

# AESQ Supplier Forum – AS13100 Deployment 21 October 2022 | Massy, France



# Welcome & Introductions



90+ Individuals Registered from 15 Countries



# AESQ Supplier Forums



Typically held twice a year, rotating around North America, Europe and Asia

AESQ Supplier Forums provide an opportunity to;

- Provide updates on the work of the AESQ
- Share best practice
- Provide feedback to the AESQ
- Develop a network of practitioners and Subject Matter Experts



# 2022 AESQ Supplier Forums: Focus on AS13100 Deployment




## Introducing AS13100: AESQ Quality Management Requirements

**THE NEW STANDARD CREATING A COMMON LANGUAGE FOR QUALITY THROUGHOUT THE AEROSPACE ENGINE SUPPLY CHAIN**

### SAE AS13100 AESQ QUALITY MANAGEMENT SYSTEM REQUIREMENTS FOR AERO ENGINE DESIGN AND PRODUCTION ORGANIZATIONS

This standard sets out to create a common set of supplemental requirements with common training and reference manuals to improve understanding, efficiency, and performance. While significantly simplifying the businesses of suppliers with multiple customers, the primary intent of this new standard is to improve overall product quality by focusing on the key systems and processes currently deterring consistent aerospace engine product quality.

These common supplemental requirements aim to raise the bar for anticipated performance in these key areas, and therefore detailed guidance is provided to ensure clarity of expectations.

To assure customer satisfaction, the aviation, space, and defense industry organizations have to produce and continually improve safe, reliable products that equal or exceed customer and regulatory authority requirements. The globalization of the industry and the resulting diversity of regional/national requirements and expectations have complicated this objective. End-product organizations face the challenge of assuring the quality of and integration of product purchased from suppliers throughout the world and at all levels within the supply chain. Industry suppliers face the challenge of delivering product to multiple customers having varying quality expectations and requirements.

**Learn more:**  
[www.sae.org/standards/content/AS13100/](http://www.sae.org/standards/content/AS13100/)



Learn about how SAE AS13100 AESQ Quality Management System Requirements for Aero Engine Design and Production Organizations minimizes requirements and improves overall product quality by focusing on the key quality systems and processes! Through an executive overview and a self-paced course, your organization can gain key knowledge about a common quality language, how to gain compliance to AS13100 and the business value and benefit of the standard. Walk-through each section of the standard and understand the new requirements.

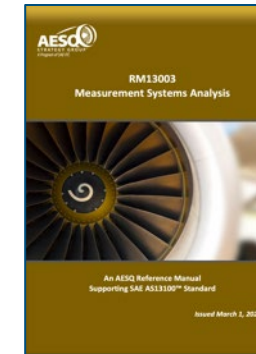
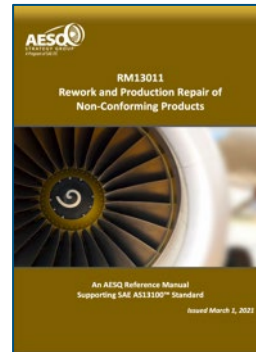
**For more information, please visit:**  
[discover.sae.org/AS13100](http://discover.sae.org/AS13100)



### TESTIMONIAL

*"Although created by the Aero Engine Supplier Quality Group in conjunction with the SAE G-22 Aero Engine Supplier Quality Standards Committee, this standard and supporting materials will benefit any organisation, in any industry."*

**Dr. Ian Riggs**  
Global Quality Executive  
Rolls-Royce & AESQ Chair



## AESQ – Aerospace Engine Supplier Quality Strategy Group

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# Agenda

Topic	Presenter
Welcome & Introductions	<b>Barbara Negroe</b> , Executive Sourcing Quality Leader, GE Aviation
Safran Welcome Address	<b>Benedicte Bonnet</b> , Vice President, Quality Improvement and Digital Transformation, Safran Aircraft Engines
AESQ Overview, Vision & Objectives	<b>Lisa Claveloux</b> , Sr. Director Group Quality, Pratt & Whitney
AS13100 Standard Overview	<b>Earl Capozzi</b> , Associate Director, Discipline Chief, Quality & Process Engineering/Supplier Quality, Pratt & Whitney
Deployment & Transition to AS13100	<b>Catherine Catarina-Graca</b> , Supplier Management System Coordinator, Safran Aircraft Engines
<b>Deployment Milestones</b> <ul style="list-style-type: none"><li>• Introduction &amp; Milestones</li><li>• Deployment Survey Results</li><li>• APQP Deployment</li><li>• Implementation Status Reporting in 2023</li></ul>	<b>Helen Djaknegren</b> , Director Supplier Quality & Development, GKN Aerospace <b>Karl Evans</b> , APQP Technical Project Manager, Rolls-Royce
<b>BREAK – 20 Minutes</b>	



# Agenda

Topic	Presenter
<b>AS13100 Implementation Plans + RM13009 Gap Analysis Case Studies</b>	<b>Soraya Barj</b> , Quality & Airworthiness Manager, Parker Meggitt <b>Thomas Duelberg</b> , Business Unit Quality System Manager, Leistritz Turbinentechnik GmbH <b>Turgut Çicek</b> , Quality & Manufacturing Engineering Director, Tusas Engine Industries (TEI)
<b>Training Overview</b>	<b>Earl Capozzi</b> , Associate Director, Discipline Chief, Quality & Process Engineering/Supplier Quality, Pratt & Whitney
<b>GROUP PHOTO &amp; LUNCH – 75 MINUTES</b>	
<b>OEM Requirements Session</b>	<b>Ian Riggs</b> , Quality & HSE Executive, Customer, Assembly & Test, Rolls-Royce <b>Gokhan Kulali</b> , Supplier Quality Engineer, GE Aviation <b>Denis Pottier</b> , Head of the Purchasing Quality Assurance Department, Safran Aircraft Engines <b>Catherine Catarina-Graca</b> , Supplier Management System Coordinator, Safran Aircraft Engines <b>Earl Capozzi</b> , Associate Director, Discipline Chief, Quality & Process Engineering/Supplier Quality, Pratt & Whitney



# Agenda

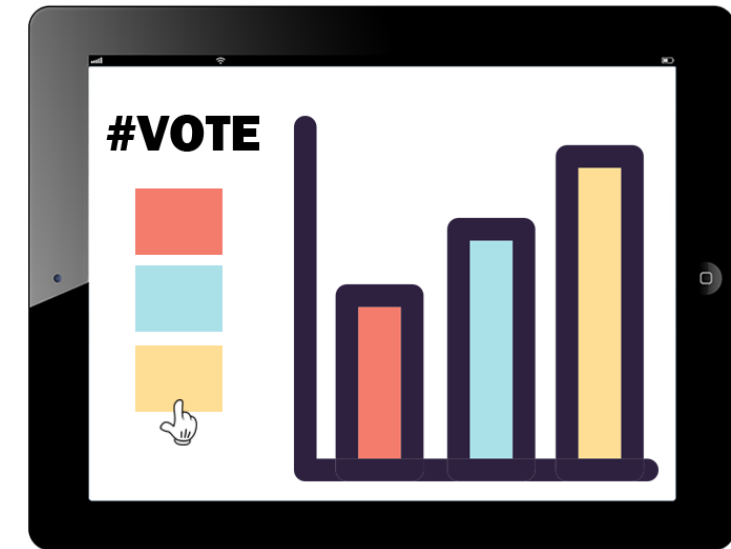
Topic	Presenter
AS13100 FAQ Panel	<b>MODERATOR:</b> <b>Barrie Hicklin</b> , Sr. Director, Quality Systems & Regulatory Compliance, Honeywell Aerospace <b>PANELISTS:</b> <b>Ian Riggs</b> , Quality & HSE Executive, Customer, Assembly & Test, Rolls-Royce <b>Catherine Catarina-Graca</b> , Supplier Management System Coordinator, Safran Aircraft Engines <b>Earl Capozzi</b> , Associate Director, Discipline Chief, Quality & Process Engineering/Supplier Quality, Pratt & Whitney <b>Karl Evans</b> , APQP Technical Project Manager, Rolls-Royce
<b>BREAK – 20 Minutes</b>	
Zero Defects Journey	<b>Barrie Hicklin</b> , Sr. Director, Quality Systems & Regulatory Compliance, Honeywell
AESQ How to Get Involved	<b>Markus Braig</b> , Director Quality Supply Chain and MRO, MTU Aero Engines
Summary & Close	<b>Barbara Negroe</b> , Executive Sourcing Quality Leader, GE Aviation



# How to Contribute – Live Poll Questions

## How to answer live poll questions:

1. Scan the QR Code on your table
2. Enter the Passcode
3. Answer the Question
4. Add any questions during the day in the Slido App  
("Like" a question)





slido



**What city do you live in?**

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# SAFRAN AIRCRAFT ENGINES WELCOME



**BÉNÉDICTE BONNET**

VP QUALITY IMPROVEMENT INITIATIVES AND DIGITAL TRANSFORMATION  
SAFRAN AIRCRAFT ENGINES





# SAFRAN AIRCRAFT ENGINES AT A GLANCE



€6.6<sup>bn</sup>

REVENUES IN 2021



15,000 PEOPLE

INCL. OVER 11,000  
IN FRANCE

at Dec. 31, 2021

Over 30 sites

INCL. 14 IN FRANCE

A global footprint



Support & services  
FOR A GLOBAL FLEET OF

over 20,000  
ENGINES



75%

OF SAFRAN'S  
R&T BUDGET AIMS TO  
REDUCE THE IMPACT  
OF AIR TRANSPORT  
ON THE  
ENVIRONMENT\*



COMMERCIAL  
ENGINES



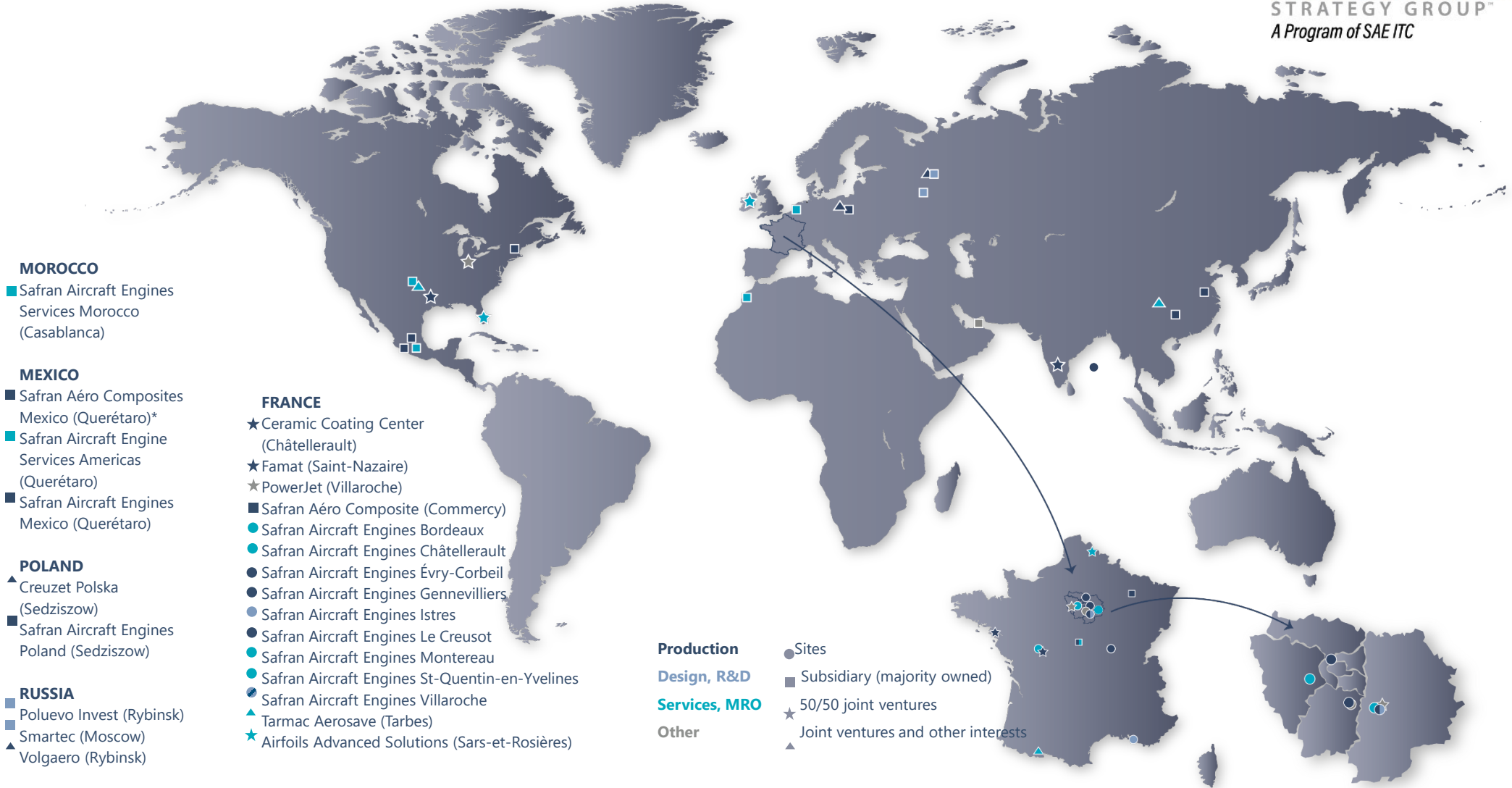
MILITARY  
ENGINES





# SAFRAN AIRCRAFT ENGINES WORLDWIDE

- BELGIUM**
  - Safran Aircraft Engines Brussels Services
- CHINA**
  - ▲ Sichuan Aero Services Engine Maintenance Company
  - Safran Aircraft Engines Suzhou
  - Safran Aircraft Engines Guiyang
- UNITED ARAB EMIRATES**
  - Safran Aircraft Engines Middle East
- UNITED STATES**
  - ★ CFAN (San Marcos - TX)
  - ★ CFM International Inc. (Cincinnati - Ohio)
  - ▲ CFM Materials (Grand Prairie - TX)
  - ★ Propulsion Technologies International (Miramar, FL)
  - Safran Aerospace Composites (Rochester, NH)
- INDIA**
  - Safran Aircraft Engines HAL Aerospace pvt ltd (Bangalore)
  - Hyderabad
- IRELAND**
  - ★ Shannon Engine Support



\* Trade name



# INDUSTRIAL CHALLENGE: TRIPLE RAMP-UP

## COMMERCIAL

PRODUCTION RATE OF  
**2,000**  
LEAP ENGINES  
DELIVERED BY END 2023

## MILITARY

**DOUBLING**  
OF M88 PRODUCTION RATE  
TO SUPPORT  
EXPORT  
DELIVERIES

## SERVICES

CFM56 SHOP VISITS  
TO PEAK IN 2025–26:  
**2,500**  
SHOP VISITS/YEAR  
GROWTH IN LEAP SHOP VISITS  
FROM 2025



## CSR COMMITMENTS

Corporate social responsibility (CSR) is at the heart of our development strategy. Our goals :

BE AN EXEMPLARY EMPLOYER

EMBODY RESPONSIBLE INDUSTRY

AFFIRM YOUR CITIZEN COMMITMENT

DECARBONIZE AERONAUTICS



# AESQ Supplier Forum Oct 2021: AS13100 Deployment






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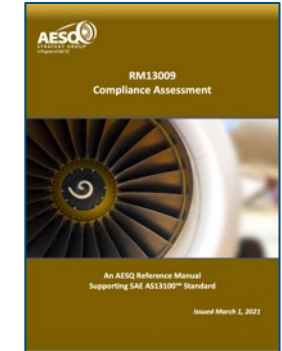
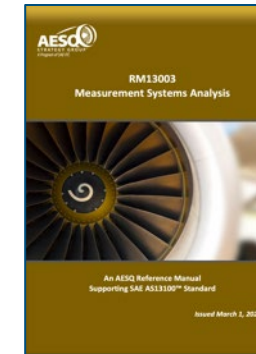
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## AESQ – Aerospace Engine Supplier Quality Strategy Group

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# AERO ENGINE SUPPLIER QUALITY GROUP (AESQ) OVERVIEW



**LISA CLAVELOUX**  
SR. DIRECTOR, QUALITY  
RAYTHEON TECHNOLOGIES  
PRATT & WHITNEY DIVISION



# Aero Engine Industry- The world ten years ago

- Customers expect Zero Defects
- Airline passengers projected to double in size over the next 20 years
- Increasing level of supplier-made engine content
- Global Supplier Footprint
- Large number of common suppliers between engine manufacturers
- Wide range of Aerospace engine supplier businesses, from <\$1M to >\$2B
- Improving Safety, Quality, Delivery and Cost remained a key challenge

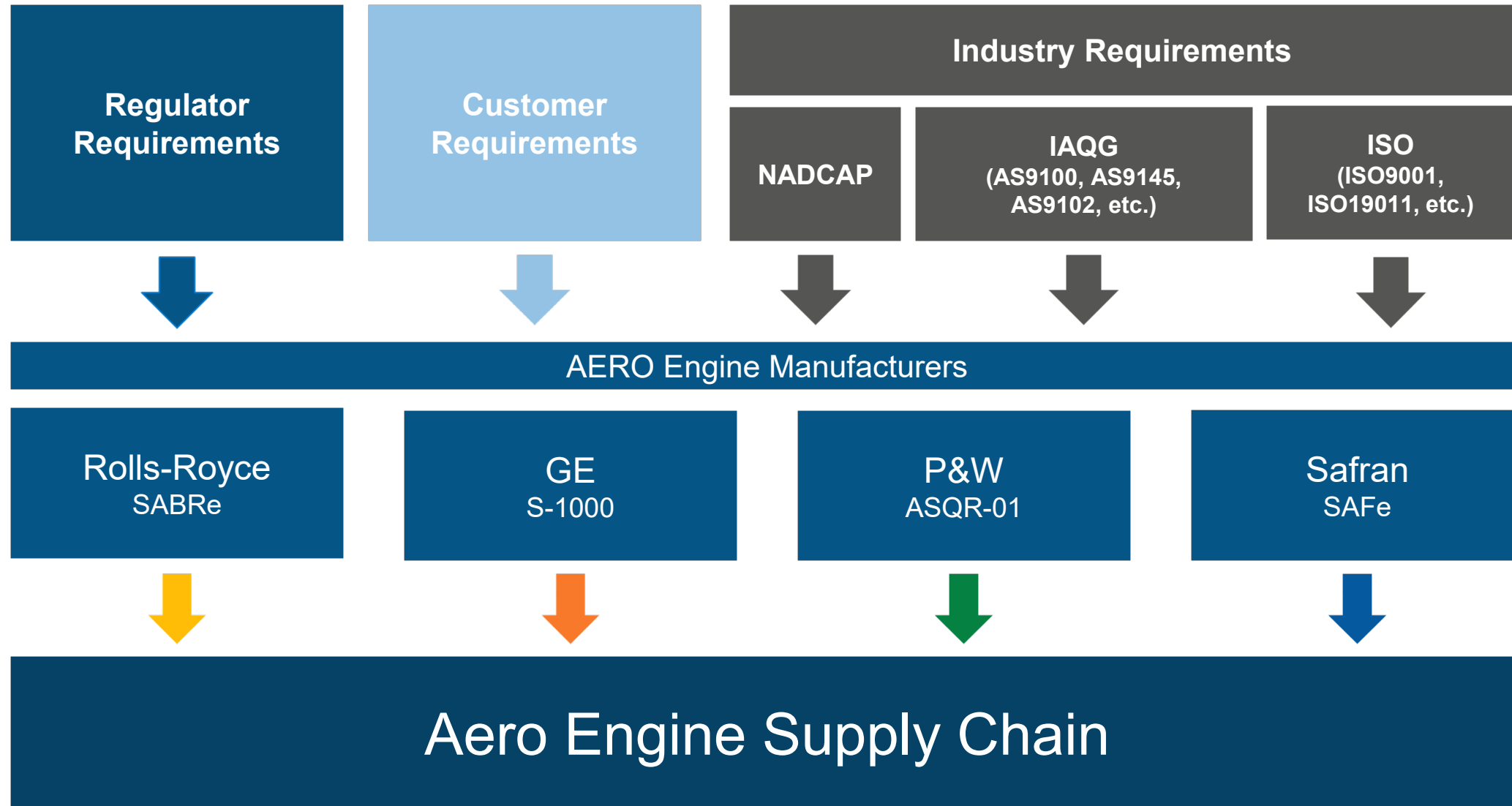
***Aero Engine Manufacturers created a Collaboration working group in 2013 to address the challenges with key Global Suppliers***

***Used the Automotive example of QS-9000 with Ford, GM and Chrysler as the model***



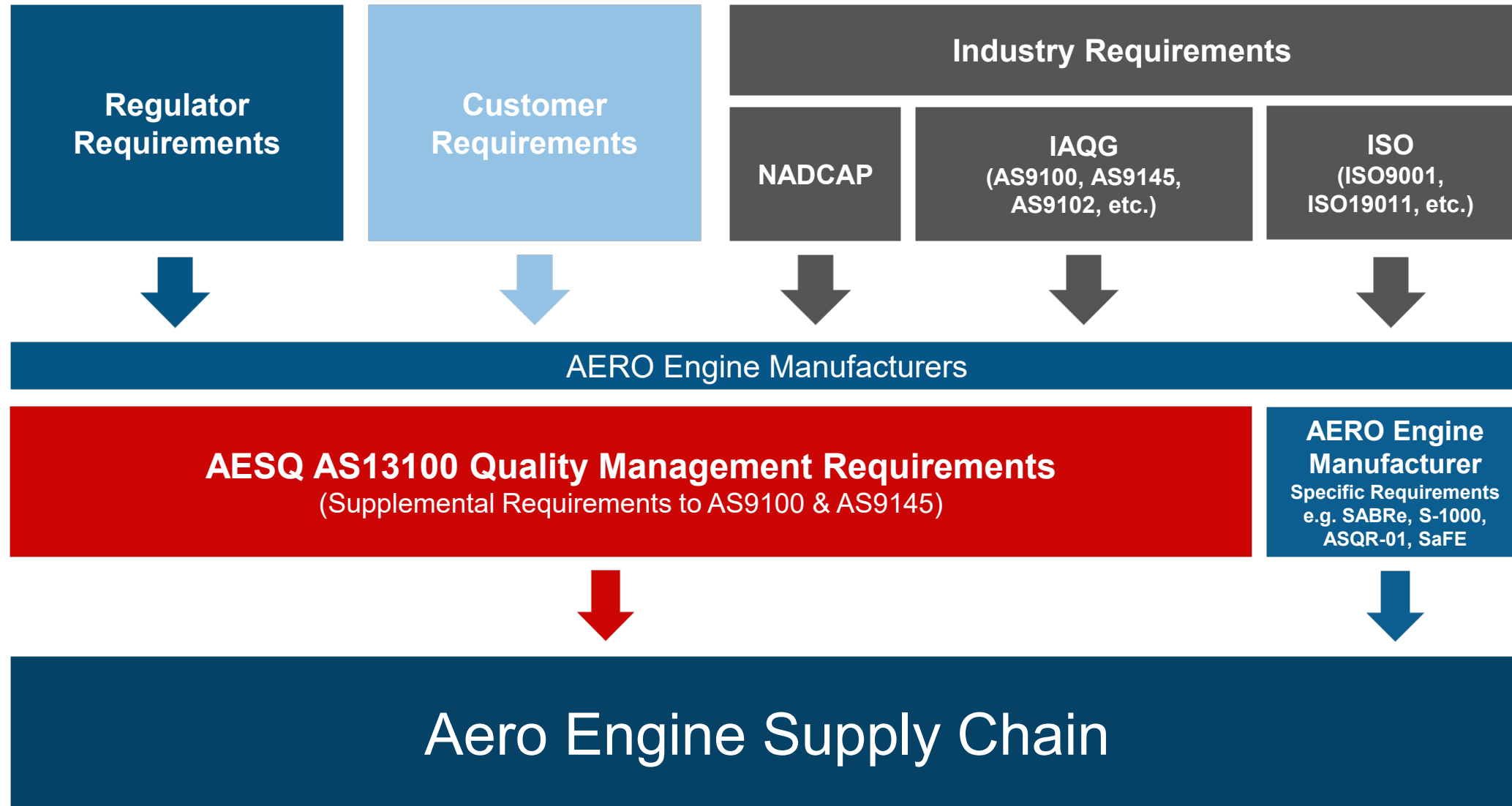


# Aero Industry Requirements Flowdown in 2012





# Aero Industry Requirements Current State





***Striving  
for Zero  
Defects***

## Vision

To establish and maintain a common set of  
Quality Requirements that enable the  
**Global Aero Engine Supply Chain**  
to be truly competitive through lean, capable  
processes  
and a culture of Continuous Improvement



# Guiding Principles



- Simplify and Standardize Aero Engine supplier requirements through the removal of duplication and waste
- Create a common language for Quality
- Build on existing industry standards, where they exist
- Create Requirements that are simple, prescriptive, and auditable
- Deliver results quickly
- Promote the use of standardized 3rd party training
- Focus on effective & supportive deployment



# AESQ Strategy Group Company Members



## AESQ Members

Cincinnati Thermal Spray  
Consolidated Precision Products  
Parker Meggitt  
Solar Atmospheres

**AESQ – Aerospace Engine Supplier Quality Strategy Group**

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# AESQ Strategy Group Members



Barbara Negroe  
Executive Sourcing Quality Leader  
**GE Aviation**



Lisa Claveloux  
Sr. Director Quality  
**Raytheon Technology Corp.**



Helen Djäkneqren  
Director Supplier Quality  
& Development  
**GKN Aerospace**



Uzam Khan  
Supplier Quality Executive  
**Rolls-Royce**



Denis Pottier  
Head of Purchasing Quality  
Assurance Department  
**Safran Aircraft Engines**



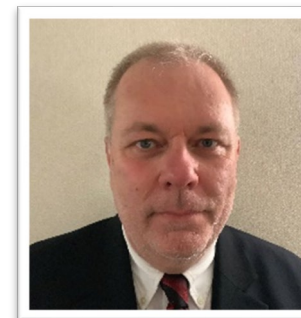
Jun Sakai  
Chief Engineer  
**IHI Corporation**



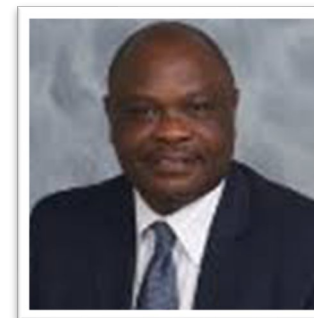
Barrie Hicklin  
Sr. Director, Quality Systems  
& Regulatory Compliance  
**Honeywell**



Thomas Frank  
Senior VP Corporate Quality  
**MTU Aero Engines**



James Clifton  
Global Quality Director  
**Precision Castparts Corp.**



Osa Omoruyi  
VP Quality  
**Howmet Engine Systems**

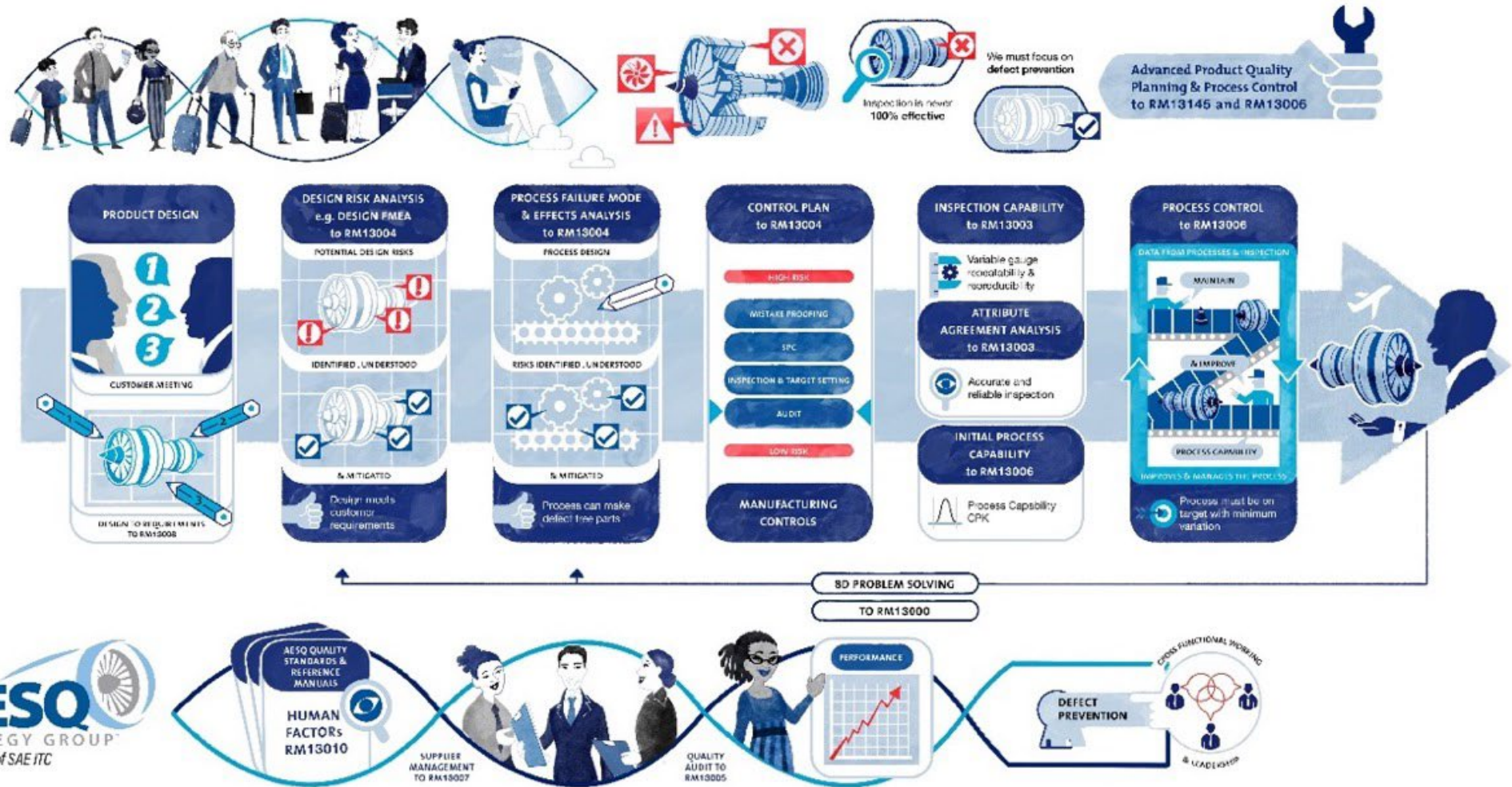
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## AESQ – Aerospace Engine Supplier Quality Strategy Group

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## Defect Prevention Key Quality Tools for Zero Defects



## Defect Prevention Tools Must Work as a System

AESQ – Aerospace Engine Supplier Quality Strategy Group

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# AS13100 OVERVIEW STRUCTURE & KEY HIGHLIGHTS

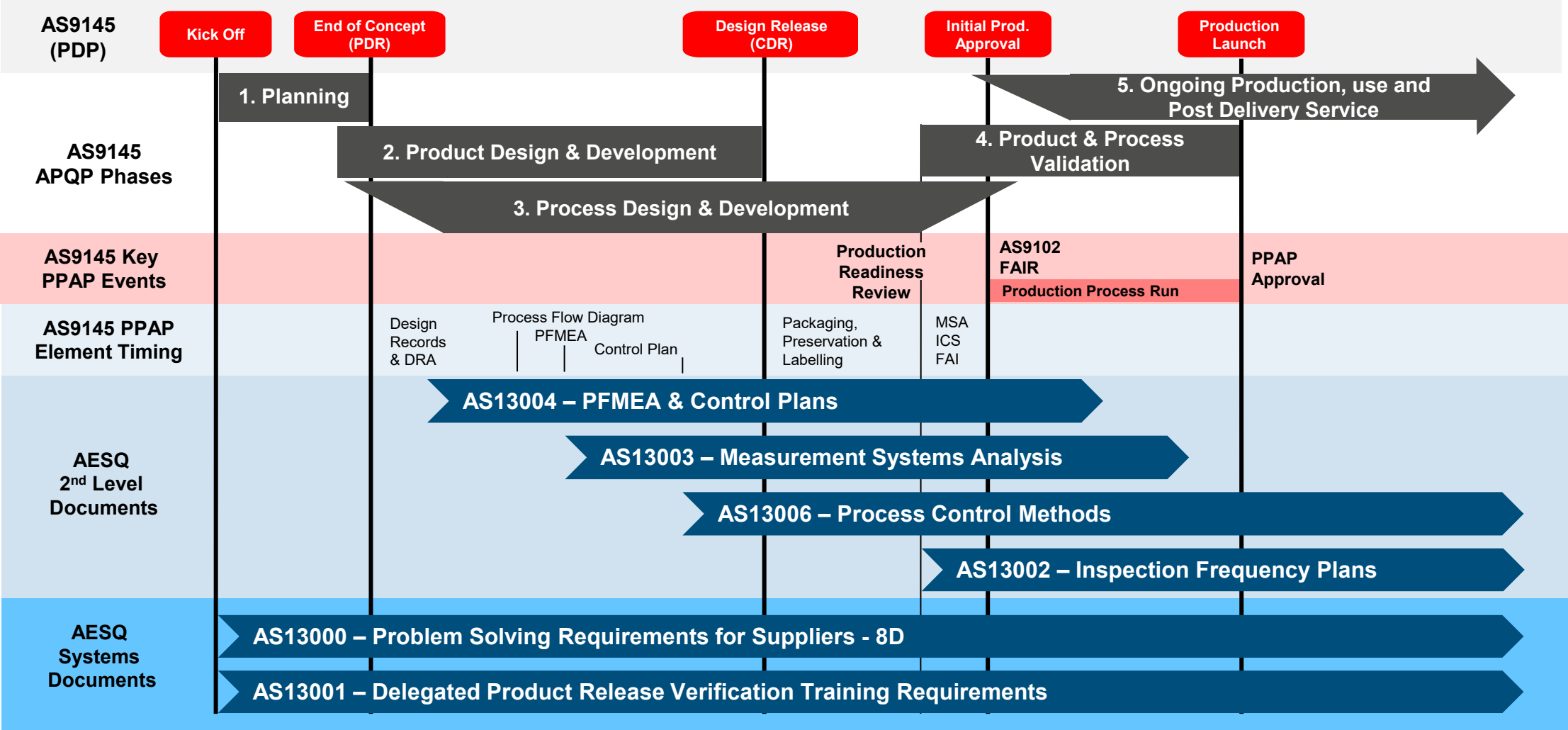


**EARL CAPOZZI**

ASSOCIATE DIRECTOR, DISCIPLINE CHIEF  
QUALITY & PROCESS ENGINEERING/SUPPLIER QUALITY  
PRATT & WHITNEY



# Product Life Cycle & Current AESQ Document Interaction





# AS13100 Creation Process



Starting Point  
September 2018



OEM Unique Requirements

Existing Engine Maker  
Supplier Requirements

Harmonized Requirements

Requirements

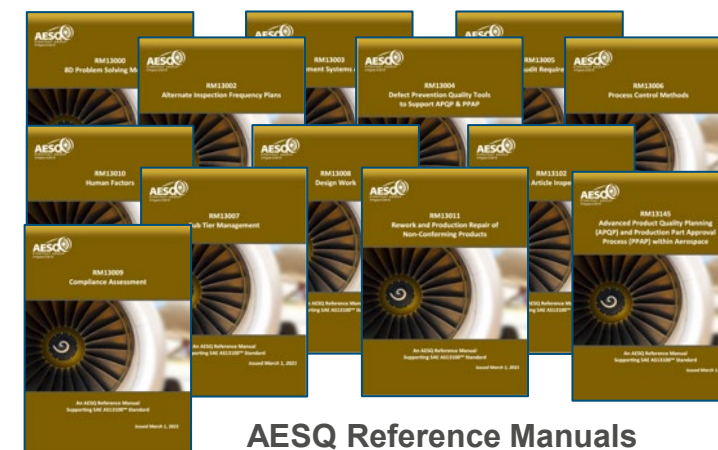
Existing & WIP  
AESQ Standards

Supporting Guidance & Best Practice Material



Future Engine Maker  
Supplier Requirements

Overall Number of Requirements  
reduced by >50%



AESQ Reference Manuals

**AESQ – Aerospace Engine Supplier Quality Strategy Group**

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# AS13100 Structure



AS13100 Requirements	Chapter A AS9100 Rev D Supplemental Requirements										Chapter B APQP & PPAP AS9145 Supplemental Requirements						Chapter C Defect Prevention Quality Tools to Support APQP & PPAP							
Clause Number	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	DFMEA	Product KCs	Process Flow Diag.	PFMEA	Process KCs	Control Plan	MSA	Process Capability

### Example Extract

9.3	Management Review
9.3.1	General Reference 9100D:09/2016 requirements.
9.3.2	Reference 9100D:09/2016 requirements.
9.3.2.1	<b>Management Review Inputs - Supplemental Requirements</b>
Management Reviews shall be conducted at least annually and consider the following performance topics:	
<ul style="list-style-type: none"><li>• <b>Cost of Poor Quality (COPQ).</b></li><li>• <b>Manufacturing / Assembly Right First Time / First Pass Yield.</b></li><li>• <b>Customer scorecards (where available).</b></li><li>• <b>Human Factors reporting.</b></li></ul>	



# AS13100 Customer Specific Requirements



Designed to Include Customer Specific requirements that could not be harmonized within AS13100.

These documents shall:

- Require Compliance to AS13100
- Signpost to Customer Specific Documents (where required)
- Definition of customer specific acceptance thresholds called out in AS13100 e.g., Cpk, GR&R scope, etc.
- Additional Customer Specific requirements not defined within AS13100
- Defines company specific key roles and accountabilities for approvals
- Includes specific IT interface requirements



# AS13100 Requirement Highlights

AS13100 PARAGRAPH REFERENCE	ORGANIZATION TYPE					
	TYPE 1: MAKE TO PRINT	TYPE 2A: DESIGN AND MANUFACTURE	TYPE 2B: DESIGN ONLY	TYPE 3: DISTRIBUTOR	TYPE 4: SPECIAL PROCESS	TYPE 5: RAW MATERIAL
4.3.1	X	X	X	X	X	X
4.3.2	X	X	X			
4.3.3	X	X	X	X	X	X
4.3.4	X	X	X	X	X	X
4.3.5	X	X	X	X	X	X
4.4.3	X	X	X	X	X	X
5.1.1.1	X	X	X	X	X	X
5.2.1.1	X	X	X	X	X	X
5.3.1	X	X	X	X	X	X
6.1.3	X	X	X	X	X	X
7.1.3.1	X	X	X	X	X	X
7.1.5.1.1	X	X			X	
7.1.5.1.2	X	X			X	
7.1.5.1.3	X	X			X	

**Table 1** provides a guide to the applicability of AS13100 Sections to Organization scope.

## Organization Types

1. Type 1: Make to Print
2. Type 2A: Design and Manufacture
3. Type 2B: Design Only
4. Type 3: Distributor
5. Type 4: Special Process
6. Type 5: Raw Material





**Which organization type best describes your organization?**

① Start presenting to display the poll results on this slide.



# AS13100 Benefits

- 1. Single AESQ Standard aligned to AS9100 / ISO9001**
  - Less Requirements for the Supplier (>50% less)
  - Lower cost (suppliers do not need to buy multiple standards)
- 2. Supported by Free Issue Reference Manual Guides**
- 3. Will minimise the content of OEM Supplier Requirement Standards (SABRe, S-1000, ASQR-01 and SAFe)**
- 4. Creates a common language for Quality, OEMs have adopted standard approaches within their own operations.**
- 5. Aligns to relevant existing industry standards (ISO, AS9xxx, Nadcap, etc)**
- 6. Supported by global approved training resources**
- 7. Enables the AESQ OEMs to provide a harmonised approach to Supplier Development**
- 8. Supplier Compliance continues to be assessed through Customer Audit**
- 9. Allows AESQ to focus on Supply Chain Capability Development**



# AS13100 Requirement Highlights



The current AS13xxx series of standards have been integrated into AS13100;

- AS13000 Problem Solving using 8D
- AS13002 Alternative Inspection Plans
- AS13003 MSA
- AS13004 Process FMEA and Control Plans
- AS13006 Process Control

Free issue Guidance Material will be made available to support the deployment of AS13100.

Also integrates draft standards on Audit (AS13005) and Sub-tier Management (AS13007)

AS13001 DPRV Training will remain unchanged.

AS13100 organizes its additional requirements aligned to AS9100 and AS9145 standard structures.

It also includes requirements to other AS series standards including;

- AS9102 First Article Inspection
- AS9146 FOD
- AS9115 Deliverable Software
- AS9116 Design Change Process
- AS9117 DPRV
- AS5553 Counterfeit Parts (EEE)
- AS6174 Counterfeit Parts



**NEW**

Recognizes NADCAP certification for special processes for both internal and external operations.

(Section 4.3.3)



# AS13100 Requirement Highlights



Organization's are required to include **Human Factors** within the scope of their QMS

(Section 4.4.3, 5.1.1.1, 5.2.1.1 and 7.3.1)



The organization shall conduct a **Compliance Assessment** of their QMS to ensure that it captures all of the requirements of AS13100.

Any gaps must be agreed with the individual customer.

(Section 4.3.5)



An agreed set of **Certification Requirements**, matched to the scope of the supplier's activities is defined

(Section 4.3.3)



Organizations are required to comply with the customer's **Supplier Code of Conduct** and implement their own (Section 5.1.2.1).



# AS13100 Requirement Highlights

AS13100 requires four **Audit Types** to be conducted;

- 1) Quality Management System Audits
- 2) Production Process Audits
- 3) Product Audits
- 4) Special Process Audits

Organization's to produce an Annual Audit Report to summarize performance for Customer Review  
(Section 9.2.3)



**Auditor Competence Requirements** defined for;

- Qualifications
- Education
- Experience
- Ongoing professional development

(Section 7.2.2)



Quality Leaders are required to attend the AESQ **Quality Foundation Training Class**. Also recommended for other key personnel

(Section 7.2.4)



Organizations are required to provide **On the Job Training** that includes customer requirements, regulatory requirements, etc.

(Section 7.2.1)

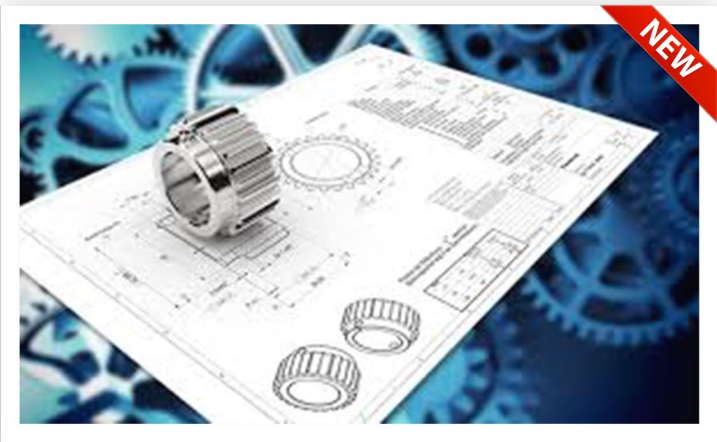


# AS13100 Requirement Highlights



Common **Record Retention**  
policy for OEMs

(Section 7.5.3.5)



Requirements for **Design & Development** defined including  
the use of **DFMEA** for Design  
Risk Analysis

(Section 8.3)



AS13100 defines the requirements  
for **Supplier Evaluation, Selection,  
Control and Performance  
Monitoring.**

(Section 8.4.1)



Compliance to **AS9146 FOD Prevention** is  
required in Design Requirements (8.3.3.3),  
Production Control (8.5.4.1) and Supplier  
Control (8.4.2.2)





# AS13100 Requirement Highlights



Specifies the use of **AS5553** Counterfeit Electrical, Electronic and Electromechanical Parts and **AS6174** for Counterfeit Material  
(Section 8.1.4.1 & 8.4.2.3)

The organization shall verify that the correct metallic raw material is used e.g. through the use of **hand held spectrometry**.

(Section 8.5.1.1)



Defines the use of **8D Problem Solving** for key issues.

Additional guidance on Problem Solving when 8D's are not required to be included in the Guidance Document GD13000.

(Section 10.2.3)



The organization shall ensure that it uses the customer created scorecard to prioritize improvement actions.

The organization must strive for **100% Quality, & Delivery performance**.

(Section 9.1.2.1)



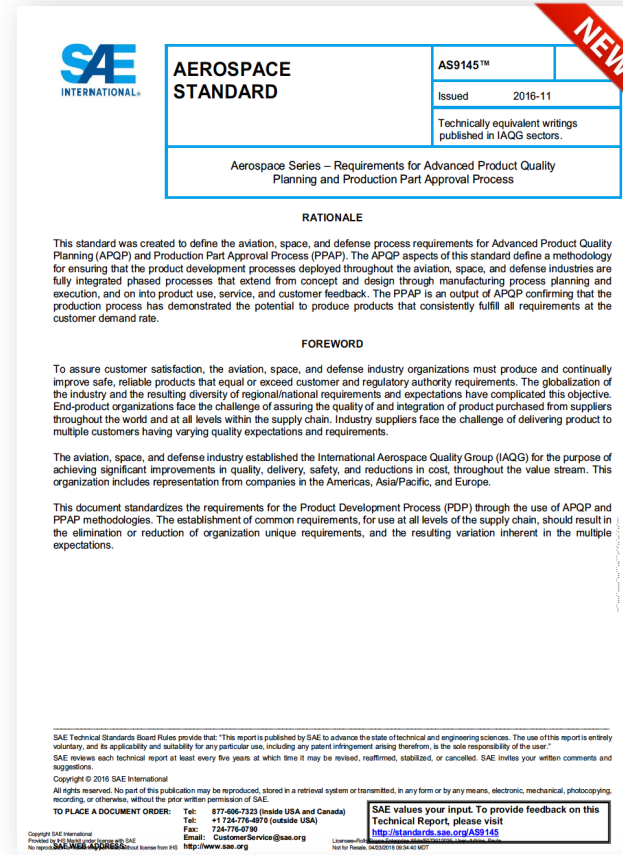
# AS13100 Requirement Highlights: Chapter B APQP & PPAP

## AS9145 APQP & PPAP required to manage;

- New Product Introduction
- Product & Design Changes
- Source Changes
- Major Quality Issues

## Additional Quality Tools identified that are not in AS9145 APQP / PPAP

1. Pre-launch Control Plan
2. Supply Chain Risk Management Process



## Additional Quality Tools identified that are not in AS9145 PPAP

1. DFMEA defined as the Design Risk Analysis tool
2. Defines AESQ Guidance Documents for PPAP elements
3. Initial manufacturing Performance Studies
4. Dimensional / non-Dimensional Results

## Defines Submission Requirements for PPAP based on Supplier Performance;

1. Submit Warrant only to customer, Retain evidence at Supplier
2. Submit PPAP evidence to customer and Retain all documents
3. Witness at Supplier



**AS13100 Core Writing Team: Thank you for sticking with it, every Wednesday, for two & a half years, even during the pandemic, to get it published.**



**Dr Ian Riggs**  
Rolls-Royce  
Writing Team Leader



**Larry Bennett**  
GE Aviation  
Writing Team Deputy Leader



**Elizabeth Pace**  
Raytheon



**Earl Capozzi**  
Pratt & Whitney



**Jim Wilson**  
Pratt & Whitney Canada



**Catherine Catarina-Graca**  
Safran Aircraft Engines



**Paula Adkins**  
Rolls-Royce



**Peter Amsden**  
Pratt & Whitney

**AESQ – Aerospace Engine Supplier Quality Strategy Group**

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# Thank you to the 99 Subject Matter Experts who created the Reference Manuals

Aaron Stahl  
Adam Rogers  
Ake Winkvist  
Andrew Stout  
Anil Oenuer  
Barrie Hicklin  
Benoit Gottie  
Björkålv Håkan  
Brian Murphy  
Carrie Sharkey  
Catherine Belgacem  
Catherine Catarina-Graca  
Charles Barry  
Chip Svoboda  
Chris Bishop  
Chris Craig  
Dave Goldberg  
Earl Capozzi  
Ed Briggs  
Erika Grimm  
Frederic Vetil  
Grant Braun  
Helen Djäknegren

Hector Mata-Collado  
Helmut Weitmann  
Herelio Munoz-Morales  
Ian Bentley  
Ian Riggs  
Inger Henström  
James Kelly  
Jim Barge  
Jim Nelson  
Jim Wilson  
Jonas Nickel  
John Calder  
Jule Hegwood  
Jun Sakai  
Jun Teshima  
Karen Scavotto  
Karl Evans  
Kristin Gantz  
Larry Bennett  
Lars Brander  
Laura Hill  
Lena Wendel Eckerbom

Lise Brox  
Ludovic Chevet  
Marc Boursicot  
Marie Partridge  
Marnie Ham  
Mattias Eriksson  
Maura Callahan  
Melanie Deroo  
Melanie Renault  
Michael Cera  
Michael Cosenza  
Michael Fuehner  
Michael Gerhmann  
Michael Stock  
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Nick Watling  
Nicolas Reignier  
Olivier Castets  
Patrice Richen  
Paul Gorg  
Paul Hacker

Perr Rendell  
Pete Bilbie  
Pete Teti  
Peter Papadopoulos  
Phil Bamforth  
Rebecca Lemon  
Ricardo Banuelas  
Rich DeMary  
Richard Baker  
Richard Bolingbrook  
Rob Farndon  
Robert Starcke  
Roger Persson  
Rudi Braunrieder  
Simon Gough-Rundle  
Song Gao  
Stefan Gehring  
Stefan Lund  
Steve Christensen  
Steven Finup  
Susie Neal  
Sverker Johnson

Thomas Herter  
Thomas Schmitt  
Tobias Kranz  
Todd Angus  
Tony Pailing  
Vince Miller  
Ward Baun  
Wilibald Schoder  
Wolfgang Wagner  
Yvonne Mansson





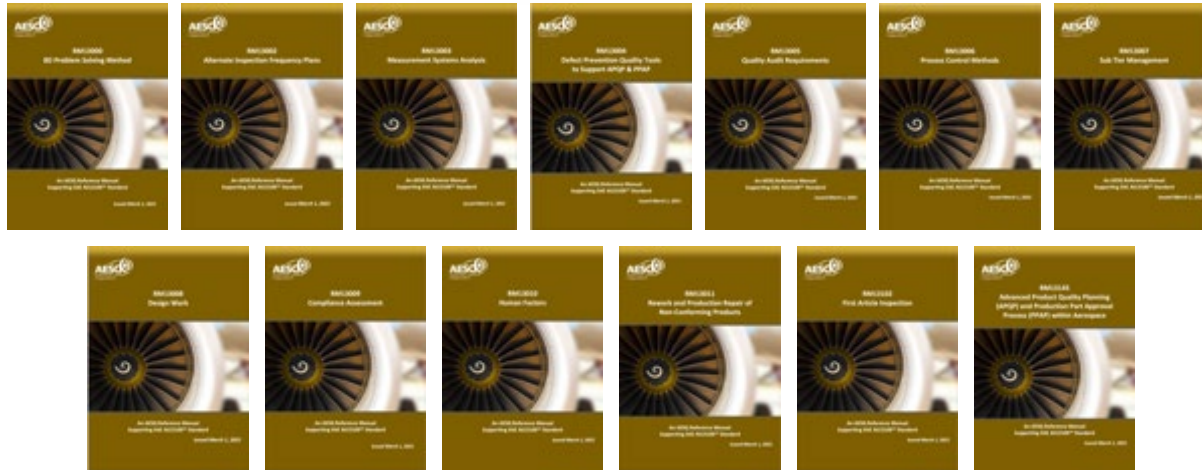
# AS13100 Supporting Reference Manuals



AS13100 Standard defines mandated requirements.

The Standard is supported by free issue Reference Manuals from the AESQ Website:

→ <https://aesq.sae-itc.com/content/aesq-documents>



Reference Manuals provide industry best practice guidance and case study material on how to deploy quality tools effectively.

Reference Manuals are maintained and updated by the **AESQ Subject Matter Interest Groups** and may be updated at any time when new or revised information becomes available

## AESQ – Aerospace Engine Supplier Quality Strategy Group

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# AESQ is Seeking Feedback on AS13100

- Clarifications
- Grammar & Spelling
- Suggested Improvements
- Other?

Email: [info@aesq.sae-itc.org](mailto:info@aesq.sae-itc.org)





# AERO ENGINE SUPPLIER QUALITY GROUP (AESQ) OVERVIEW DEPLOYMENT & TRANSITION TO AS13100



Catherine CATARINA  
Supplier Management  
System Coordinator  
Safran Aircraft Engines



# TRANSITION TO AS13100 FROM AS130XX

**AS9145 – Requirements for Advanced Product Quality Planning and Production Part Approval Process.**  
**2016 - November**

**AS13000 – Problem Solving Requirements for Suppliers - 8D** **2014 - May**

**AS13001 – Delegated Product Release Verification Training Requirements** **2015- February**

**AS13002 – Inspection Frequency Plans** **2015 - March**

**AS13003 – Measurement Systems Analysis** **2015 - February**

**AS13004 – PFMEA & Control Plans** **2017 - August**

**AS13006 – Process Control Methods** **2018 – September**

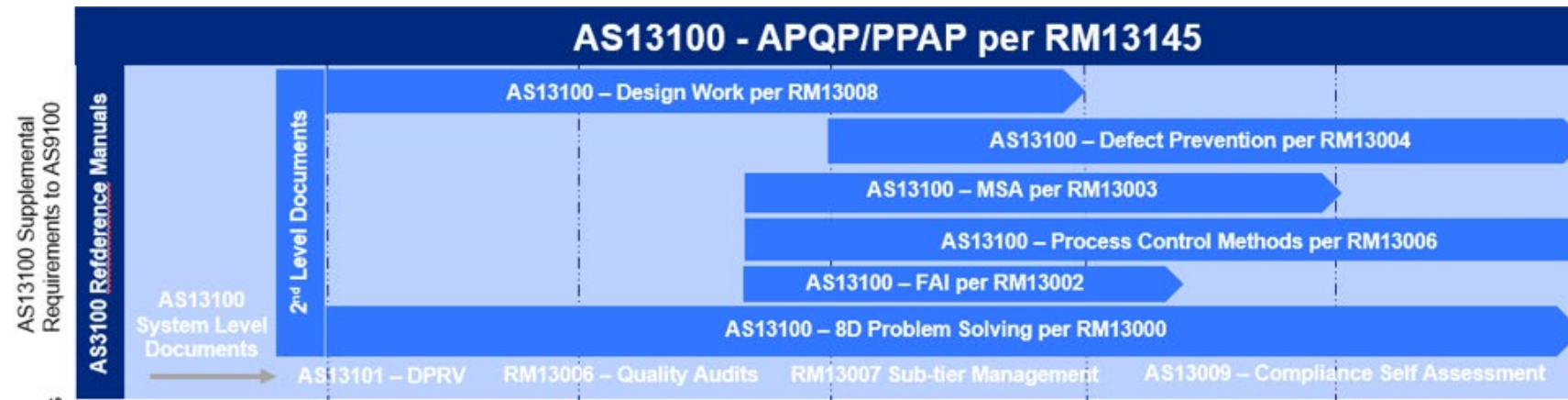




# TRANSITION TO AS13100 FROM AS130XX

## With the adoption of AS13100 we:

- Reduced set of requirements from **174** pages to **102** pages a 49% reduction in pages
- “**Shalls**” reduced more than **23%**
- With the addition of:
  - ✓ Human Factors
  - ✓ Sub-tier Management
  - ✓ Internal Audit and Auditor Competencies
  - ✓ Design and Development
- AS13100 leverages the AESQ developed Reference Manuals (RM13xxx) as guidance on how to comply to requirements stated in AS13100. 603 pages of free guidance.





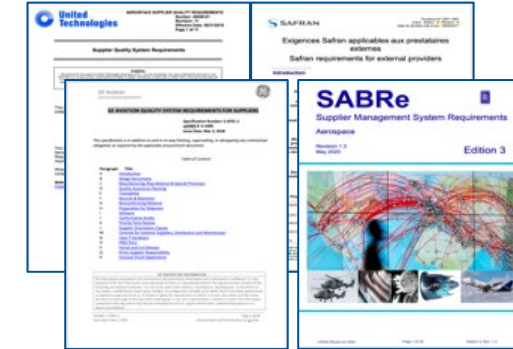
# AS13100 Creation Process



OEM Unique Requirements

Existing Engine Maker  
Supplier Requirements

Harmonized Requirements



Future Engine Maker Supplier  
Requirements

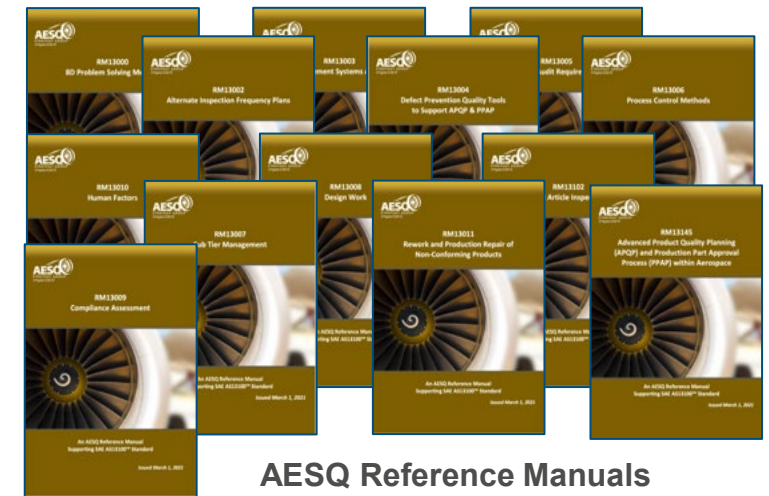
Starting Point  
September 2018



Requirements

Existing & WIP  
AESQ Standards

Supporting Guidance & Best Practice Material



AESQ Reference Manuals

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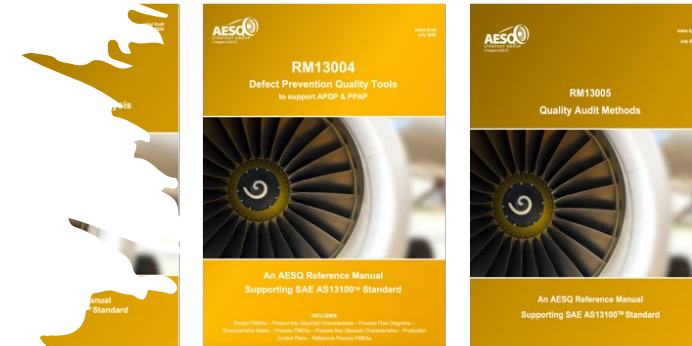
# Major Changes within AS13100

*Five new key areas within AS13100 to focus Producers*

**AS13100 leverages the AESQ developed Reference Manuals (RM13xxx) as guidance on how to comply to requirements stated in AS13100.**

**P&W to utilize reference document when educating supply base**

- RM13000 Problem Solving Methods (8D)
- RM13002 Alternate Inspection Frequency Plans
- RM13003 Measurement System Analysis
- RM13004 Defect Prevention Quality Tools
- RM13005 **Quality Audit Methods**
- RM13006 Process Control Methods
- RM13007 **Sub Tier Management**
- RM13008 **Design Work**
- RM13009 **Compliance Assessment (with Form) -- GAP ASSESSMENT**
- RM13010 **Human Factors**
- RM13011 Rework and Production Repair of Non-Conforming Products
- RM13102 First Article Inspection
- RM13145 Advanced Product Quality Planning (APQP) and Production Part Approval Process (PPAP)



**Updates likely required to your QMS**



# AS13100 DEPLOYMENT INTRODUCTION & MILESTONES



**HELEN DJAKNEGREN**  
DIRECTOR SUPPLIER QUALITY & DEVELOPMENT  
GKN AEROSPACE



# Where are we?



March 2021  
AS13100 Publication

October 2021  
Deployment Started

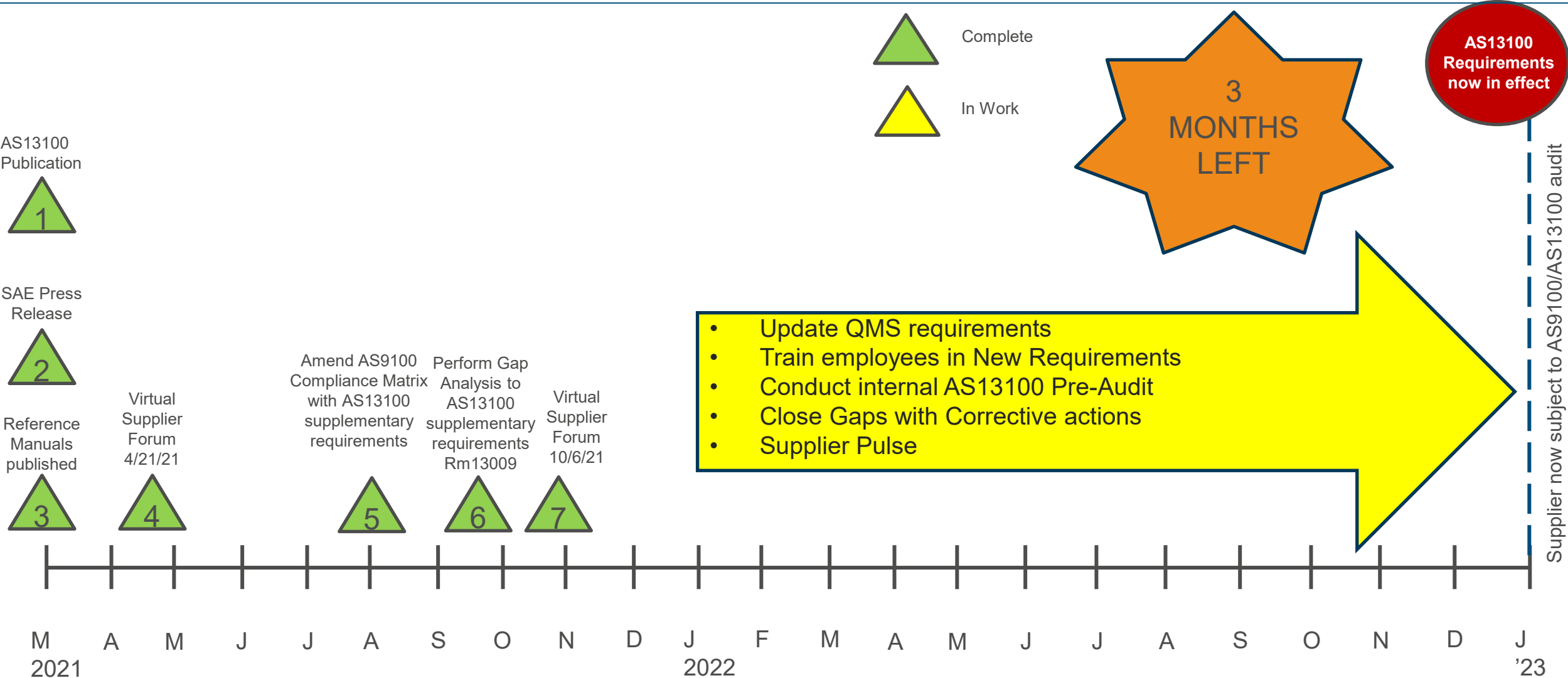
April 2022  
Deployment Ongoing

Target: December 31, 2022  
- Transition Complete



# AESQ Deployment Team Milestone Plan

Key milestones to achieve compliance to AS13100 by 12/31/2022





# Committed to AS13100 compliance on December 31, 2022



All OEMs have released supplier quality requirements invoking AS13100



## What can I expect on January 1<sup>st</sup>, 2023 when AS13100 becomes contractual?

- AESQ members will be checking compliance with their own suppliers individually
- All suppliers will need to be able to demonstrate compliance to AS13100
  - Best method to do that is to complete the RM13009 Self-Assessment and provide a copy to AESQ customers that request it along with any gaps that were identified and the plan/timetable to close those gaps.
  - Producing an Annual Audit Report outlined in AS13100 Section 9.2.5 and described in RM13005 covering 2022 audits, while not technically required, would also be a good way to demonstrate to all AESQ customers that internal and sub-tier audits are under control
- AESQ members may request to see each supplier's 2023 internal and supplier audit plans meeting the requirements of AS13100
- AESQ members may begin to audit to the requirements of AS13100 in order to confirm compliance with high-risk suppliers



# AS13100 Audit Checklist

The AS13100 Quality audits team is also working on an improved AS13100 Self-Assessment checklist and plan to have it published by year end.

## AS13100 Chapter A Master Audit Checklist

Section	Paragraph	Requirement Description	AS13100 Reference Materials	Auditor Guidance	Organization Internal Document Reference with Objective Evidence of Compliance	Compliance Level				Auditor Comments	Opportunities for Improvement	Add'l OEM Requirements					
						Conforming	Non-Conforming	Not Applicable	Not Evaluated			RR - SABRE	GE - S-1000	P&W - ASQR-01	Safran - SAFE	MTU - MTN 94111	GN - SOAR 210
4.3.3	1	Certification requirements - Table 2		Ensure the Organization meets the minimum requirements of Table 2.  Note: individual AESQ members may have differing requirements.										X			
4.3.4	1	Access to Oasis and Nadcap information															
4.3.5	1-3	Annual AS13100 compliance assessment	RM13009	Look for evidence of a self assessment in the last 12 months and that any gaps have been addressed  The RM13009 self-assessment checklist or a copy of this checklist are preferred but not mandatory										X			
4.4.3	1	Human Factors included in QMS	RM13010	Human Factors programs at Organizations may not be specifically called Human Factors - look to see if the main contents of a Human Factors program are present at the Organization: • Training of employees. • An open reporting culture, encouraging the sharing of mistakes without fear of inappropriate retribution. • Considering Human Factors in investigations.													
5.2.1.1	1																

## Goals include:

- Include guidance, where applicable, both to describe objective evidence needed or to guide Auditors in interpreting the section's "shall" consistently across different Auditors/AESQ members
- Include references to RM documents for more information
- Include an indicator that an AESQ member has additional requirements to each question in their own documents



# AS13100 Auditor Training Requirements

## RM13005 improvements under review

- Correcting significant grammar, punctuation, and spelling issues
- Improving the interpretation of the Lead Auditor and Internal Auditor training requirements
- Examining the expectation by the AESQ members for what activities Lead Auditors are responsible for
- Reviewing the ongoing Auditor certification requirements for Special Process Auditors (e.g. # audits per year)
- Addressing requirements for suppliers not certified to AS9100



# AESQ 2022 SUPPLIER SURVEY UPDATE



# Survey Overview



## **August 2021: First survey of suppliers on the general knowledge of AS13100 and the AESQ**

- 158 respondents
- Familiar with AESQ for existing AS13000 series documents
- Basic AS13100 familiarity

## **April 2022: Follow up survey targeted to better understand the aero-engine supply base's AS13100 implementation status**

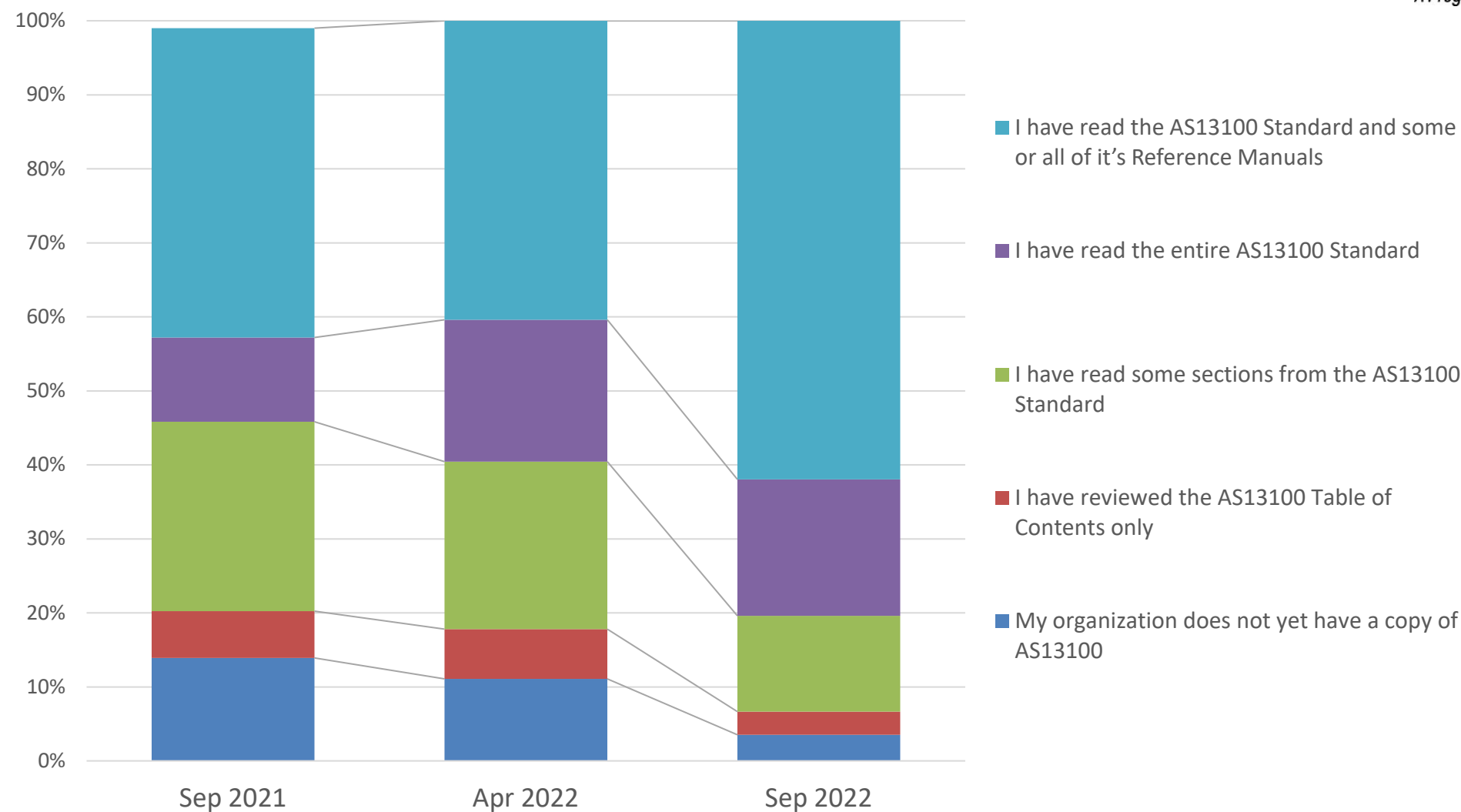
- 13 questions, both objective and open-ended
- 482 respondents to date
- 608 comments and suggestions analyzed

## **September 2022: Survey targeted to develop plans to help suppliers for Q4**

- Same questions from April to build trend and collect feedback on deployment
- Develop plans based off the feedback and help suppliers are asking for
- 255 respondents to date



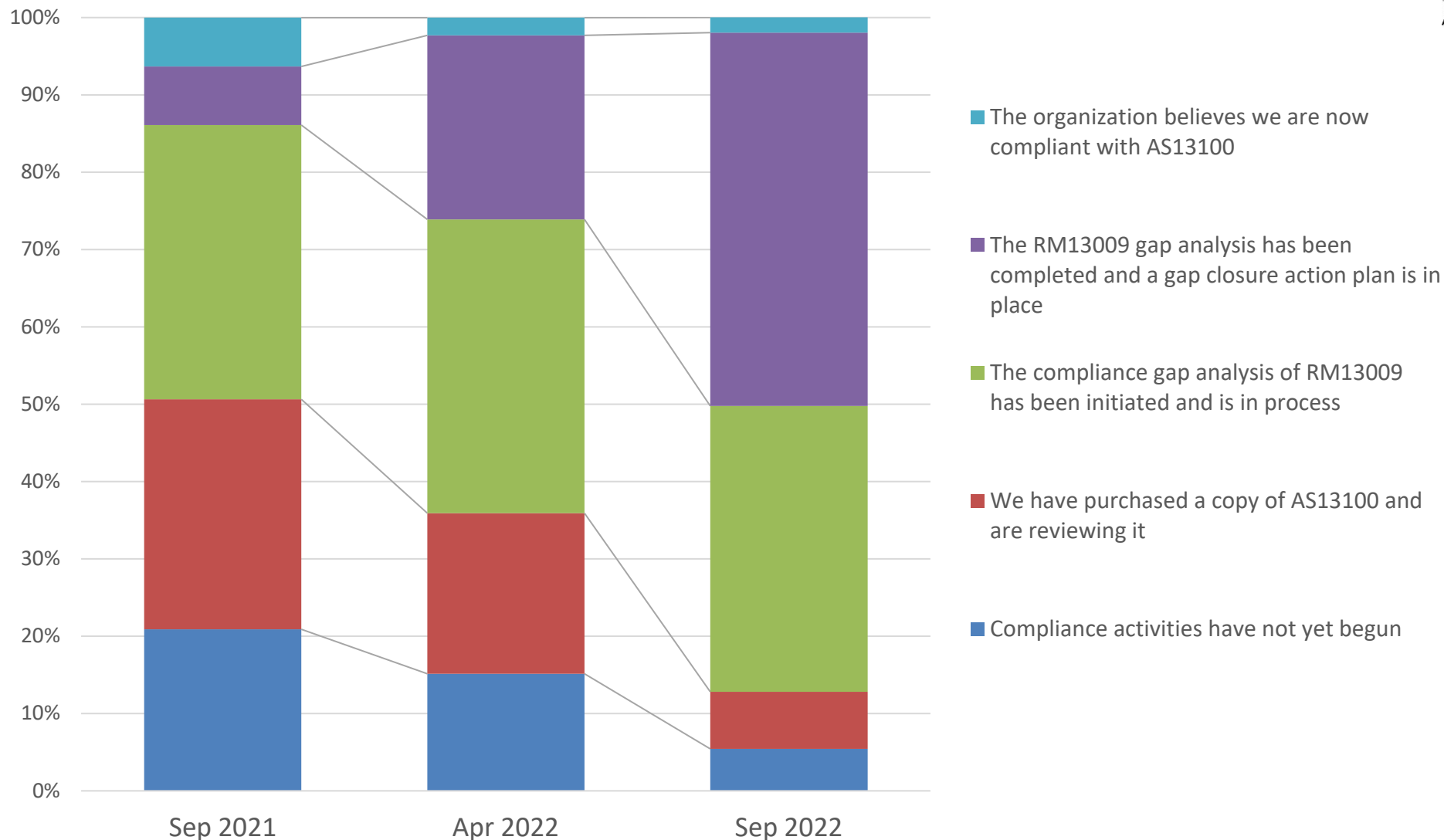
AS13100 Familiarity





# Survey Evolution

## Implementation Status Evolution

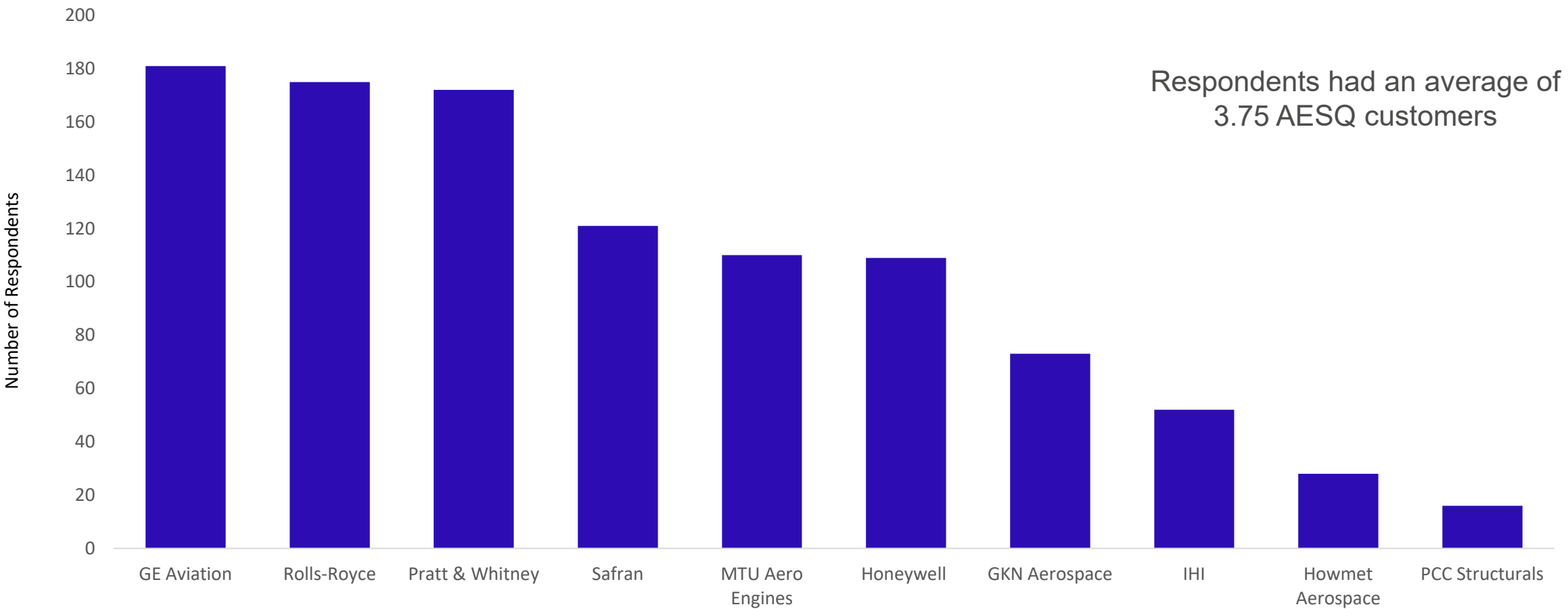




# Who Responded?

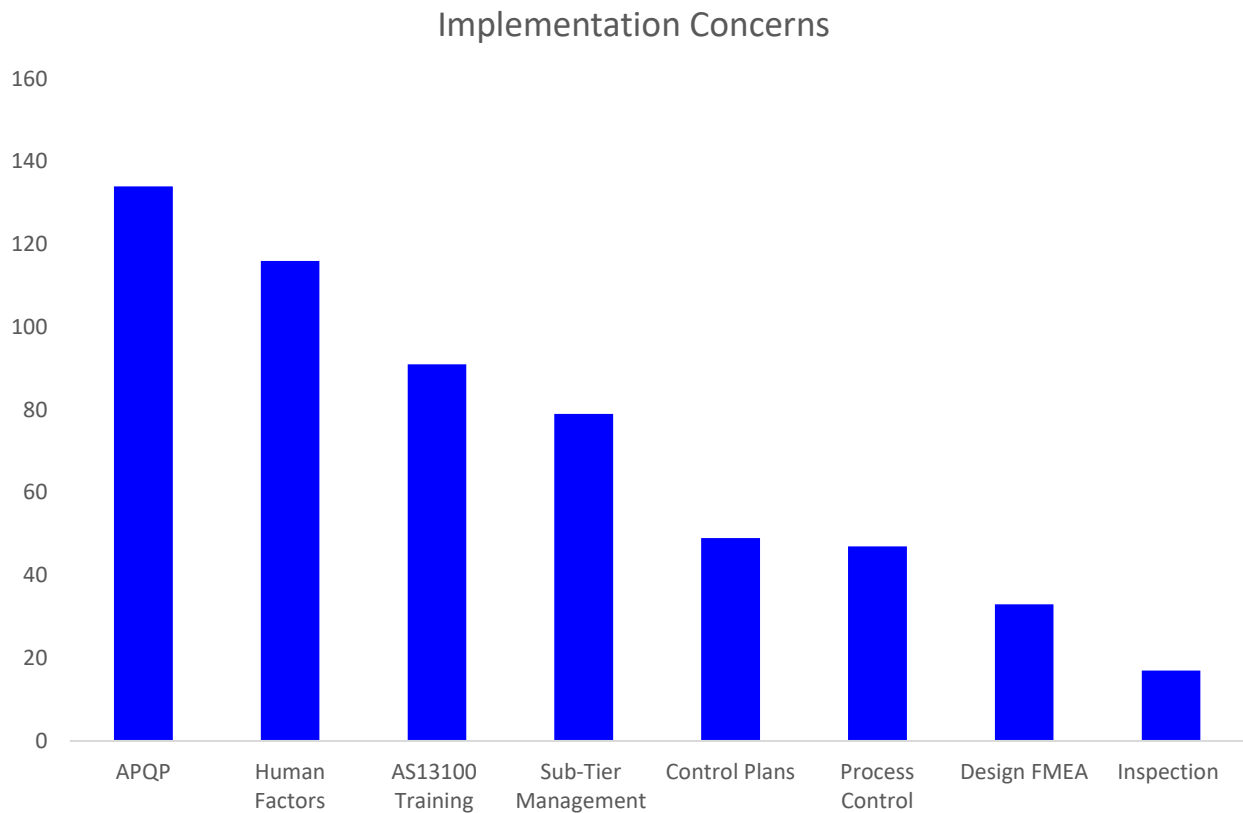


## Respondent's Customers





# Resources are available for implementation concerns



Community of Practice

AESQ Human Factors (RM13010) Community of Practice

メンバー: 504

このグループは

AESQ encourages experts to engage in practice to plan and support deployment of Human Factors in line with the SAE AS13100 Standard

Subject Matter Interest Groups

Promoting the effective deployment of Key Quality Subjects across the AESQ Supply Chain.

Read More

AESQ Subject Matter Interest Groups

- Advanced Product Quality Planning (APQP) & Production Part Approval Process (PPAP)
- Design Work & Production Repair & Rework
- Sub Tier Management
- Human Factors
- DPRV Training
- First Article Inspection

Tools to Support APQP & PPAP

- Measurement Systems Analysis (MSA)
- Statistical Process Control (SPC)
- Failure Mode and Effects Analysis (FMEA)
- Process Capability Analysis
- Process Control
- Process FMEA
- Process Control

RM13004

Defect Prevention Quality Tools to Support APQP & PPAP

An AESQ Reference Manual Supporting SAE AS13100™ Standard

**AESQ™ Defect Prevention Tools to Support APQP & PPAP Subject Matter Interest Group**



slido



**What are the specific concerns with implementing APQP?**

① Start presenting to display the poll results on this slide.



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**What are the specific concerns with implementing Human Factors?**

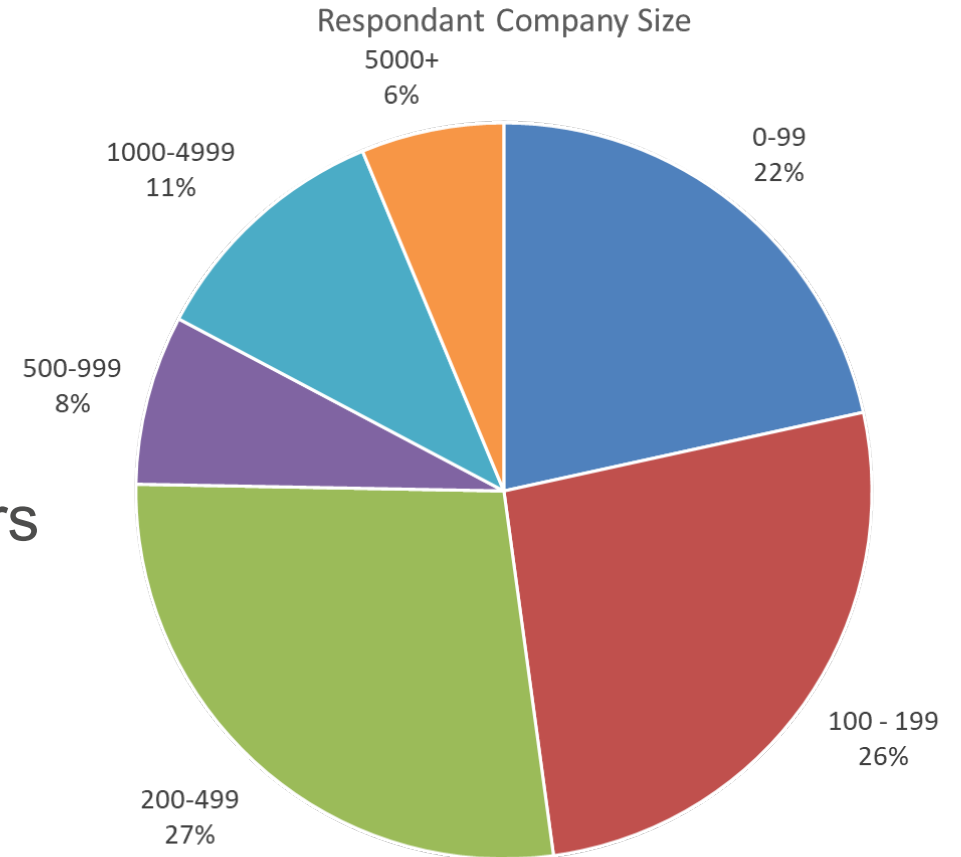
① Start presenting to display the poll results on this slide.



# Smaller businesses are asking for help in implementation

AESQ can help:

- Member companies will partner with their suppliers to close gaps
- Communities of Practice on LinkedIn are available
- Best Practice Examples from three suppliers today





# Training requirements and how the AESQ can help

## Intent:

- Company needs to understand the requirements of the standard for deployment

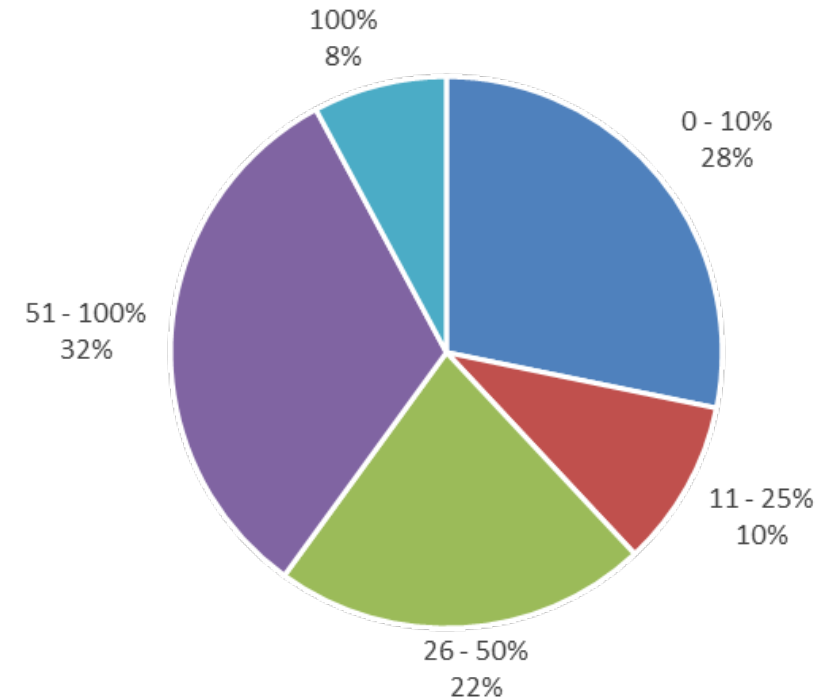
## Expectations:

- People shall complete the 3 Day Foundations training. If not trained by year end, the Foundations training will need to be in the closure plan.

## How can the AESQ help?

- More Live training sessions (Oct)?
- Options to certify a companies training?
- Auditor training class from AESQ?
- Do we want a COP of deployment to smaller co.?

## Training Plan Completion





# In response to your feedback....



In today's event you will see:

- Training overviews and opportunities
- How to get involved in AESQ
- FAQs and places to ask questions (highlights of the Communities of Practice on LinkedIn)
- Best practice examples from three partner suppliers



# APQP AND PPAP

ADVANCE PRODUCT QUALITY PLANNING  
PRODUCTION PART APPROVAL PROCESS



**KARL EVANS**  
APQP TECHNICAL PROJECT MANAGER  
ROLLS-ROYCE

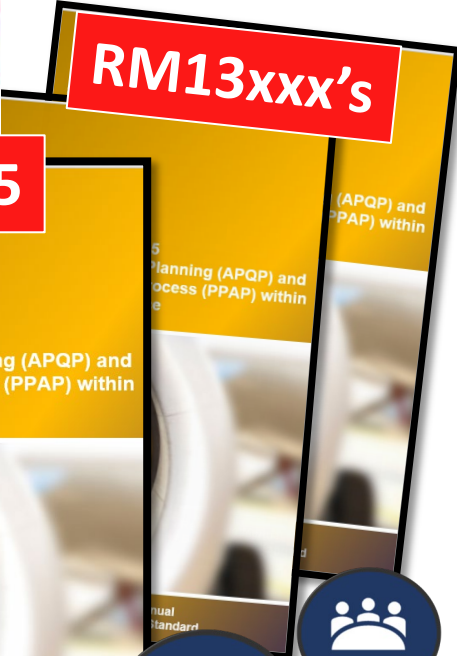


# AS13100 APQP and PPAP

REQUIREMENTS ARE ACHIEVABLE THROUGH ALIGNMENT OF BEST PRACTICES.



AS13100 /  
RM13145  
APQP &  
PPAP



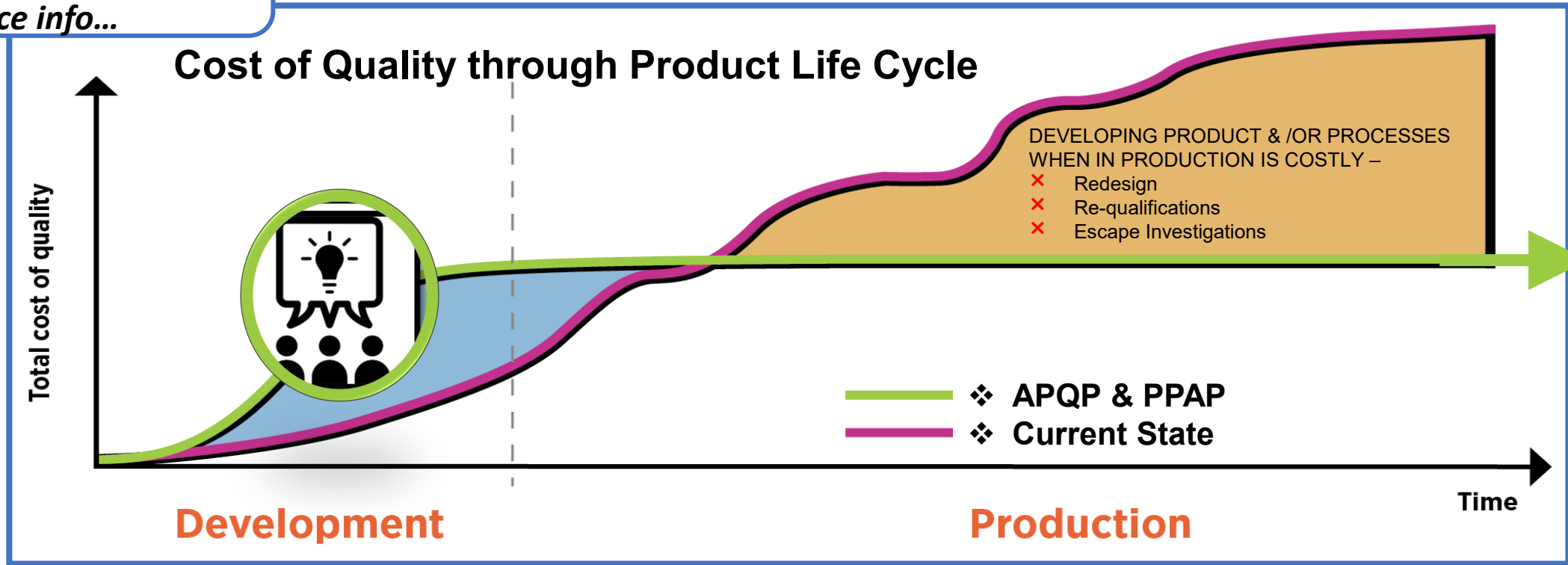


# Why APQP & PPAP for Aerospace?



Source info...

The primary objective is to **improve quality and reduce cost**.  
**Higher quality** is synonymous with **increased product safety**.



Proactive tools **focuses cross-functional teams on risk identification & mitigation** early in the process.

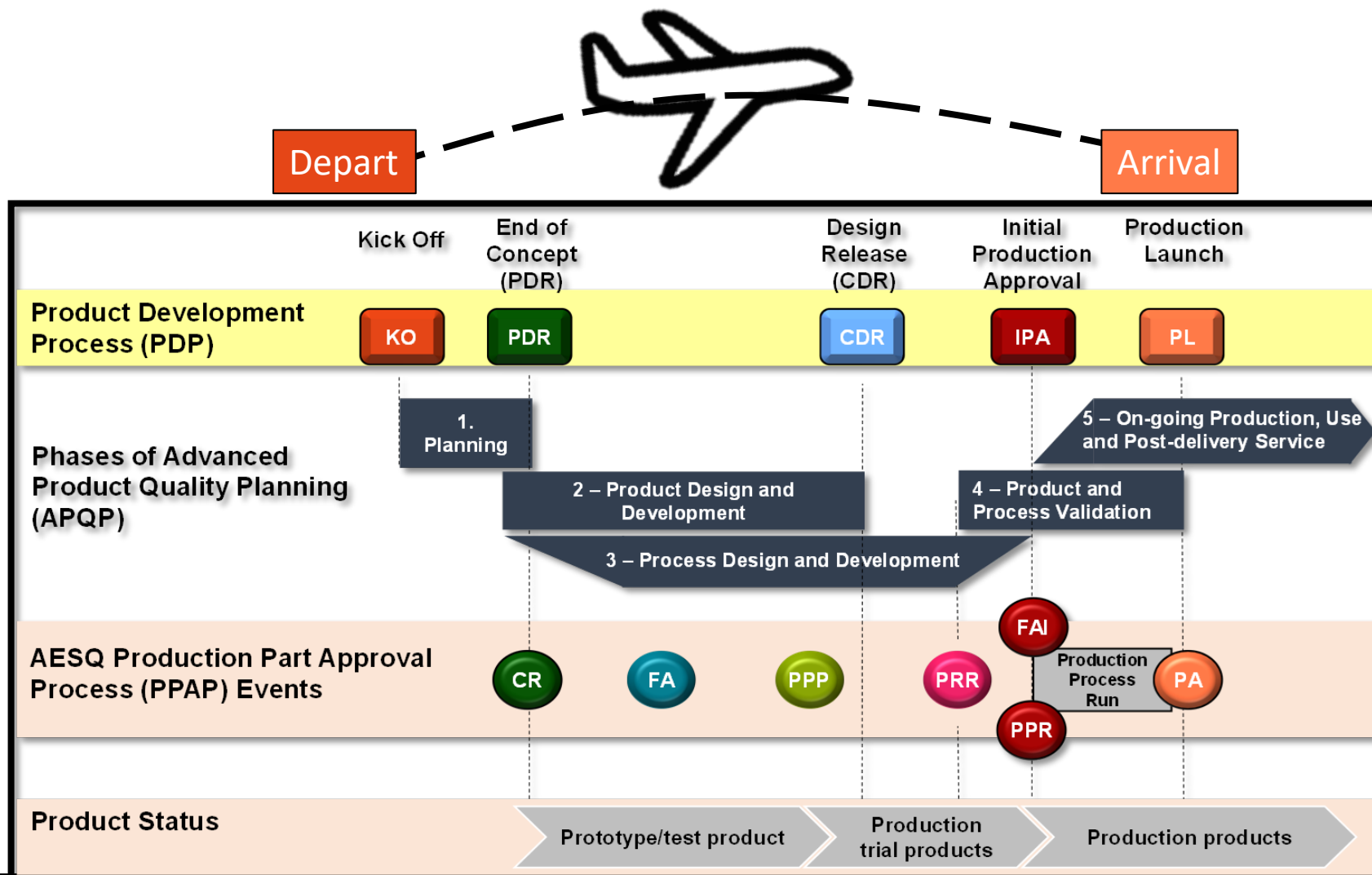


- Products reach **faster maturity with fewer engineering changes and defects** in the early stages of production & product use.
- Provides a **foundation for successful ongoing change management** – design and/or manufacturing change, Works Transfers



# View APQP as a Flight

OUR FLIGHT PATH FOR MANAGING PRODUCT AND / OR PROCESS CHANGE



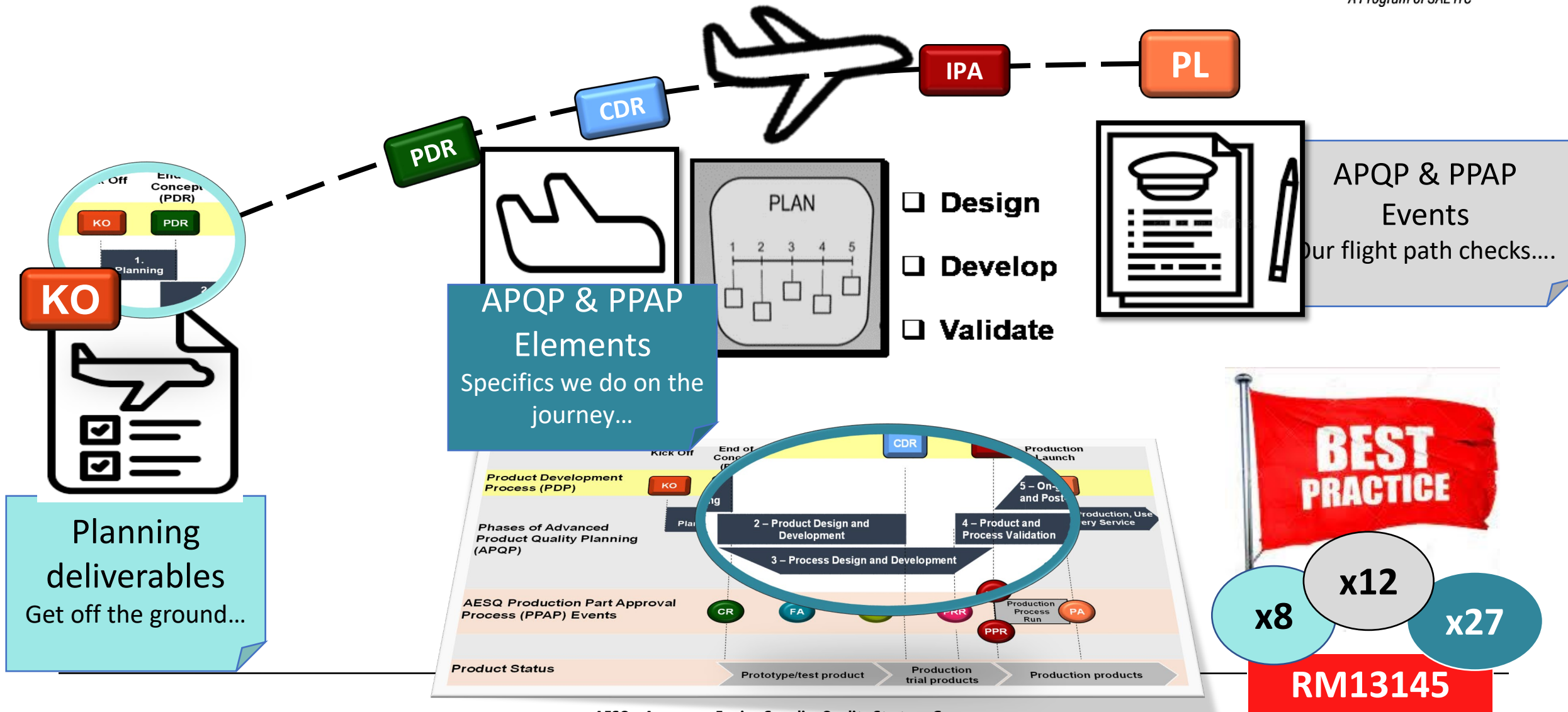
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# The APQP Flight Path

OUR FLIGHT PATH FOR MANAGING PRODUCT AND / OR PROCESS CHANGE



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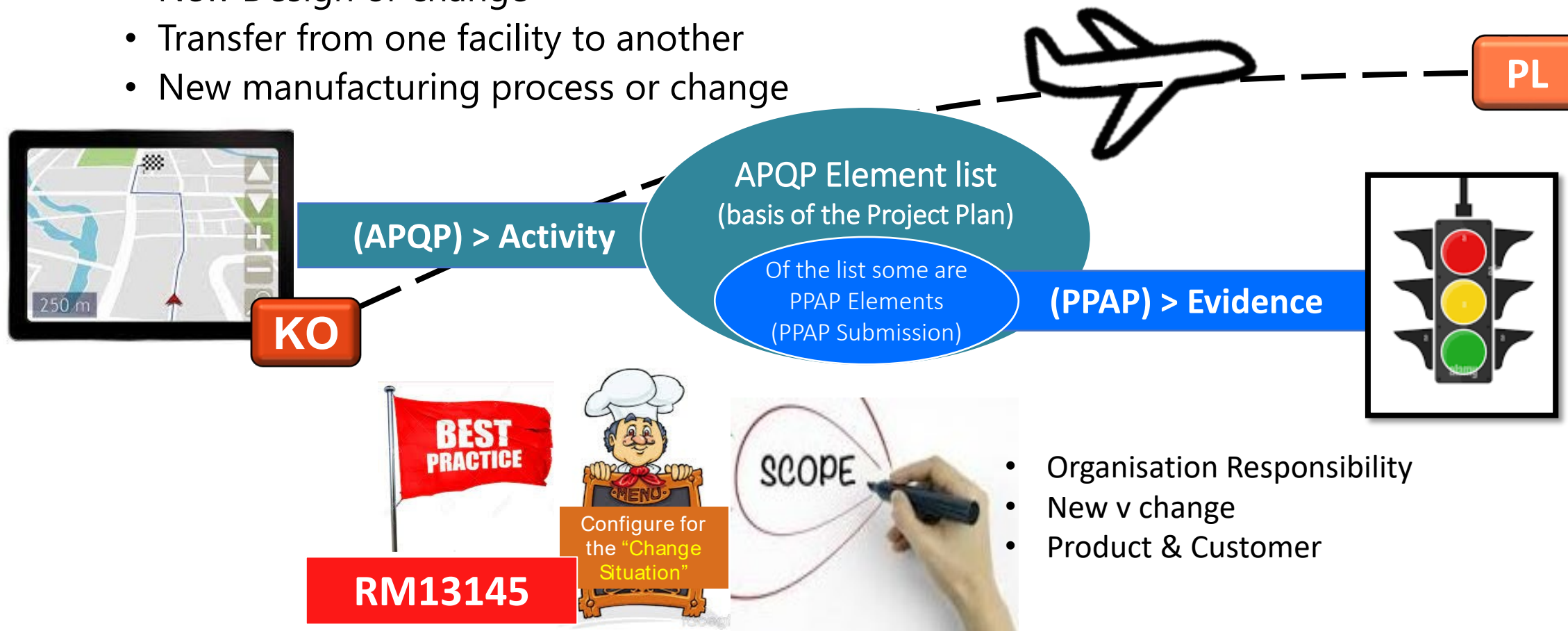


# When do you apply APQP and PPAP?

WHEN INTRODUCING NEW PRODUCT, FACILITY, PROCESS OR CHANGING THESE CHANGE SITUATIONS

When required by your customer and for;

- New Design or change
- Transfer from one facility to another
- New manufacturing process or change





# Leadership Test

Referring to Planning deliverables (x8), APQP & PPAP Events (x12) and APQP & PPAP Elements (x27).

Are each and everyone required to be used every time? (NPI, Works transfer, manufacturing changes)

Referring to APQP design, development and validation activities for product & processes.

Should these be solely delivered by one function within your business?

Referring to the use of APQP & PPAP Events – your flight path checks.

Should these be an integrating part of your organisations Project Management & Review structures?





slido



**How capable is your business in deploying APQP?**

ⓘ Start presenting to display the poll results on this slide.





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# TEI TUSAS ENGINE INDUSTRIES AS13100 IMPLEMENTATION STRATEGY



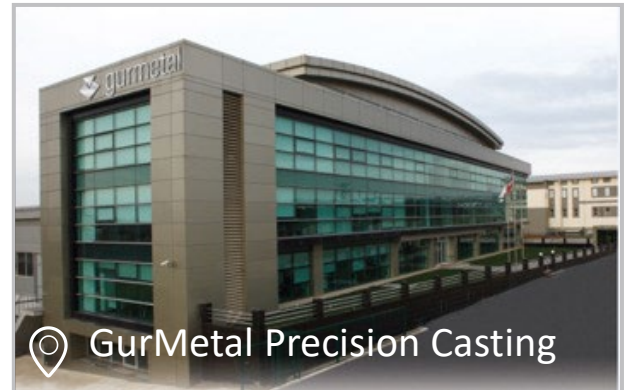
**Turgut ÇİÇEK**

DIRECTOR, QUALITY AND MANUFACTURING ENGINEERING  
TEI TUSAS ENGINE INDUSTRIES, INC.



# Company Profile

- ❖ 38 Years in Aviation
- ❖ Over 3030 Employees
- ❖ 6 Locations, 2 Subsidiaries





# Business Activities

## Customers



- ❖ 25 Customers in Aviation
- ❖ Have business relations with 9 of 10 Strategy Group Members of AESQ

## Approvals



- ❖ AS9100 and AS9110
- ❖ EASA Part 145 & on course to get FAA Part 145
- ❖ On course to get SHT-21 POA & DOA
- ❖ Most Nadcap accredited processes granted by an engine company among 4000+
- ❖ NDT Training and Examination Center



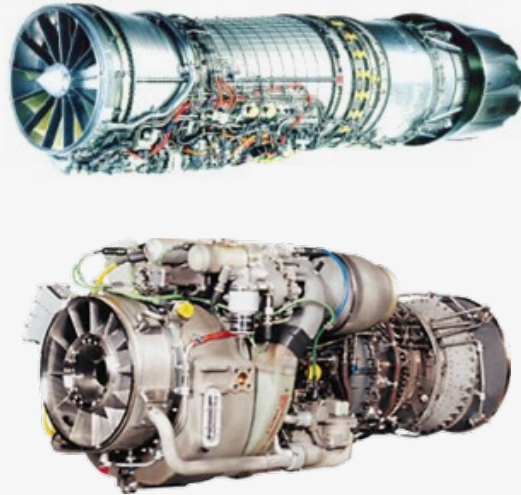
# Business Activities

## Parts and Module Manufacturing



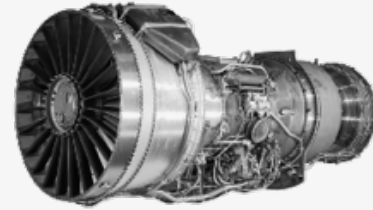
- ❖ 50 Engine Programs
- ❖ 1500+ Parts
- ❖ 53 Special Processes
- ❖ The Biggest Prime Supplier for LEAP & GENX Engines

## Engine Assembly, Inspection and Testing (AIT)



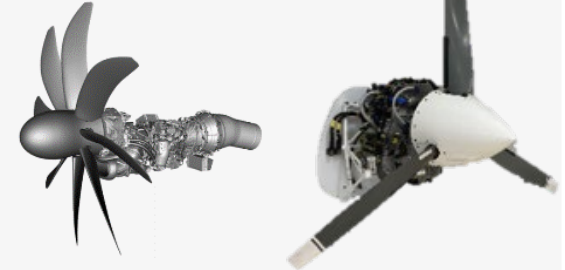
- ❖ F110 Engine Derivatives
- ❖ T700-TEI-701D Engine
- ❖ Test Cells for Turbofan and Turboshift Engines

## Maintenance, Repair and Overhaul (MRO)



- ❖ F110 Engine Derivatives
- ❖ T700-TEI-701D Engine
- ❖ Makila 1A1 Engine
- ❖ TF33 Engine
- ❖ CTS800 Engine
- ❖ UAV Engines
- ❖ Component Repair for LEAP

## Engine Design and Product Development



- ❖ TEI-TS1400 Turboshift Engine
- ❖ TP400-D6 Engine RRSP
- ❖ UAV Engines

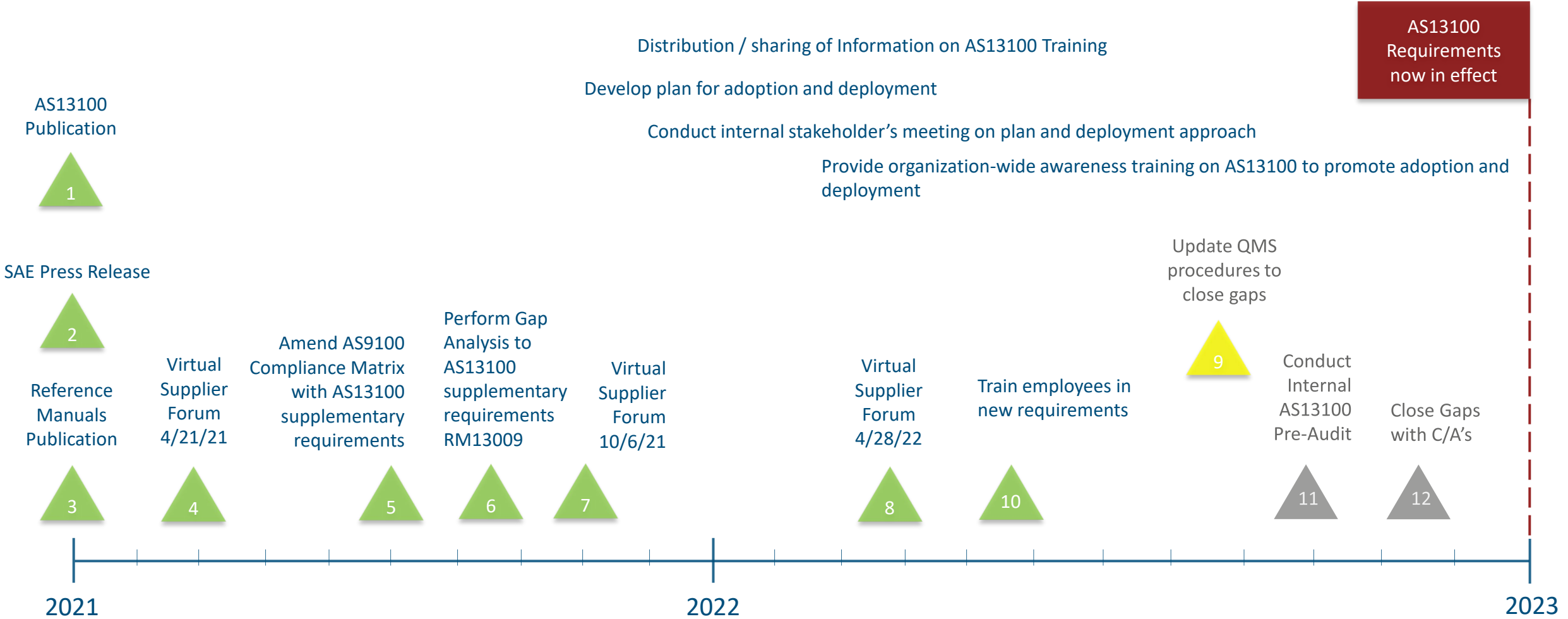
## AS13100 Organization Type 1 and Type 2a

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# AS13100 TEI Status on Milestone Plan



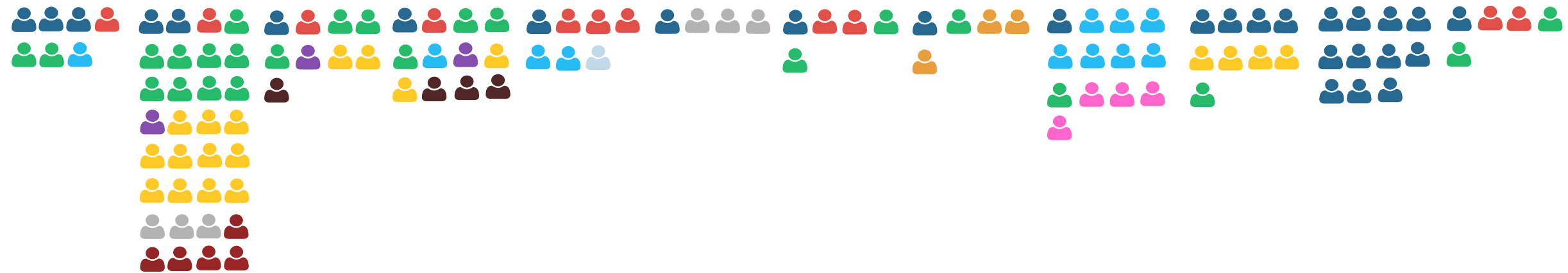


# AS13100 TEI Implementation Approach



## AS13100 Implementation Project

Core Working Group	APQP & PPAP Working Group	Process Control Working Group	FMEA Working Group	Human Factors Working Group	Problem Solving Working Group	MSA Working Group	Design Work Working Group	Sub Tier Management Working Group	SQA Working Group	Quality Auditing Working Group	First Article Inspection Working Group
AS13100 RM13009 RM13011	AS9145 RM13145	RM13006	RM13004	RM13010	RM13010	RM13003	RM13008	RM13007	AS13100	RM13005	RM13102



119 employees attended implementation project so far from cross-functional teams.

21 employees with the implementation responsibility attended AESQ AS13100 Requirements Training.



# AS13100 TEI Implementation Project



Project Center AS13100 Implementation Project Compliance Self Assessment

## AS13100 Implementation Project



Projects

AS13100 Implementation Project

- APQP & PPAP Working Group
- Human Factors Working Group
- Process Control Working Group
- FMEA Working Group
- Problem Solving Working Group
- MSA Working Group
- Design Work Working Group
- Subtier Management Working Group
- SQA Working Group
- Quality Auditing Working Group
- First Article Inspection Working Group

Project Details

Recent








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### Team Members

+ new item or edit this list

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Team Member	Team Member	Team Member	Team Member	Team Member	Team Member
 Ayşin Özkan Kıdemli Teknik Lider, Kalite ve İmalat Mühendisliği Dir.lüğü	 Buket Topel Müdür, NDT ve Özel Proses Kalite Müdürlüğü	 Turgut Avcı Müdür, Kalite Müdürlüğü	 Erdem Kuşçu Müdür, Yan Sanayi Geliştirme Müdürlüğü	 Efecan Kutlu Teknik Lider, Kalite Müdürlüğü	 Cansu Ar Üzmez Mühendis, Kalite ve İmalat Mühendisliği Dir.lüğü
 Mert Nejdet Çeker Uzman, Kalite ve İmalat Mühendisliği Dir.lüğü					

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AS13100 Working Groups	October 4	Osman Dokumacı	2768 KB
Presentation 2022-10-03 V10	Yesterday at 4:18 PM	Osman Dokumacı	102364 KB

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# Working Group Highlights



Project Center AS13100 Implementation Project Compliance Self Assessment

## Human Factors Working Group

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### Team Members

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- Team Member Cansu Teber Kıdemli Mühendis, Kalite ve İmalat Mühendisliği Direktörü
- Team Member Soner Atamer Kıdemli Grup Lideri, NDT ve Özel Proses Kalite Müdürlüğü
- Team Member Dinçer Tali Kıdemli Takım Lideri, Yan Sanayi Geliştirme Müdürlüğü
- Team Member Şerare Uslu Kıdemli Mühendis, Testler ve Güvenlik Müdürlüğü
- Team Member Kağan Baydar Kıdemli Mühendis, Yan Sanayi Geliştirme Müdürlüğü
- Team Member Deniz Aylin Cangür Ertan Mühendis, NDT ve Özel Proses Kalite Müdürlüğü
- Faruk Kaan Yaşar Mühendis, NDT ve Özel Proses Kalite Müdürlüğü

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Meeting Notes

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A Roadmap to Just Culture

Safety Management  
Training & Awareness  
Just Culture



### AESQ – Aerospace Engine Supplier Quality Strategy Group

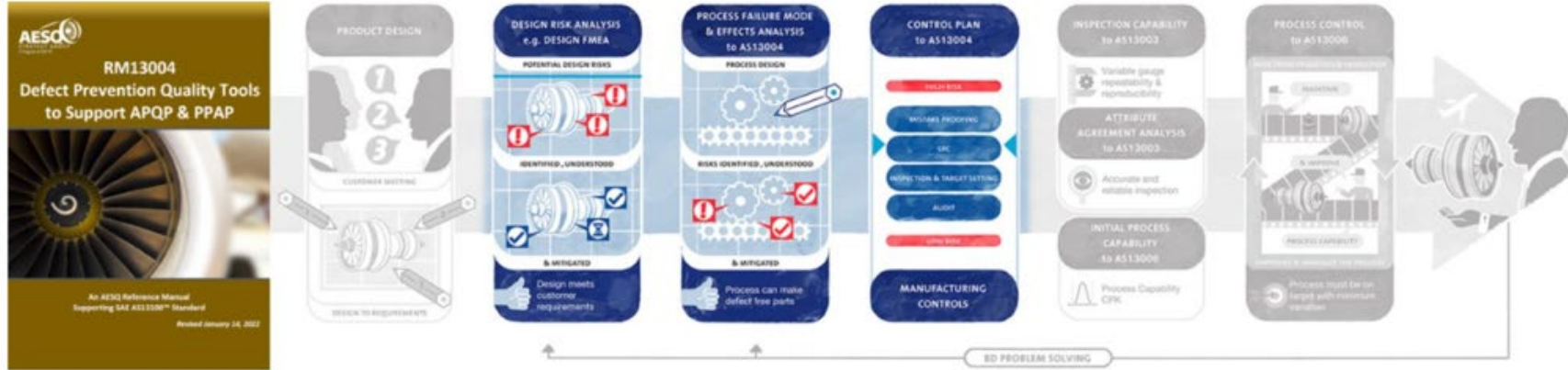
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# Working Group Highlights

## FMEA Working Group


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### Team Members

+ new item or edit this list

Current View ... Find an item

Team Member	Team Member	Team Member	Team Member	Team Member	Team Member
 Ebru Dinçer Mühendis, Kalite ve İmalat Mühendisliği Dir.lüğü	 Yusuf Kemal Demiray Kıdemli Teknik Lideri, Kalite Müdürlüğü	 Ersen Altıntaş Baş Mühendis, NDT ve Özel Proses Kalite Müdürlüğü	 Nazlı Güngör Kıdemli Teknik Destek Uzman, Yan Sanayi Geliştirme Müdürlüğü	 Yaşar Sır Kıdemli Uzman Mühendis, Blik ve İleri İmalat Müh. Müdürlüğü	 Özgür Yıldız Kıdemli Uzman Mühendis, Özel Proses Müdürlüğü
 Furkan Bilgiç Kıdemli Uzman Mühendis, İmalat Mühendisliği Müdürlüğü	 Caner Topaktaş Mühendis, İmalat Müdürlüğü (Fabrikasyon)	 Enes Akca Kıdemli Mühendis, İmalat Müdürlüğü (Freze)	 İşıl Ünal Kalyoncuoğlu Uzman Mühendis, İmalat Müdürlüğü (Freze)	 Burcu Yavuz Kıdemli Teknik Lideri, Kalite Müdürlüğü	 Serkan Pala Kıdemli Grup Lideri, Kalite Müdürlüğü

### Documents

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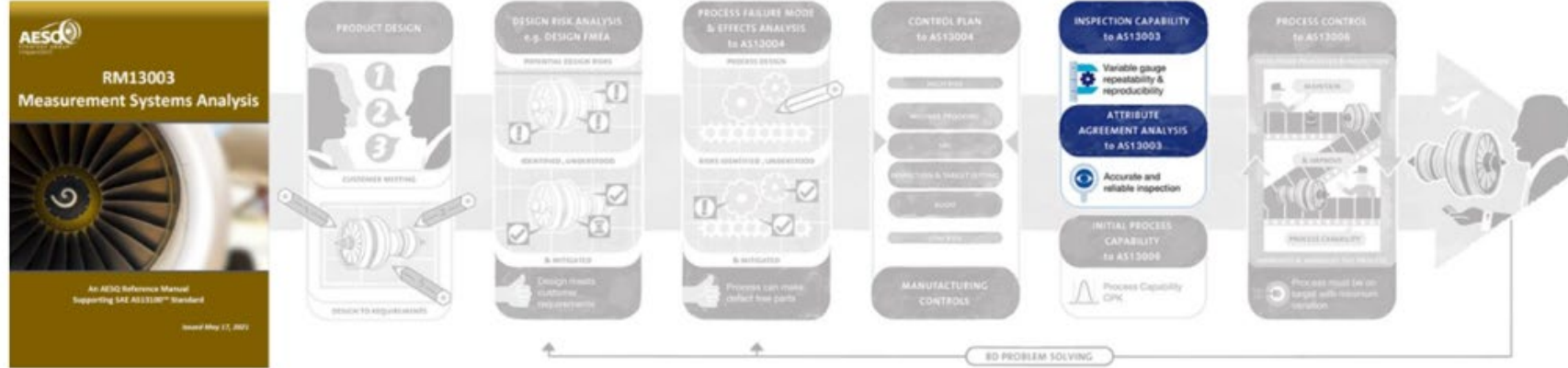
✓	Name	Modified	Modified By
	RM13008 DFMEA Requirements	10 minutes ago	Ebru Dinçer
	22.07.2022 Toplantı notları	August 5	Ebru Dinçer

For Every Characteristic  
Live Document  
Digital Integration





# Working Group Highlights



## Team Members

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Team Member	Team Member	Team Member	Team Member	Team Member	Team Member
 Cansu Ar Üzmez Mühendis, Kalite ve İmalat Mühendisliği Birliği	 Onur Ersay Us Kıdemli Teknik Lideri, Kalite Müdürlüğü	 Mehmet Aslan Kıdemli Mühendis, NDT ve Özel Proses Kalite Müdürlüğü	 Faruk Kaan Yaşar Mühendis, NDT ve Özel Proses Kalite Müdürlüğü	 Sercan Alçay Uzman Mühendis, Kalite Müdürlüğü	

## Documents

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✓	Name	Modified	Modified By
	Sample Study	... August 16	□ Nadir Kökçü
	Templates	... August 16	□ Nadir Kökçü
	Training Documents	... August 16	□ Nadir Kökçü

**Training  
Stress Test on Pilot Parts**





# Working Group Highlights

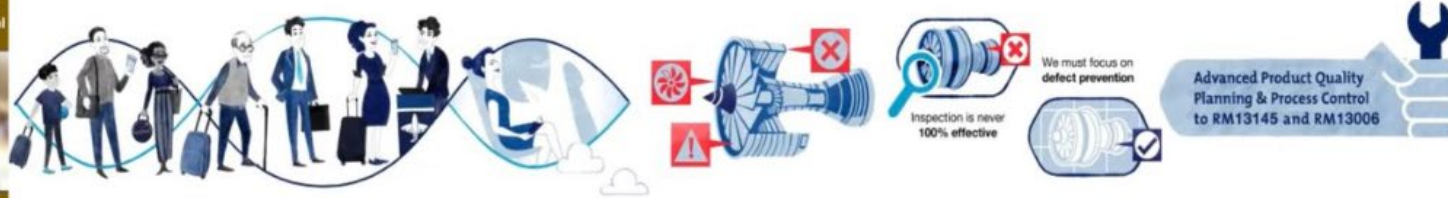


Project Center AS13100 Implementation Project Compliance Self Assessment

## APQP & PPAP Working Group



































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### Team Members

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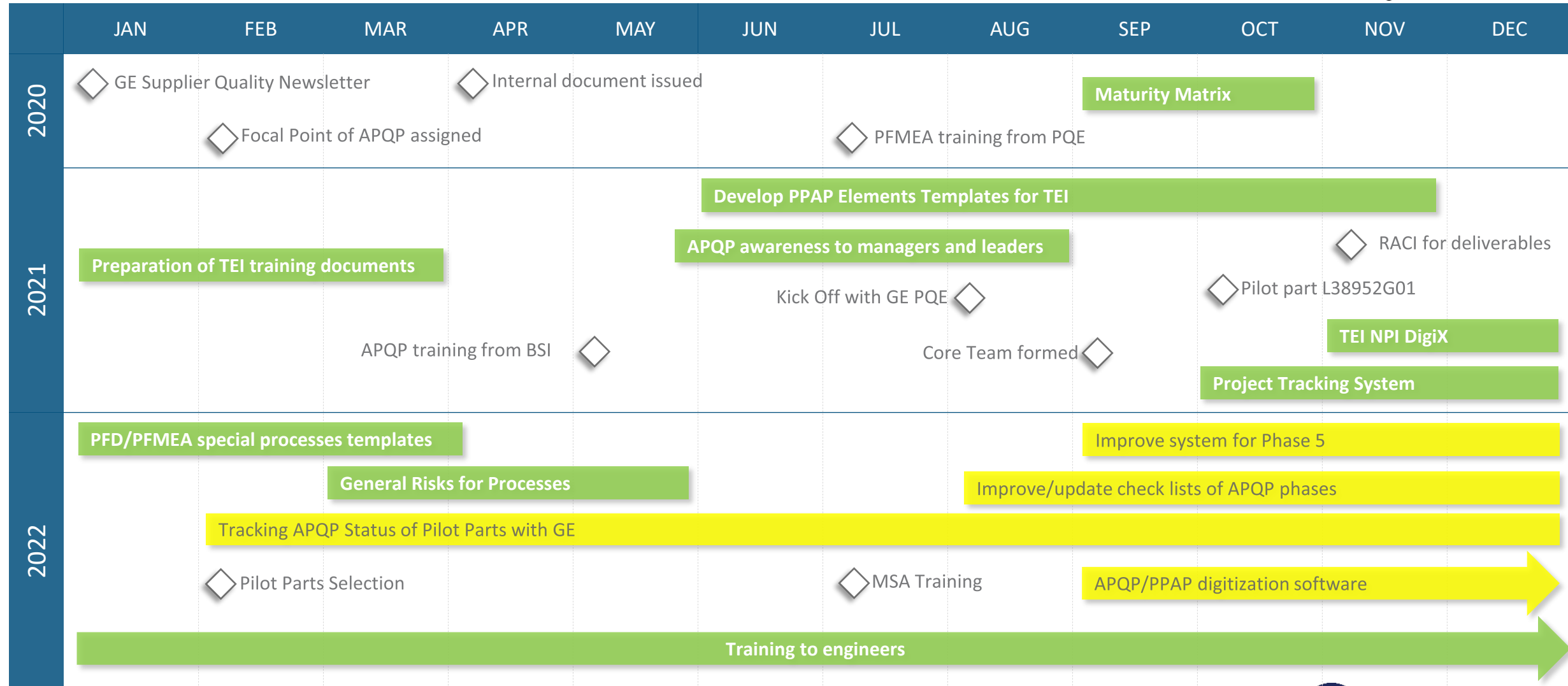
Team Member	Team Member	Team Member	Team Member	Team Member	Team Member
 Korcan Sever Kıdemli Mühendis, Kalite ve İmalat Mühendisliği Dir.lüğü	 Burcu Yavuz Kıdemli Takım Lideri, Kalite Müdürlüğü	 Turgut Avcı Müdür, Kalite Müdürlüğü	 Buket Topel Müdür, NDT ve Özel Proses Kalite Müdürlüğü	 Selçuk Kılıçarslan Müdür, Özel Proses Müdürlüğü	 Ayşin Özkan Kıdemli Teknik Lider, Kalite ve İmalat Mühendisliği Dir.lüğü
 Bora Yıldırım Müdür, İmalat Mühendisliği Müdürlüğü	 Süleyman Caner Songüler Müdür, Blik ve İleri İmalat Müh. Müdürlüğü	 Murat Kasap Kıdemli Grup Lideri, İmalat Mühendisliği Müdürlüğü	 Serkan Pala Kıdemli Grup Lideri, Kalite Müdürlüğü	 Yusuf Kemal Demiray Kıdemli Takım Lideri, Kalite Müdürlüğü	 Enes Zorlu Teknik Lider, Blik ve İleri İmalat Müh. Müdürlüğü
 Dilser Yaman Kıdemli Grup Lideri, Kalite ve İmalat Mühendisliği Dir.lüğü	 Murat Emre İldaşer Kıdemli Grup Lideri, İmalat Mühendisliği Müdürlüğü	 Onur Ersay Us Kıdemli Takım Lideri, Kalite Müdürlüğü	 Emre Durdu Kıdemli Takım Lideri, Üretim Planlama Müdürlüğü	 Mehmet Baysan Kıdemli Grup Lideri, Üretim Planlama Müdürlüğü	 Mehmet Yılmaz Kıdemli Teknik Lider, Üretim Planlama Müdürlüğü
 Tolga Eroğlu Kıdemli Grup Lideri, Üretim Planlama Müdürlüğü	 Yeliz Saka Kıdemli Uzman Mühendis, Kalite Müdürlüğü	 Çağlar Ünal Uzman Mühendis, Blik ve İleri İmalat Müh. Müdürlüğü	 Yaşar Sır Kıdemli Uzman Mühendis, Blik ve İleri İmalat Müh. Müdürlüğü	 Osman Aysan Özcan Baş Mühendis, Kalite Müdürlüğü	 Ali Atak Kıdemli Mühendis, İmalat Mühendisliği Müdürlüğü
 Emre Kocalar Mühendis, İmalat Mühendisliği Müdürlüğü	 Merve Kumaş Ergin Kıdemli Mühendis, Kalite ve İmalat Mühendisliği Dir.lüğü	 Ercan Çelik Mühendis, Kalite ve İmalat Mühendisliği Dir.lüğü	 Aykut Eseroğlu Kıdemli Takım Lideri, İmalat Mühendisliği Müdürlüğü	 Fahri Ersoy Orhan Baş Mühendis, Kalite Müdürlüğü	 Pelın Büyükbürgaz Uzman Mühendis, Kalite Müdürlüğü
 Kerem Ayyıldız Mühendis, İmalat Mühendisliği Müdürlüğü	 Gürcan Töre Müdür, Üretim Planlama Müdürlüğü				

### AESQ – Aerospace Engine Supplier Quality Strategy Group

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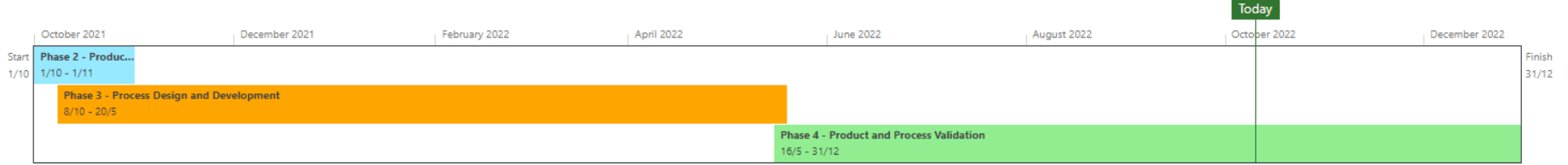
# APQP and PPAP Progress





## Project Summary

Phase 4 -  
Product and  
Process  
due in  
82 days



## Tasks

+ new task or edit this list

Current View Find an item

✓	☑	Task Name	Start Date	Due Date	Assigned To	Related Item
✓	☑	Phase 2 - Product Design and Development	1 October, 2021	1 November, 2021		
✓	☑	Design records				
✓	☑	BOM				
✓	☑	Phase 3 - Process Design and Development	8 October, 2021	20 May		
✓	☑	eCAV	11 November, 2021	12 November, 2021	Pelin Büyükbürgaz	
✓	☑	Process flow diagram	1 February	7 March	Kerem Ayyıldız Pelin Büyükbürgaz	
✓	☑	Floor plan layout	7 February	15 April	Dilser Yaman	
✓	☑	Production preparation plan	14 February	15 April	Ali Barış Güven	
✓	☑	PFMEA	10 November, 2021	22 April	Kerem Ayyıldız	

## Documents

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✓	📄	Name
		00 eCAV
		01 Process Flow Diagram
		02 PFMEA
		03 Control Plan
		04 Measurement Systems Analysis (MSA)
		05 Initial Process Capability Studies
		06 Material handling, packaging, labelling, and part marking
		07 Capacity Verification
		08 PPAP Approval Form

Drag files here to upload



First PPAP submitted  
this month.



# Compliance Assessment Progress



109

Supplemental Requirements



219

Tasks



72

Chapter A



78

Chapter B



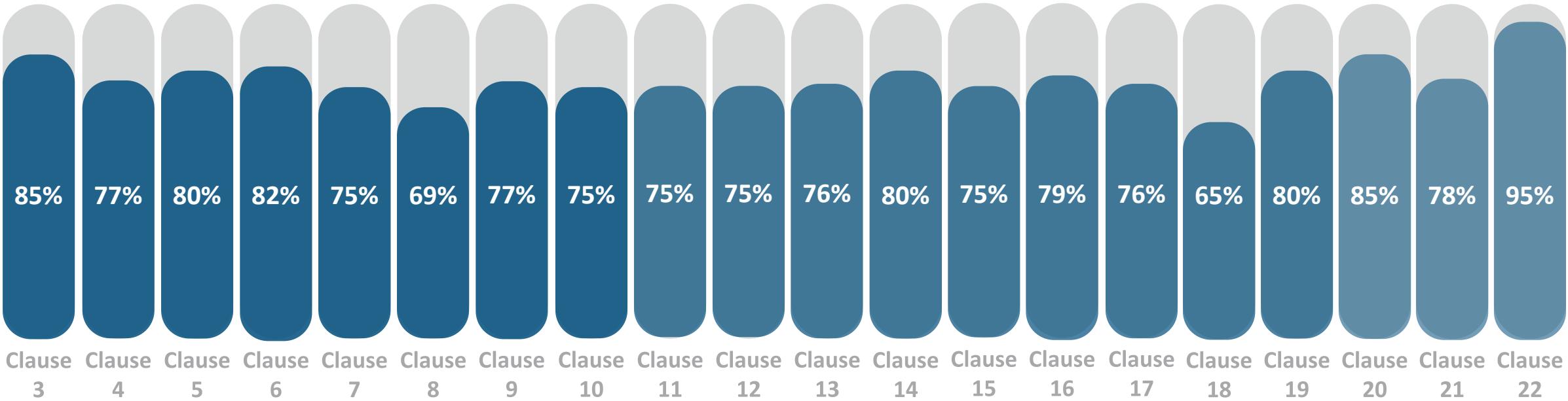
79

Chapter C



75

AS13100





# Summary



1. Strong supporter of holistic approach for OEM Supplier Requirements.
2. Committed to full AS13100 compliance on December 31, 2022.
3. Significant resource needs to implement for large suppliers.
4. Integration to Digital and Lean is crucial for sustainability.





# SOURCE OF POWER

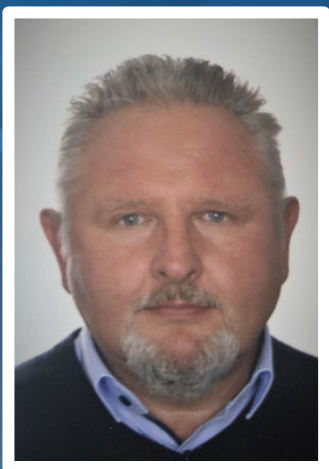
Thank You



# LEISTRITZ TURBINENTECHNIK GMBH

## AS13100 IMPLEMENTATION

## STRATEGY



**THOMAS DÜLBERG**

BUSINESS UNIT QUALITY SYSTEM MANAGER  
LEISTRITZ TURBINENTECHNIK GMBH





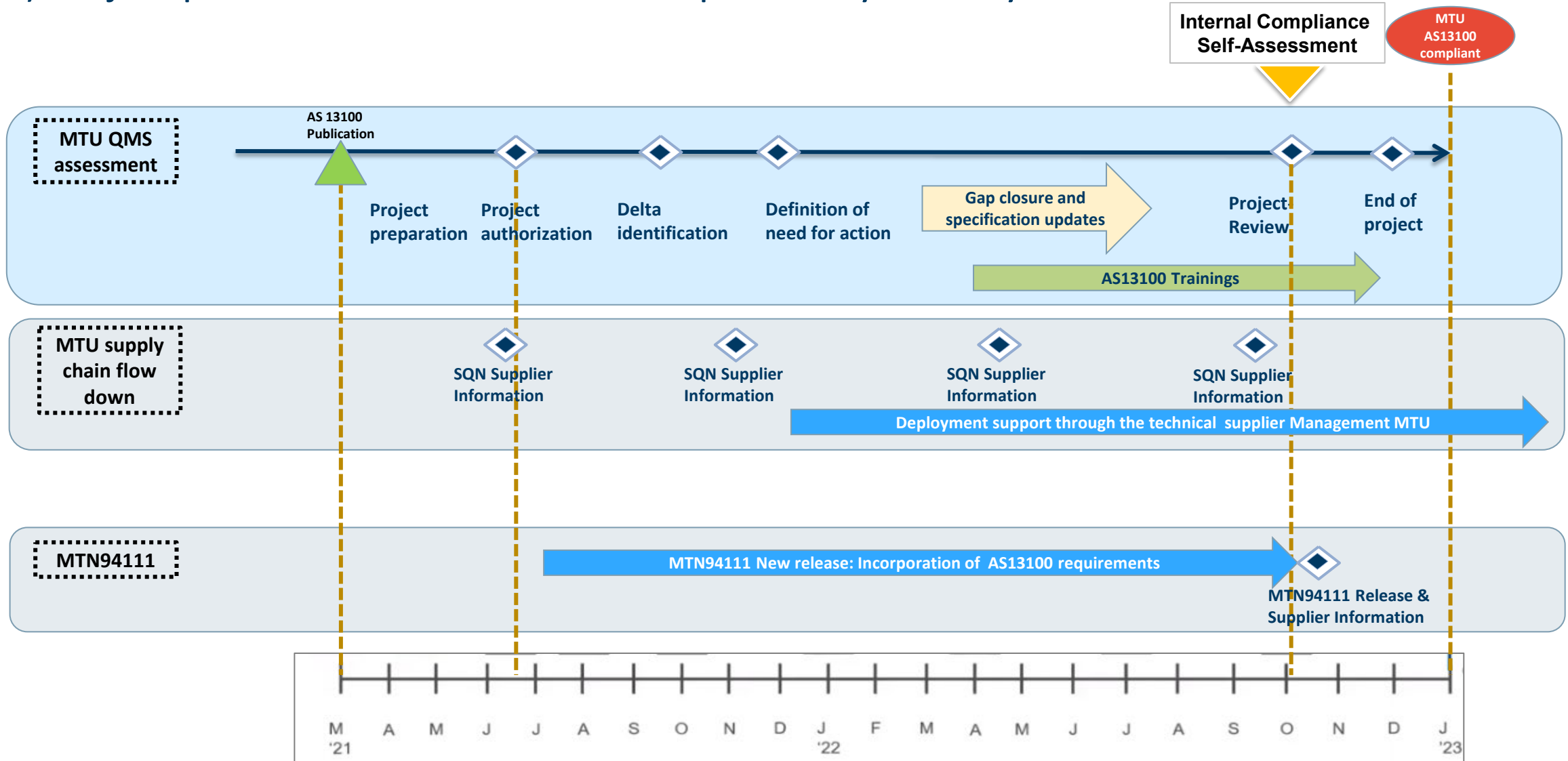
DRIVEN BY VISIONS  
OF TOMORROW

## AS13100 Implementation Plan @ MTU

MTU AERO ENGINES AG – Markus Braig



# 1.) Project plan to achieve AS13100 compliance by January 1<sup>st</sup> 2023





## 2.) AS13100 Deployment & MTU Aero Engines AG Supply Chain

- Regular updates of AESQ/AS13100 activities per Supplier Quality Notifications (SQN) to the complete MTU supply base
- Highlighting AS13100 deployment on every Management Meeting, Supplier visits etc.
- Direct Communication between suppliers quality organization and the allocated MTU Technical Supplier Management key account in order to:
  - To provide opportunity for asking questions to MTUs AS13100 deployment team
  - To gain understanding of suppliers problems and needs
  - To obtain regular feedback
  - To obtain deeper insight in the progress of deployment process
- **MTN94111 new revision**, incorporating AS13100, will be published November 2022.



To give one of our suppliers the opportunity to share their approach and experience in deploying AS13100 we invited Leitritz Turbine Technology, major supplier for compressor airfoils to MTU for the last 50 years, to participate in the AESQ AS13100 Supplier Forum here in Massy.



## Leistritz - Introduction of AS 13100

AESQ meeting dated 21 October 2022





**Mr. Thomas Dülberg**

**Quality Director for the Business Unit Leistritz Turbine Technology  
and responsible person for AS 13100 implementation.**

E-mail: [tduelberg@leistritz.com](mailto:tduelberg@leistritz.com)

phone: 0049 (0) 172 8408 745

[www.leistritz.com](http://www.leistritz.com)





# Introduction of AS 13100

## Overview of the Leistritz Group



### BUSINESS UNITS

**Leistritz**  
EXTRUSION TECHNOLOGY

**Leistritz**  
PUMP TECHNOLOGY

**Leistritz**  
TURBINE TECHNOLOGY

**Leistritz**  
PRODUCTION TECHNOLOGY



Business Units  
4



Locations  
13



Staff Force  
1.700



Nations  
32



Sales / Year  
€ 260 Million

## Represented in 21 industries:

Automobile, Aviation, Chemical, Composites, Compounding, Energy, E-Mobility, Foods & Beverages, Life Science, Machine Tools, Masterbatch, Materials, Medical, Metal Processing, Oil & Gas, Packaging, Plastics, Pharmaceuticals, Precision Manufacturing, Recycling, Research, Tooling.





## Overview of Leistritz Turbine Technology

**4 Locations**  
Europe and Asia



**Sales p.a.**  
~ 76 Mio.



**Staff Force**  
~ 700

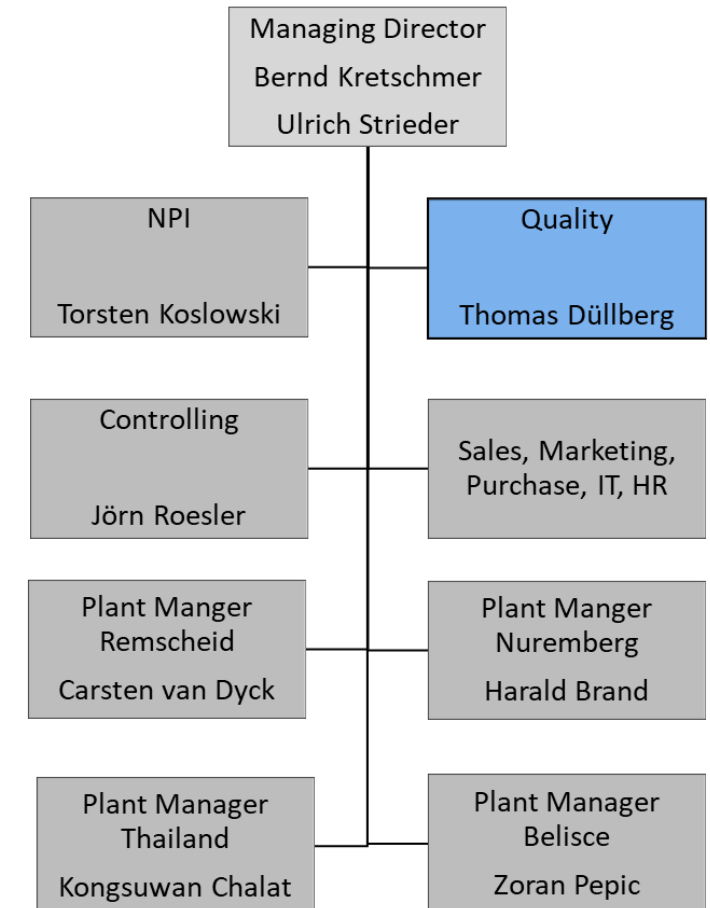


### DIN EN ISO

- DIN EN ISO 9100 and 9001
- DIN EN ISO 45001 work safety
- DIN EN ISO 14001 environmental
- DIN EN ISO 50001 energy
- DIN EN ISO 17025 laboratory



- Heat treatment
- Chemical processing
- Non destructive testing
- Shot blasting



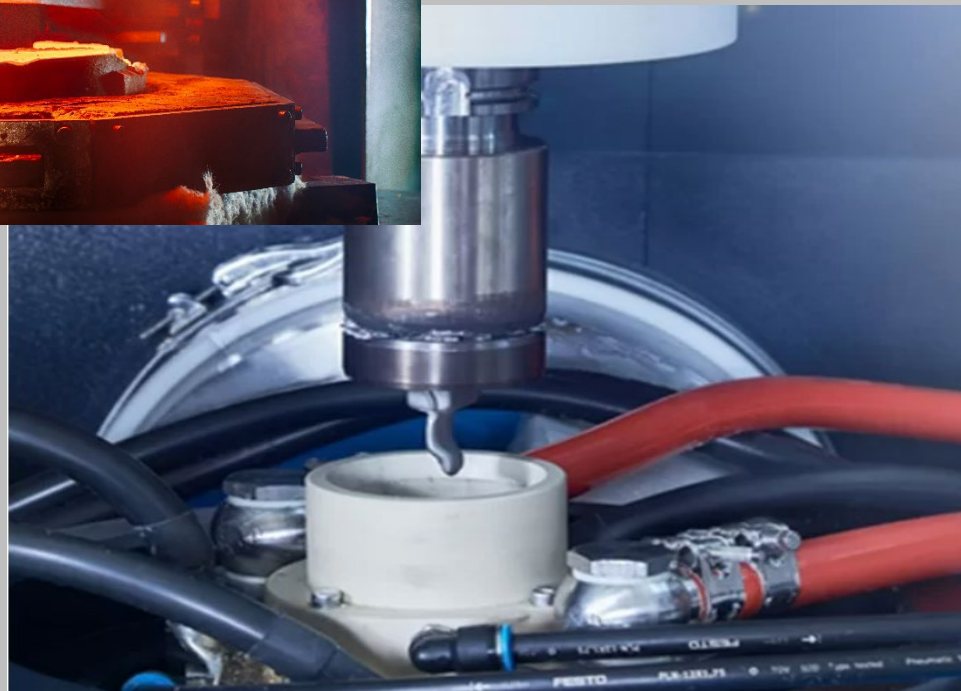


### Groundbreaking technology for tomorrow's turbines



#### Forging

- Precision forging
- Isothermal forging



#### Machining

- ECM (electrochemical machining)
- PECM (pulsed ECM)
- Milling
- Grinding
- Polishing
- ND Testing



**Partner to all leading OEMs and component suppliers in the Aero Engine Industry**



### Our product range:

- Aero engine airfoils & Segments
- Aero engine discs & blisk
- Structural parts
- Titanium aluminide turbine blades
- Metal Leading Edge



## Beginning - Information

- **When did I first hear about the new AS 13100 requirement ?**

At the beginning of 2021 during the AESQ Supplier Forum in April 2021.

- **What was my first thought after the 4 hours information meeting?**

Yet, another new requirement from our customers that has to be implemented, and now in the current Corona situation.

- **What were the first steps?**

Informing the management and all executives about the contents of AS 13100 and about the very committed time schedule.

- **What were the reactions?**

The whole range of reactions:

- What is new?
- who will pay us for all this effort?
- what benefit does Leistritz get from this new requirement?
- What costs will we incur?
- aso.....



## Step 1

Preparation of a generally understandable presentation for all managers, at all locations, with the new requirements and possible advantages for the Leistritz Turbine Technology company after the introduction of AS 13100.

### **Create understanding / Basics for AS 13100 implementation**

- Clear commitment from general management!
- Define responsible person with appropriate rights of access
- Define a team; implementation of AS 13100 is not only a quality task!

### **Start the project**

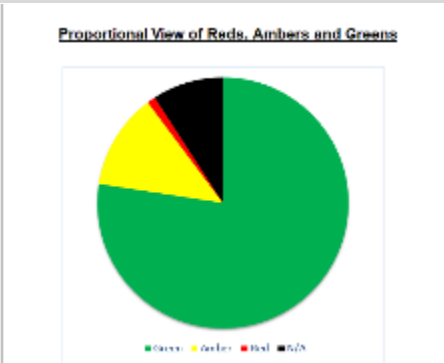
- Install meetings to discuss the self assessment
- 5-10 hours for each location
- Different gaps at the individual locations.

**→ Create corrective actions and discuss it with customer. Set a timetable and communicate changes promptly.**

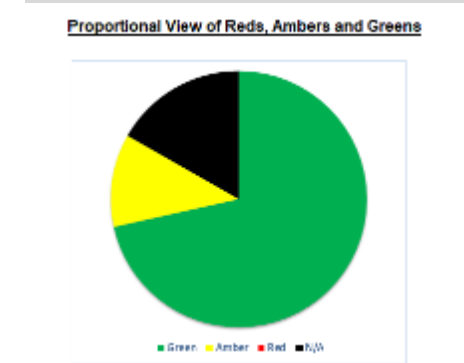


## Status of Self Assessment

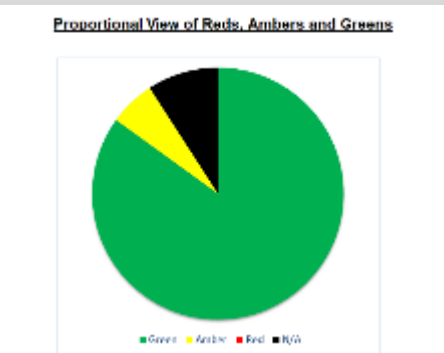
### Remscheid, Germany



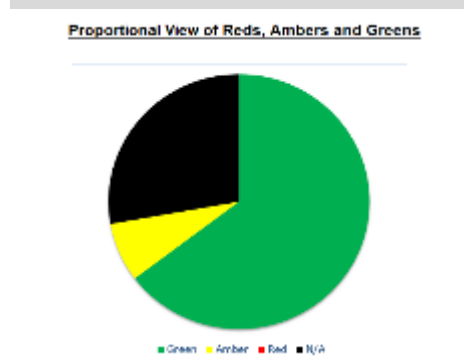
### Chonburi, Thailand



### Nuremberg, Germany



### Belisce, Croatia



## Create and implement a corrective action plan for each site:

AS13100 Compliance Plan								
Revision Date : 07.10.2022								
Clause	Clause title	Organization / Process Reference	Action	Owner	Completion Due Date	% Completion	Date Closed	Status (Auto)
Chapter 4								
4.1.1	Risk and Opportunities	BCP and Resilience Strategy werden	BCP des Lieferanten der AS 13100 anpassen	Dilberg, Geschäftsleitung	30.09.2022	0%		OVERDUE
7.2.2	Internal auditors not trained by external competence	Auditors werden von Qualitätskräften durch eine dokumentierte Prozess auf Grund der Erfahrungen der Mitarbeiter freigegeben und eingearbeitet	Einige Mitarbeiter haben qualifizierte und nach einem Schulungskurs weiter Mitarbeiter anhalten (auch Qualitätsbeauftragte)	Dilberg	30.09.2022	0%		OVERDUE
7.3.1	Established quarterly training program (as in Covid pandemic)	Schulungen werden in 2021 nicht durchgeführt, wegen Covid oder Verzicht auf Schulungen	erforderliche Schulungen dokumentieren und Schulungsplan erstellen	Manquard und Betriebsleiter	30.09.2022	0%		OVERDUE
8.3.1.1	procedure V814 handling of engineering data; APQP/PPAP process not described and no standard tool	Im APQP / PPAP Prozess werden nicht alle Elemente aus LTR durchgeführt, da aktuell die kein Kunde fordert. Nachteil der Prozess nicht in einer Anweisung etc.	Erstellung einer Anweisung / Verfahrensanweisung, die den Prozess beschreibt, Umsetzung der gesamten PPAP / APQP	Schulzschick / Hr. Schick	30.07.2022	0%		OVERDUE
8.3.3.3	Foreign Object Damage (FOD)	FOD ist in mehreren Unterlagen beschrieben, aber es gibt kein eigenes Dokument	Übernahme der FOD Dokumente aus Handbuch für den Standard Remscheid	Dilberg	30.07.2022	0%		OVERDUE
		Der Prozess ist zum Standard Remscheid auf	Lieferantenperformance wird					

## Gaps for Remscheid site:

- Intensify Work with Business Continuity Plans
- Regularly measure the effectiveness of human factors
- FOD – implement in additional processes
- Intensify risk management for supply chain
- add 13100 requirements in all procedures.....

→ The individual gaps differ from site to site, because not every site has engineering, for example.



## Step 2

### 13 additional specifications

Dispatch specifications to the individual departments in order to detect further gaps and to define corrective actions

- From customer view, the introduction of AS 13100 reduces the requirements for the supplier by 50 %.
- This may be true for the headlines, but each of the manuals listed has up to 90 pages of requirements.

### Communication with customer

Mid of 2021, MTU contacted us and asked us to draw up a general timetable for the introduction of AS 13100.

- This was the starting point to intensify the efforts for the introduction of AS 13100.
- The exchange of information with other customers is not as intensive.
  - From Leistritz point of view a platform would make sense on which every supplier can document his progress and every customer has access to it.

### External training of AS 13100 requirements

- Knowledge to be distributed to all managers with a snowball system
- Annual training of all employees via the electronic training system EPLAS



## Step 3

### internal audits

- conduct internal audits in november 2022
- self-assessment of how far AS 13100 has been implemented.
- establish new plan in case of open gaps
- communicate the results and the corrective action plan to customer

### Open questions

- Will all customers accept this internal Leistritz self-assessment?
- or does every customer want to check the status of the introduction of AS 13100 on site himself?

### Quality documents

- Revision of all Q-documents according to AS 13100 (priority on Quality Management Manual and Procedural Instructions (other documents in the specified time period)).

### Final step

- **At the beginning of 2023, the management of Leistritz Turbine Technology will send an official statement to all customers, that AS 13100 has been successfully implemented.**



## Benefits

### **Intensify APQP / PPAP Prozesses**

- documented Run & Rate Phase
- detect failures at an early stage and they are effectively eliminated
- less rejects, lower costs, more stable processes

### **Intensify Risk management**

- Dealing with potential failures already in the planning phase
- Avoids high change efforts and delivery delays
- Risks are identified in advance and Leistritz can implement preventive actions
- Risk assessment of the supply chain

### **Support of the existing zero defect strategy**

- Improved delivery capability
- Achieve world class level in scorecards and thus preference for new customer projects
- Avoidance of concessions



## Conclusion

- **No supplier will be able to ignore these changes if they want to remain active in the aviation business. In the long run, there is also a benefit for Leistritz Turbine Technology through the improvement of processes, reduction of rejects...**
- **The introduction and implementation must be responsibly handled by production, engineering, HR and quality.**

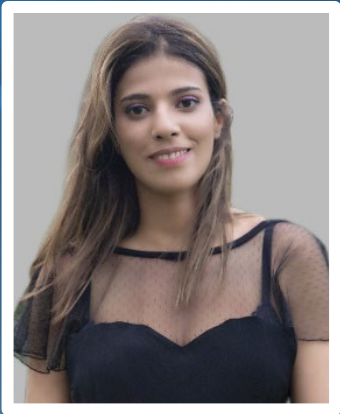




**Thank you for your attention!**



# PARKER MEGGITT AS13100 IMPLEMENTATION STRATEGY



**SORAYA BARJ**  
QUALITY & AIRWORTHINESS MANAGER  
PARKER MEGGITT



# AS13100 Deployment Strategy

**AS13100 – Parker Meggitt Group implementation**



**ENGINEERING YOUR SUCCESS.**



# Agenda

- Parker - Meggitt site coverage
- Timeline
- Milestone Status by Site
- Cumulative performance
- % Compliance by sites
- Combined compliance
- Key Risks / Gaps
- Training
- Summary
- Next steps



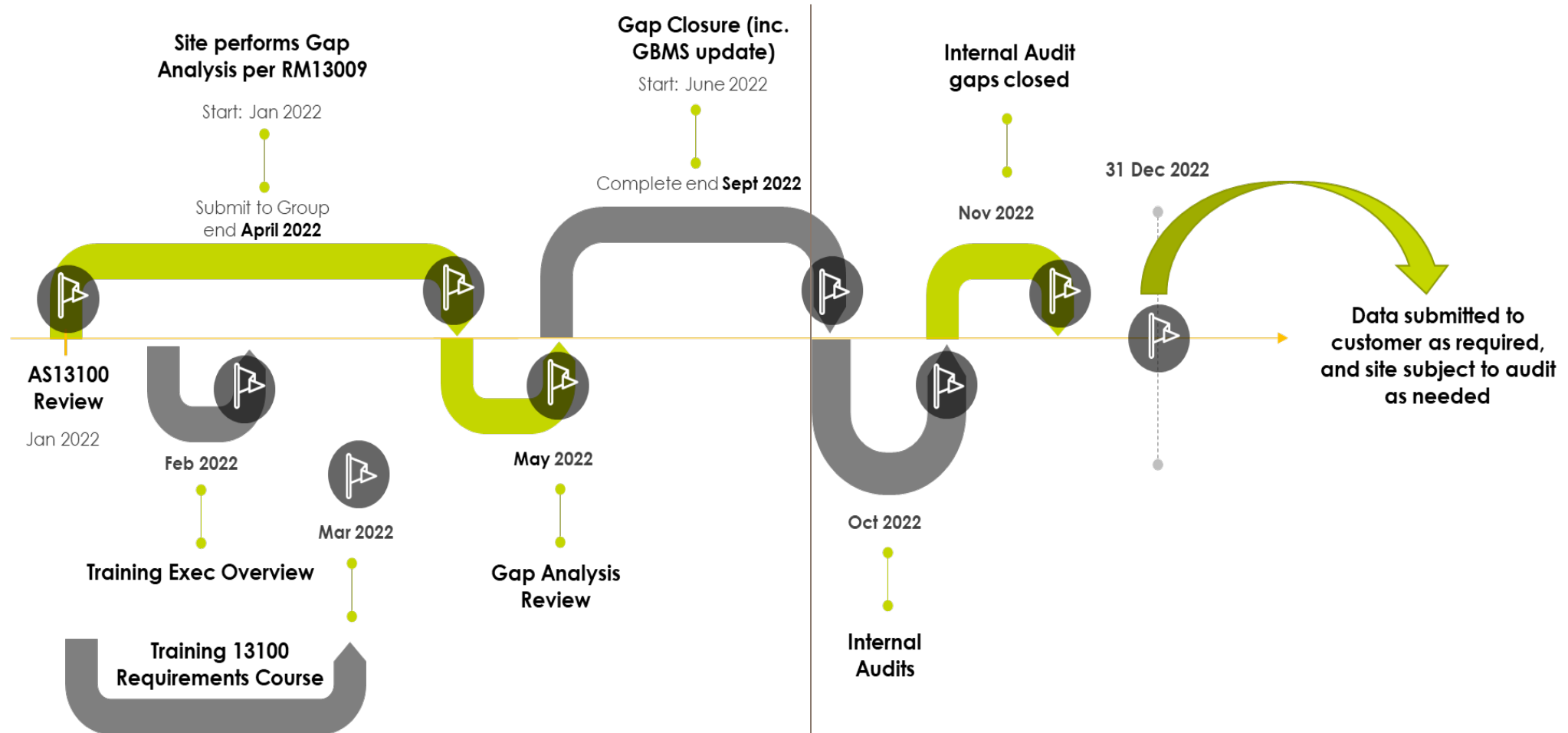
# Parker - Meggitt Sites

Site	Quality Rep
Ansty Park	Pepe Elsworth
Cincinatti	Jim Morano
Erlanger	Eric Carter
Fareham	Tom Williams
Fribourg	Stéphane Marchetti
Loughborough	Les Elphee
Irvine	Cynthia Melchior
North Hollywood	Ramon Williams
Oregon	Jeff Bryson
Portland	Justin Hackett
Saltillo	Daniel Mendoza
San Diego E&E	Chris Harris
San Diego ES	Emmanuel DeBrand
Simi Valley	Greg Lewin
Troy	Sandy Hendrickson
Vietnam	Thao Nguyen
Xiaman	Amanda Wang



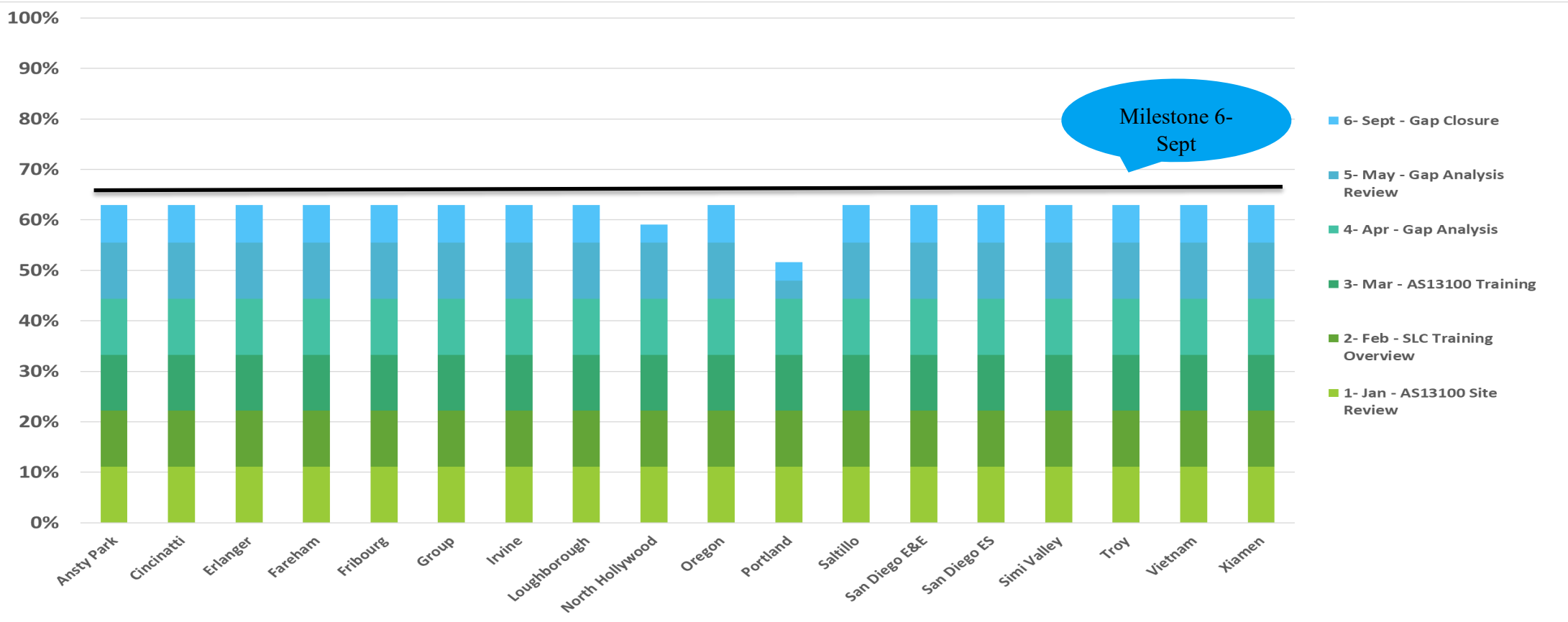


# Parker - Meggitt AS13100 Timeline



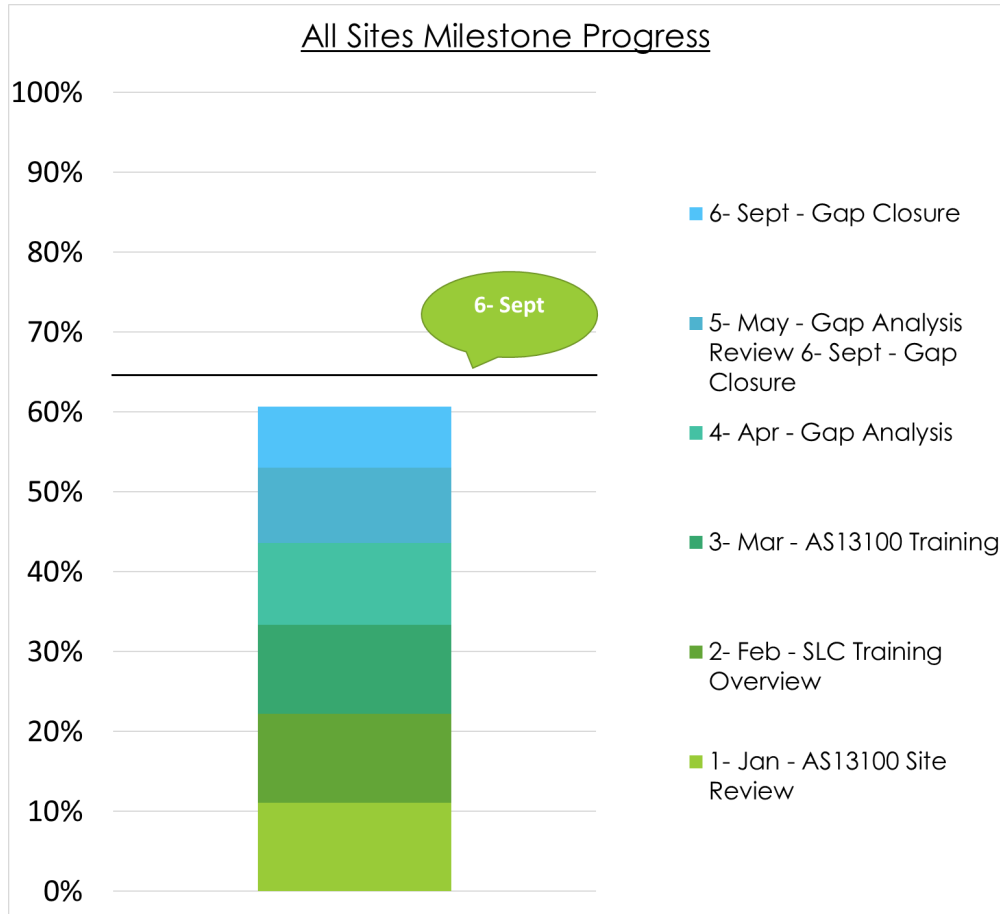


# Milestone Status By Site





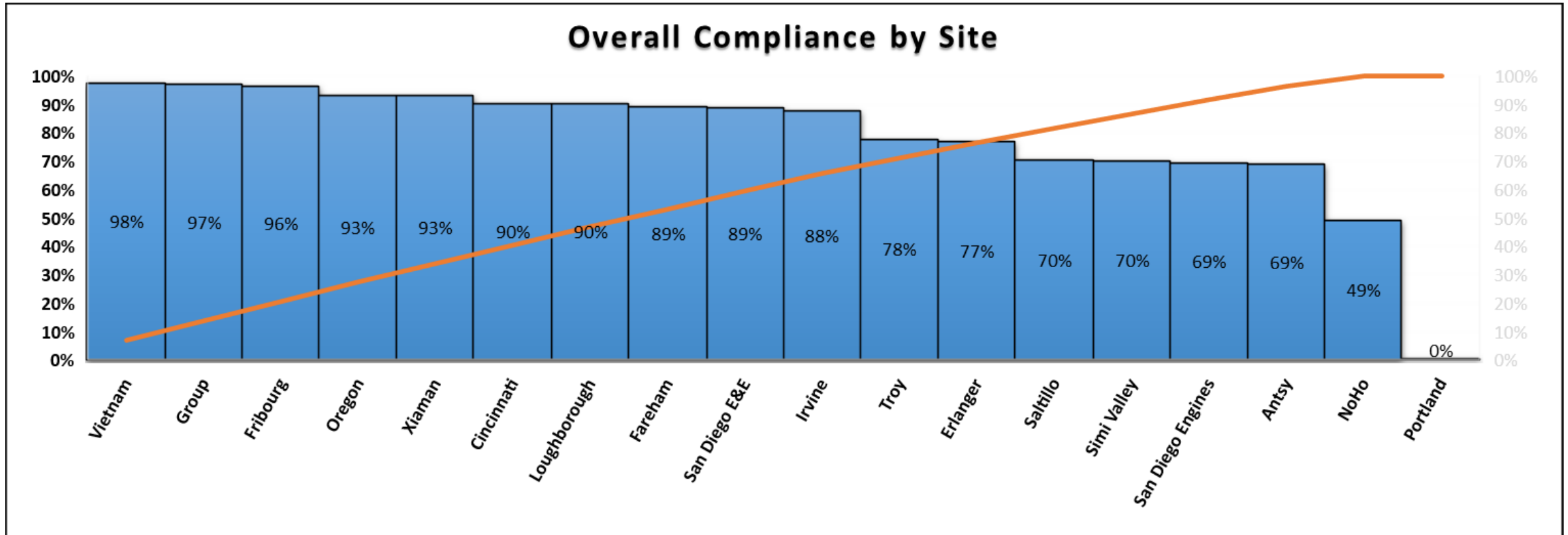
# Cumulative Performance



- All sites are at 61% to the milestones, should be at 67%
- 1 site currently has not submitted their gap analysis bringing the overall % down
- Documents recently released at the Group level are driving training and communication and will close quite a few gaps



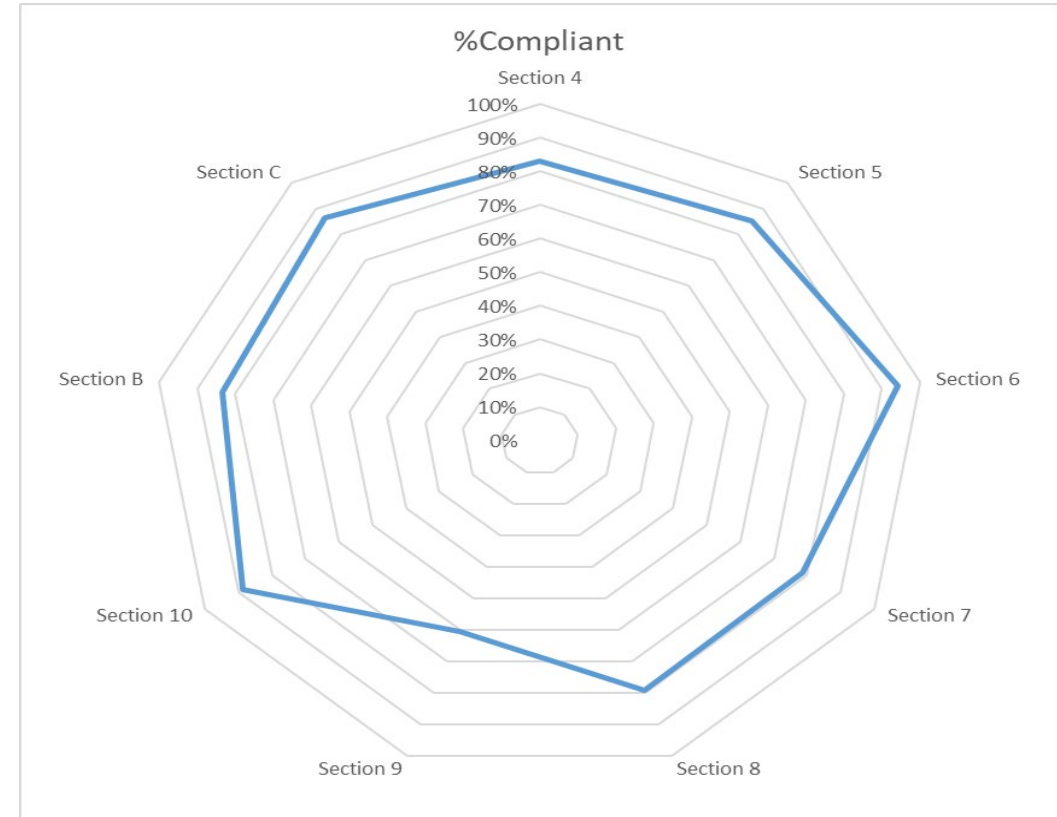
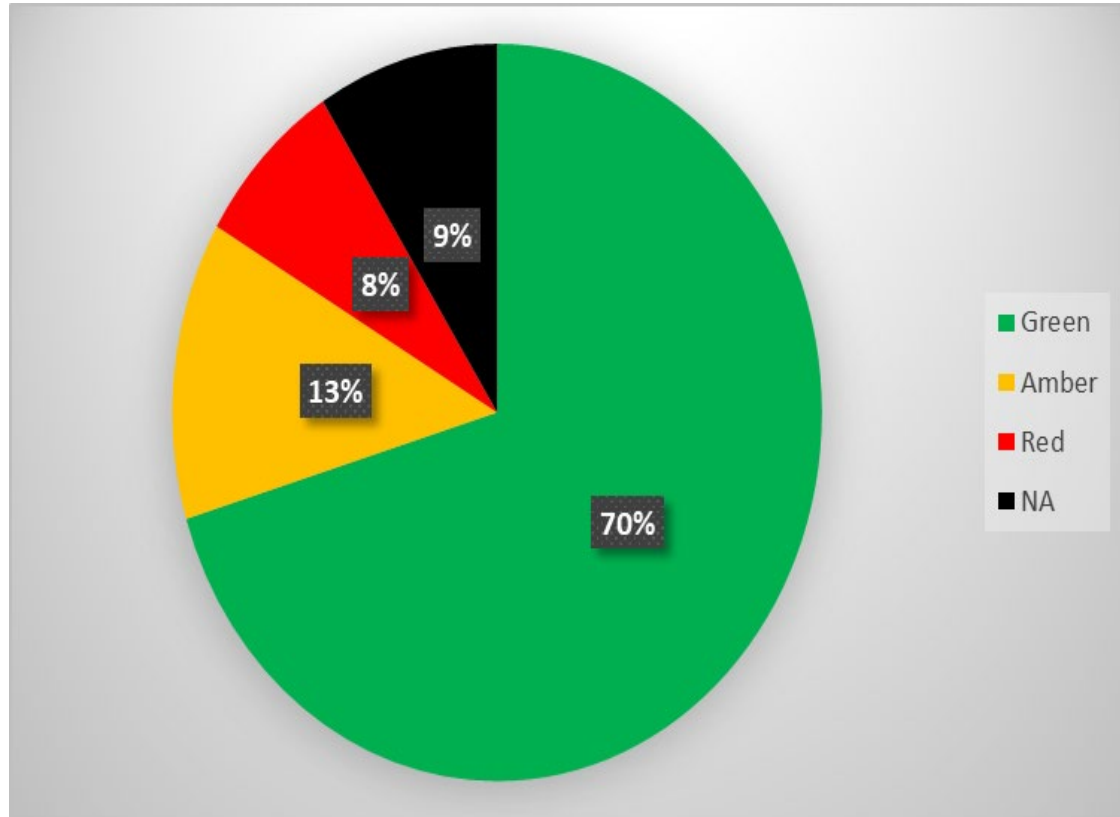
# % Compliance by Site submissions (RM13009)





# Combined AS13100 compliance

Overall Compliance All Sites





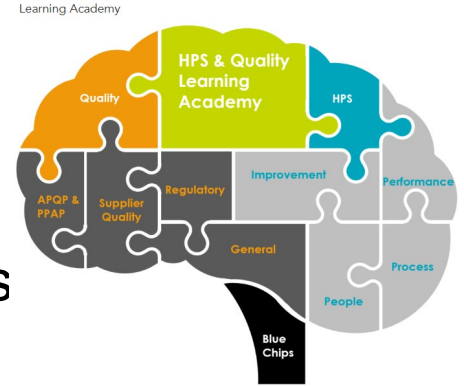
# Key Risks/Gaps

Section	Description	Action
4.4.3	Quality Management System and its processes - Supplemental Processes: Human Factors	MQA-1 Quality Manual Updated & Released
5.2.1.1	Establishing the QP - Human Factors	MQA-33 Human Factors Created & Released
7.1.5.1.1	MSA	MSA not currently being performed on quite a few sites, retrain on material
7.1.5.1.2	Conduct MSA	
7.1.5.1.3	Confirm Acceptance of MSA	
7.1.5.1.4	Agree Improvement Actions -MSA	
7.2.4	AESQ Quality Foundation Training	Parker Meggitt 3 - Day Foundations Course Being Launched
7.3.1	Human Factors Awareness	MTR-31 Human Factors Training Underway
7.5.3.4	Damage to Records - Inform Customer	MQA-20 Updated & Released
8.5.1.2.1	Validation and Control of Special processes - Supplemental Requirements	Sampling of NDT - MQA-31 Inspection - Under Peer Review. To Be Released on 10/21
9.2.5	Annual Audit Report	Being Conducted Monthly - Sites Need Rolled up Performance
9.3.2.1	Management Review Inputs - Supplemental Requirements	Human Factors To Be Considered - Clarify to Sites
19.1	Pre-Launch Control Plan	To Be Instituted On Next New Project/Design



# Training

- Level one – SAE Executive overview, completed by all applicable sites
- Level two – SAE AS13100 requirements course (10 hours approx.), completed by all applicable sites
- Level three – SAE 3 day Quality foundations course, Completed by Group Head of Manufacturing Quality
  - Parker Meggitt will deliver equivalent 3 day quality foundations course for applicable sites (Pilot course TBC for end of Nov 2022 @ Ansty Park)
  - Parker Meggitt has its own Learning academy and all required training is available. Approx. 800 Meggitt engineering professionals have been trained this year in all 14 foundation course modules





# Parker- Meggitt AS13100 Summary

- Monthly site leadership review ongoing
- Monthly Group review with sites is ongoing
- GE - AS13100 Quarterly reviews
- Milestone Tracker – reported monthly
- Gap closure is aided by GBMS updates



# Next steps

- Group Quality to Continue to work with sites to mitigate risks & close Gaps
- Complete Gap assessment audits
- Deliver pilot AESQ equivalent 3 day foundations course to all applicable sites
- Share best practices /lessons learned with all applicable sites



# AS13100 IMPLEMENTATION QUESTION & ANSWER



# TRAINING OVERVIEW



## EARL CAPOZZI

ASSOCIATE DIRECTOR, DISCIPLINE CHIEF  
QUALITY & PROCESS ENGINEERING / SUPPLIER QUALITY  
PRATT & WHITNEY





## Introducing SAE AS13100 The New Industry Standard for Quality

**This exciting new standard creates a common language for quality throughout the supply chain. Watch our video series for executive perspectives from across the industry, and learn how compliance is critical to your company's success.**



# Training Program Goals



Support deployment and adoption of AS13100



Knowledge to design, maintain & assess business processes to meet intent of standard



Focus on key concepts, impact to compliance and customer requirements and benefits to business performance



Simplify and clarify the requirements with a standardized training approach



# AS13100 TRAINING SUMMARY

## 7.2.4 AS13100 Requirements Training and AESQ Quality Foundations Training - Supplemental Requirements

The organization shall ensure that Quality Leaders with responsibility for deploying the requirements of AS13100 within the organization are trained in the requirements of AS13100 and related Quality Management Standards through an AESQ approved AS13100 Requirements training course. This course is also recommended for functional leaders responsible for creating or managing processes that are impacted by AS13100 Requirements.

In addition, the organization's Quality Leaders with responsibility for supporting the design, manufacturing, and assembly operations via AS13100 shall undergo training in the AESQ Quality Foundations Training course. This course is also recommended for design engineering, manufacturing engineering and operations roles.

Equivalent training that meets the AESQ AS13100 Requirements and Quality Foundations course syllabi shall be approved by the AESQ.



# Required Training

## Delegated Product Release Verification (DPRV)

DPRV personnel shall be trained and certified in accordance with **AS13001 Delegated Product Release Verification Training Requirements**

(7.2.3) Requirement since 2015

## AESQ AS13100 Quality Requirements Course

The organization shall ensure that Quality Leaders with responsibility for deploying the requirements of AS13100 within the organization are trained in the requirements of AS13100 and related Quality Mgmt. Standards through an **AESQ approved AS13100 Requirements** training course.

(7.2.4) Requirement since 2021

## AESQ Quality Foundations Course

The organization's Quality Leaders with responsibility for supporting the design, manufacturing, and assembly operations via AS13100 shall undergo training in the **AESQ Quality Foundations** Training course.

(7.2.4) Requirement since 2022



# DPRV AS13001 Revision A



Certified by Probitas Authentication™ an independent third party. They track attendees and maintain everyone's ongoing credentials and record against the requirements.

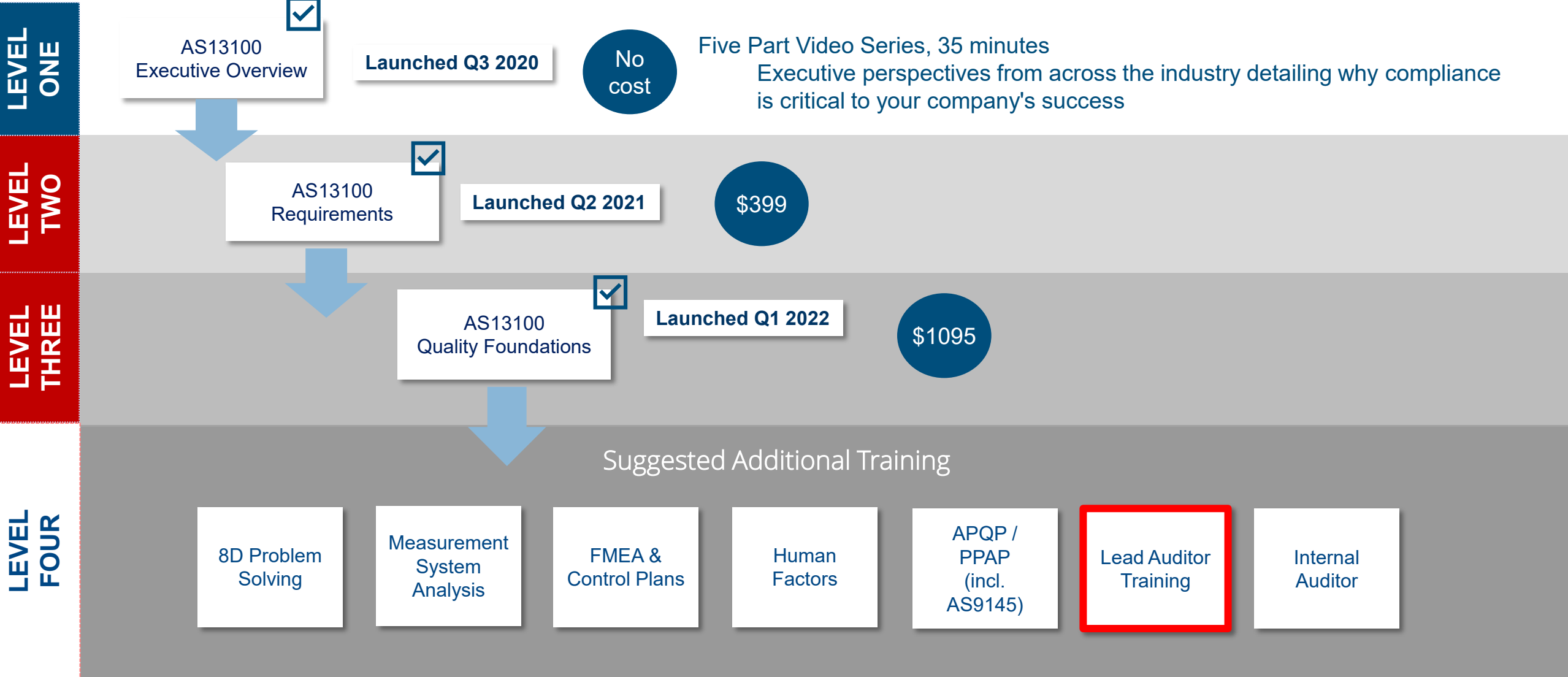
In the aerospace industry, the [Delegated Release Process Verification](#) process establishes a uniform set of requirements by which a supplier may be granted authority to ship product. This removes or minimizes source and/or receiving inspection by the delegating organization, or their third-party representatives.

Successful completion of this course satisfies the respective customer training requirement for initial self-release delegate qualification.





# Required & Suggested Additional Training





# SAE AS13100 Executive Overview Videos

This exciting new standard creates a common language for quality throughout the supply chain.

Watch this free video series with executive perspectives from across the industry and how compliance is critical to your company's success:

1. The Aerospace Industry
2. Formation of AESQ
3. The Need for AS13100
4. Overview of AS13100
5. Summary



SCAN ME



On ongoing series of short videos: *Live and On Demand*

Executive perspectives from across the industry detailing how AS13100 compliance will affect these topics:

No  
cost

AS13100  
APQP and PPAP for  
Supply Chain  
To RM13145

AS13100  
Design FMEA  
to RM13004

AS13100  
What Makes a Good  
8D?  
RM13000

AS13100  
First Article  
Inspection (FAI)  
to RM13102



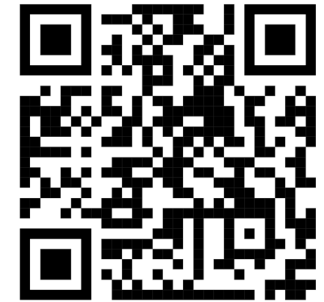
SCAN ME



# AS13100 REQUIREMENTS COURSE OVERVIEW



- ✓ **Required** for Quality Leaders with responsibility for deploying the requirements of AS13100.
- ✓ **Recommended** for functional leaders responsible for creating or managing processes that are impacted by AS13100.



SCAN ME



## Is this On Demand Course for You?

- ✓ **Individuals accountable** for defining the organization's processes or developing its quality management system to meet customer, regulatory, and industry requirements.
- ✓ Quality Leaders and those leaders from other functional areas:

Design

Business

Program  
Management

Engineering

Manufacturing

Auditors

Operations

Purchasing



This course is On Demand, and includes 10 modules aligned to the AS13100 Standard:

- Introduction to AS13100 (Intro to Section 3)
- **Chapter A:** 9100 Quality Management System – Requirements for Aviation, Space and Defense Organizations – AESQ Supplemental Requirements
- **Chapter B:** AS9145 Advanced Product Quality Placement (APQP) and Production Part Approval Process (PPAP) – AESQ Supplemental Requirements
- **Chapter C:** Core Defect Prevention Quality Tools to Support APQP and PPAP – Supplemental Requirements



# QUALITY FOUNDATIONS COURSE OVERVIEW



- ✓ **Required** for Quality Practitioners with accountability for deploying the requirements of AS13100.
- ✓ **Recommended** for functional practitioners responsible for creating, managing or deploying processes that are impacted by AS13100.



SCAN ME

**Exception** for GE Suppliers who have prior attendance in Supplier Orientation or QF204/GE Aviation Supplier Training.



# SAE AS13100 Quality Foundations Course Overview

- ✓ This three-day course is offered either online, or on-ground.
- ✓ Key quality systems, processes and methodologies to show how they work as part of a system focused on **defect prevention**.
- ✓ Supports quality professionals, at all levels in the organization, to understand how these tools and processes work and what are the characteristics of **successful deployment**.
- ✓ Recommended for functions with accountability for the quality of the design, production, assembly and test areas of the organization.





## Is this Course for You?

- ✓ Individuals operationalizing the organization's processes and deploying its quality management system to meet customer, regulatory, and industry requirements.
- ✓ Quality practitioners and those from other functional areas:

Design

Business

Program  
Management

Engineering

Manufacturing

Auditors

Operations

Purchasing

The intent is, at a minimum, site quality leaders will attend training.



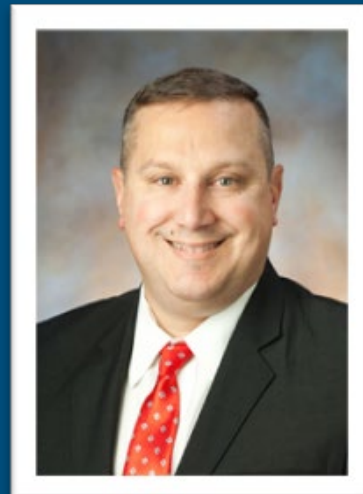
# OEM REQUIREMENTS SESSION



Gokhan Kulali  
GE Aviation



Ian Riggs  
Rolls-Royce



Earl Capozzi  
Pratt & Whitney  
Canada



Denis Pottier  
Safran Aircraft  
Engines



Catherine Catarina  
Safran Aircraft  
Engines



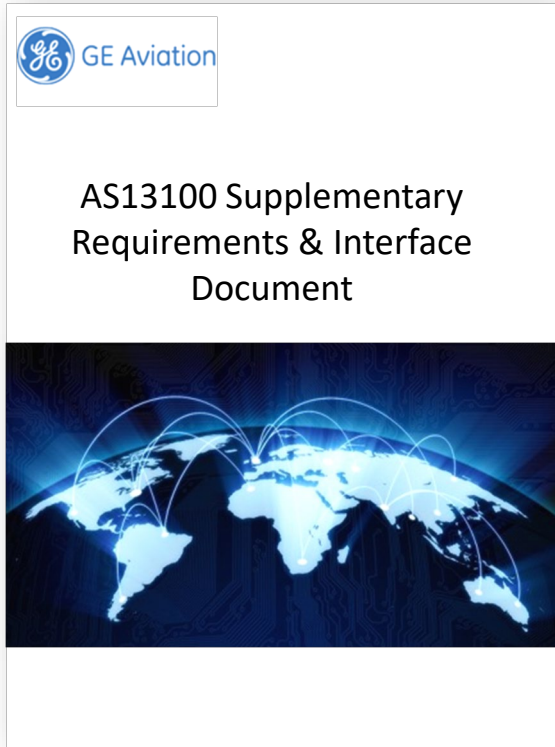
# GE AVIATION



**GOKHAN KULALI**  
SUPPLIER QUALITY ENGINEER  
GE AVIATION



# AS13100 Customer Specific Requirements – GE Unique



## Intro

GE S-Specs – Quality Requirements – Special Processes

## Section 4

Priority parts review

Affiliate requirements

## Section 8

Order of precedence

Change in design – electronic application

Source Problem Reports

Purchased raw material – testing requirements

Fastener supplier requirements



# AS13100 Customer Specific Requirements – GE Unique



AS13100 Supplementary  
Requirements & Interface  
Document



## Section 8 (Continued)

APQP – Applicability based on manufacturing complexity/risks

Serialization – numbering

Hardware Release – DSQR

Electronic nonconforming material process

## Section 9

Alternate inspection – electronic application

Product Audit requirements

## Section 16

FAI per S-1002

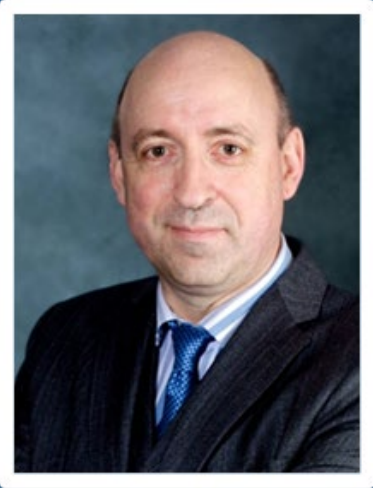
PPAP – submission based on manufacturing complexity/risk

## Section 17

PPAP submission- electronic application/process



# ROLLS-ROYCE



Ian Riggs  
Quality & HSE Executive, Customer, Assembly & Test  
Rolls-Royce



# AS13100 Customer-Specific Requirements; Rolls-Royce

**SABRe 3; Full compliance to all previous requirements**

## **Section 4.3 Determining the Scope of the Quality Management System**

New supplier approval type and AS13100 compliance

## **Section 6 Actions to Address Risks and Opportunities**

Comply with the Rolls-Royce Supplier Enhanced Cyber Security Standard

## **Section 8.1.3 Product Safety**

Conduct training every 4 years on product safety supported by Product Safety Awareness Briefing pack developed by Rolls-Royce

## **Section 9.1.1.1 Monitoring and Measurement of the Manufacturing Process**

Achieve the Process Minimum Standards using the Benchmarking Assessment Tool for applicable processes

- *Acceptable Compliance by End 2022; Required process minimum standard agreed with RR and a plan in place to complete the assessments by end of 2023*

## **Section 10.3 Continual Improvement**

Demonstrate a commitment to zero defects by establishing the appropriate improvement plans and programmes





# PRATT & WHITNEY

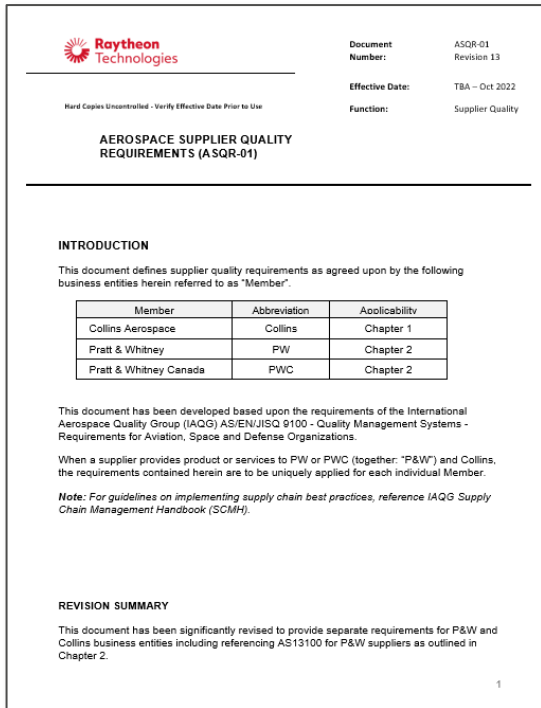


**EARL CAPOZZI**

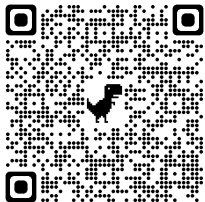
ASSOCIATE DIRECTOR, DISCIPLINE CHIEF  
QUALITY & PROCESS ENGINEERING / SUPPLIER QUALITY  
PRATT & WHITNEY



# AS13100 Customer-Specific Requirements – P&W



ASQR-01



## Intro

Clarification of AS13100 and the RM's

## Section 4

60 days to incorporate new requirements

Deliverable software to ASQR-07.5 (and non-deliverable in Section 8)

Multiple additions to QMS Certification Requirements Table 2

## Section 7

Significant-Out-Of-Tolerance on M&TE equipment

Table 4: MSA Acceptance Limits – new Gage R&R acceptance levels

P&W DPRV program requirements

Retention period starting date

Retention on radiographs of non-serialized parts

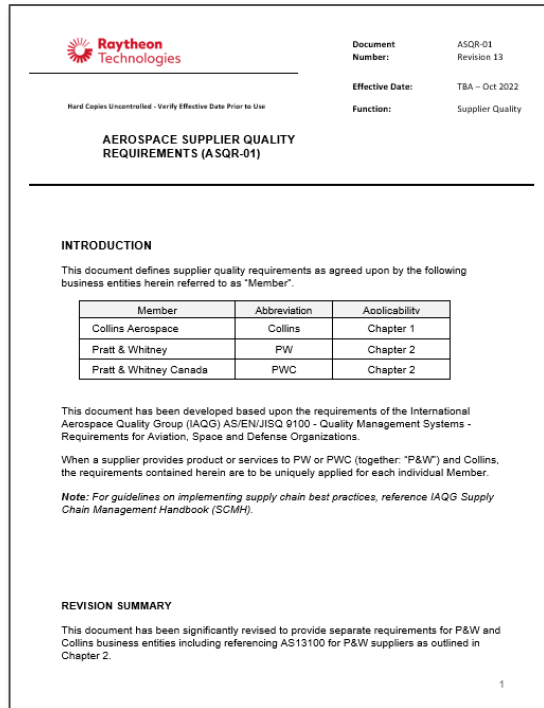
## Section 8

Critical parts per ASQR-09.1

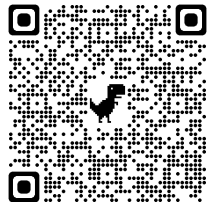
P&W-specific forms to communicate



# AS13100 Customer Specific Requirements – P&W



ASQR-01



## Section 8 (cont.)

Handheld spectrometry only on request

Operator self-verification programs needing P&W approval

## Section 9

Sampling to ASQR-20.1 and alternate inspection approvals

Product and Production Process Audits included in risk analyses only

## Section 10

Verification of corrective actions – 3 manufactured lots

Temporary Key Characteristics

## Section 17

PPAP submission- submission, approval, deferral, and element contents

## Section 18

Not applicable to P&W

## Section 21

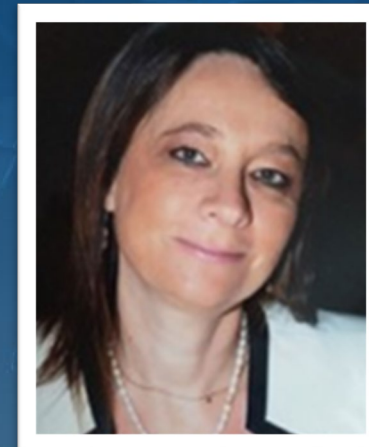
Initial Process Capacity studies requirements



# SAFRAN AIRCRAFT ENGINES



Denis POTTIER  
Head of the Purchasing Quality  
Assurance Department  
Safran Aircraft Engines



Catherine CATARINA  
Supplier Management  
System Coordinator  
Safran Aircraft Engines



# Gaps Analysis AS13100 vs SAFe

AS13100 Requirements	Chapter A AS9100 Rev D Supplemental Requirements										Chapter B APQP & PPAP AS9145 Supplemental Requirements									Chapter C Defect Prevention Quality Tools to Support APQP & PPAP							
Clause Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	DFMEA	Product KCs	Process Flow Diag.	PFMEA	Process KCs	Control Plan	MSA	Process Capability
More SAFe				✓	✓		✓	✓	✓	✓																	

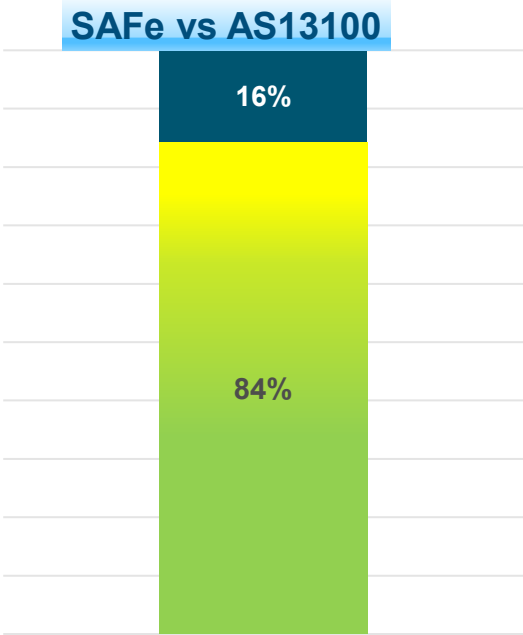
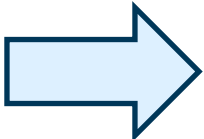


### Examples

**Section 7.2.1**  
Requires organizations to provide On the Job Training

**Section 7.2.(2&4)**  
AS13100 Requirements training and AESQ Quality Foundations Training

**Section 8.5.1.1.1**  
Control of Equipment, Tools, and Software - Supplemental Requirements



■ Covered ■ Not Covered



# More SAFe versus AS13100: *Some examples*

## Chap. 5 Corporate Social Responsibility



## Chap.7 Regulatory watch process



## Chap.8 Obsolescence



## Chap.8 Low-carbon



## Chap.10 Scrap rate

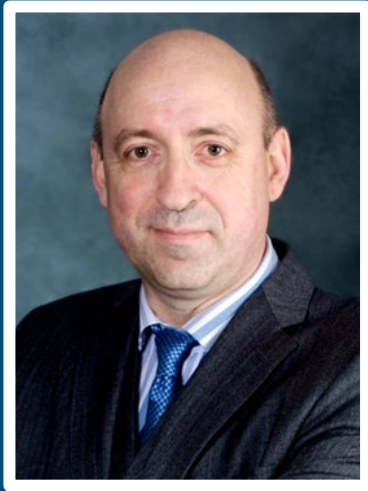




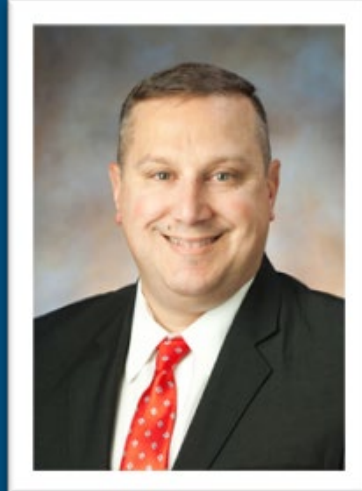
# OEM REQUIREMENTS Q&A SESSION



Gokhan Kulali  
GE Aviation



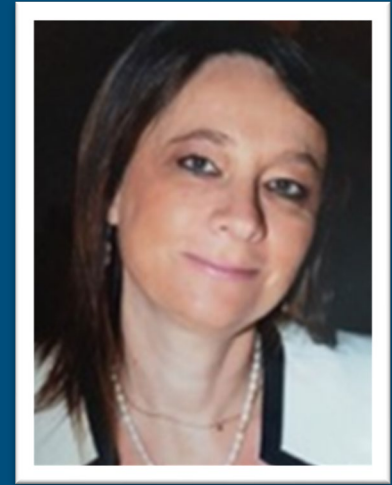
Ian Riggs  
Rolls-Royce



Earl Capozzi  
Pratt & Whitney  
Canada



Denis Pottier  
Safran Aircraft  
Engines



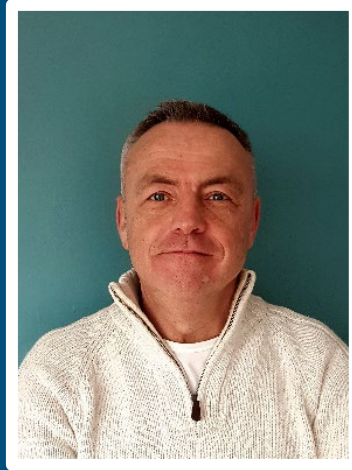
Catherine Catarina  
Safran Aircraft  
Engines



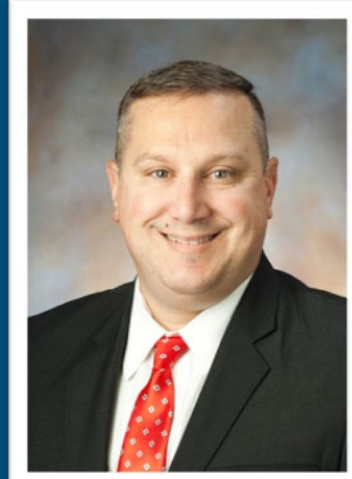
# AS13100 FAQ PANEL SESSION



Barrie Hicklin  
Honeywell



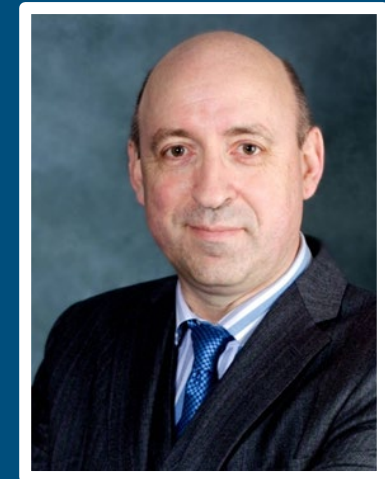
Karl Evans  
Rolls-Royce



Earl Capozzi  
Pratt & Whitney



Catherine Catarina  
Safran Aircraft  
Engines



Ian Riggs  
Rolls-Royce



# ZERO DEFECTS JOURNEY



**BARRIE HICKLIN**

SR. DIRECTOR, QUALITY SYSTEMS &  
REGULATORY COMPLIANCE  
HONEYWELL AEROSPACE



slido



## Why do we need to get to Zero Defects?

① Start presenting to display the poll results on this slide.





**Does your company formally recognize Zero Defects as a goal?**





**How would you rate your capability to assess a programme of Zero Defects?**



slido



**What do you see as your greatest barrier?**

① Start presenting to display the poll results on this slide.



slido



**What would help you most?**

① Start presenting to display the poll results on this slide.



# AESQ

## HOW TO GET INVOLVED

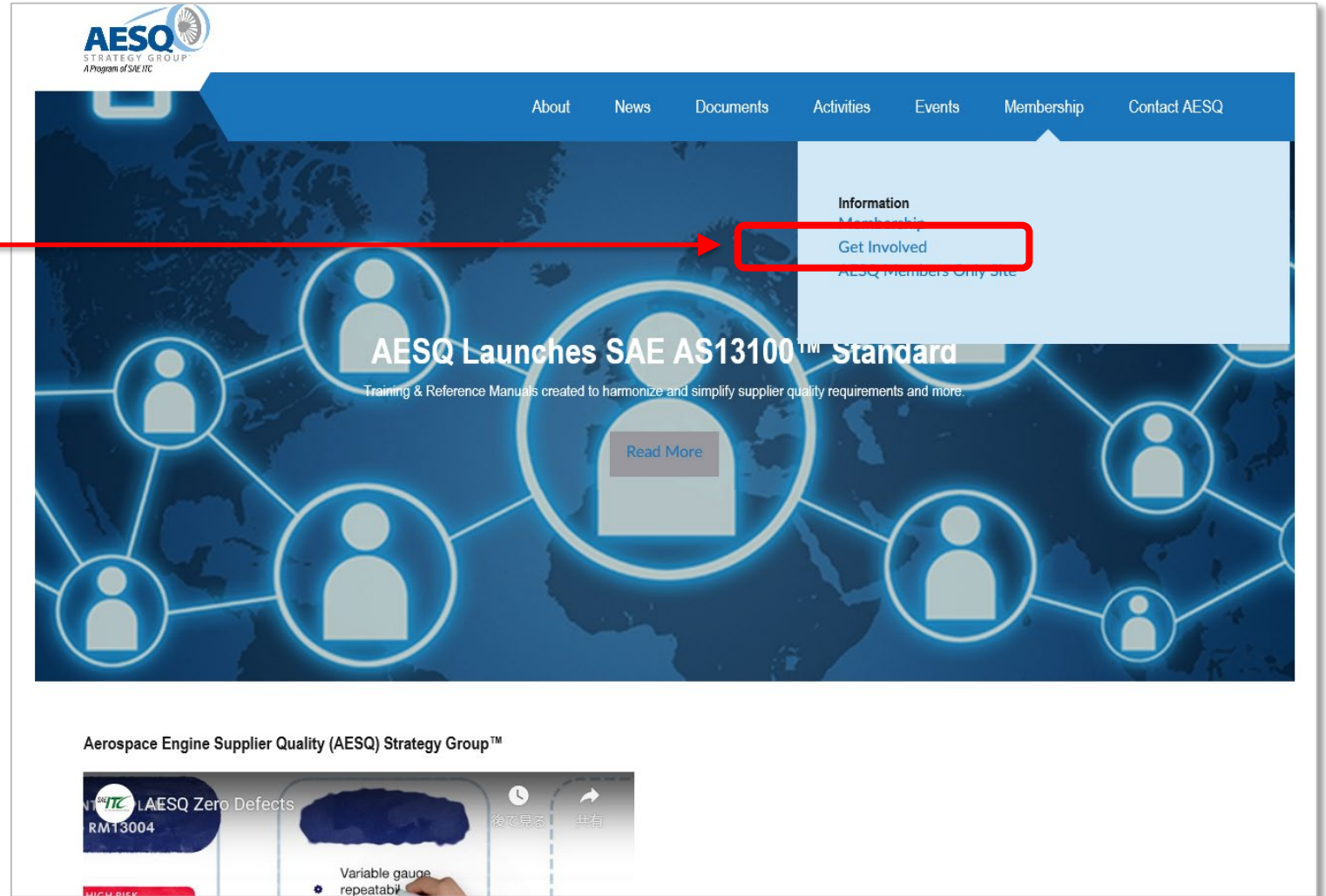


**MARKUS BRAIG**  
DIRECTOR QUALITY SUPPLY CHAIN AND MRO  
MTU AERO ENGINES



# “Get Involved” with AESQ

- Go to AESQ Homepage  
<https://aesq.sae-itc.com/>
- Click “Get Involved”





# “Get Involved” Options

1. Sign up to receive AESQ eNewsletter
2. Become an AESQ Member
3. Join the SAE G-22 Committee
4. Join a Community of Practice on LinkedIn

Click on the appropriate link for additional information

The screenshot shows the AESQ website's 'Get Involved' page. At the top is a blue navigation bar with links: About, News, Documents, Activities, Training, Events, Membership, and Contact AESQ. Below the navigation bar is a large banner image of people in a meeting. Overlaid on the banner is the text 'Get Involved' and 'AESQ provides multiple opportunities to get involved and learn more about their initiatives.' A red 'Read More' button is on the right. Below the banner, the text 'AESQ Invites you to Get Involved' is followed by a paragraph: 'AESQ provides several opportunities to get involved, support, participate and remain aware of its activities, resources and communications.' Then, under the heading 'Ways to Get Involved', there is a bulleted list: 'Become an AESQ Member', 'Join the SAE G-22 Committee', 'Sign up to receive the AESQ eNewsletter', and 'Join a Community of Practice'. Below this list is a paragraph: 'AESQ created these Communities of Practice (CoP) to encourage subject matter experts to engage and positively promote the topics listed below. These are professional development and discussion groups set up to exchange ideas, ask pertinent questions, share best practices and learn as a Community. Click and join a Community today:'. A dashed pink box highlights a list of topics: 'Problem Solving Methods', 'First Article Inspection (FAI)', 'Defect Prevention Tools', 'Design Work & Production Repair', 'Quality Audit Methods', 'Sub-Tier Management', 'Measurement Systems Analysis (MSA)', 'Human Factors', 'DPRV', 'APQP & PPAP', and 'Process Control Methods'.

About News Documents Activities Training Events Membership Contact AESQ

## Get Involved

AESQ provides multiple opportunities to get involved and learn more about their initiatives.

[Read More](#)

### AESQ Invites you to Get Involved

AESQ provides several opportunities to get involved, support, participate and remain aware of its activities, resources and communications.

#### Ways to Get Involved

- [Become an AESQ Member](#)
- [Join the SAE G-22 Committee](#)
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AESQ created these Communities of Practice (CoP) to encourage subject matter experts to engage and positively promote the topics listed below. These are professional development and discussion groups set up to exchange ideas, ask pertinent questions, share best practices and learn as a Community. Click and join a Community today:

- [Problem Solving Methods](#)
- [First Article Inspection \(FAI\)](#)
- [Defect Prevention Tools](#)
- [Design Work & Production Repair](#)
- [Quality Audit Methods](#)
- [Sub-Tier Management](#)
- [Measurement Systems Analysis \(MSA\)](#)
- [Human Factors](#)
- [DPRV](#)
- [APQP & PPAP](#)
- [Process Control Methods](#)



# “Get Involved” – Sign up to Receive AESQ’s eNewsletter

- Issued monthly
- Learn about AESQ’s current activities
- Complete online form to begin receiving

The screenshot displays the AESQ eNewsletter interface. At the top, a banner reads "Connect with AESQ via the Monthly eNewsletter and LinkedIn for the latest on AS13100 and related initiatives." Below this, the "Recent News" section shows two items: "AESQ eNewsletter 2022 August" dated 2022-07-31 and "Pratt & Whitney Spotlight & Testimonial – 15 April 2022". The main content area features two detailed announcements for "AESQ SUPPLIER FORUM – AS13100 DEPLOYMENT". The first forum is in Indianapolis, Indiana, on Thursday 6 October 2022, at the Ralfe-Rayce Victory Building. The second forum is in Massy, France, on Friday 21 October 2022, at the SAFRAN Training Center. Both forums include a list of speakers and logos of participating organizations like GE, Honeywell, and MTU. At the bottom, a section titled "AESQ Supplier Forums: Indianapolis & Massy" explains that AESQ offers these opportunities to learn about the SAE AS13100™ AESQ Quality Management System Requirements.



# “Get Involved” – Become an AESQ Member

## 2 Membership Levels:

**AESQ Strategy Group Member** – specified in the AESQ Charter due to their critical support resulting in the establishment of the AESQ Strategy Group.

### AESQ Member –

- Open to organizations engaged in the Aero Engine supply chain.
- Required to participate in the work of AESQ by providing resources to support AESQ working groups.
- Representatives shall be senior leaders from the organization or subject matter experts in a relevant area.

Complete Membership Application at bottom of page



The screenshot shows the AESQ website with a navigation bar containing links for About, News, Documents, Activities, Events, Membership, and Contact AESQ. The main header features a large image of people in a meeting with the text "Membership Opportunities" and "AESQ provide two levels of membership to engage with the Aero Engine supply chain." Below this, the "Membership Overview" section states that AESQ welcomes new members and is open to organizations engaged in the Aero Engine supply chain. The "Membership Benefits & Levels" section lists benefits such as contributing to AESQ's work, participating in forums, gaining visibility, and networking. The "Membership Levels" section describes two levels: AESQ Strategy Group Member and AESQ Member. The "Annual Membership Dues" section states that applications are reviewed by the AESQ Steering Group and that membership is dependent on active participation and payment of dues. The dues are listed as \$8,000 per organization per annum for Strategy Group Membership and \$1,000 per organization per annum for AESQ Membership. A "Membership Application" link is provided at the bottom, along with contact information: info@aesq.sae-itc.org.



# “Get Involved” – Join a Community of Practice

Community of Practice	Members
Problem Solving Methods	263
First Article Inspection (FAI)	239
Defect Prevention Tools	366
Design Work & Production Repair	127
Quality Audit Methods	251
Sub-Tier Management	167
Measurement Systems Analysis (MSA)	188
Human Factors	124
DPRV	178
APQP & PPAP	319
Process Control Methods	90
Compliance Assessment	1
Alternate Inspection Frequency	7

LinkedIn Groups for each Community of Practice is now open for anyone to join.

The screenshot displays two LinkedIn group pages for AESQ Communities of Practice. The left page is for the 'AESQ Human Factors (RM13010) Community of Practice' with 50 members. The right page is for the 'AESQ APQP & PPAP (RM13145) Community of Practice' with 191 members. Both pages show group descriptions, member lists, and promotional posts for webinars and surveys.

**AESQ Human Factors (RM13010) Community of Practice**

メンバー: 50名

つながりを招待

すべて表示

このグループについて

#AESQ encourages subject matter experts to engage with this Community of Practice to positively promote the use of Reference Manual RM13010 to support deployment of Human Factors in line with the SAE AS13100 Standard a...

すべて表示

管理者

Becky Lemon 所有者  
Industry Program Manager at SAE International

catherine CATARINA 管理者  
Chef de département coordination qualité fournisseurs chez Safran

プロモーション

バイリンガル人材募集

メッセージ

**AESQ APQP & PPAP (RM13145) Community of Practice**

メンバー: 191名

つながりを招待

すべて表示

このグループについて

#AESQ encourages subject matter experts to engage with this Community of Practice to positively promote the use of Reference Manual RM13145 to support deployment of APQP & PPAP in line with AS13100 and to share best ...

すべて表示

管理者

Becky Lemon 所有者  
Industry Program Manager at SAE International

Karl Evans 管理者  
APQP Technical Program Manager at Rolls-Royce

プロモーション

バイリンガル人材募集

Enhance your employment opportunity? Utilize your language skills.

メッセージ

グループで投稿を開始

写真 動画 アンケート

グループで投稿を開始

写真 動画 アンケート

すべて おすすめ

管理者により固定済み

Karl Evans • 3次+  
APQP Technical Program Manager at Rolls-Royce  
1ヶ月前

Help make this future AESQ Webinar on APQP/PPAP beneficial by answering the following.... #webinar #AESQ #apqp #ppap #help

翻訳を表示

The AESQ are planning a Webinar on APQP/PPAP. Polling suggest the topic is APQP Planning & Review. Which aspect will benefit your company?

投稿者はアンケートの回答状況を確認できます。詳細はこちら

Creating the APQP Project Plan 41%

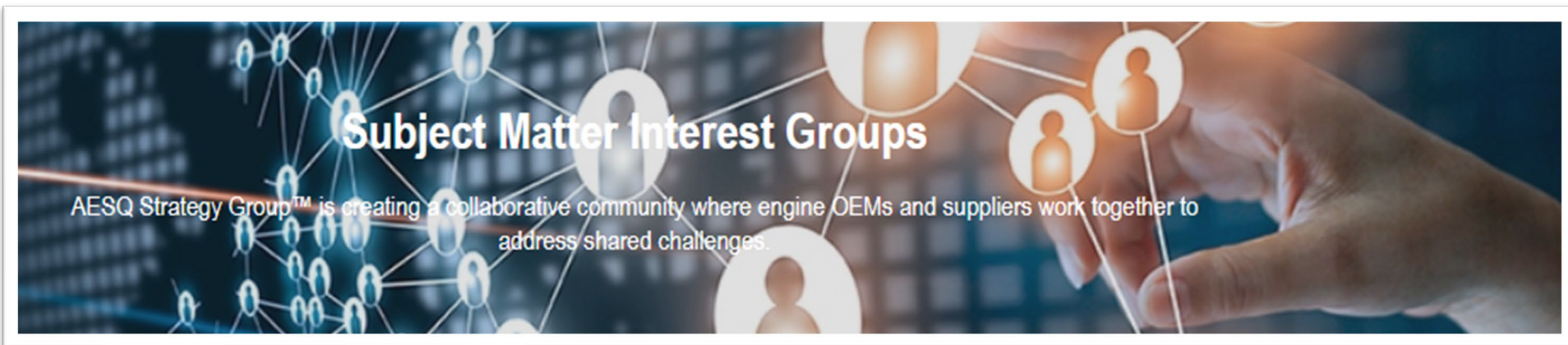
Cross functional team working 41%



# “Get Involved” – Subject Matter Interest Groups

- Follow AESQ’s Subject Matter Interest Groups
- Sign up for a Subject Matter Interest Group Webinar

AESQ Subject Matter Interest Groups	
Advanced Product Quality Planning (APQP) & Production Part Approval Process (PPAP) RM13145	Defect Prevention Tools to Support APQP & PPAP RM13004
Design Work & Production Repair & Rework RM13008 & RM13011	Measurement Systems Analysis (MSA) RM13003
Sub Tier Management RM13007	Process Control Methods RM13006
Human Factors RM13010	Problem Solving Methods RM13000
DPRV Training RM13001	Quality Audit Methods RM13005
First Article Inspection RM13102	Alternate Inspection Frequency RM13002



## AESQ – Aerospace Engine Supplier Quality Strategy Group

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- Download to Print
- 3 Sizes Available
  - 11" x 17"
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  - 108" x 72"





# “Get Involved” – Additional Options

- Attend AESQ Events (Supplier Forums, Webinar) or Watch Video Online
- Take a AS13100 Training Course
- Download Reference Manuals
- Watch the “Zero Defects” Video





# SUMMARY & CLOSE



**BARBARA NEGROE**  
EXECUTIVE SOURCING QUALITY LEADER  
GE AVIATION



# AESQ Thanks You for Attending!



**Stay in Touch: [aesq.sae-itc.com](http://aesq.sae-itc.com)**





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**AESQ – Aerospace Engine Supplier Quality Strategy Group**

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