*

EPA Parts (EASA's version of PMA)



FAA Order 8110.42 ties it all together for the PMA Holder
EPAs need a DOA, a POA, EPA marking and a minor change

FAA / DER Repair Approval

- A repair specification is authorized for use by the FAA.
- The approval process includes a joint evaluation of the repair specification by the FSDO/CMO/IFO and the Certification Branch Repair Specification-DER (or RS-DER).
- The Certification Branch (or RS-DER) approve the of the Repair Specification Data.
- The FSDO/CMO/IFO authorize it for use.
- Only when both groups have approved, then it is included in the OpSpecs.

Source: 14 CFR §43.13(b) FAA AC 43-210 & FAA Order 8300.14

EASA EU & FAA



Technical Implementation Procedures

For

Airworthiness and Environmental Certification

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TECHNICAL IMPLEMENTATION PROCEDURES

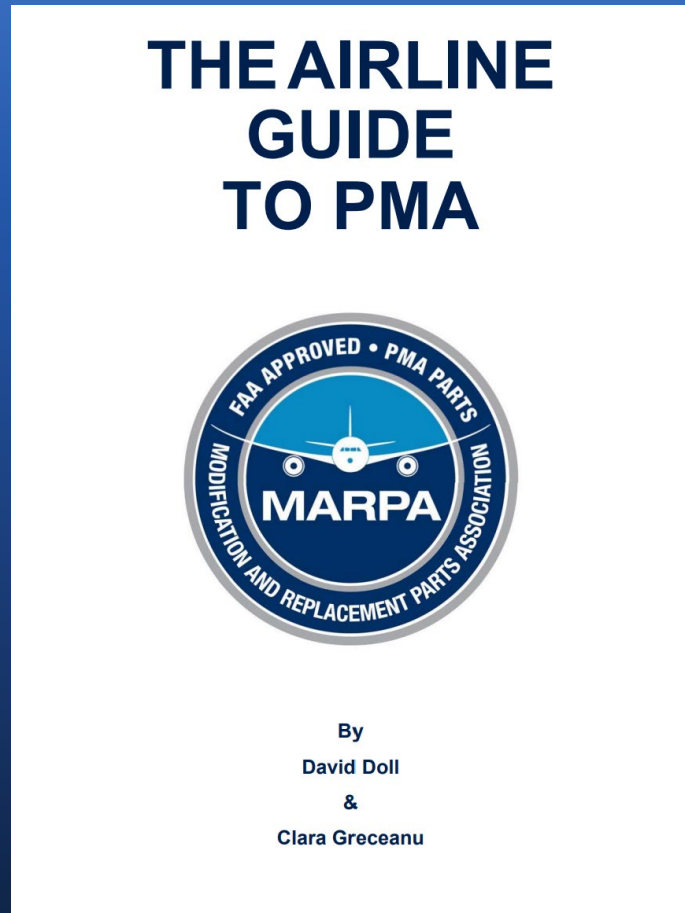
3.3.5 Design Data for Repairs

3.3.5.3 EASA Acceptance of FAA Repair Design Data

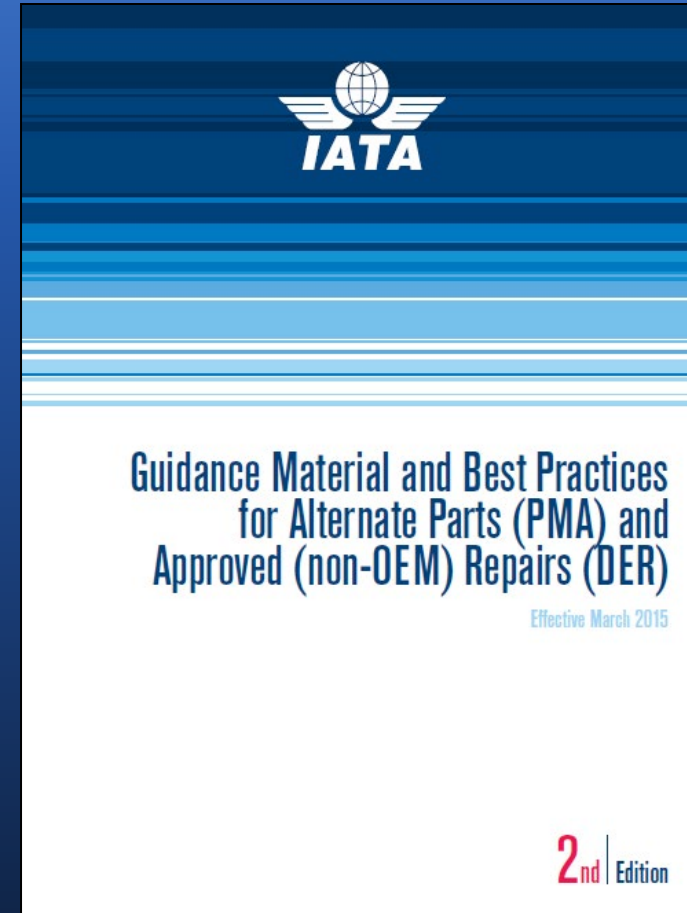
- (a) EASA shall accept data used in support of major repairs regardless of the SoD of the product, part or article, if:
 - (1) EASA has certificated/ validated the product or article;
 - (2) The FAA is the Authority of the SoD for the repair design data; and
 - (3) The FAA repair design data approval is substantiated via an FAA letter, FAA Form 8110-3, FAA Form 8100-9, FAA Form 337 or a signed cover page of a repair specification.

EASA Accepts Major Repairs
via FAA Letter, Form 8110-3,
Form 8100-9, Form 337, or
Signed Repair Specification

Other PMA & DER Light Reading



<http://www.pmaparts.org/pdf/AirlineGuideToPMA.pdf>



<https://www.iata.org/contentassets/bf8ca67c8bcd4358b3d004b0d6d0916f/pma-der-2nd-edition.pdf>

A GLOBAL NETWORK OF CUSTOMERS*



- Supporting 400+ Airlines
700+ MRO's
2200+ Customers
90 Countries

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Provider Perspective

Pat Markham,
VP Technical Services, HEICO Aerospace

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Speakers

Alexander Gorinsky,
Managing Director, Supply Chain
Operations & Material Management,
Alaska Airlines

Pat Markham,
VP Technical Services,
HEICO Aerospace

Chris Markou,
Head Technical Operations,
IATA

Oscar Pérez Vázquez,
Managing Director,
Globalia MRO

IATA WORLD MAINTENANCE & ENGINEERING SYMPOSIUM

Madrid, Spain
24 – 25 June 2026



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Networking Coffee Break

Next session starts at 11:00

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Used Serviceable Materials Ecosystem

Chris Markou,
Head Technical Operations, IATA

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Used Serviceable Materials

USM Ecosystem

Chris Markou, Head Technical Ops, IATA

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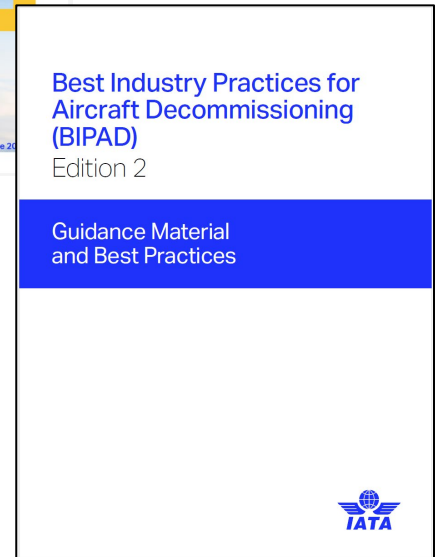
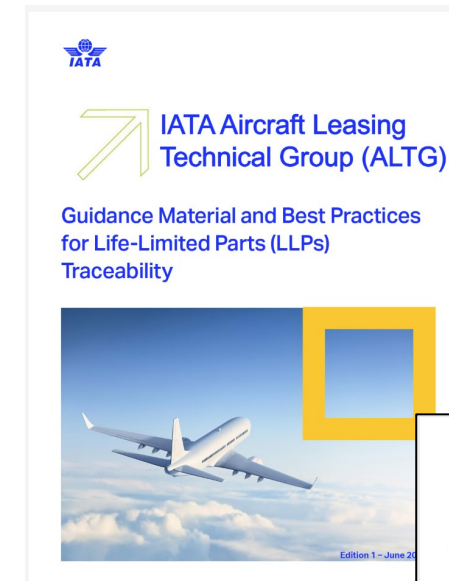
Focus of Used Serviceable Material (USM)

1. **Alleviate the industry pain from the current supply chain issues**
2. Promote the use of USM as a valuable (and attractive!) alternative to new OEM material
3. Ensure USM enters the aviation supply chain efficiently



IATA's involvement

- **Guidance Material and Best Practices for Life-Limited Parts (LLPs) Traceability – 1st Edition (2020)**
- Guidance Material and Industry Framework for Life-Limited Parts (LLP) & Time Controlled Components (TCC) Traceability Documentation - 2nd Edition (2026 - **final review**)
- Best Industry Practices for Aircraft Decommissioning (BIPAD) – 2nd Edition (2026) - **in publication**
- **MRO SmartHub as a source for USM**

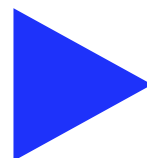


LLP & TCC Traceability Documentation – 2nd Ed.

- Define an *'LLP and TCC Traceability Documentation'* acceptable to all stakeholders for the transfer of aircraft/components
- Remove ambiguity – thereby reducing needless discussions and costly delays.
- Free up Supply Chain Constraints through global acceptance and application of an agreed 'Standard/Framework'
- Eliminate the introduction of "Nice To Have" Ad-Hoc Statements and Forms.



Best Industry Practices for Aircraft Decommissioning – 2nd Ed.



- Assist airlines and aircraft owners to make informed decisions about aircraft retirement and the re-use of parts coming off decommissioned aircraft.
- Aircraft part-outs are important to alleviate the current industry's supply chain pains and dependency on OEMs.
- Ensure efficient use of parts coming off such permanently retired aircraft.

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Used Serviceable Materials Ecosystem

Chris Markou,
Head Technical Operations, IATA

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"Users" Perspective

Constantin Pouy,
Director, ICF Aviation

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USM is no longer a
secondary market.
It is becoming a resilience
lever for aircraft operations.

Constantin Pouy
Director | Global Aviation Practice



ICF proprietary and confidential. Do not copy, distribute, or disclose.



Why USM matters now



Demand is back



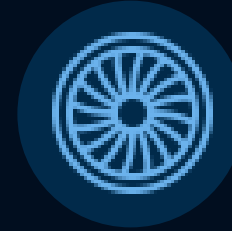
Aircraft availability
is constrained



MRO capacity is
tight



Parts lead times
remain long

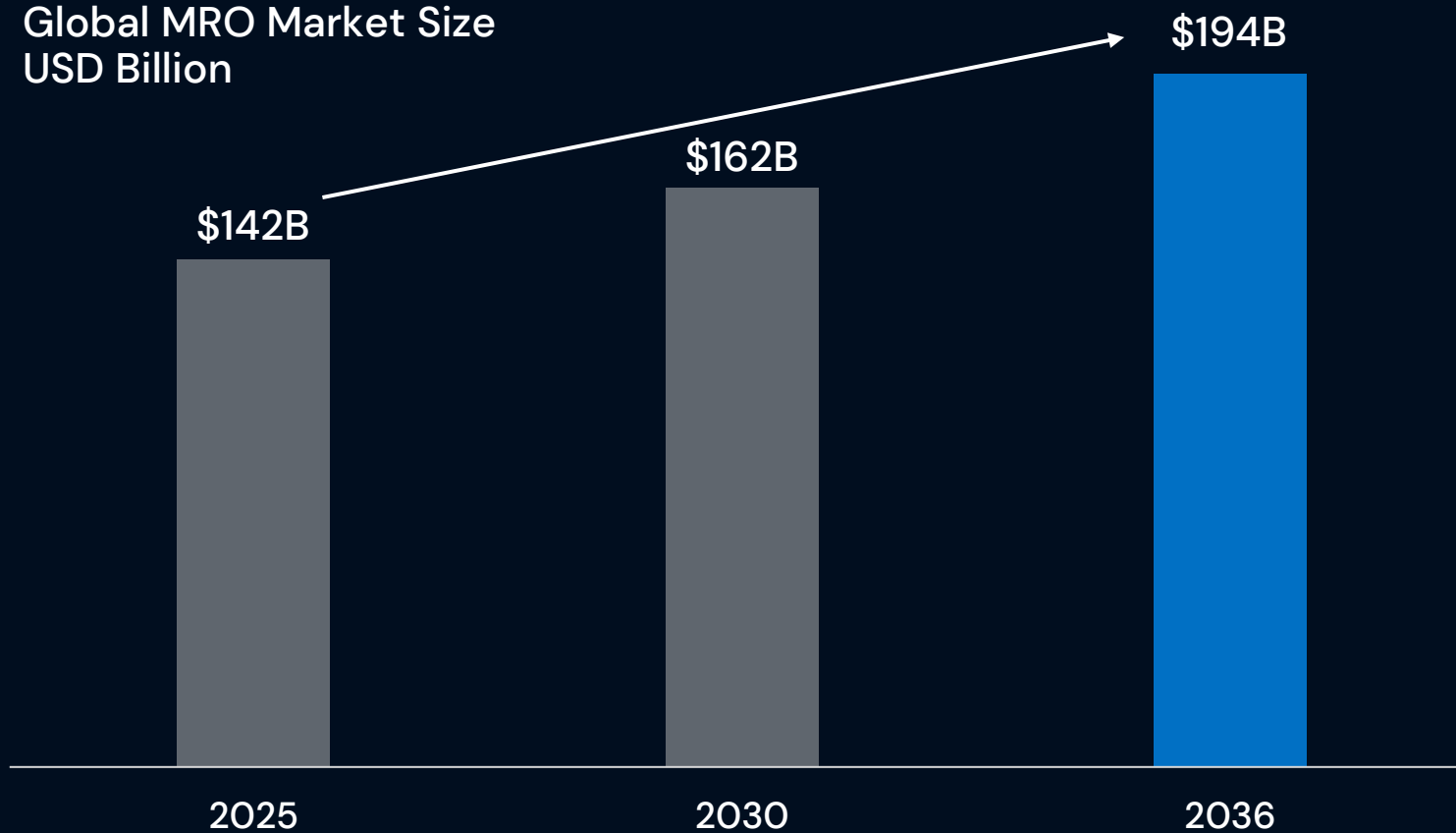


Engine issues
persist

USM is now an operational continuity tool

MRO is growing faster than the system can absorb

Global MRO Market Size
USD Billion



Short-term pressure is driven by new-generation engine shop visits.

USM demand is structurally linked to MRO bottlenecks.

Engines are the centre of gravity

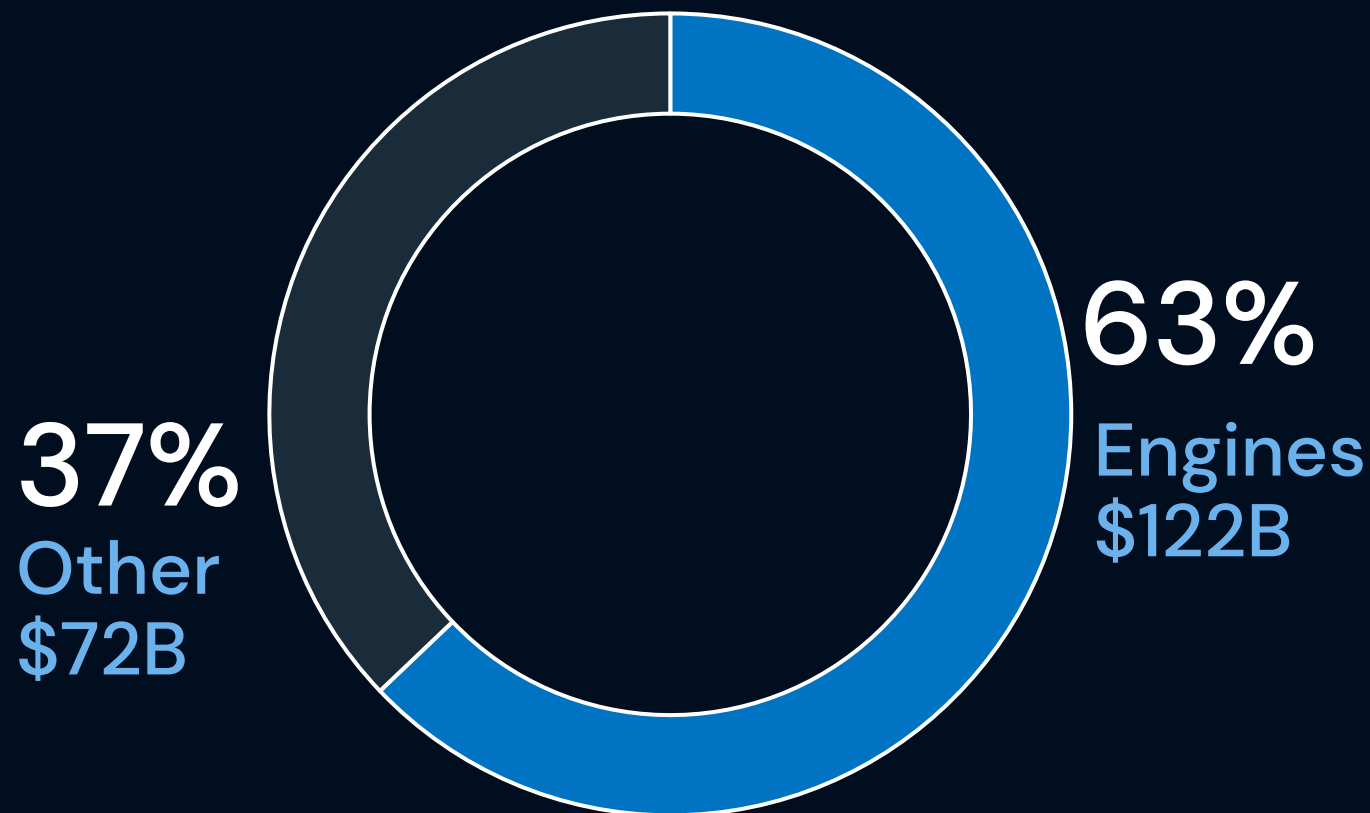
Engine MRO represents nearly half of total MRO spend and reaches

\$122B

by 2036.

When engines are constrained, USM becomes strategic.

Global MRO Spend by Segment (2036)



What users actually value from USM



Availability



Speed



Cost



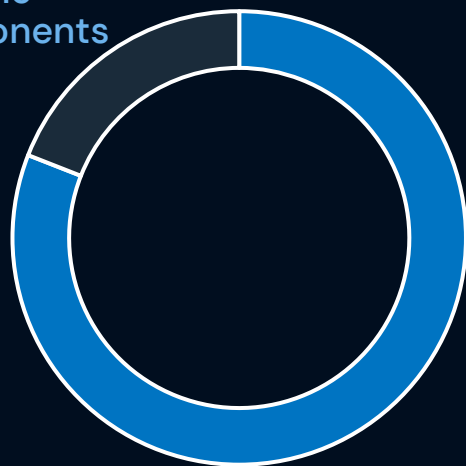
Sustainability

Where USM demand is concentrated

Global USM Demand (2026)

\$13.5B

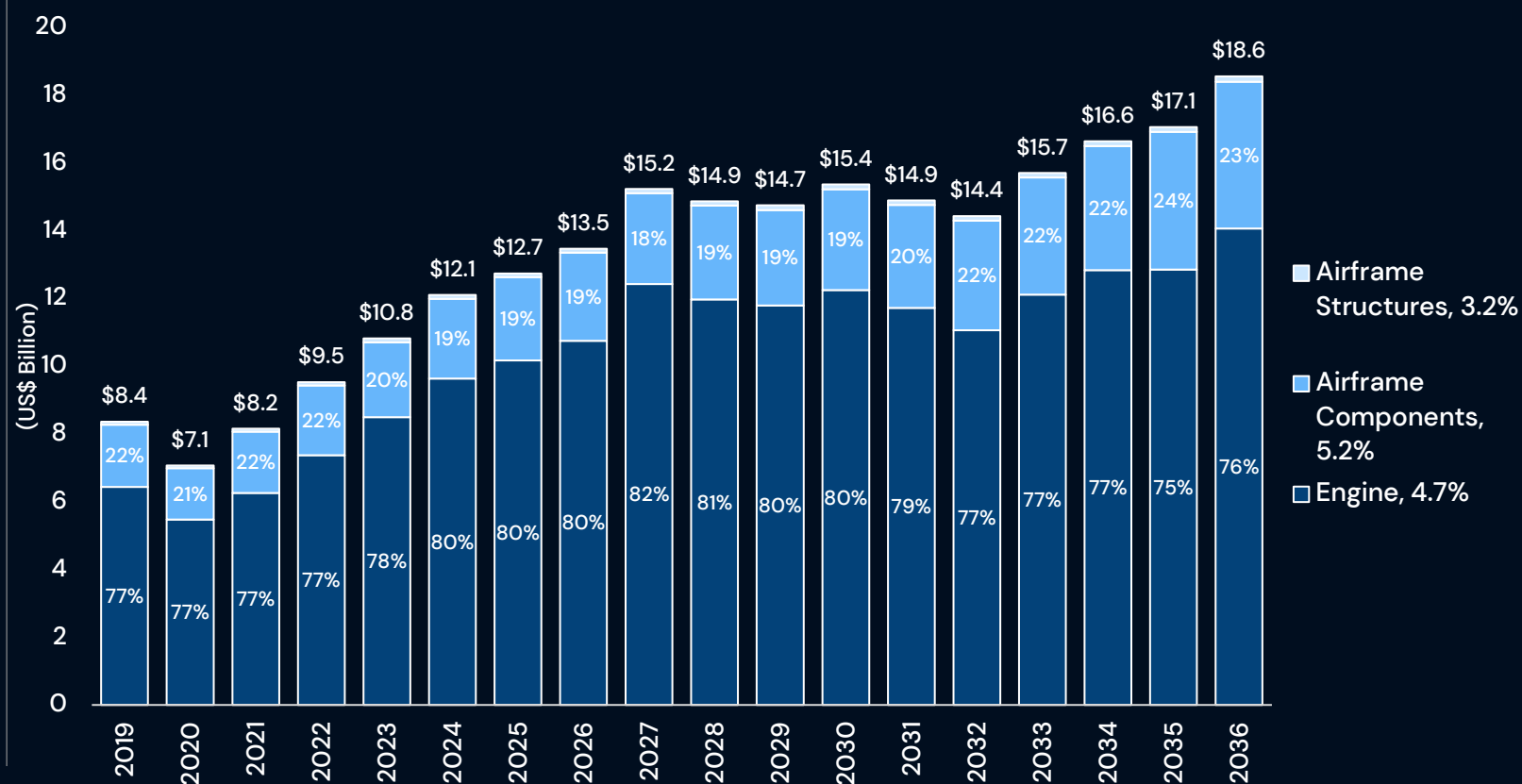
19%
Airframe
Components
\$2.6B



<1%
Airframe
Structures
\$0.04B

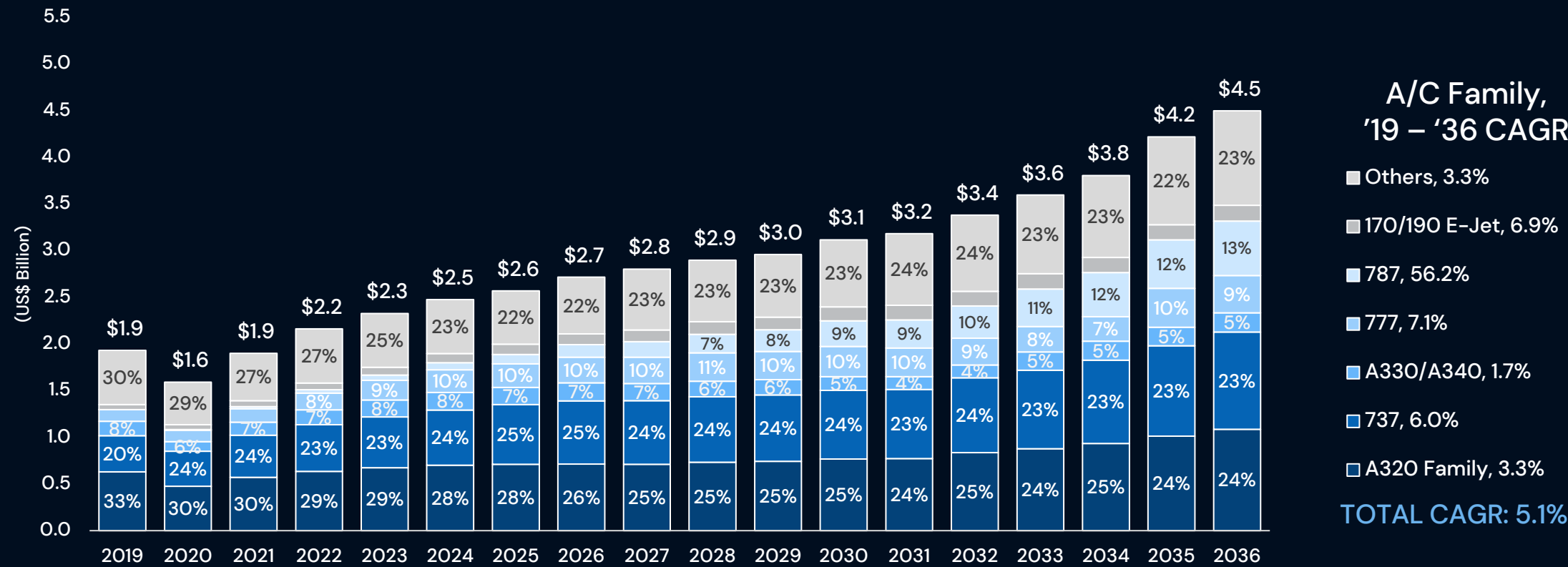
80%
Engine Parts
\$10.9B

USM PARTS SPEND by USM CATEGORY (2019 – 2036)



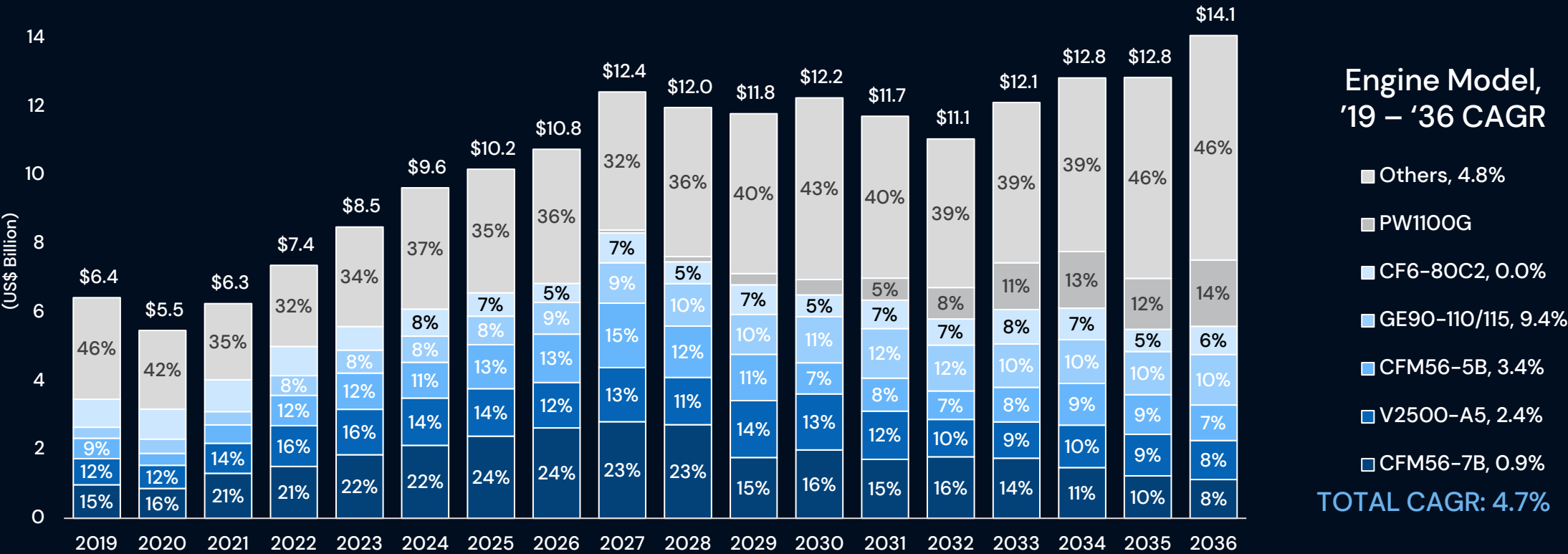
Narrowbody fleets dominate USM demand

AIRFRAME STRUCTURES & COMPONENT USM SPEND by AC FAMILY (2019 – 2036)



Where USM growth is really happening: engines

ENGINE USM SPEND by ENGINE MODEL (2019 – 2036)



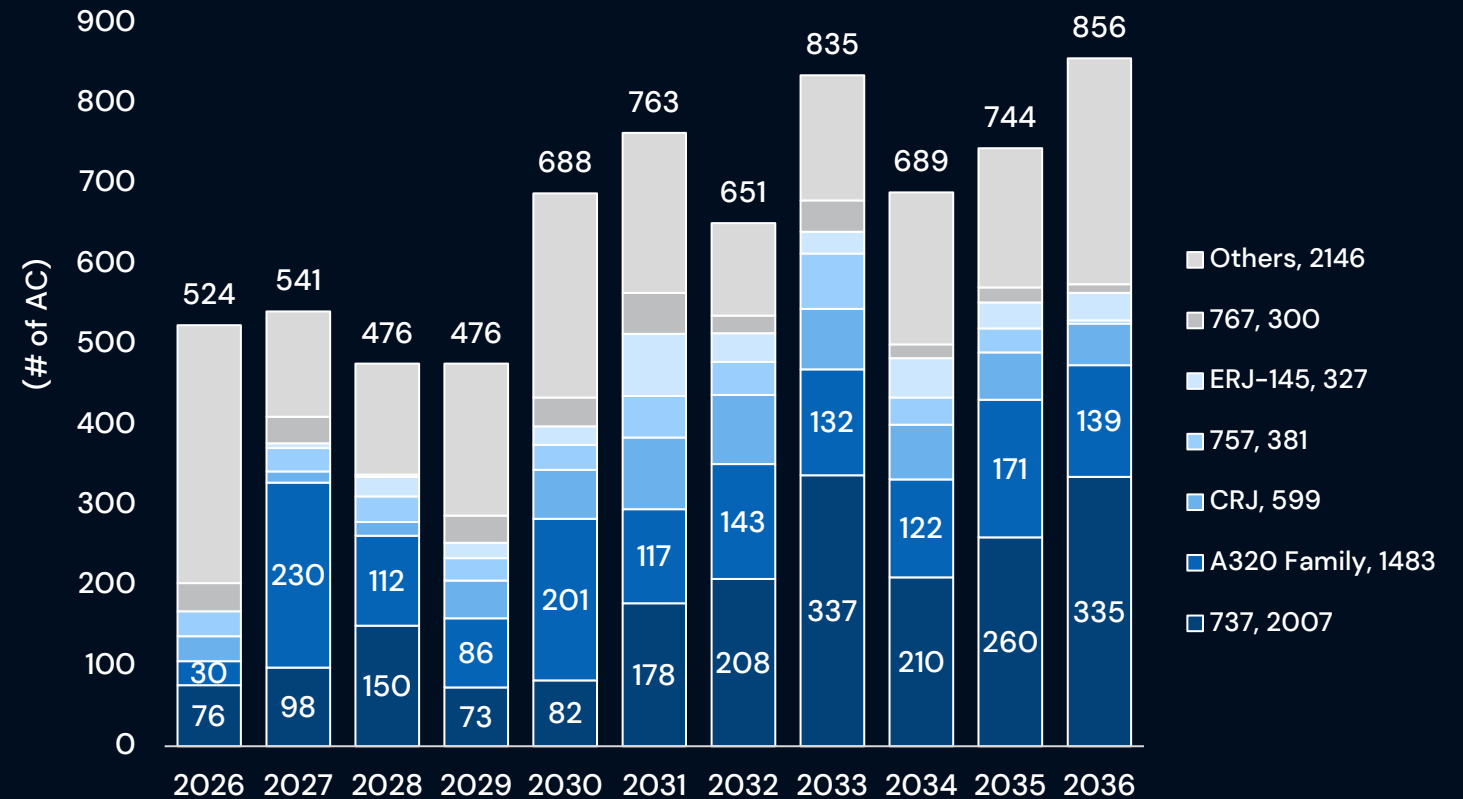
Supply: retirements and part-outs are becoming more strategic

7,243

Aircraft retirements from
2026 – 2036

Aircraft decommissioning is
now part of the supply chain,
not just end-of-life disposal.

Retirements by Aircraft Family (2026 – 2036)



The user challenge: acceptance is still not frictionless



Traceability & records



Paperwork burden



Customer policies



Regulator confidence



OEM / lessor constraints



Internal engineering buy-in

What needs to improve



Standardised
documentation



Digital records &
traceability



Earlier planning &
collaboration



Clear acceptance
policies

USM will not solve every supply chain issue, but it is one of the fastest levers available today – if the ecosystem treats traceability, decommissioning and acceptance as shared infrastructure.



Constantin Pouy

Director | Global Aviation Practice

icf.com



[linkedin.com/company/icf-international/](https://www.linkedin.com/company/icf-international/)



twitter.com/icf



<https://www.facebook.com/ThisIsICF/>

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"Users" Perspective

Constantin Pouy,
Director, ICF Aviation

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Providers Perspective

Jason Reed,

President of Digital Transformation Group, GA Telesis, LLC

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The role of the association

Lionel G. Roques,

Executive Director, AFRA - Aircraft Fleet Recycling Association

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IATA WORLD MAINTENANCE & ENGINEERING SYMPOSIUM

Madrid, Spain
24 – 25 June 2026

Thursday 25 June, 11am

USM Ecosystem panel

From aircraft retirement to component reuse: building trust, traceability, and safety across the aviation lifecycle.

#IATAWMES



Lionel G. Roques



USM Ecosystem panel

IATA WMES

June 25, 2026
Madrid



AGENDA

Who is AFRA?
End-of-Service
China case
Q&A



Who we are

- Established in 2006
- +60 members worldwide
- Best Management Practices
- +55 accredited organisations
- Recognised via strong partners
- R&D Committee
- BMP Committee

Working on next 20 years!



Overview of End-of-Service



Approach of CAAC



- **Dedicated** Advisory Circular: AC-145-FS-017
- China Mainland:
 - CCAR145 + Disassembly approval
 - Parts must be registered into CAMAC database
- Outside of China:
 - **Recognition** of AFRA's Disassembly BMP
 - Audit for CCAR145 Limited Disassembly approval
 - Parts must be registered in AFRA's **blockchain protected database**
- **Free** public portal for Chinese airlines & MROs





20th AFRA
Years ————— Est. 2006

The logo features the text "20th AFRA" in a large, bold, white sans-serif font. The "0" is stylized with a circular graphic element inside it. Below the main text, the word "Years" is on the left and "Est. 2006" is on the right, separated by a long horizontal line.

www.afra.aero

The background of the entire image is a blue-tinted photograph of an airport tarmac. In the foreground on the right, the nose and cockpit of a British Airways aircraft are visible. In the background on the left, another aircraft is parked near some hangars. The sky is overcast.

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The role of the association

Lionel G. Roques,

Executive Director, AFRA - Aircraft Fleet Recycling Association

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Speakers

Chris Markou,
Head Technical Operations,
IATA

Constantin Pouy,
Director,
ICF Aviation

Jason Reed,
President, Digital Innovation Group,
GA Telesis

Lionel G. Roques,
AFRA - Aircraft Fleet Recycling
Association, AFRA - Aircraft Fleet
Recycling Association

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Networking Lunch

Next session starts at 14:00

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Maintenance Information Systems

Moderated by **Karmel Shahin**,
Manager Technical Operations and Supply Chain, IATA

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Introduction

Moderated by **Karmel Shahin**,
Manager Technical Operations and Supply Chain, IATA

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**Madrid, Spain
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The role of a MIS in addressing supply chain challenges

Chris Clements,

Senior Manager Customer Development, Swiss Aviation Software Ltd.

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Digital Tech Ops Ecosystem

The role of a MIS in addressing supply chain challenges

Swiss AviationSoftware

Chris Clements

WMES

Madrid 2026



Key Impacts facing aviation supply chain



Source: IATA – [Aviation Supply Chain](#)



Financial Impact

\$11 billion in projected losses for airlines in 2025 due to supply chain disruptions.



Aircraft Backlog

17,000 aircraft backlog - airlines operate older fleets with higher maintenance costs.



Inventory Surplus

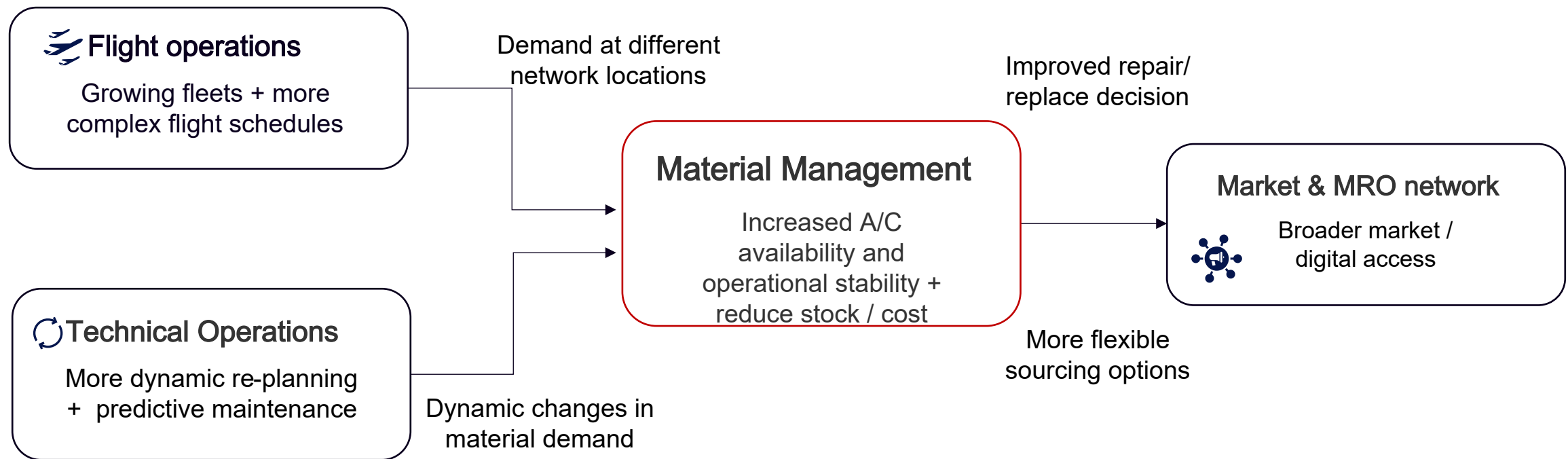
Airlines stockpile parts, creating a surplus inventory valued at \$1.4 billion.



Supply Chain Vulnerabilities

The AOG Technics scandal grounded 120 aircraft highlighting supply chain risks.

Increasing complexity creates challenges that require digital solutions

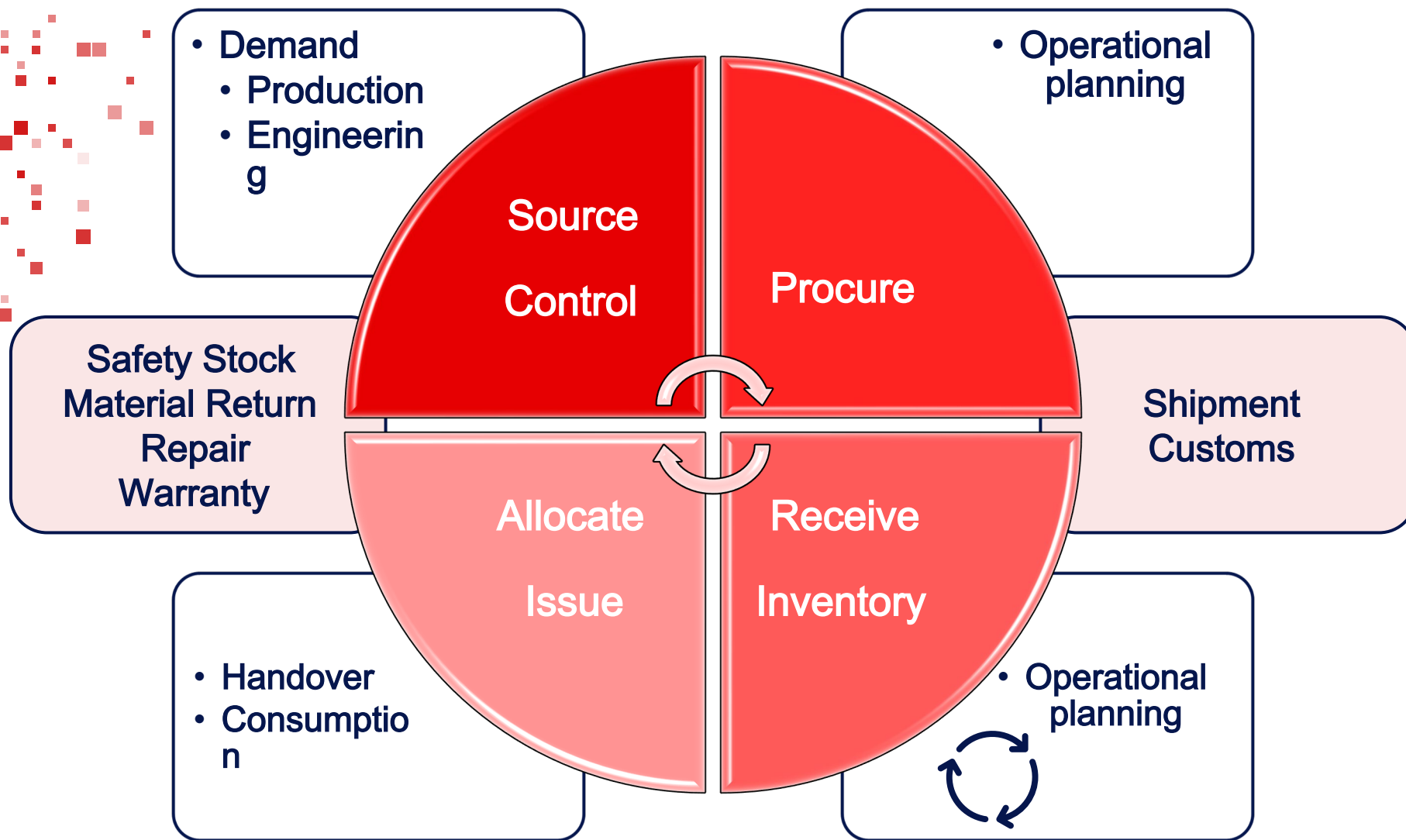


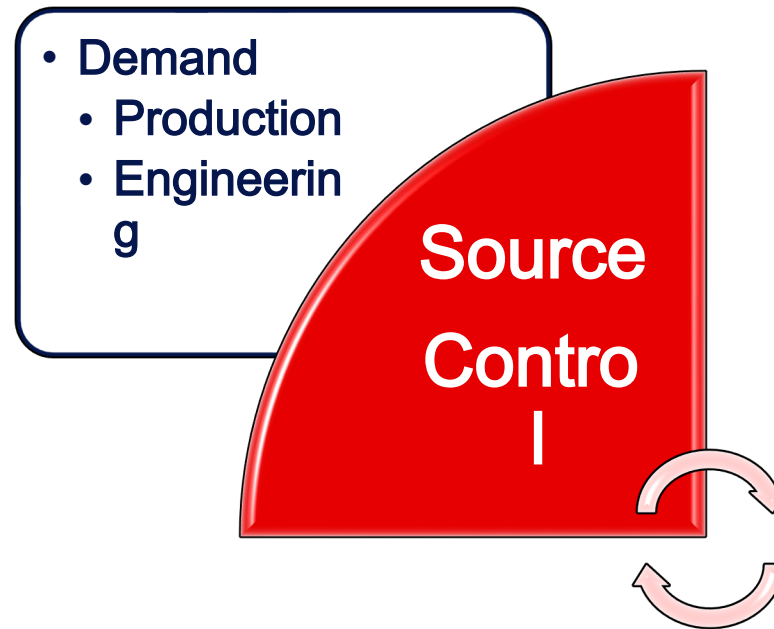
End to End process



Page 129





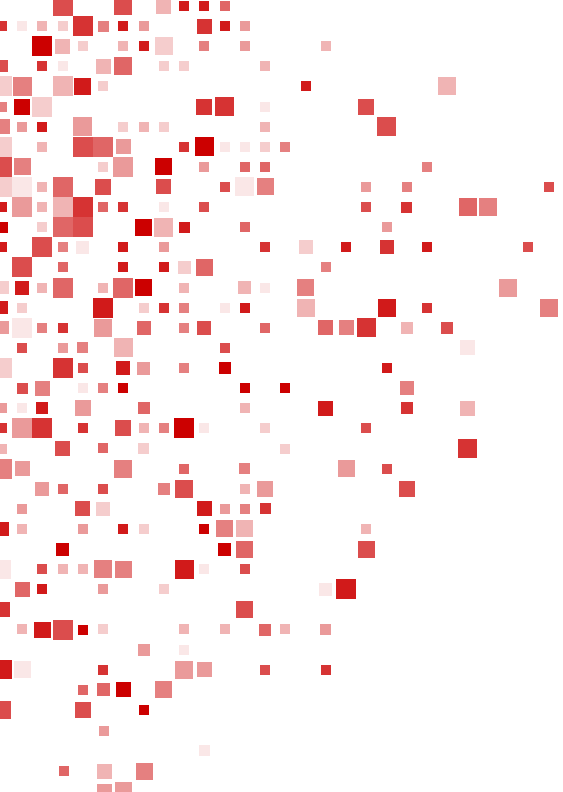


Source:

- Vendor Management
 - CAGE codes
- Price List
- Supplier Rating
- MIS driven sourcing suggestions
- Sourcing support (vendor options)

Control:

- P/N Administration (Part Master)
 - ATA200
- Configuration Control /Aircraft & Component
- Part Requests

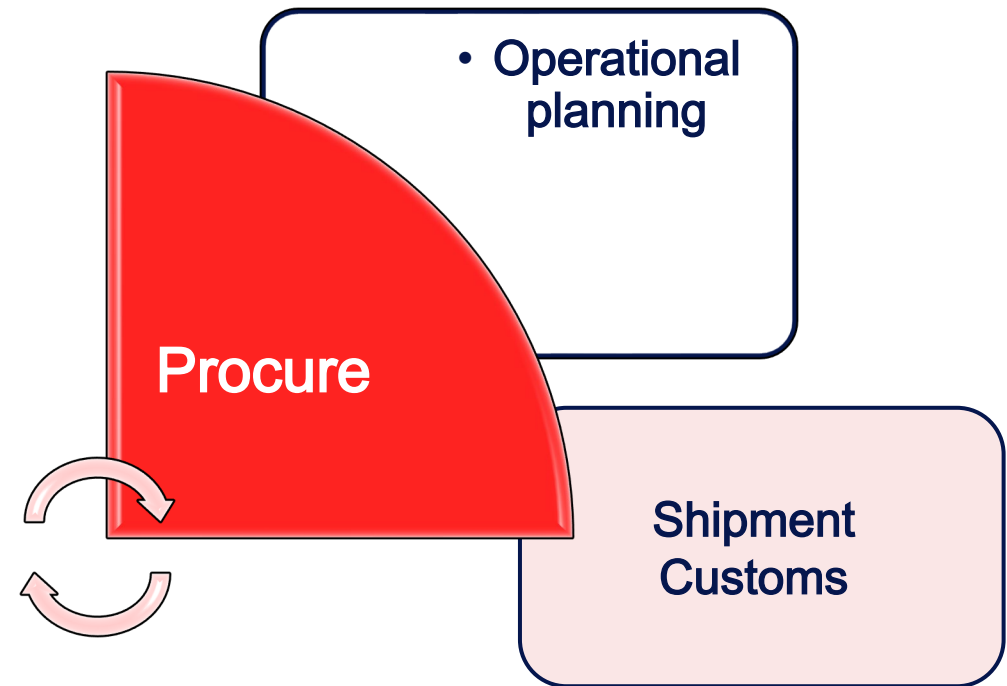


Inputs:

- Event Driven target dates
- Planned execution location
- Current Stock
- Consumption
- Price Book status

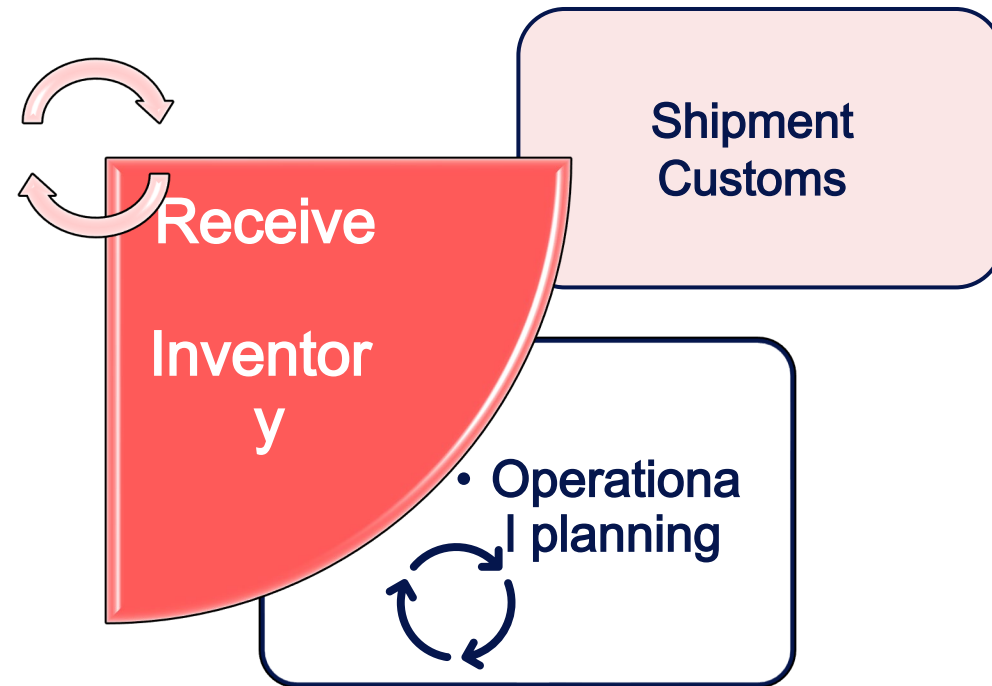
Actions:

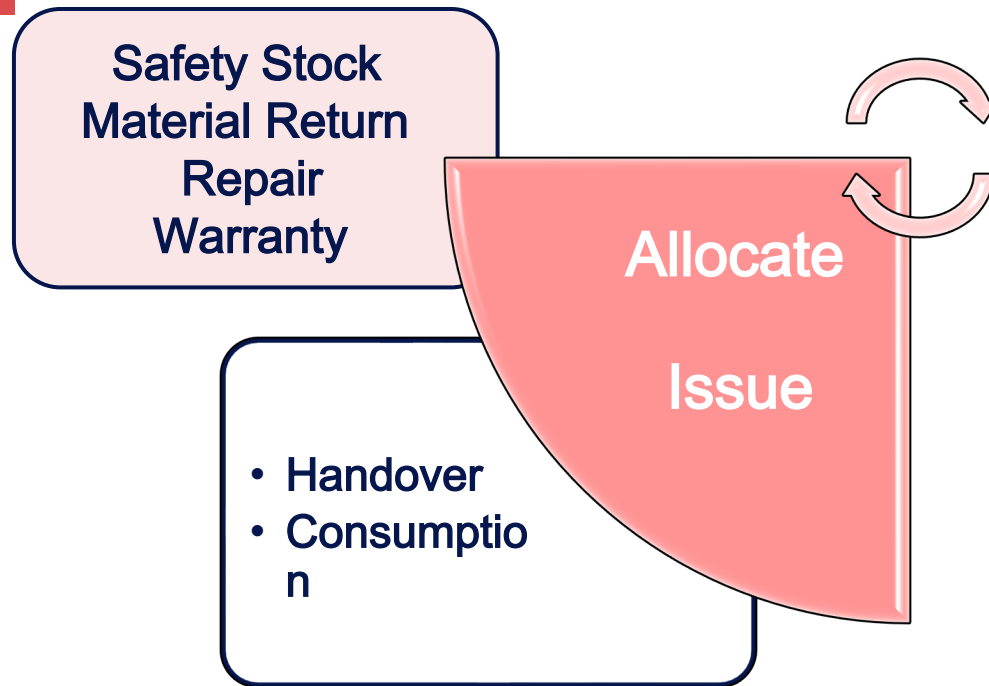
- Issue orders, manually or automatically
 - Determine order type, Purchase, Exchange, Pool, etc.
- Approval control
- eProcurement integration
- Create/record Shipment for order
 - Integration with carriers platforms



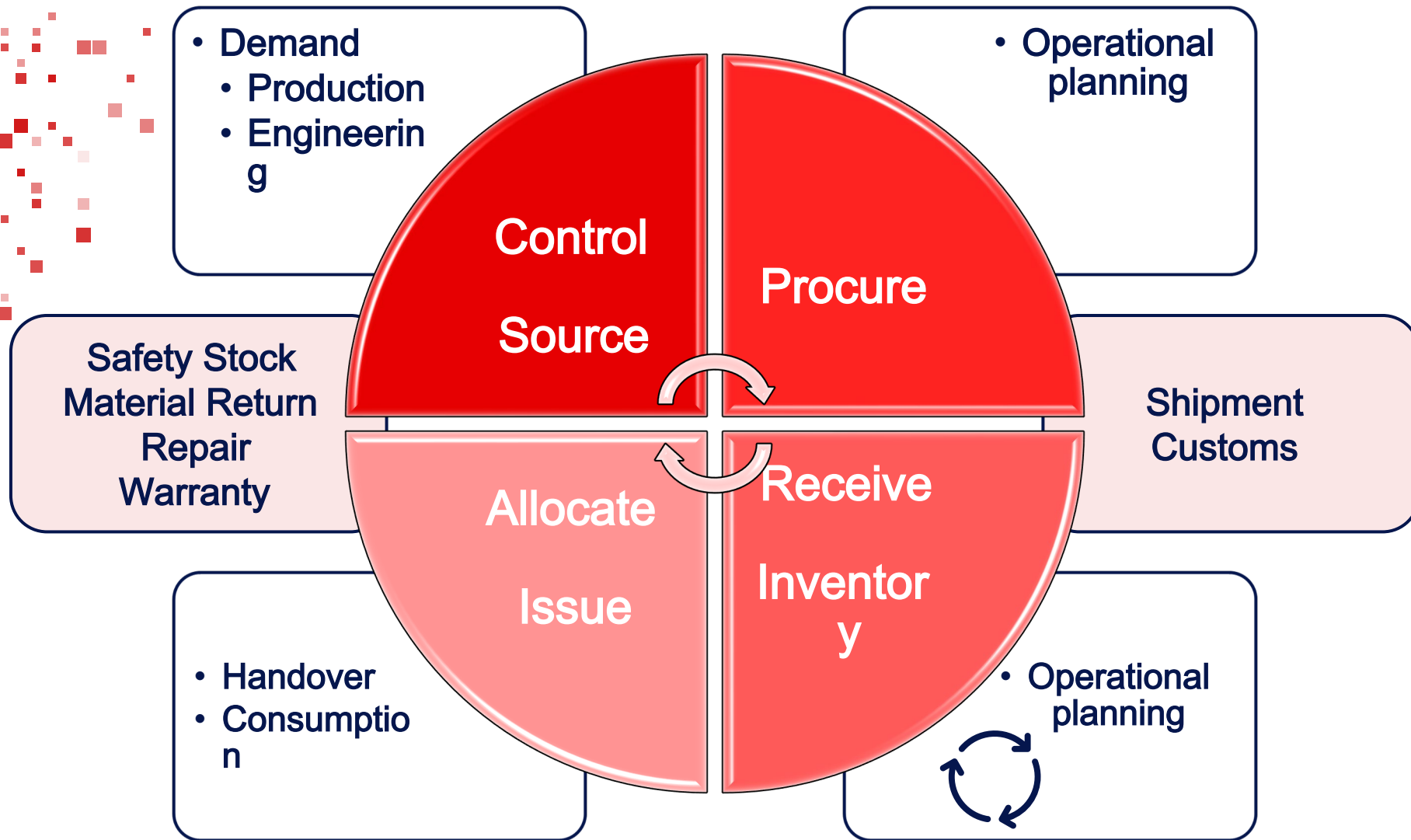
- Create/record Shipment for order
 - Integration with carriers' platform
- Scan documents*
- Physical Goods Receiving
- Inspection and Records
- Binning
- Inventory Management
- Invoice Matching

* Scan received documents using AI to create a “pre-receiving”



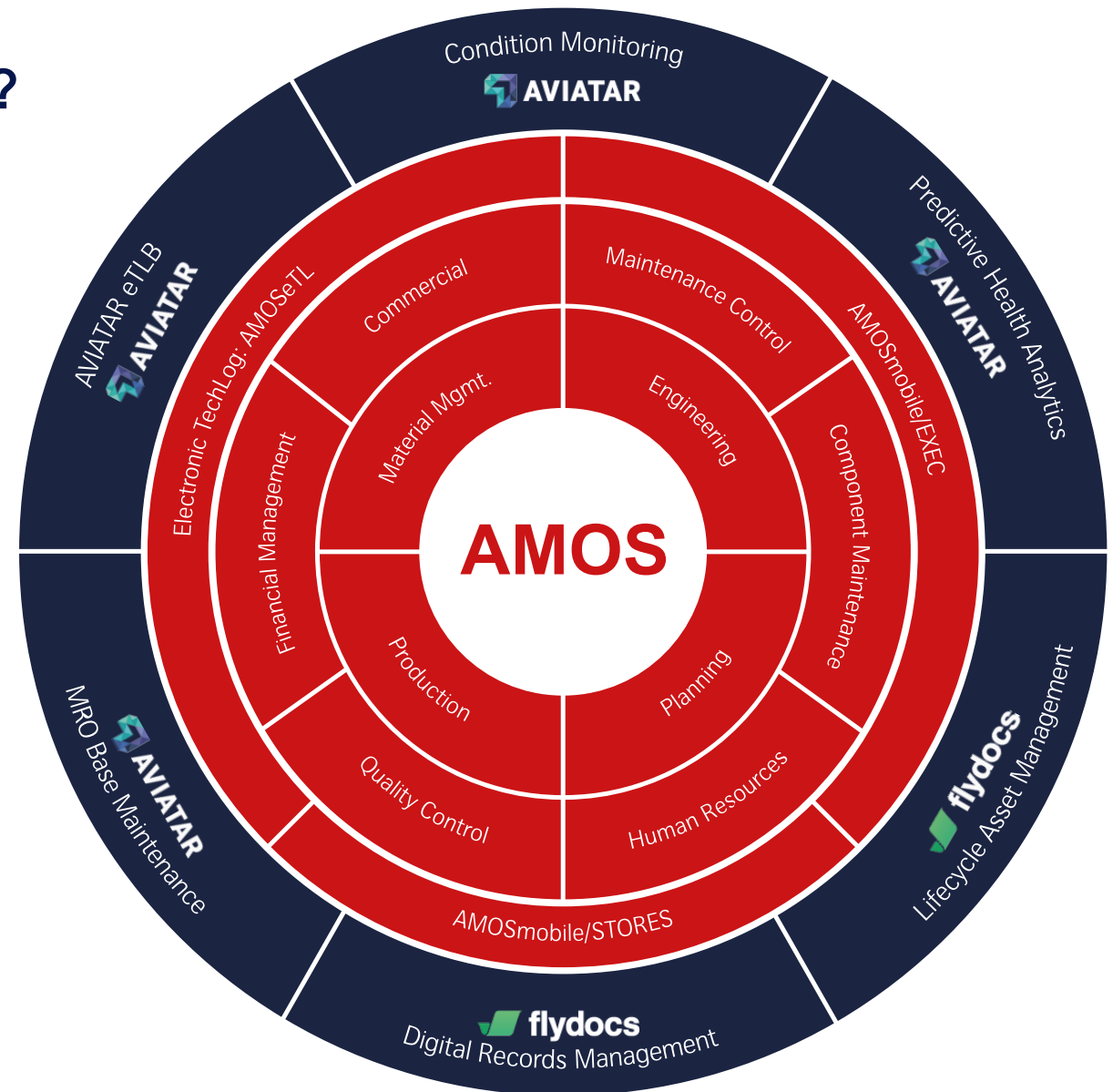


- Allocation of material to events
- Efficient picking to meet SLAs
- Tracking material progress and location
- Handover Stores – Production
- Un-Serviceable Material handling
- Warranty on repairs
- Trigger for re-stock



How can a MIS support these processes?

Maintenance Information System



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What can you expect a MIS to deliver?



Real-Time Data Integration

Native AMOS integration ensures seamless, up-to-date data flow to eliminate delays and siloed information.



Automation and AI Empowerment

Automation and AI enable one-click smart decisions, reducing manual effort and increasing consistency.



End-to-End Procurement

Comprehensive procurement covers the material lifecycle from forecasting to electronic ordering for efficiency.



Unified Ecosystem Partnership

A joint ecosystem partnership simplifies vendor management with a single IT solution and support.

How a MIS can support your daily business



Recommendations

The cockpit for all operative material decisions

- Provides the material planner with a central overview of all tasks
- Enables direct execution of recommendations or automation options with agentic AI
- Ensures efficient, transparent and fast decision-making



Performance Insights

Real-time visibility into material operations

- Provides real-time dashboards and KPIs
- Enables tracking of your material performance and in-depth data analysis

How a MIS can support your daily business cont.



Simulations

Strategically assess material operations scenarios

- Use your data to develop simulations and conduct comparisons
- Implement strategic follow-up actions



Rotable Forecasting

Real-time visibility into material operations

- Forecast of future unscheduled removals for rotables
- Improved planning accuracy for rotables inventory management

How a MIS can support your daily business cont.



Sourcing

AI-enhanced procurement solutions

- Synchronisation of requisitions and quotations
- Import of Quotation Responses from the sourcing platform
- Integration with supplier systems and communication management
- Smart scanning agent to scan pdf quote offers
- Delegation of communication with onboarded suppliers

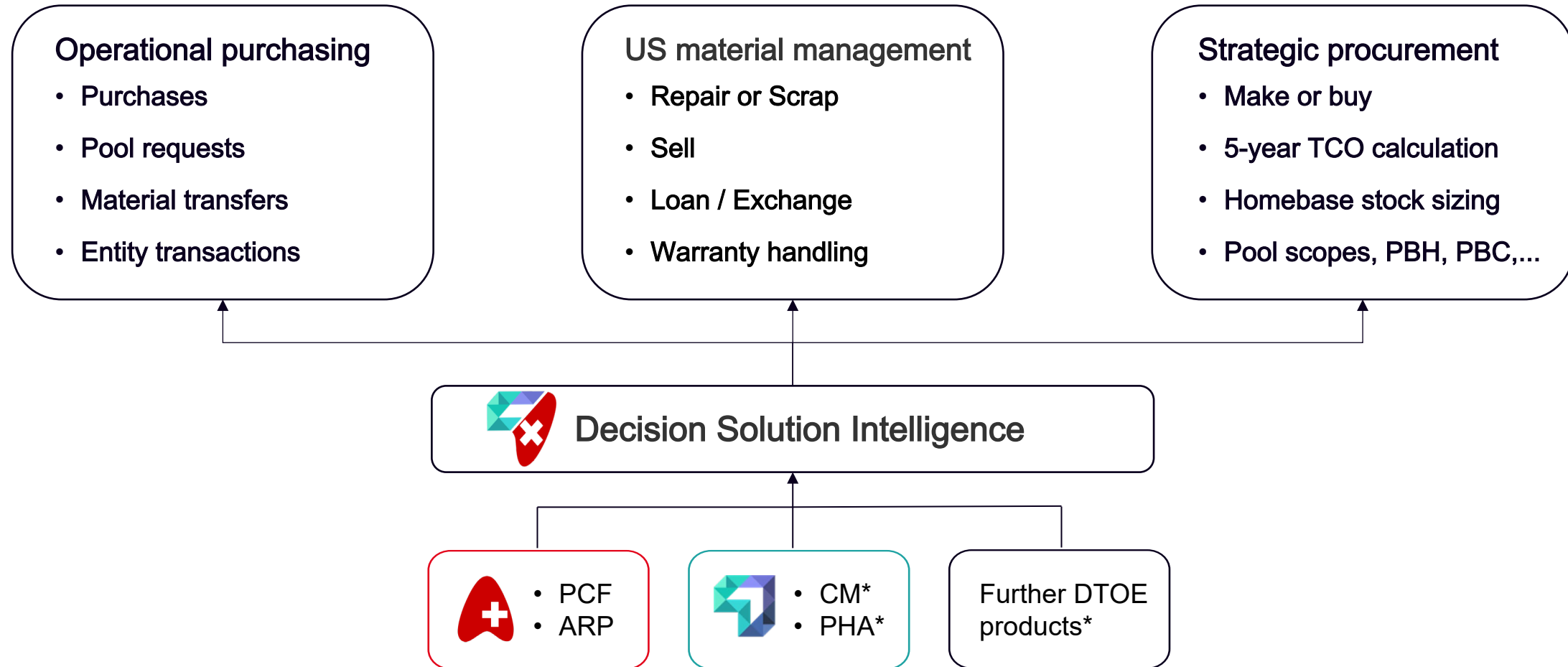


eProcurement & Market Search

Gateway to all major market places

- Connect with suppliers and marketplaces, browse all catalogues in a central place.
- Generate Price Books and Orders directly from the MIS
- Support Spec2000 Gen2 Stock&PriceRequest and Spec2000 Legacy Spares Inquiry
- Retrieve Price, Availability, Condition, Location, Certificates, etc.

Generating recommendations, a focus



*planned implementation

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What does that mean in expected savings?

Based on a MIS configured to your needs and respecting some key points;

- Clean and consistent data
- Industry standards applied and used where possible
- Best practice processes implemented and supported by your MIS
- End users trained to utilise and exploit the solution in their hands

With these foundations laid...

Value | Total annual savings of \$2,650,000 per 100 aircraft

Example

Optimised material planning

- Ensure optimum stock levels through forecasting of material needs and planning.
- See consistent results through standard, automated processes.

Impact per year

Save \$1,950,000
Reduce annual carrying cost and avoid overstock.

Save \$500,000
Avoid material shortages and reduce AOG event cost.

Based on

10% inventory reduction,
15% annual carrying cost

Avoidance of 10 AOG events p.a. at \$50,000 each

Process automation

- Reduce manual effort with seamless integration into material value chain

Impact per year

Save \$200,000
Reduce manual processes.

Based on

Adoption of optimisation and decision solutions

General
assumptions:

Fleet
100 aircrafts

Inventory per A/C
1.3 Mio USD

assumptions vary on individual airline; example based on data from: LHT, BCG, Oliver Wyman

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Customer Testimonials



Customer Stories

- 250+ aircraft
- 5,000+ users
- AMOS core functionality +
 - AMOSmobile/EXEC
 - **AMOSmobile/STORES**
 - AMOScrom

providing a fully integrated digital environment from planning and execution through to **materials and component management**.



1,000+ engineering and maintenance processes (around 70% of the total) will be adapted. Less than 5% of these processes require system customisation by Swiss-AS.

"By integrating the 'Fit to Standard' approach of AMOS with ANA's expertise, we will achieve exceptional productivity. In partnership with Swiss-AS, we are building a digital transformation foundation for next-generation maintenance that fully leverages new technologies, driving a shift to a future-oriented work style where every individual proactively and creatively utilizes digital tools."

Yasushi Hamada, Vice President of Process Transformation and IT Planning at ANA's Engineering & Maintenance Center

Customer Stories



Austrian Airlines and LTLS Vienna go live with AMOSmobile/STORES

"We're building the foundations for a more data-driven and resilient maintenance organisation. AMOSmobile/STORES is one of those practical steps that improves execution and readiness over time."

Michael Larivière, Vice President Technical Operations at Austrian Airlines

Page 147

Customer Stories

AMOS covers all aspects of the **maintenance, engineering, and logistics processes** required by airlines, and the software's modular structure provides Riyadh Air with a tailored and scalable system to meet their specific needs and challenges.



Swiss AviationSoftware's CEO Fabiano Faccoli states: "We are proud to stand shoulder to shoulder with Riyadh Air and to support them in their commitment to being a visionary in the aviation industry. Riyadh Air will be **the first digital -native airline** and we are very much looking forward playing a significant role in achieving this ambitious target by leveraging AMOS' full potential."

So, how can a MIS play it's part?

- ❏ Control data quality, initially and continuously
- ❏ Process integration supported by workflows from demand to procurement to inventory control to consumption
- ❏ Automation and AI Empowerment
- ❏ Integration with external service providers
(Repair, exchange, supply, shipment platforms)
- ❏ As a MIS, continue to evolve to meet the needs of the industry today, and tomorrow...



Thank you for your time
and attention

The role of a MIS in addressing supply chain challenges

Chris Clements,

Senior Manager Customer Development, Swiss Aviation Software Ltd.

[#IATAWMES](#)



IATA WORLD MAINTENANCE & ENGINEERING SYMPOSIUM

Madrid, Spain
24 – 25 June 2026



**IATA WORLD
MAINTENANCE
& ENGINEERING
SYMPOSIUM**

Advancing Material Readiness via Maintenance Information System Modernization

Mei Wang,

Director - Inventory Forecasting, PMA and Master Data, United Airlines

[#IATAWMES](#)



UNITED

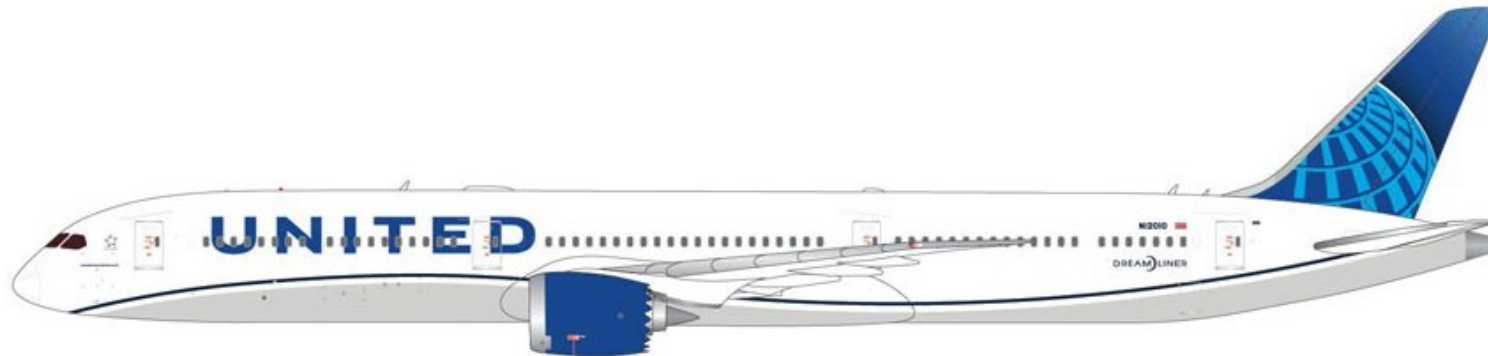
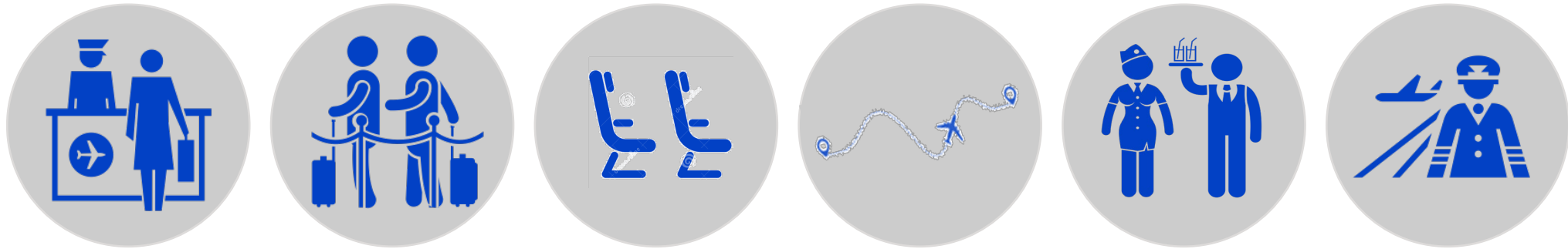
Advancing Material Readiness via Maintenance Information System Modernization

Mei Wang

Director - Inventory Forecasting, PMA and Master Data



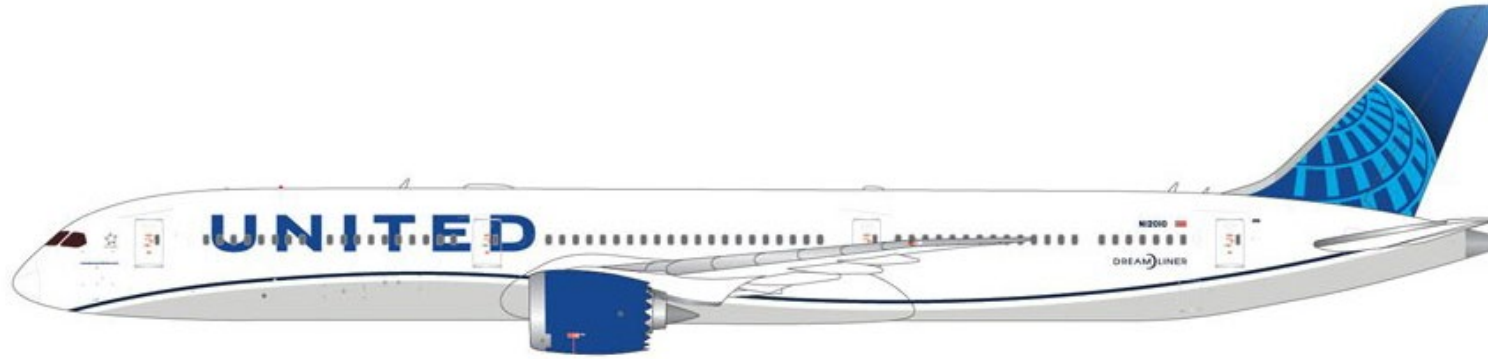
Passenger Perspectives on Air Travel



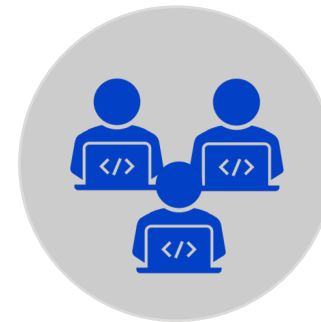
Customer experience is majorly based on the visible layer of operations



Operations Behind the Scenes



Behind each flight is a complex, coordinated planning & operations



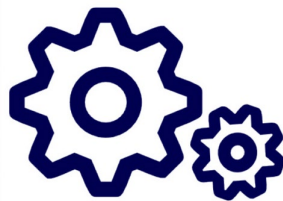
Technical Operations Plays a Key Role in Airline Operations



Technical Operations is responsible for maintaining United's aircraft fleet and ensuring planes are ready for safe operation

Key Functions including:

- *Aircraft maintenance and repair*
- *Engineering support and planning*
- *Supply chain management and strategy*
- *Ground equipment and facilities management*



Maintenance

Supply Chain

Engineering

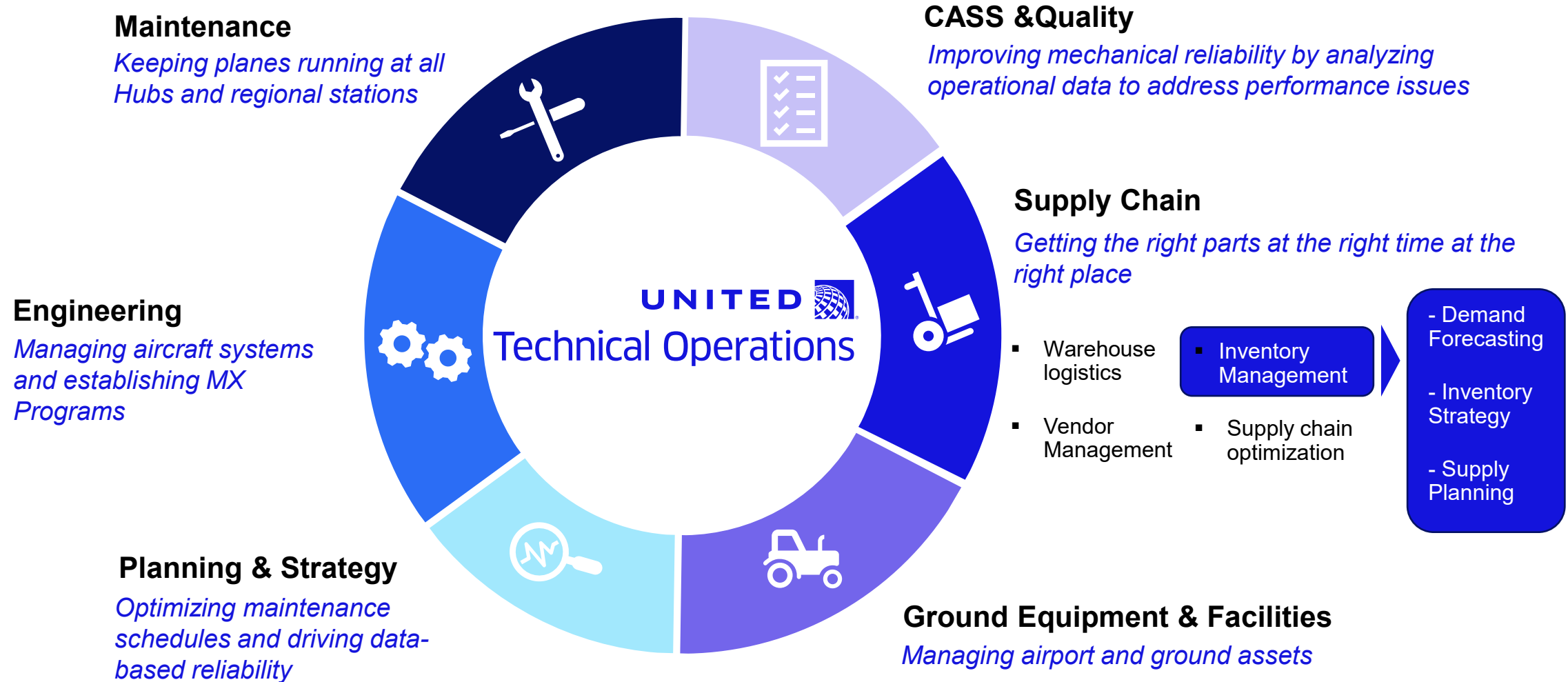
Planning

Data Science

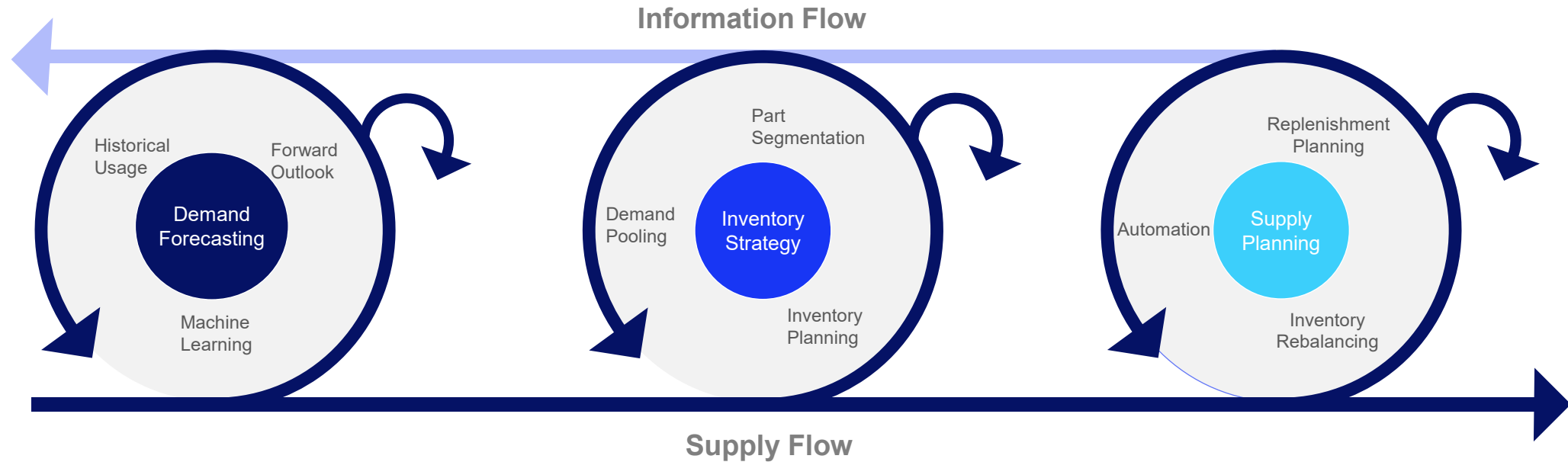
Safety &
Compliance

Technology

Collaboration is essential to ensure smooth operation



Inventory Management translates demand signals into supply decisions to keep optimal inventory within the network



Demand Forecasting

- ML driven monthly forecast for hundreds of thousands of parts across the entire United network (~1M station and part combinations)
- Combines historical usage with forward looking e.g., future flying schedule, planned maintenance check schedule, fleet growth or retirement plan

Inventory Strategy

- Optimizes stocking policies at Part & Station level
- Leverages demand variability, lead times and service levels
- Suggests key planning attributes including re-order points, target stocks

Supply Planning

- Automated rebalancing & part station level replenishment
- >80% of replenishment automated via inhouse models
- Automation of placing orders improves throughput and timely action



Data and infrastructure around maintenance information systems are critical for parts planning



Maintenance Schedule Optimization

Historical maintenance information helps track tasks worked on, parts required for the tasks – frequency and count, allowing for better planning cycles



Demand Forecasting and Inventory Investment

Reliable maintenance data enables accurate prediction of part requirements and optimization of inventory levels, reducing stockouts and excess inventory



Data-Driven Decision Making

Robust infrastructure enables analytics and reporting / tracking of metrics that support strategic planning for part sourcing and vendor management

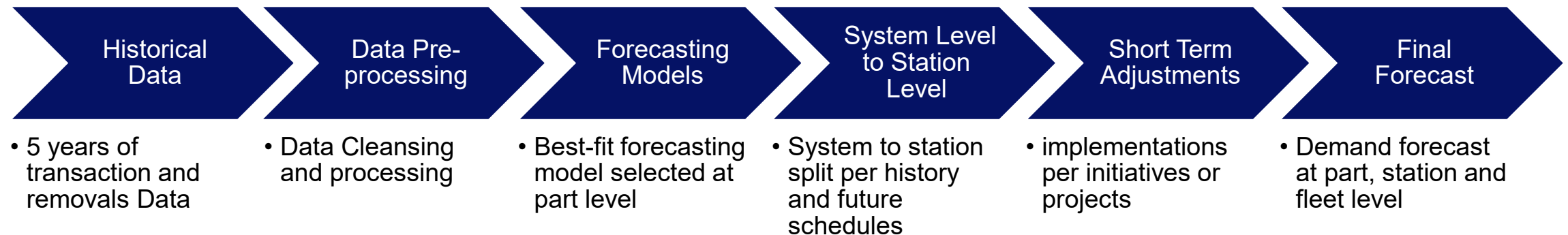
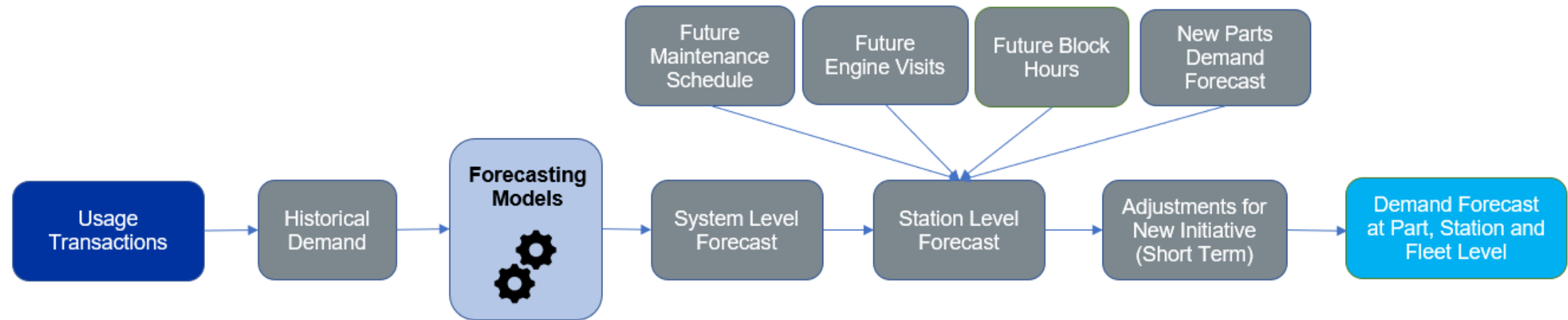


Process Transparency

Centralized maintenance data ensures all stakeholders work from consistent information, eliminating redundant efforts and improving coordination



Demand Forecasting builds forward visibility into part demand





Inventory Strategy balances service performance and Capital efficiency

Inputs and Parameters

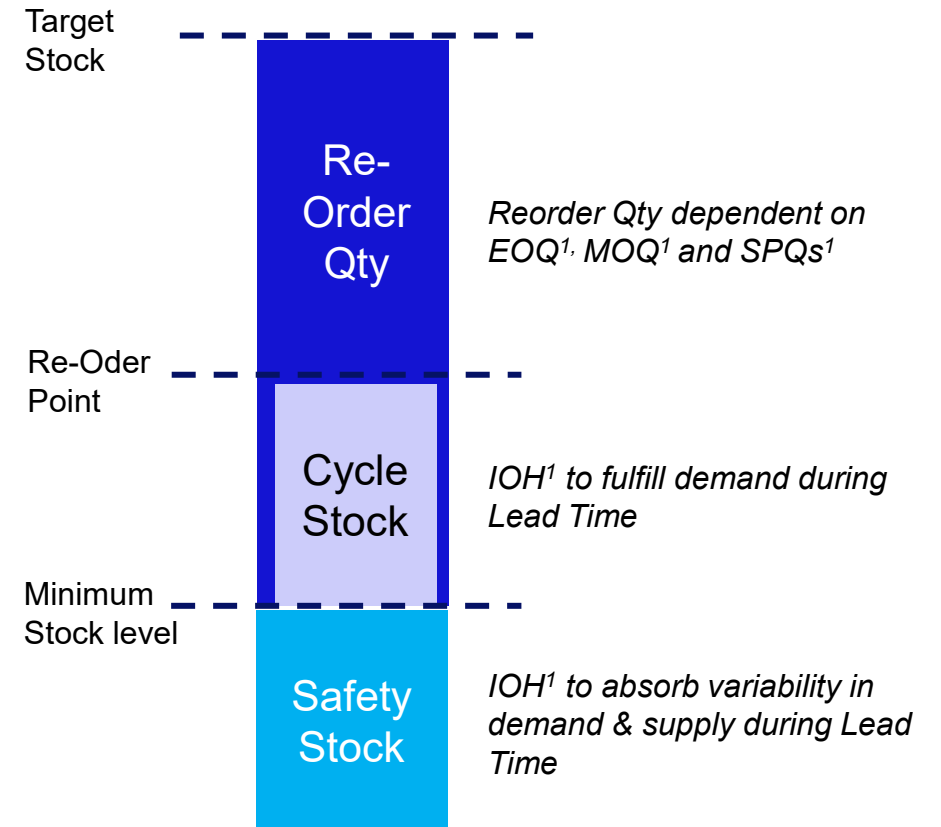
- Demand Forecast
- Usage Frequency
- Part Criticality
- Lead Time
- Service Level
- Ordering Cost
- Holding Cost

Inventory Policy Design



Location-specific
stocking policy
recommendations based
on **segmentation** and
demand pooling

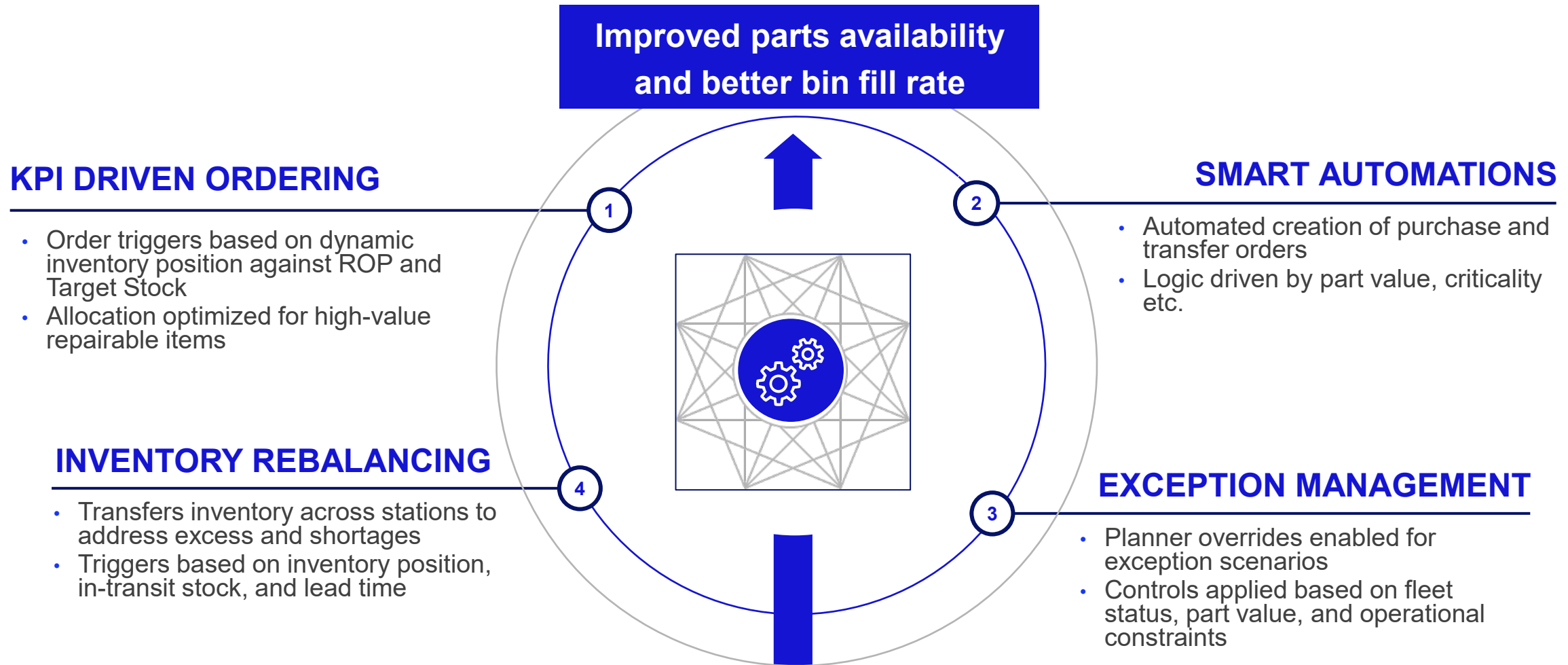
Outputs



1. IOH - Inventory on Hand ; EOQ – Economic Order Qty ; MOQ – Minimum Order Qty ; SPQs – Standard Package Quantities



Inventory Planning executes to ensure part availability across the network



Opportunities always exist to improve MIS and Parts Availability

Achievements in Recent Years

- Modernized Maintenance Information System infrastructure
- Implemented cloud technology and big data platforms
- Integrated machine learning methodologies into forecasting models
- Developed smart planning processes enabling greater flexibility in parts allocation
- Enhanced part availability

Strategic Opportunities for Future Growth

- Strengthen transaction data governance frameworks
- Further enhance parts planning strategies for newly introduced fleets
- Expand long-term maintenance planning capabilities



UNITED

Thank you!



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SYMPOSIUM**

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Maintenance Information Systems Use Cases and Developments to Improve Component Availability

Greg Zuikovs,
Interim General Manager, Airinmar
[#IATAWMES](#)



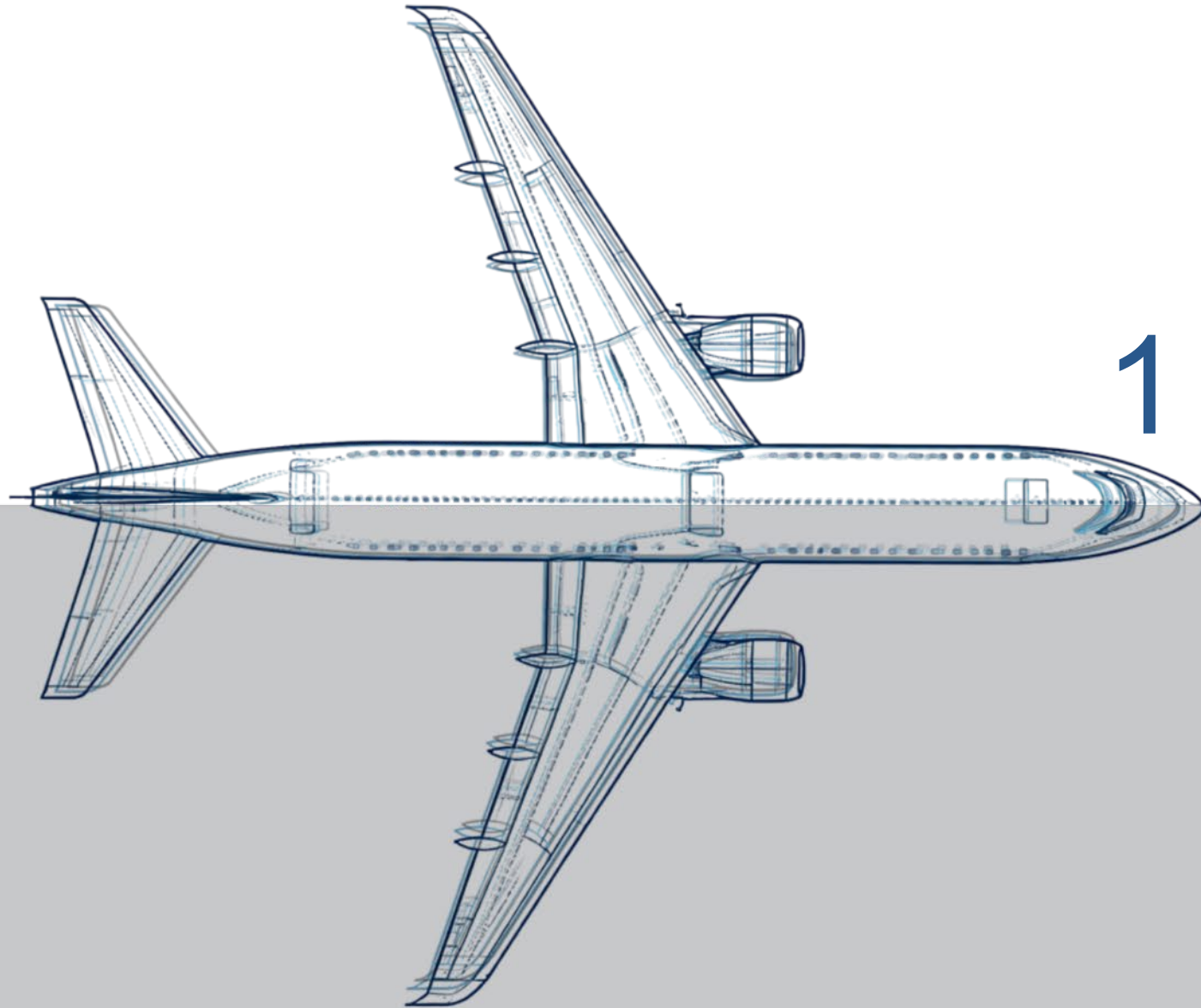
AIRINMAR[®]

An  **AAR** Company

HELPING AIRLINES REDUCE OPERATIONAL COSTS

Specialist in Tailored Component Repair Management and Aircraft Warranty Support Services

*Maintenance Information Systems
Use Cases and Developments to Improve
Component Availability
IATA, Madrid, July 2026*



1

2

3

Introduction

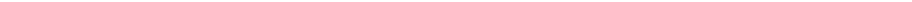
About me and Airinmar

14 years supporting aircraft maintenance

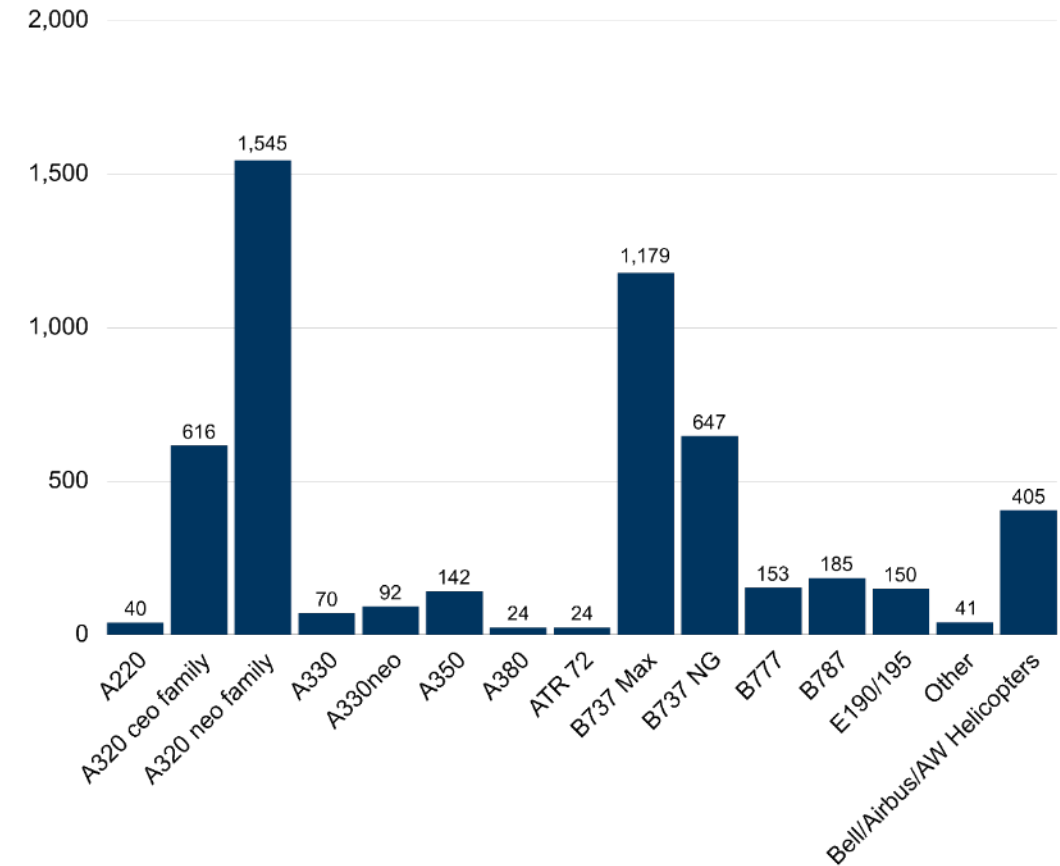
- ✓ 4 years within an aftermarket environment – components (Reheat Aero) and engine maintenance (MTU Maintenance)
- ✓ 10 years with Airinmar and AAR, with extensive knowledge of component maintenance best practices, FH agreements, the use of systems as well as the Product Support Agreements PSAA and SSC
- ✓ Airinmar is dedicated to providing tailored component repair and aircraft warranty support services, to assist airlines in reducing their operational maintenance costs

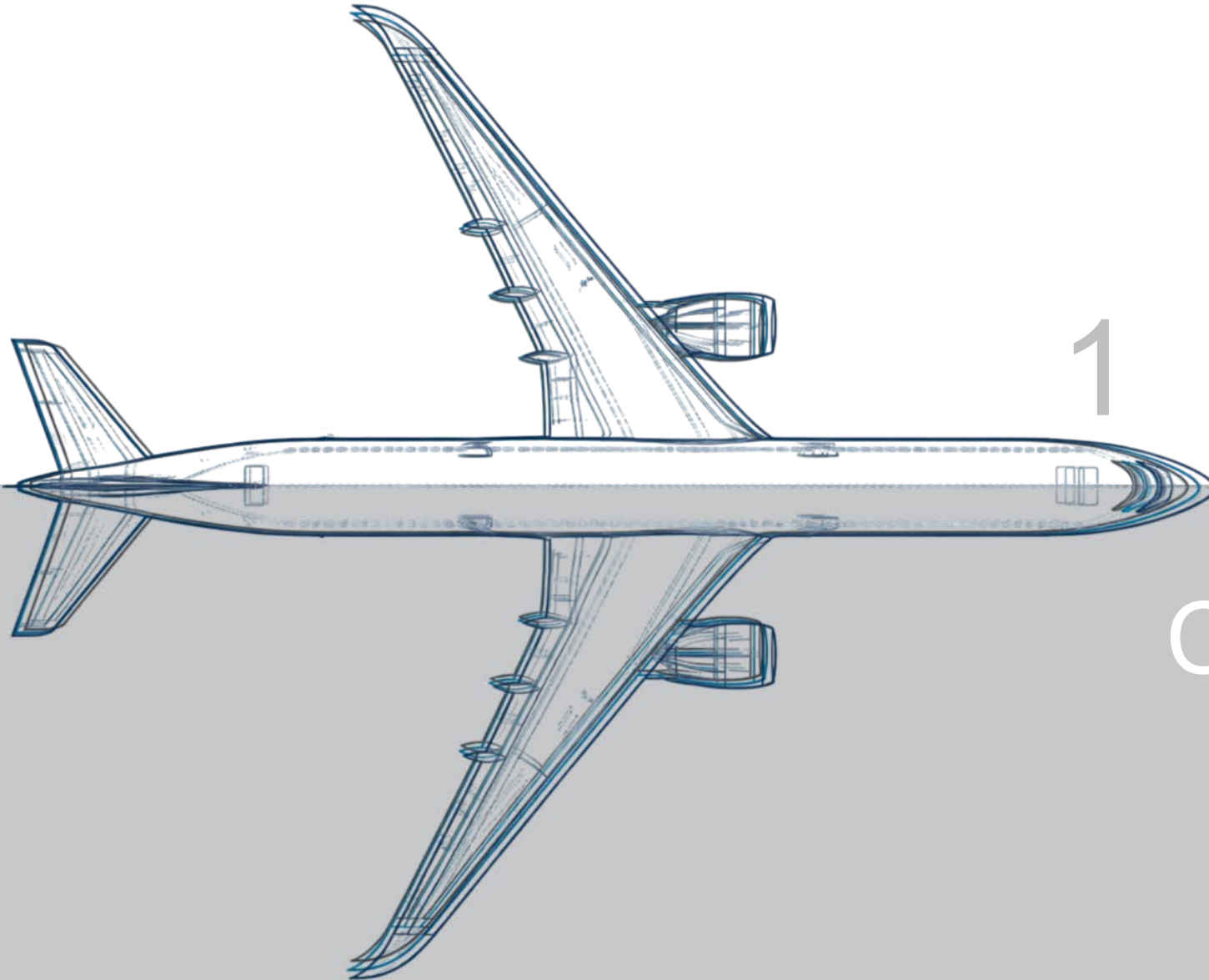


AIRINMAR
An **AAR** Company



All types of commercial Aircraft including helicopters

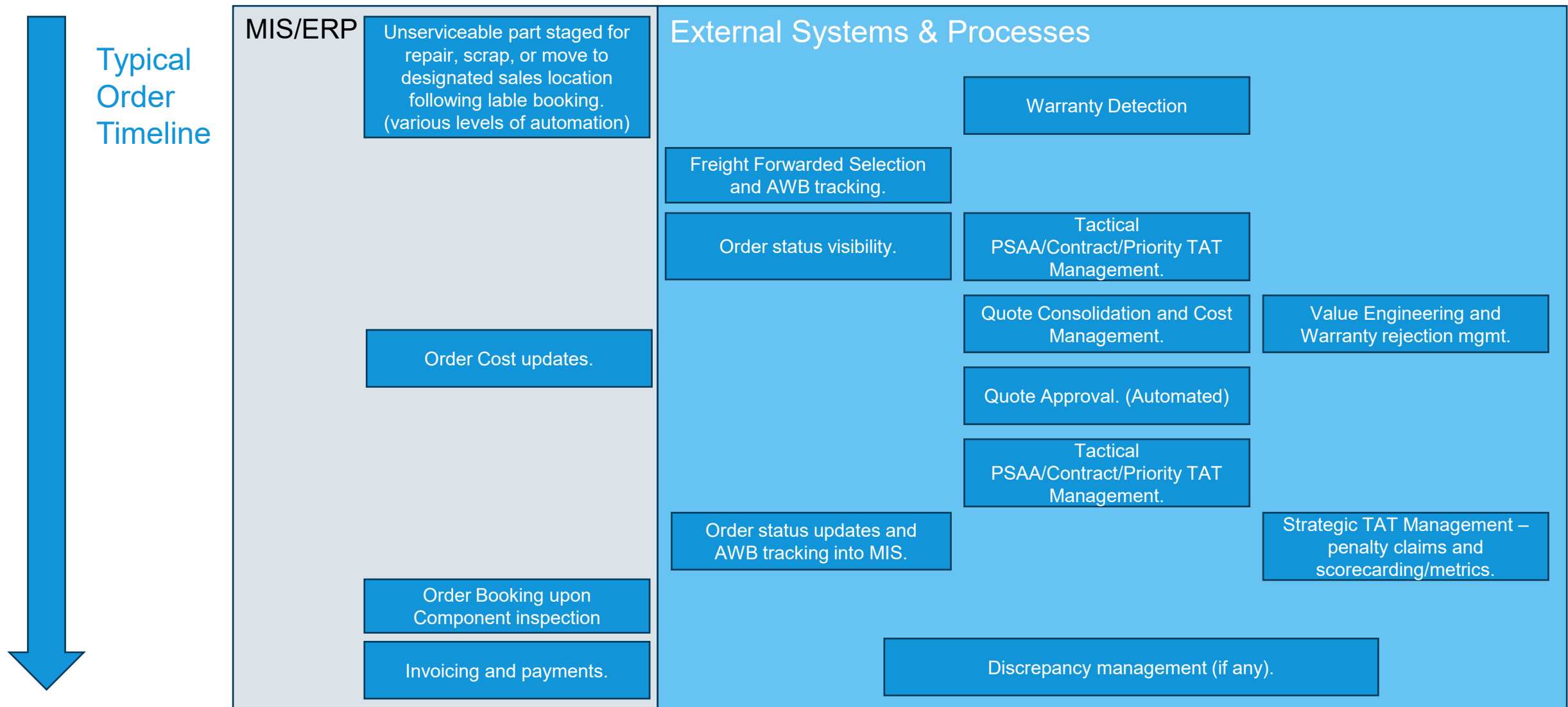




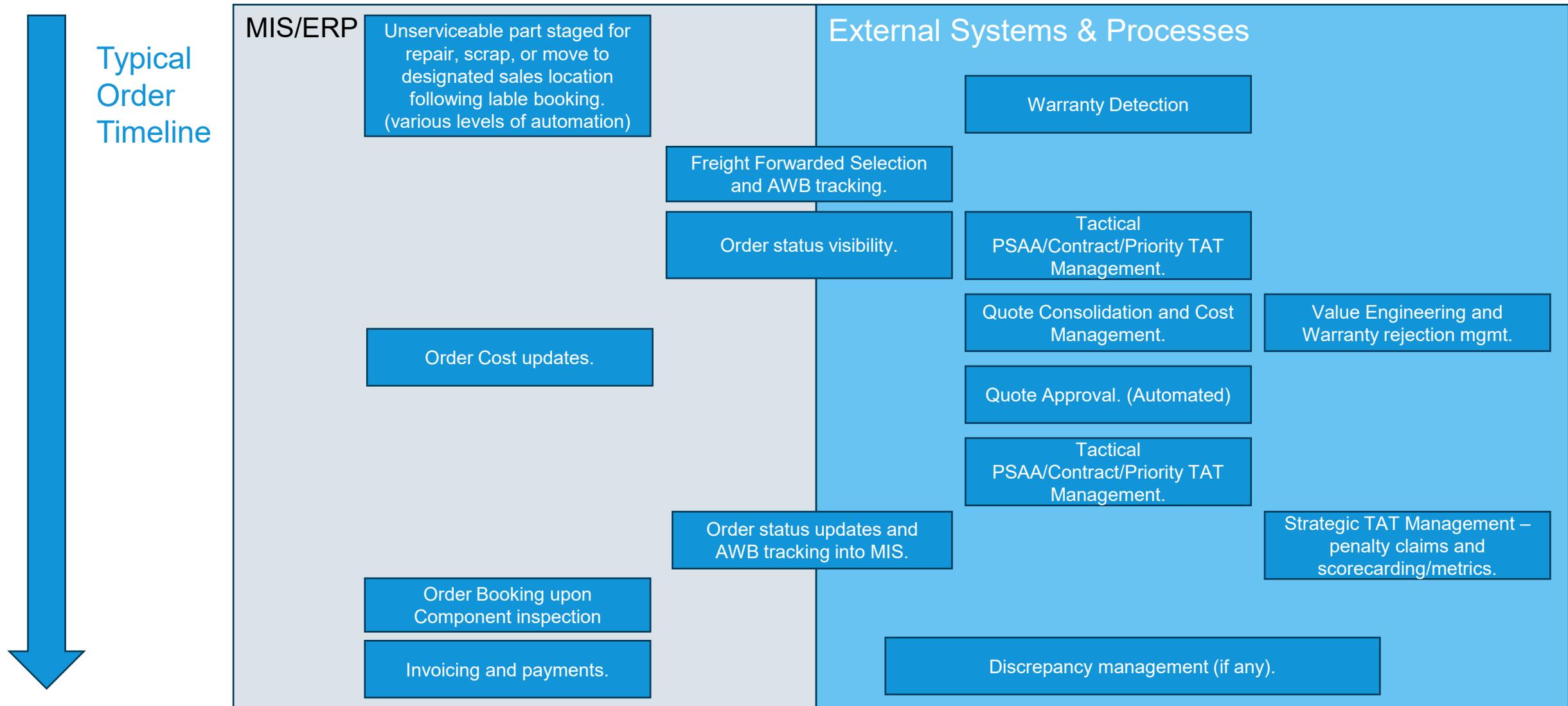
1 2 3

Component Repairs within MIS

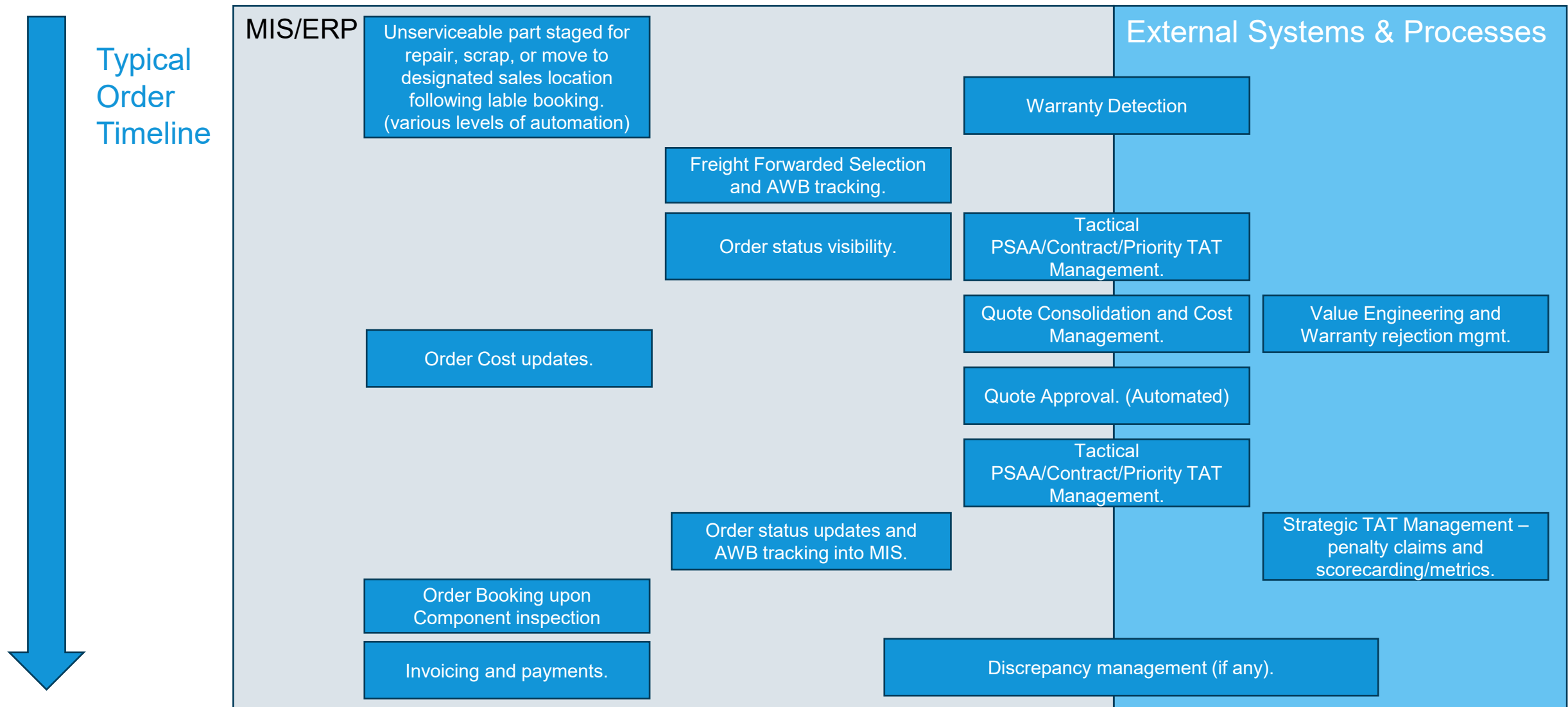
Component repair flow – history of MIS Evolution



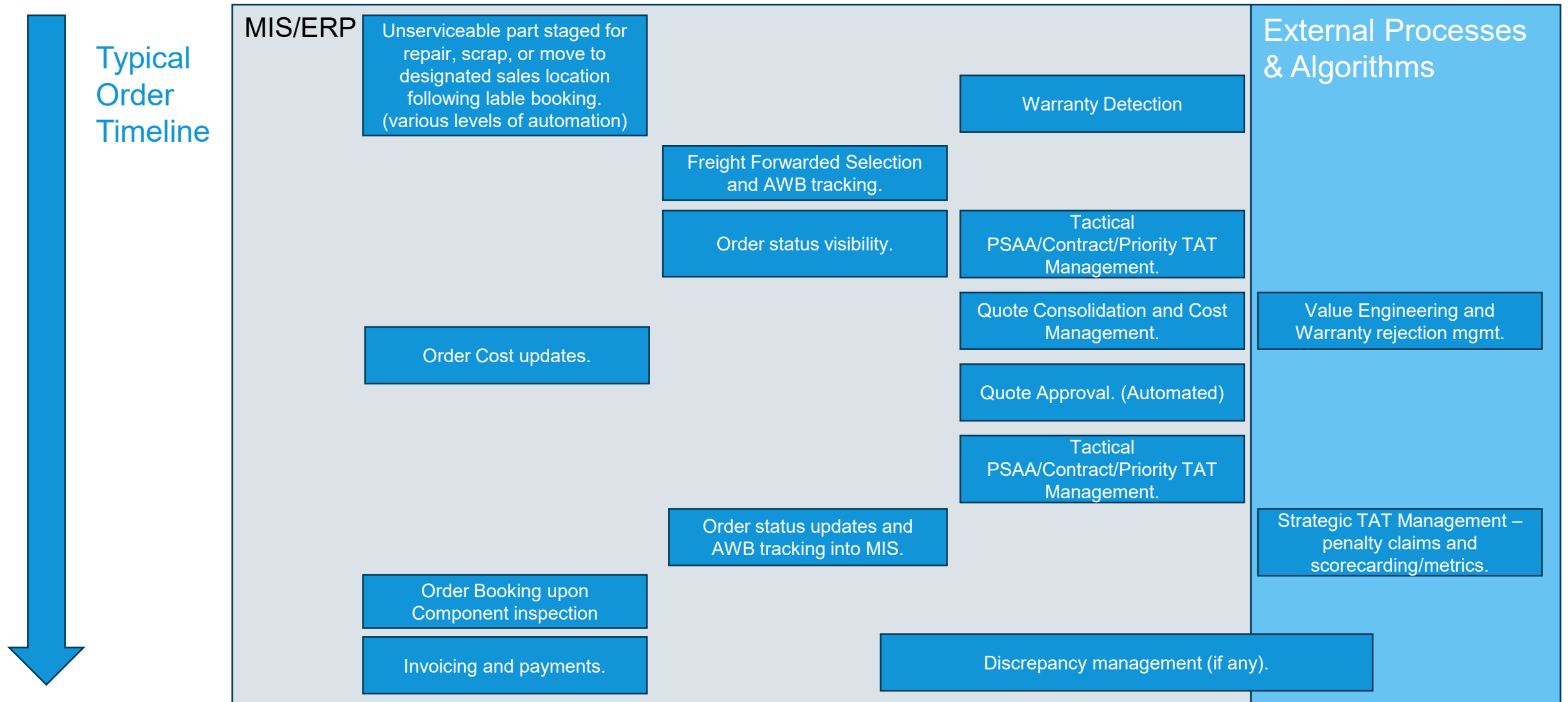
Component repair flow – basic MIS



Component repair flow – advanced MIS

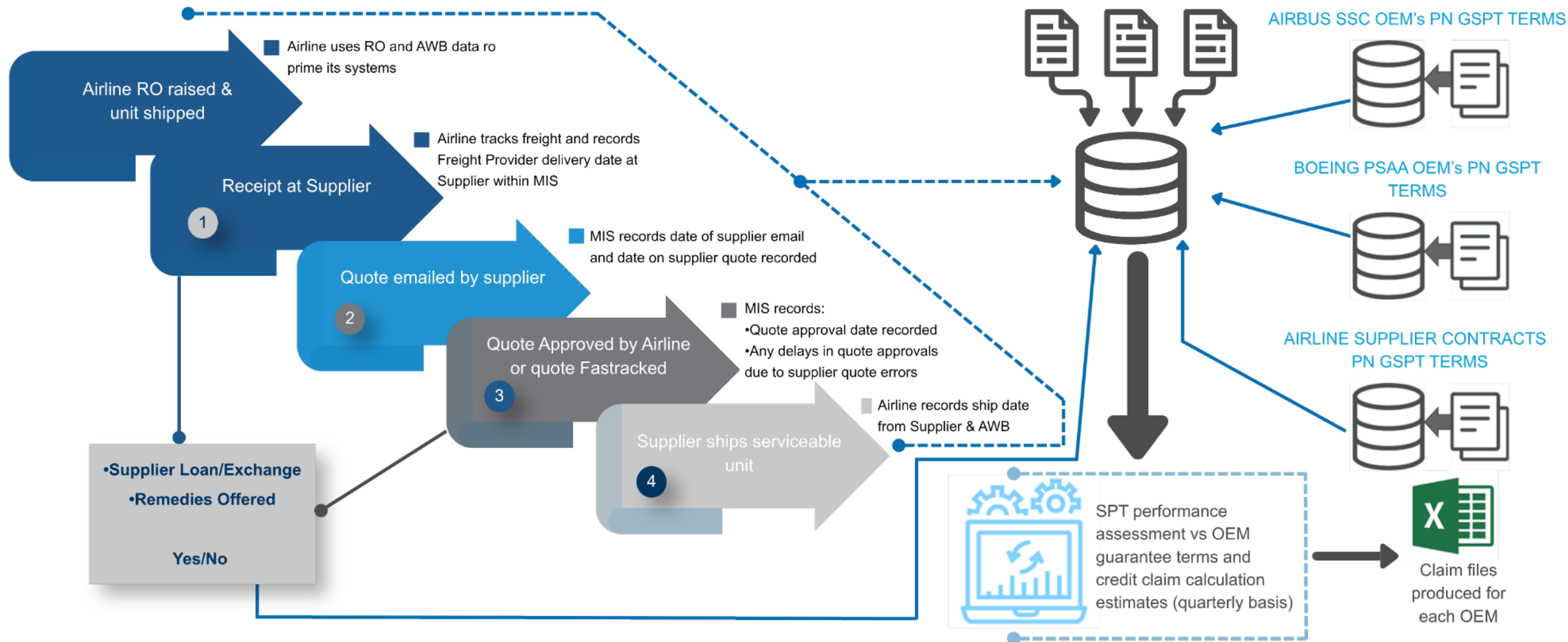


Component repair flow – future state MIS



PSAA/SSC SPT Credit Claims

REPAIR CYCLE – RECORDED MILESTONE DATE STAMPS



Complexity of GSPT Management

SSC & PSAA Standard Terms – applicable to all airlines

✓ ~35,000 part numbers, 260 OEMs and 380 OEM facilities that are applicable to the product support agreements

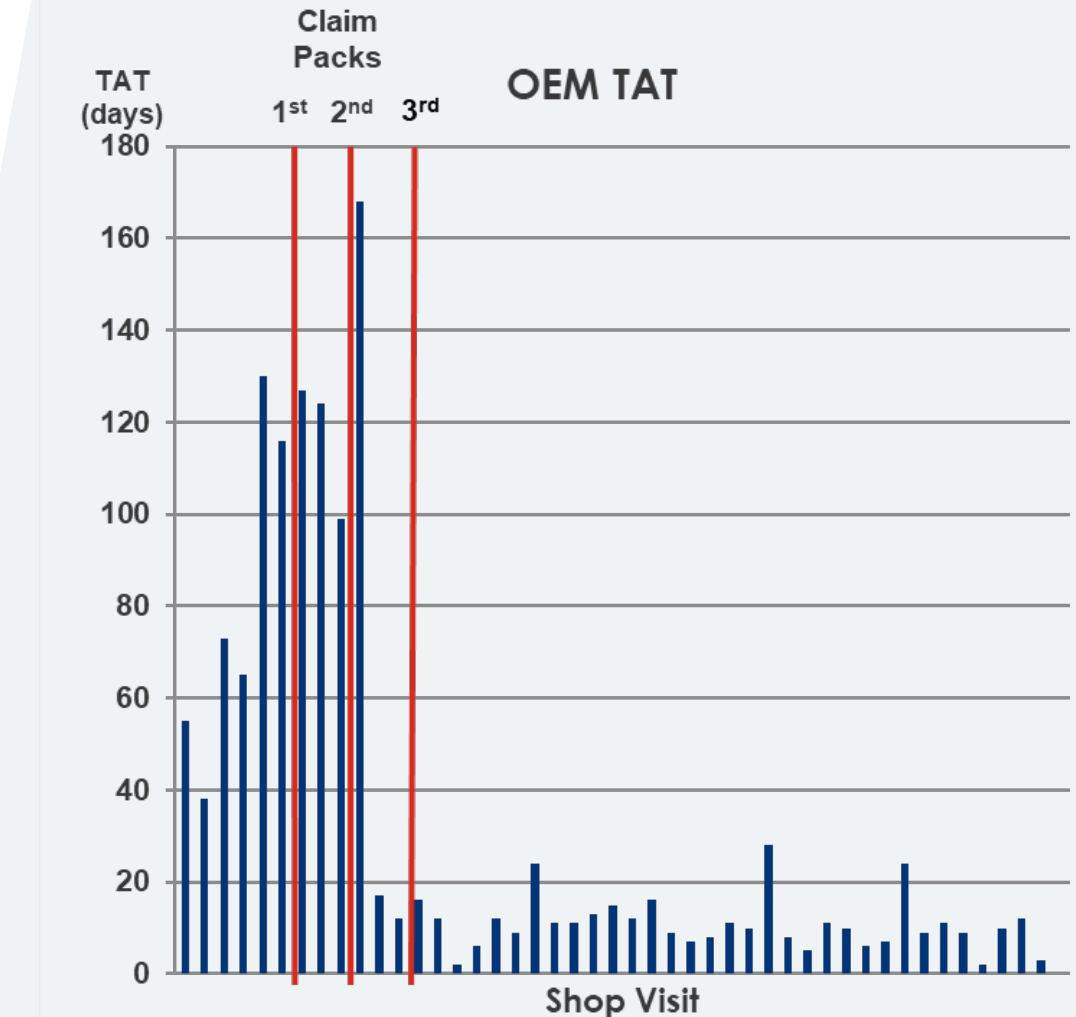
Standard Terms	Airbus SSC	Boeing PSAA Rev E
Signatories	~214 (including SSC V01 & 02 & GCP2000)	~200 (including OOP, Rev B, C, D, E & F)
TAT Guarantee	Standard 10 days avionics, 15 days non-avionics, 3 days NFF	10 days electronic, 15 days all other products Rev D and E (B787, B737 MAX, B777X) 14 days electronic, 28 days all other products Rev B and C (other Aircraft)
TAT Deviations	Yes. Deviations from 10 to 90 days	Yes. Deviations to 35 days
Computation	Supplier receipt to availability to ship to customer minus customer delays.	Supplier receipt, to availability to ship to customer, minus customer delays.
Supplier Requirements	Provide remedy 5 days prior to the end of guarantee.	Communicate expected deficiencies in TAT
Customers Requirements	Communicate choice of remedy within 10 days	Request TAT delinquency action
Remedies	Loan or exchange/ reimbursement of loan charge post event	New delivery date, loan, exchange, reimbursement of lease charges
Penalty	0.5% of the current spare list price or Repair cost per day delayed	0.5% of list/negotiated price or Repair cost per day over guarantee
Supplier Deviations	~50% supplier deviations from standard terms	Yes. Supplier and A/C platform dependent deviations
Penalty Deviations	Yes. Deviations 0.2% to 1% repair cost & 0.1% to 1% list price	Yes. Deviations of 0.1% repair cost , 0.35% list price
Penalty Cap	100% list/repair cost	100% list/negotiated price/repair cost
Penalty Cap Deviations	Yes. Deviations 15% to 100% repair cost & 10% to 100% list price	Yes. Deviations 15% to 100% repair cost & 10% to 100% list price
Claim period	OEM dependent. Yes Deviation 90/180 days, 1 year, 2 years & No Limitation	Claim within 180 days after shipment of product. 90 days Avtech Tyee

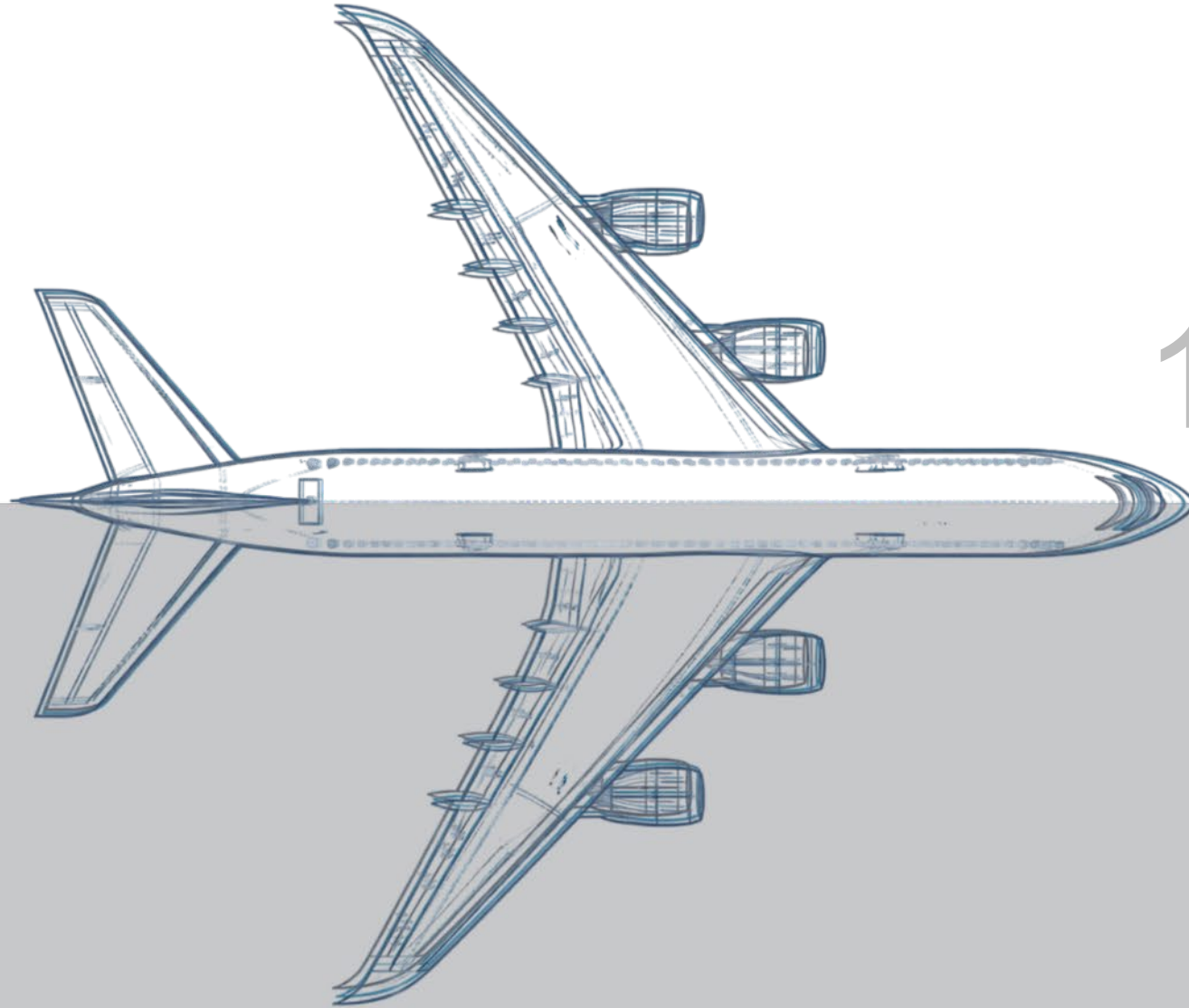
TAT Guarantee enforcement benefits

- ✓ Improved component availability
 - Reduced TAT
 - Free of charge Loan/Exchange/Lease
- ✓ Significant financial credits compared to annual repair spend
 - Credits typically reduce over time as OEM TAT performance improves

Case Study

- ✓ Fuel system components applicable to airframe manufacturer TAT guarantee
- ✓ Total penalties across 3 quarters - **\$0.5M+**
- ✓ Claim packs, supporting clocks and counter arguments provided
- ✓ OEM employed additional staff, changed processes and refocused on airline contracts





1 2 3

Value Engineering
and Warranty

Value Engineering

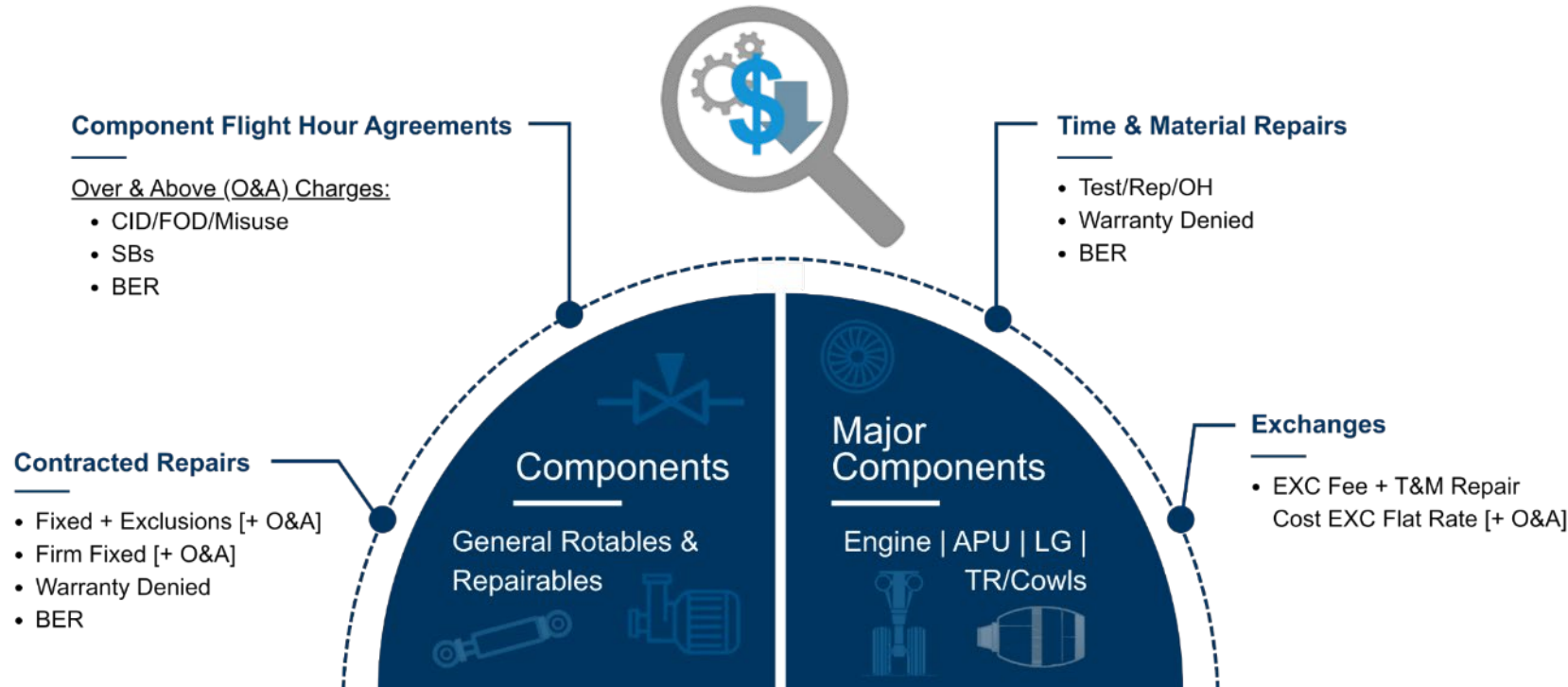
What is it and how can it help reduce maintenance costs?

- ✓ A well-managed MIS contains most of the detail you need for a complex quote review (+ document repository if managed elsewhere)
- ✓ Direct links to USM portals are further simplifying the BER validation
- ✓ A focused approach on component repair spend will typically result in a 2%-10% cost reduction



Review Elements

- ✓ Removal defect
- ✓ Teardown report & images
- ✓ Proposed workscope
- ✓ Contracted pricing variance
- ✓ PN benchmark repair/pricing records incl. high cost PN matrices
- ✓ Rework vs Replacement
- ✓ FOC Service Bulletins (SBs)
- ✓ Non-costed proposed SBs
- ✓ Excessive material usage
- ✓ Excessive labour hours & rates
- ✓ Replacement quantity vs BOM
- ✓ Cost summation
- ✓ High cost material 'CFE' options
- ✓ BER avoidance
- ✓ Purchase vs Repair option
- ✓ MRB requests - high value parts



Quote Review – why is it still difficult?

Investigation Page

Cases | My view ▾

CAS-000985 : AIR-001053 / 1

General [Key Details](#)

Warranty detections [Systems Detect Applicable Warranty](#)

VE detections [Systems Detect Applicable Value Engineering](#)

Part number comments [Key Info Regarding Specific PN](#)

Case detection filter log [System Assists In Closing Cases](#)

Removal data [Removal History Per Customer](#)

Challenges [Log Of Challenges Against Supplier or MRO](#)

Charge classification [PBH, T&M, FP Specific](#)

Case log [Log Of Investigation & All Communications](#)

Notes [Displays Case Log](#)

Damage claim investigation identification

Associations [Stores Quote & Other Details](#)

Administration

Cases | My view ▾

CAS-000985 : AIR-001053 / 1

General

CASE Case category RCM	PROCESS Warranty reason RAI/Non warranty	Workflow queue name	Warranty Advance	Latest quote cost 	Parent item number	Workscope proposed MODIFY
Category type RCM challenge	Status In progress	VE Workflow continued ☐ No	Notes presented a cost of APPLICATION SBA, AT THE FIRST SHOP VISIT:	VE detection ☒ Yes	Outbound item number 	Retrospective review ☐ No
Deferred case ☐ No	Case sub-status Under Airinmar Challenge	Customer name 	Last update 15/01/2026 Challenged	Warranty detection ☒ Yes	Outbound product name BRAKE FAN, ASSY. MOTOR	NFF policy ☐ No
OWNER Department Technical Services	Warranty resolution Reject	Supplier name 	Highest quote cost 	DCI applicable No	Quoted item number 	NFF policy comment
Employee responsible Alan Alfano	Program classification PBH	Value Engineering Advance		Direct supplier ☒ Yes	Workscope requested MODIFY	Exclude from KPI ☐ No

Warranty detections

Warranty detection...	Repair order	Line number	Part number	Serial number	Detection source	Detection type	Created date and time	Warranty status	Exclusion ▾	Exclusion reason
☒ WDLOG-00000338	AIR-001053	1			Serial number	03 - Readiness Log batch	08/01/2026 14:50:52	Valid		

VE detections

VE detection lo...	Repair order	Repair order line	RCM quote Id	Repair quote line	VE Detection rule	Description	Program
☒ VDL-000001264	AIR-001053	1	QUO-001097	1.0000000000	Rule 5a	Contract detected but no contract attached	PROG-000026-001
VDL-000001265	AIR-001053	1	QUO-001097	1.0000000000	Rule 8b	RCO - Create a case (All RCO customers)	PROG-000026-001

Charge classification

[+ Add](#) [Remove](#)

Charge classification	Charge classification descri...
☒ Contract Exclusion - Modification	RCO PBH Quote

Case log

[+ Add](#) [Remove](#) [Details](#)

Case log id	System created date and time	Case log type Id	Description	Source type	Created by	Source ID
14/01/2026 08:54:20	VE Comment	VE Comment			IB	
15/01/2026 12:36:27	Challenge activity created	Challenge activity created	Activity	ADA	ADA	ACT-000836
15/01/2026 12:39:00	Status	In progress			ADA	
15/01/2026 14:07:45	Employee responsible				IB	
15/01/2026 14:19:00	Employee responsible	Alan Alfano			IB	

Notes

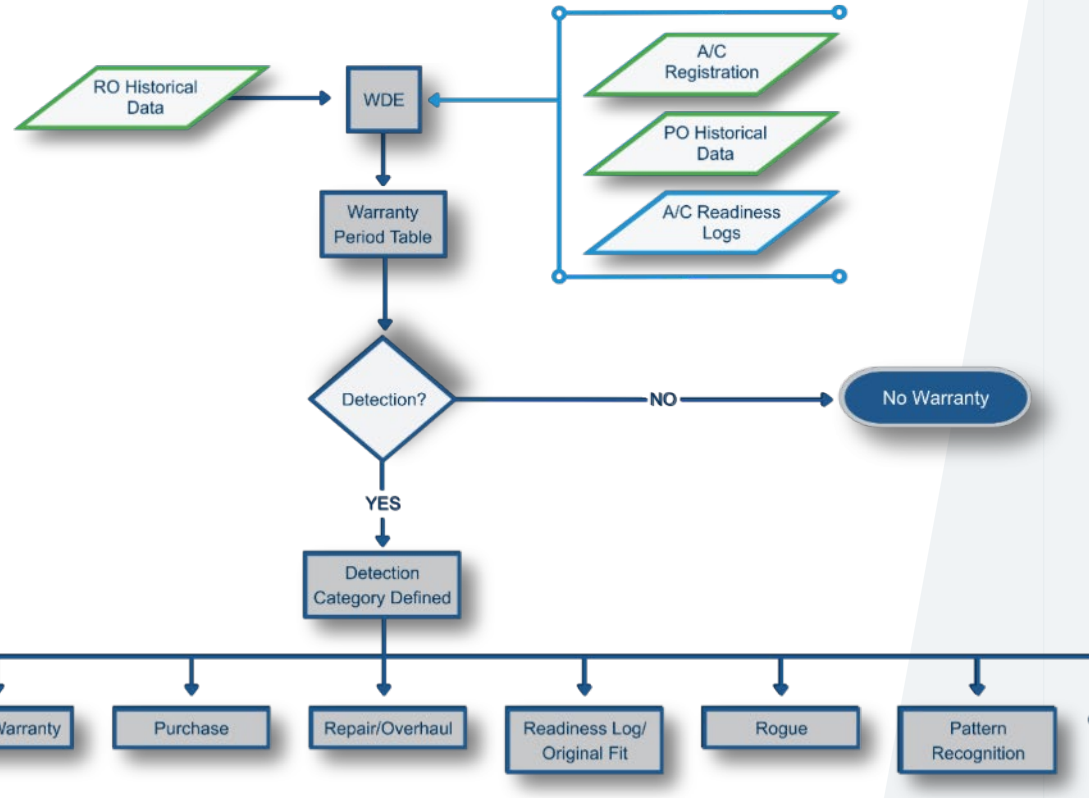
Case log notes

APPLICATION SBA, AT THE FIRST SHOP VISIT: - see doc

Shop Findings:
Reason for removal
ARC: EASA + FAA
ROR: BRAKE TEMP IND 4 READING 150 TO 200 DEGREE CELCIUS

- ✓ Lots of interconnecting pieces of information
- ✓ Supplier data is inconsistent and varies from supplier to supplier
- ✓ Repair quotes are erroneous and not always providing best value
- ✓ Same approach applies to Base Maintenance
- ✓ Expect this area of development to be a strong focus for existing MIS systems

Component Warranty Detection Process



- ✓ Existing MIS capability on Component Warranty Detection – hugely improved
- ✓ More airlines are using the ERP's warranty module to track and manage claims
- ✓ More airlines are partnering with base maintenance providers to input consumption data into the system directly
- ✓ The success of recovery still relies on:
 - ✓ Good data inputs
 - ✓ Good knowledge of PSAA/SSC/General Warranty Terms
 - ✓ Claims themselves still largely done outside of the MIS
 - ✓ Integration with OEM portals still not quite there

Results of good MIS use for PSAA/SSC/Warranty

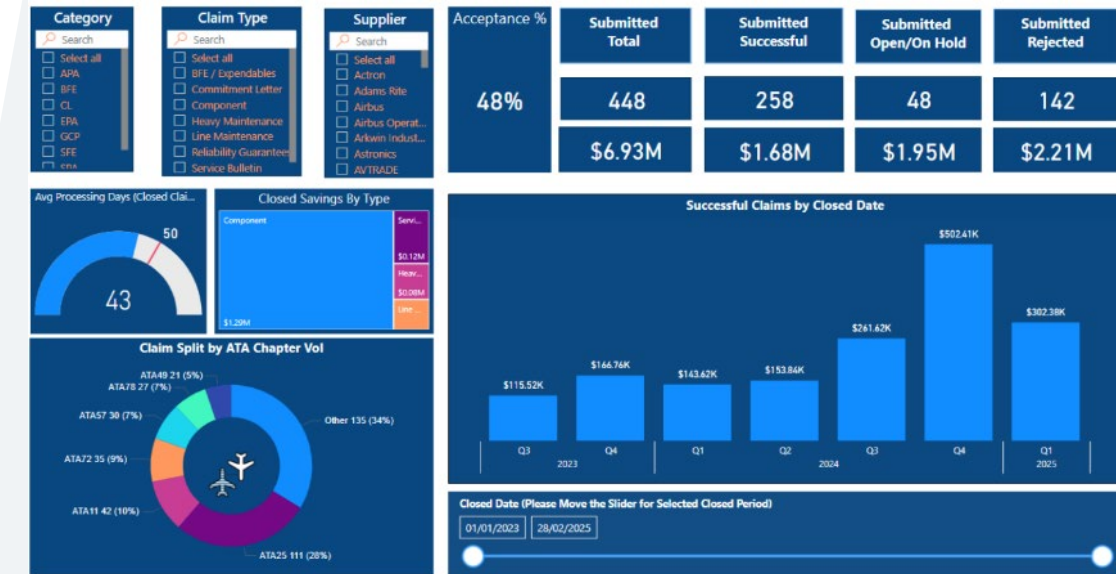
Effectivity of warranty recovery has been steadily going up

- ✓ A well-trained team of 2-3 warranty engineers can now perform a job of a team of 5-8 people (10 years ago),
- ✓ for an airline with a unified fleet and under 30 new aircraft in NAW

Status

Warranty Savings by Agreement Category

Credit Month-Year	Open / Closed	Airbus Supplier Support Conditions (SSC)	Aircraft Purchase Agreement	BFE Agreements	Commitment Letters	Engine Purchase Agreement	Supplier Purchase Agreements	Sub-Total
Aug-23	Closed	\$0.00	\$1,068.00	\$0.00	\$36,867.00	\$0.00	\$35,000.00	\$72,935.00
Sep-23	Closed	\$0.00	\$42,587.65	\$0.00	\$0.00	\$0.00	\$0.00	\$42,587.65
Oct-23	Closed	\$0.00	\$1,978.30	\$0.00	\$0.00	\$0.00	\$0.00	\$1,978.30
Nov-23	Closed	\$0.00	\$144,848.09	\$0.00	\$0.00	\$10,564.00	\$0.00	\$155,412.09
Dec-23	Closed	\$0.00	\$12,339.86	\$0.00	\$0.00	\$0.00	\$0.00	\$12,339.86
Jan-24	Closed	\$1,861.00	\$18,969.85	\$0.00	\$0.00	\$0.00	\$0.00	\$20,830.85
Feb-24	Closed	\$1,477.44	\$10,618.36	\$0.00	\$0.00	\$0.00	\$0.00	\$12,095.80
Mar-24	Closed	\$1,118.34	\$106,993.25	\$0.00	\$0.00	\$0.00	\$0.00	\$108,111.59
Apr-24	Closed	\$0.00	\$54,806.27	\$0.00	\$0.00	\$9,932.77	\$0.00	\$64,739.04
May-24	Closed	\$0.00	\$27,861.93	\$0.00	\$0.00	\$5,825.52	\$0.00	\$33,687.45
Jun-24	Closed	\$1,538.10	\$53,463.47	\$0.00	\$0.00	\$0.00	\$0.00	\$55,001.57
Jul-24	Closed	\$1,543.44	\$31,274.33	\$0.00	\$0.00	\$0.00	\$0.00	\$32,817.77
Aug-24	Closed	\$28,107.00	\$18,909.47	\$0.00	\$0.00	\$0.00	\$0.00	\$47,016.47
Sep-24	Closed	\$0.00	\$167,198.76	\$0.00	\$0.00	\$14,587.00	\$0.00	\$181,785.76
Oct-24	Closed	\$32,208.22	\$42,221.33	\$8,971.00	\$0.00	\$7,829.21	\$0.00	\$91,229.76
Nov-24	On-Hold	\$0.00	\$0.00	\$0.00	\$0.00	\$609.00	\$0.00	\$609.00
Nov-24	Closed	\$3,408.03	\$163,545.91	\$0.00	\$0.00	\$115,938.00	\$0.00	\$282,891.94
Open	Open	\$5,832.00	\$4,698.00	\$3,929.26	\$2,851.31	\$0.00	\$0.00	\$17,310.57
Total		\$77,113.57	\$903,382.83	\$12,900.26	\$39,718.31	\$165,285.50	\$35,000.00	\$1,233,400.47



- ✓ Covering all applicable warranty categories
- ✓ Under all types of product support agreements

Summary

Past, Present and future of MIS use cases

Generally a very positive story for the MIS systems evolution:

- ✓ Started off with coverage of only basic, key milestones and data records.
- ✓ Tactical process flow status and steps management added, providing a larger end-to-end visibility and enabling supply chain control.
- ✓ Future is bright! Supply chain automation continues to improve and develop at a rapid pace, allowing to focus on actual value add tasks – Strategic Sourcing, Contract Negotiations and Reliability Engineering tasks.

Some limitations for the foreseeable future:

- ✓ Full automation far off - our industry is still being founded on accountability, responsibility and safety so investment in people is as key as it is in the systems
- ✓ Lack of consolidation in approach and data formats and integrations will be around for a while. Garbage data in = garbage data out.
- ✓ Even once the process is managed at 99% efficiency, hard-line negotiations with OEMs will still need to take place and collective efforts will be required to not fall behind



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Maintenance Information Systems Use Cases and Developments to Improve Component Availability

Greg Zuikovs,
Interim General Manager, Airinmar
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Next session starts at 16:00

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