AS13100 Standard Overview & Deployment

Supplier Forum April 21st 2021

AESQ STRATEGY GROUP™
A Program of SAE ITC

RECORDING

Please note we are recording today's webinar.

This recording will be available for free viewing on the AESQ website subsequent to this event. An email notification will be issued to attendees when the video is available.

AS13100 Standard Overview & Deployment

Supplier Forum April 21st 2021

AESQ STRATEGY GROUP™
A Program of SAE ITC

Welcome to the AESQ Supplier Forum

Over 1600 people registered from 41 Countries

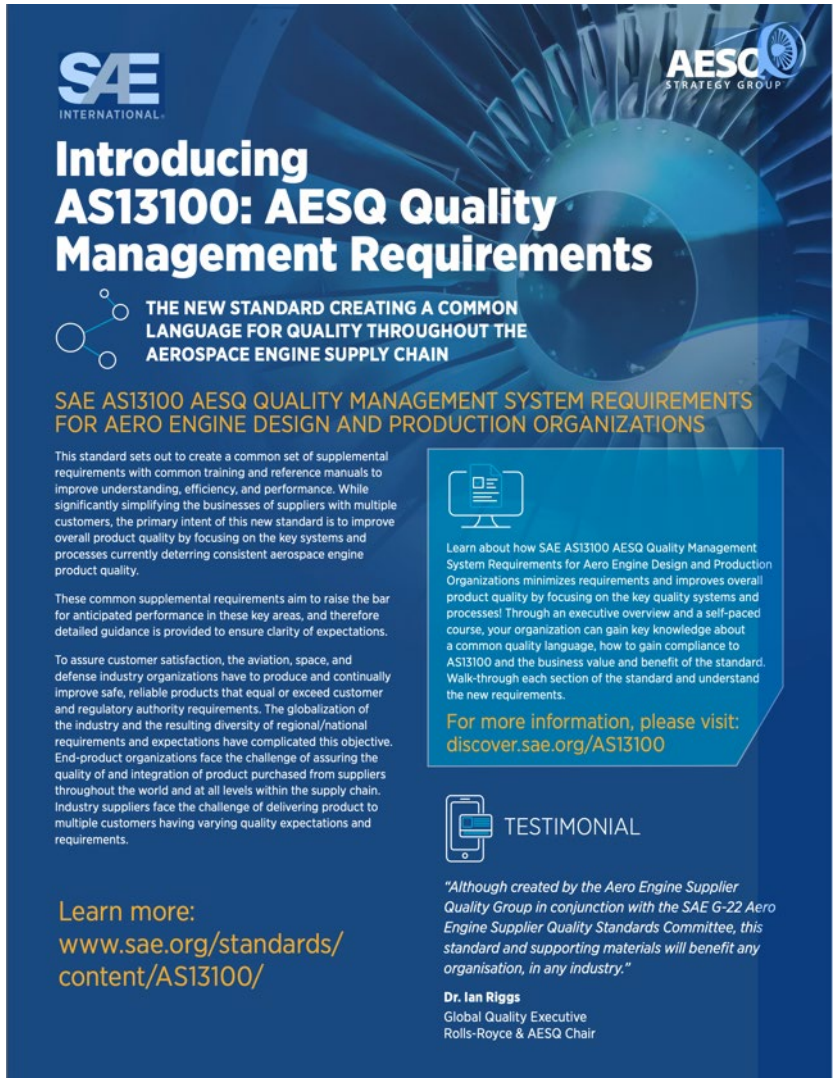
AESQ Supplier Forums

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

AESQ Supplier Forum 2021: Focus on AS13100



Agenda

Barbara Negroe
GE Aviation

Dr Ian Riggs
Rolls-Royce

Martin Schäffner
MTU Aero Engines

Dr Marnie Ham
GE Aviation

Helen Djäknegren
GKN Aerospace

Catherine Catarina-Graca
Safran Aircraft Engines

Karl Evans
Rolls-Royce

Emmanuel Vivier
Safran Aircraft Engines

Lisa Claveloux
Pratt & Whitney

Osa Omoruyi
Howmet Aerospace

Jun Sakai
IHI

James Clifton
PCC Structurals

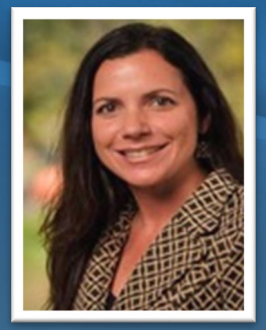
	Topic	Presenter	Duration
1	AESQ Overview, Vision & Objectives	Barbara Negroe	10
2	AS13100 Standard Overview	Ian Riggs	15
3	AS13100 Reference Manuals Overview	Martin Schäffner	10
3.1	RM13000 Problem Solving Methods	Marnie Ham	15
3.2	RM13005 Quality Audit Methods	Helen Djäknegren	15
3.3	RM13010 Human Factors	Catherine Catarina-Graca	15
3.4	RM13145 APQP & PPAP	Karl Evans	15
	BREAK		15
4	AESQ Subject Matter Interest Groups	Emmanuel Vivier	15
5	AS13100 Training	Lisa Claveloux	15
6	AS13100 Deployment Expectations	Osa Omoruyi	10
7	AESQ How to get Involved	Jun Sakai	10
8	Summary & Questions	James Clifton	25

Use the Chat Function to Ask a Question..

… or just make a comment.

be kind

AERO ENGINE SUPPLIER QUALITY GROUP (AESQ) OVERVIEW



BARBARA NEGROE
EXECUTIVE SOURCING QUALITY LEADER
GE AVIATION

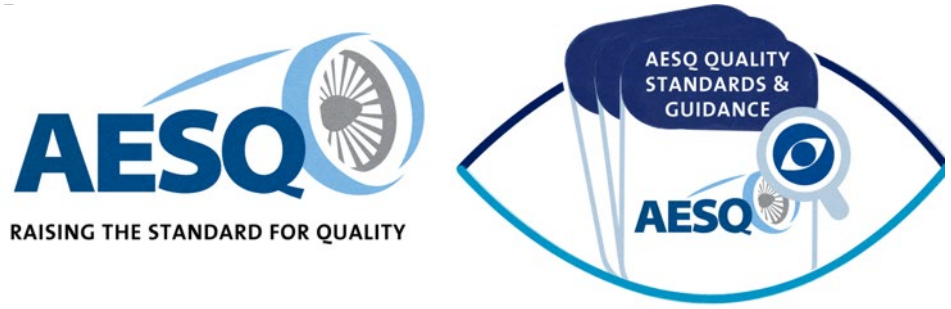
Aero Engine Industry Burning Platform

Aero Engine Manufacturers created a Collaboration working group to address burning platform in 2013 with key Global Suppliers

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

- Airline passengers set to double in size over the next 20 years
- Customers expect Zero Defects
- 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 Quality, Cost and Delivery remains a key challenge

Aero Engine Supplier Quality Group Principles



- Aero Engine Manufacturers created a Collaboration working group to address burning platform in 2013 with key Global Suppliers
- Used the Automotive example of QS-9000 with Ford, GM and Chrysler as the model
- Purpose is to:
  - 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
  - Promote the use of standardized 3rd party training
  - Deliver results with pace
  - Focus on effective deployment and improving the capability of the shared supply chains

Aero Engine Supplier Quality (AESQ) Members

AESQ STRATEGY GROUP
A Program of SAE ITC

GE Aviation

PRATT & WHITNEY
DEPENDABLE ENGINES

ROLLS ROYCE

SAFRAN
AIRCRAFT ENGINES

Honeywell
Aerospace

MTU
Aero Engines

GKN AEROSPACE

PCC Structurals, Inc.

HOWMET AEROSPACE

IHI

The AESQ Steering Group Members

Barbara Negroe
Executive Sourcing Quality Leader
GE Aviation

Lisa Claveloux
Sr. Director Quality
Raytheon Technology Corp.

Helen Djäknegren
Director Global Supplier Quality
GKN Aerospace

Ian Riggs
Global Quality Executive
Rolls-Royce

Emmanuel Vivier
VP Quality Commercial Engines
Safran Aircraft Engines

Jun Sakai
Chief Engineer
IHI Corporation

Barrie Hicklin
Director, Quality Systems
& Regulatory Compliance
Honeywell

Martin Schäffner
Senior VP Corporate Quality
MTU Aero Engines

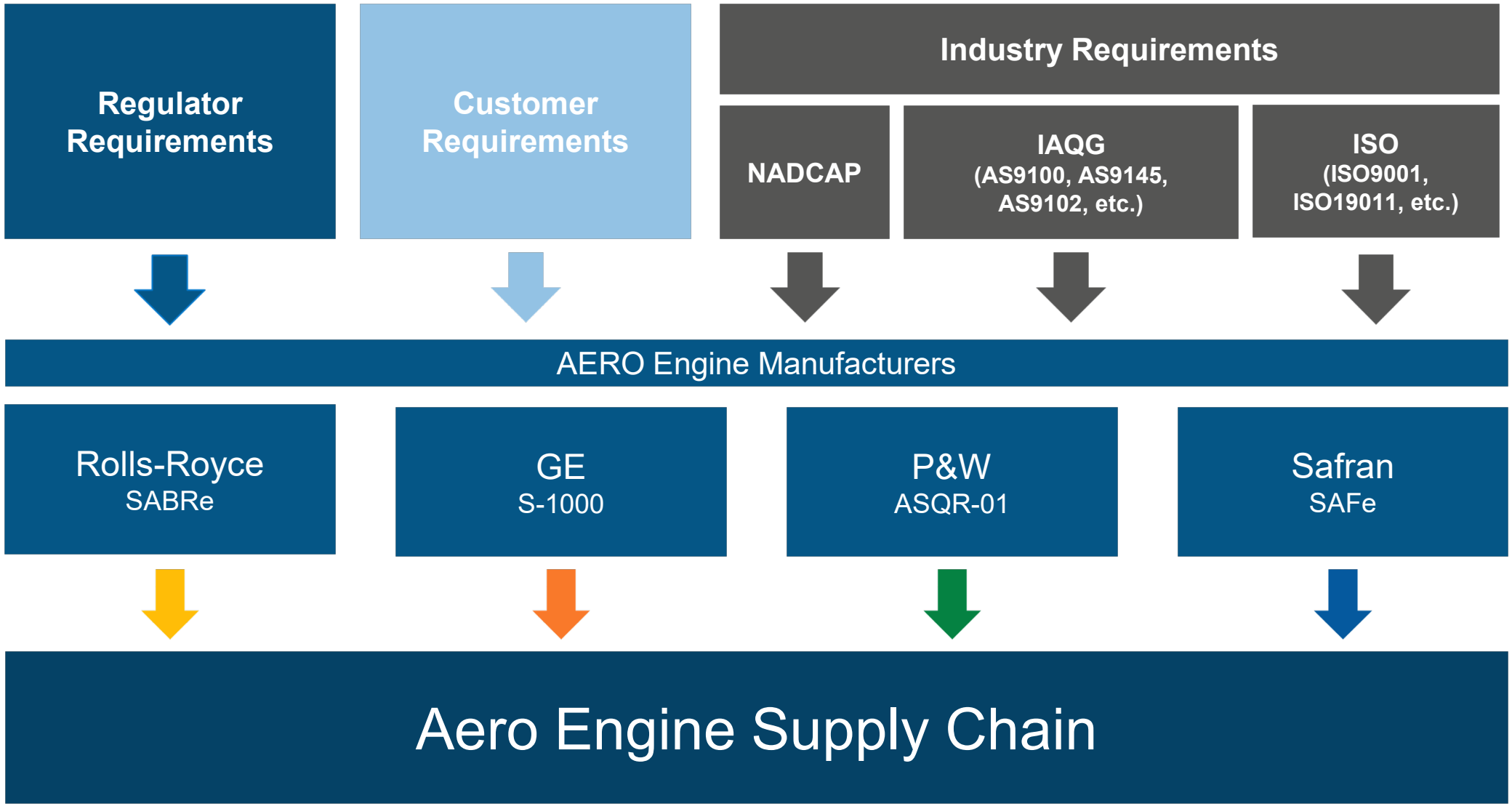
James Clifton
VP Quality
PCC Structurals

Osa Omoruyi
Director of Quality
Howmet

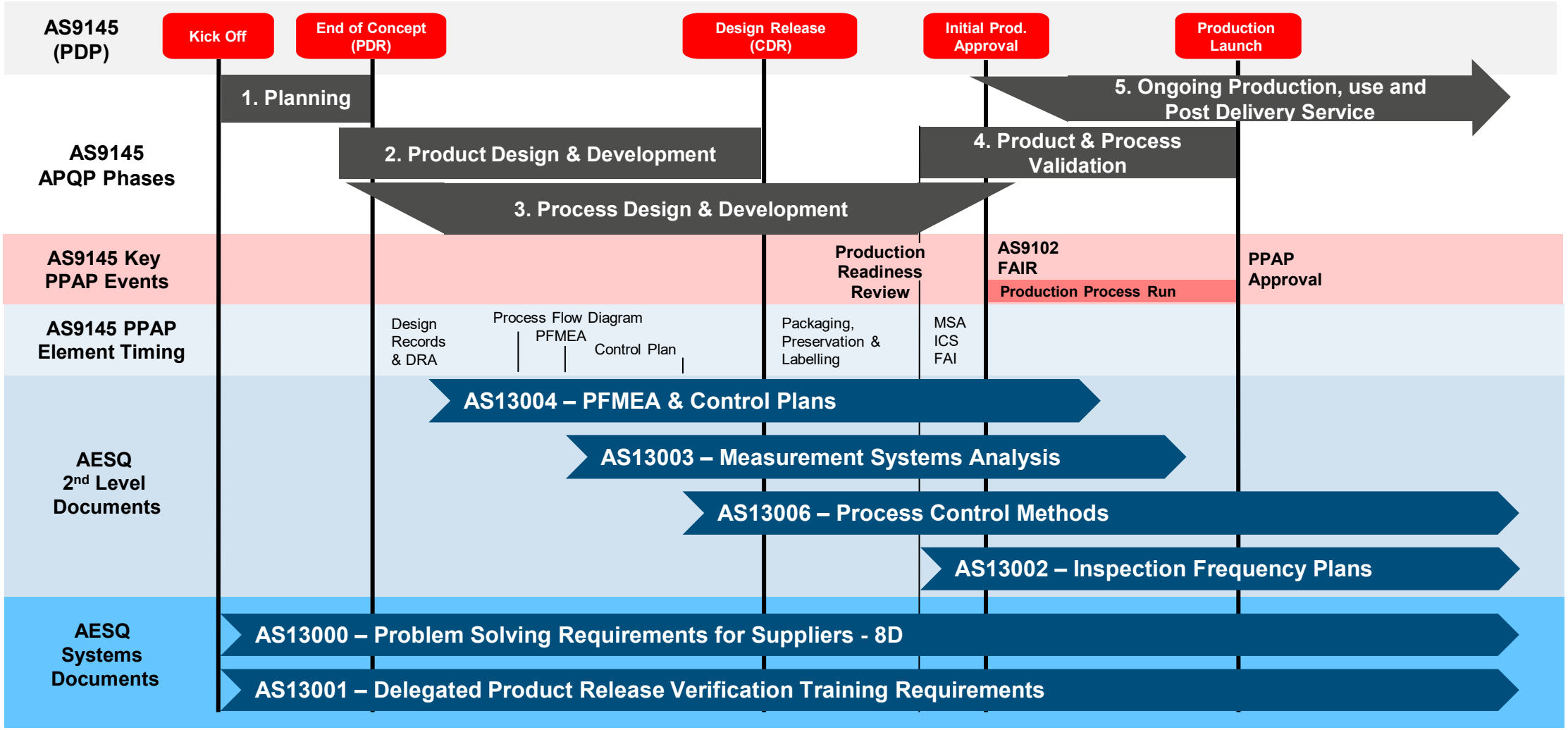
AESQ Vision

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.

Aero Industry Requirements Flowdown 2012



Product Life Cycle & Current AESQ Document Interaction



Example Best Practice Stories

Sam Suzhou make Engine Mounts

16 Part Specific FMEAs using AS13004 created in 3 months

PFMEA led to the Introduction of error proofing and prevention controls

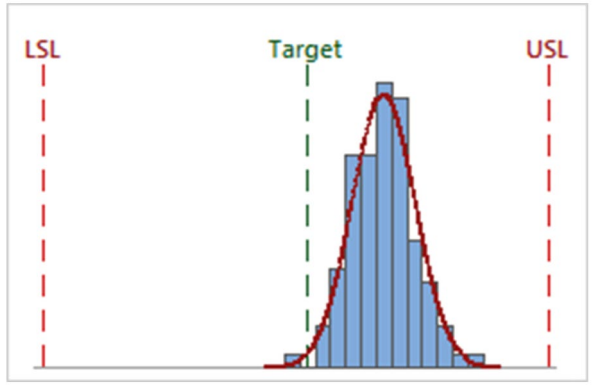
Defect Free since September 2017

Fan Case Delivered Defect Free at PPAP after applying AS13004, AS13003 and AS13006

70 consecutive parts now delivered Defect Free

Manufactured by GKN, Newington

PPAP completed in 6 months instead of the usual 18 months



IPT Turbine Blade machining using AS13006 Real Time SPC

98% of features Cpk >2, the other 2% Cpk >1.67

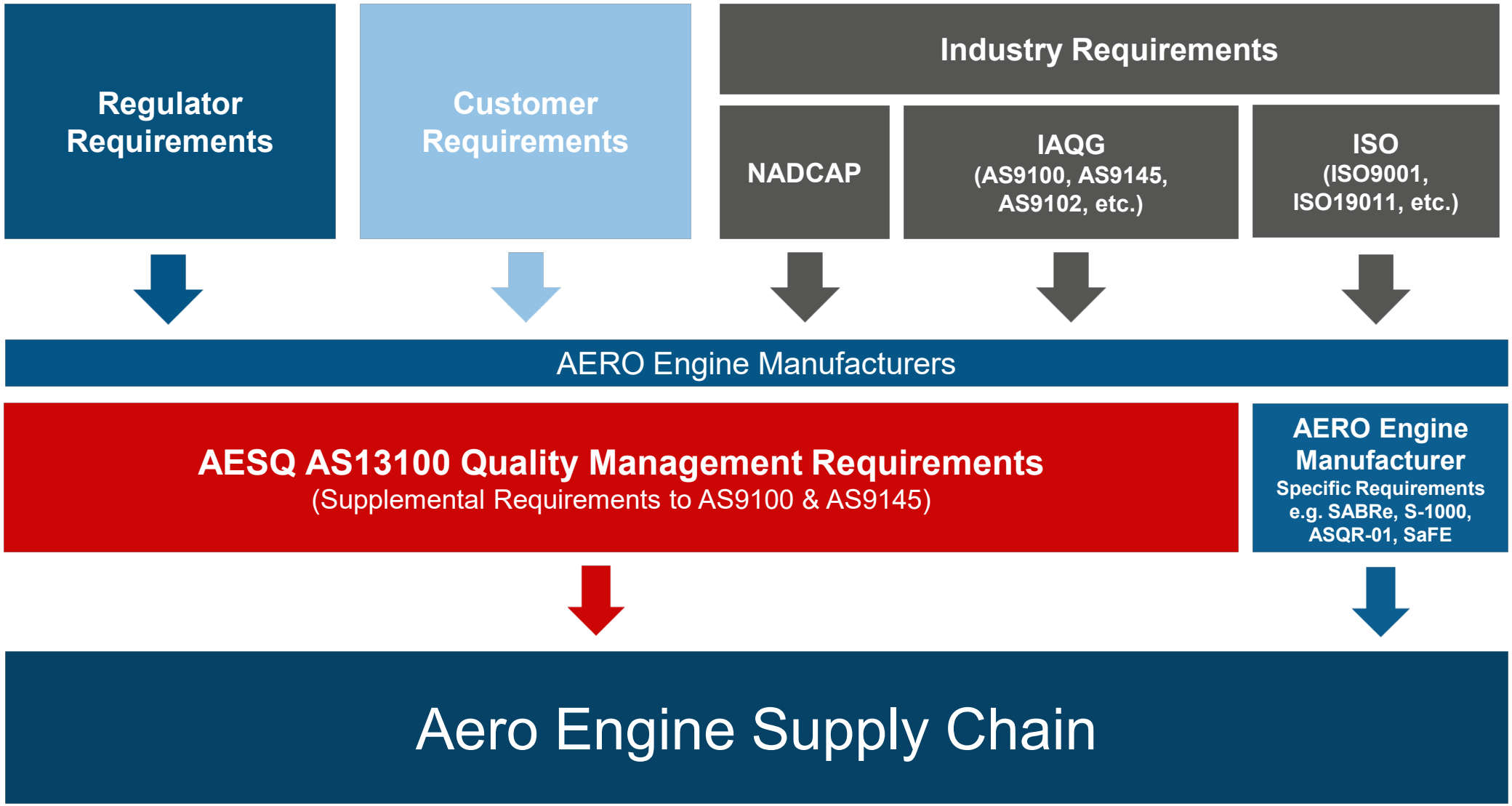
Zero Defect standard met since production start (5,000 blades)

AS13100 OVERVIEW

STRUCTURE & KEY HIGHLIGHTS

DR IAN RIGGS
QUALITY EXECUTIVE
ROLLS-ROYCE CIVIL AEROSPACE

Aero Industry Requirements Future Vision



AS13100 Creation Process

Starting Point
September 2018

OEM Unique Requirements

Existing Engine Maker
Supplier Requirements

Harmonized Requirements

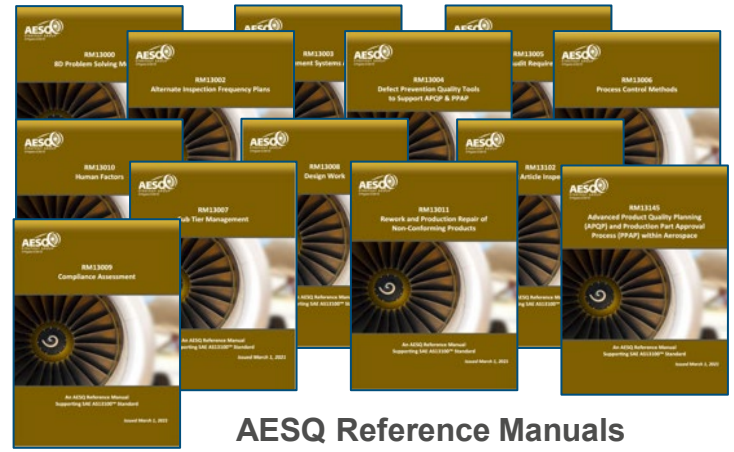
Future Engine Maker
Supplier Requirements

Overall Number of Requirements
reduced by >50%

Requirements

Existing & WIP
AESQ Standards

Supporting Guidance & Best Practice Material



AESQ Reference Manuals

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.

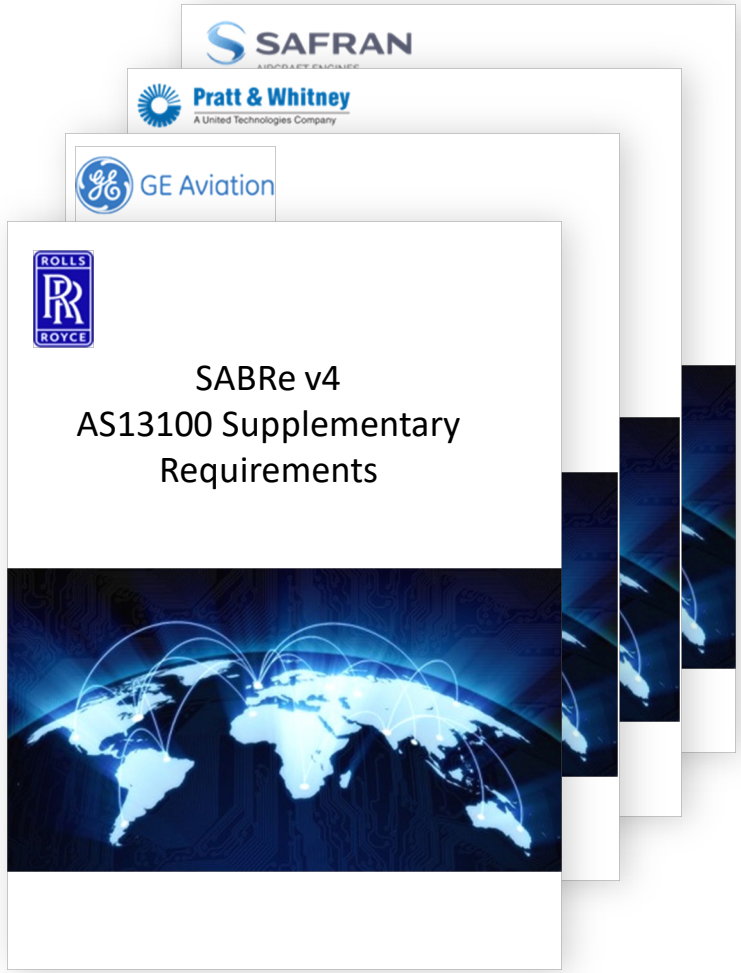
9.3.2 Reference 9100D:09/2016 requirements.

9.3.2.1 Management Review Inputs - Supplemental Requirements

Management Reviews shall be conducted at least annually and consider the following performance topics:

- **Cost of Poor Quality (COPQ).**
- **Manufacturing / Assembly Right First Time / First Pass Yield.**
- **Customer scorecards (where available).**
- **Human Factors reporting.**

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

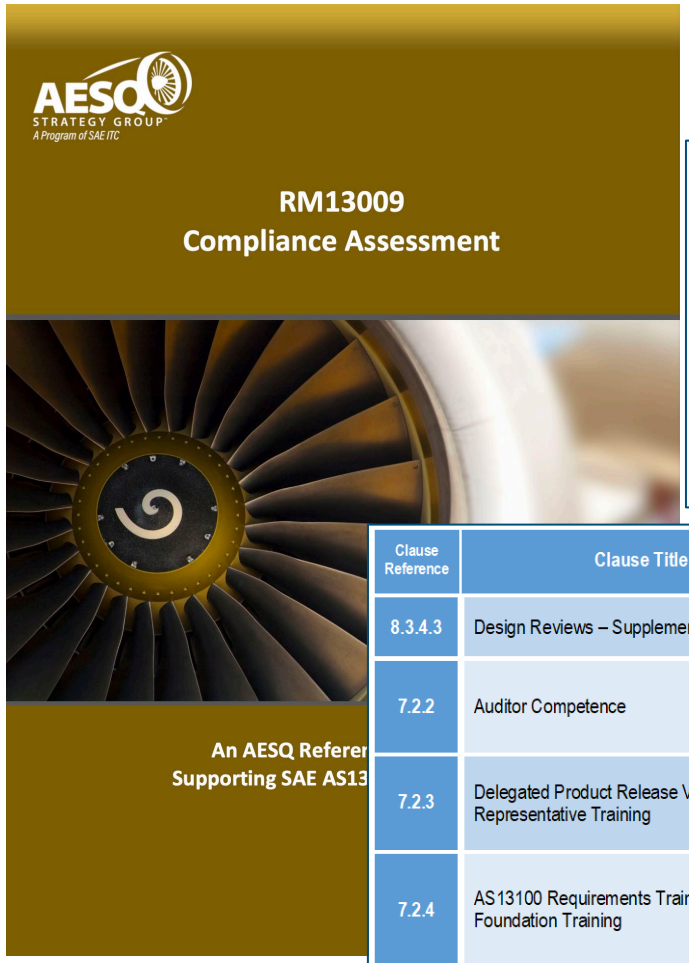
AS13100 PARAGRAPH REFERENCE	ORGANIZATION TYPE					
	TYPE 1: MAKE TO PRINT	TYPE 2A: DESIGN AND MANUFACTURE	TYPE 2B: DESIGN ONLY	TYPE 3: DISTRIBUTOR	TYPE 4: SPECIAL PROCESS	TYPE 5: RAW MATERIAL
4.3.1	X	X	X	X	X	X
4.3.2	X	X	X			
4.3.3	X	X	X	X	X	X
4.3.4	X	X	X	X	X	X
4.3.5	X	X	X	X	X	X
4.4.3	X	X	X	X	X	X
5.1.1.1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

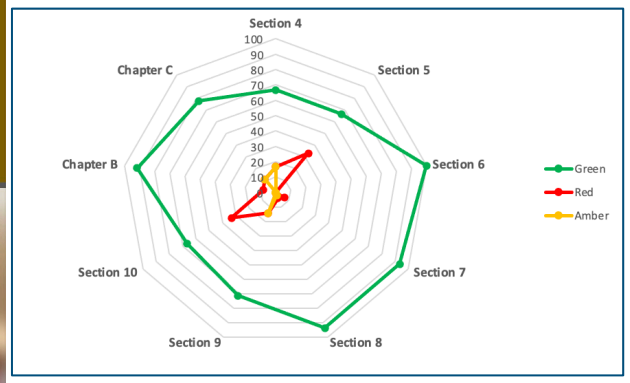
Table 1 provides a guide to the applicability of AS13100 Sections to Organization scope.

ORGANIZATION TYPE	QMS APPROVAL (MINIMUM REQUIREMENT)
Type 1: Make to Print and Type 2A: Design and Manufacture. **Manufacture, inspect, test, and certify the conformance of semi-finished and/or finished products (installed on aerospace engines or a component of such a product) to proprietary engineering drawings whether customer design, or organization design.**	9100 registration.
Type 2B: Design only. **Contracted Design Responsible Organization / Partner / Supplier tasks Organizations.**	As defined by Customer's requirements.
Type 3: Distributor.	9120 registration.
Type 4: Special Process (2.3). **As part of an Organizations manufacturing scope and/or Special Process Houses.**	Nadcap or Customer's requirements.
Type 5: Raw Material. **Manufacture, inspect, test, and certify the conformance of Raw Material to proprietary engineering specifications.**	ISO9001 registration.
Production Shop Assist Only. **Offload of planned manufacturing operations.**	Per Organizations Requirements based upon scope of work, unless specified by the customer.
External Calibration or Laboratory Service Provider.	ISO / IEC 17025 or National Equivalent, e.g., UKAS, COFRAC, NIST.
Industry Standard Part or Industry Standard Raw Material Manufacture.	ISO9001 registration.
Castings and Forgings produced to a proprietary design.	9100 registration.

Table 2 defines an agreed set of Certification Requirements, matched to the scope of the supplier's activities.

AS13100 Requirement Highlights





Clause Reference	Clause Title / Subject	Organization Process Reference (or comment)	Compliance Status
8.3.4.3	Design Reviews – Supplemental Planning	Not a Design responsible supplier	N/A
7.2.2	Auditor Competence	Auditor competence requirements are defined in our QMS in procedure number QP005, Rev D. This procedure fully complies with the requirements of AS13100 clause 7.2.2.	G
7.2.3	Delegated Product Release Verification (DPRV) Representative Training	All relevant inspection personnel are trained in accordance with this requirement. It is defined in our QMS in procedure number QP009, Rev B.	G
7.2.4	AS13100 Requirements Training & AESQ Quality Foundation Training	We have identified five personnel within the business that require this training. Their training plans / job profiles have been updated to reflect this as a mandated training. Training is scheduled for July (in 3 months time).	A
7.3.1	Human Factors Awareness	We do not have a Human Factors program at this time. The organization's leadership team are currently reviewing our future approach to HF.	R

Section 4.3.5 requires the organization to conduct a **Compliance Assessment** of their QMS to ensure that it captures all of the requirements of AS13100 and customer specific requirements.

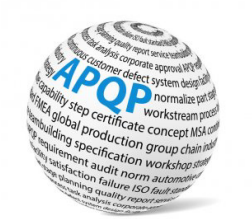
The results of this review are to be provided to the customer upon request.

Any compliance gaps must be highlighted to the individual customer and a resolution agreed.

Reference Manual RM13009 provides information to support this requirement.

AS13100 Requirement Highlights

AS13100 Section 8.3 includes common Requirements for **Design & Development.** Key Supplemental Requirements include;



Specifies AS9145 APQP & PPAP for Managing New / Changed Product Designs

Defines Design FMEA approach to meet Design Risk Analysis requirement

Requires the use of Cross Functional Teams for Design & Development Activities

Defines requirements for Design for 'X'

(Manufacture, Assembly, Servicing, Disposal)

Specifies the use of AS9116 to manage Design Changes

Reference Manual RM13008 Provides Guidance for Design Work

AS13100 Requirement Highlights

AS13100 Section 8.4.1, 8.4.2 and 8.4.3 define the additional requirements for Supplier Evaluation, Selection, Control and Performance Monitoring.

Engineering & Manufacturing Capability

Quality Control Capabilities

Purchasing, Planning & Capacity

Commercial, Legal & Environmental

Supplier Register Maintenance

Product Acceptance

Supplier Surveillance

Supplier Performance Monitoring

Reference Manual RM13007 Provides Guidance for Supplier Management

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 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

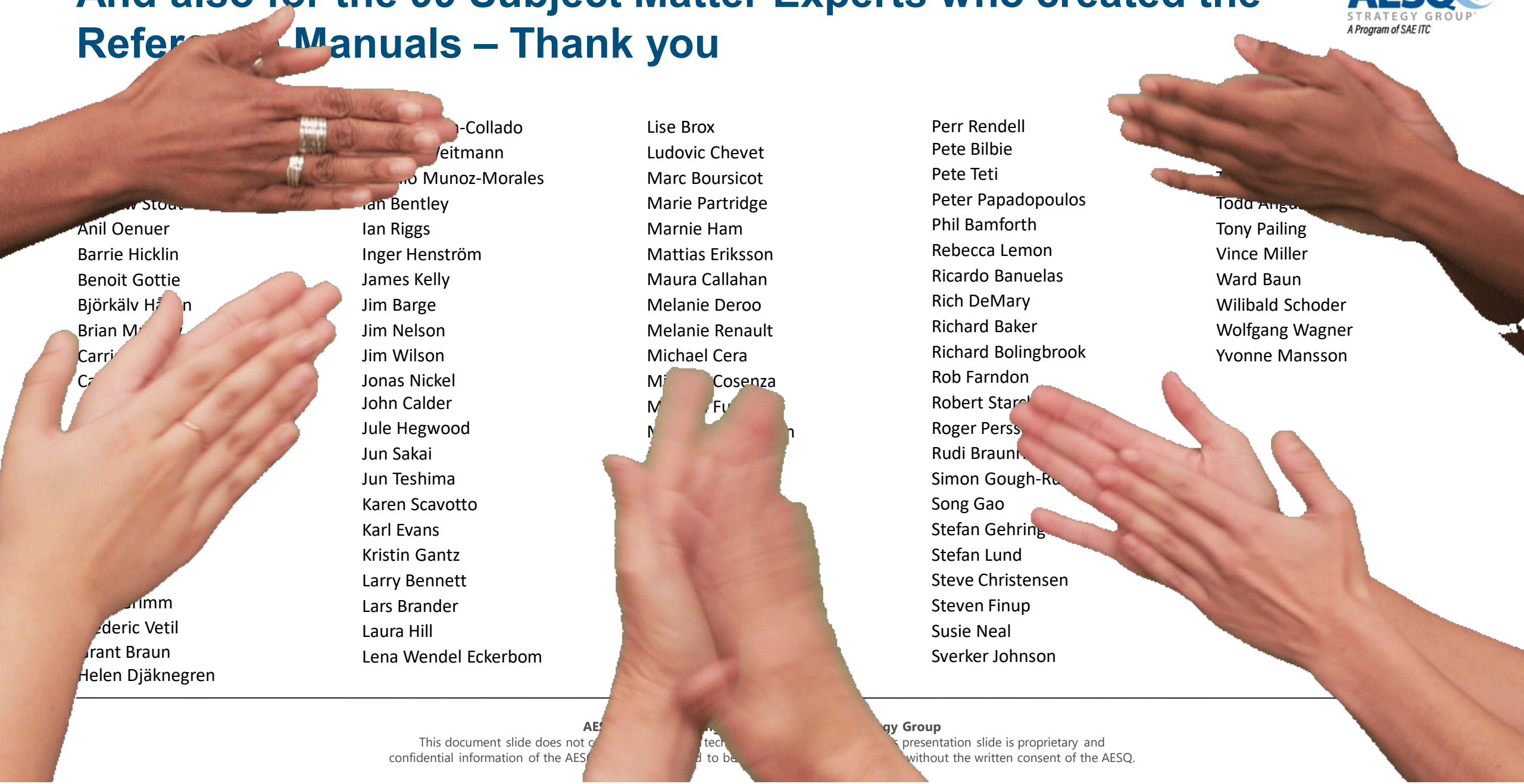
Jim Wilson
Pratt & Whitney Canada

Catherine Catarina-Graca
Safran Aircraft Engines

Paula Adkins
Rolls-Royce

Peter Amsden
Pratt & Whitney

And also for the 99 Subject Matter Experts who created the Refer[illegible] Manuals – Thank you



[illegible]-Collado
[illegible]Veitmann
[illegible]o Munoz-Morales
[illegible]an Bentley
Anil Oenuer
Barrie Hicklin
Benoit Gottie
Björkälv H[illegible]n
Brian M[illegible]
Carri[illegible]
C[illegible]
[illegible]rimm
[illegible]ederic Vetil
[illegible]rant Braun
Helen Djäknegren
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
M[illegible]Cosenza
M[illegible]Fu
M[illegible]n
Perr Rendell
Pete Bilbie
Pete Teti
Peter Papadopoulos
Phil Bamforth
Rebecca Lemon
Ricardo Banuelas
Rich DeMary
Richard Baker
Richard Bolingbrook
Rob Farndon
Robert Starc[illegible]
Roger Perss[illegible]
Rudi Braun[illegible]
Simon Gough-Ru[illegible]
Song Gao
Stefan Gehring[illegible]
Stefan Lund
Steve Christensen
Steven Finup
Susie Neal
Sverker Johnson
Todd Ang[illegible]
Tony Pailing
Vince Miller
Ward Baun
Wilibald Schoder
Wolfgang Wagner
Yvonne Mansson

AS13100
REFERENCE MANUALS

MARTIN SCHÄFFNER
SENIOR VP CORPORATE QUALITY
MTU AERO ENGINES

AS13100 Supporting Reference Manuals

AS13100 Standard defines mandated requirements.

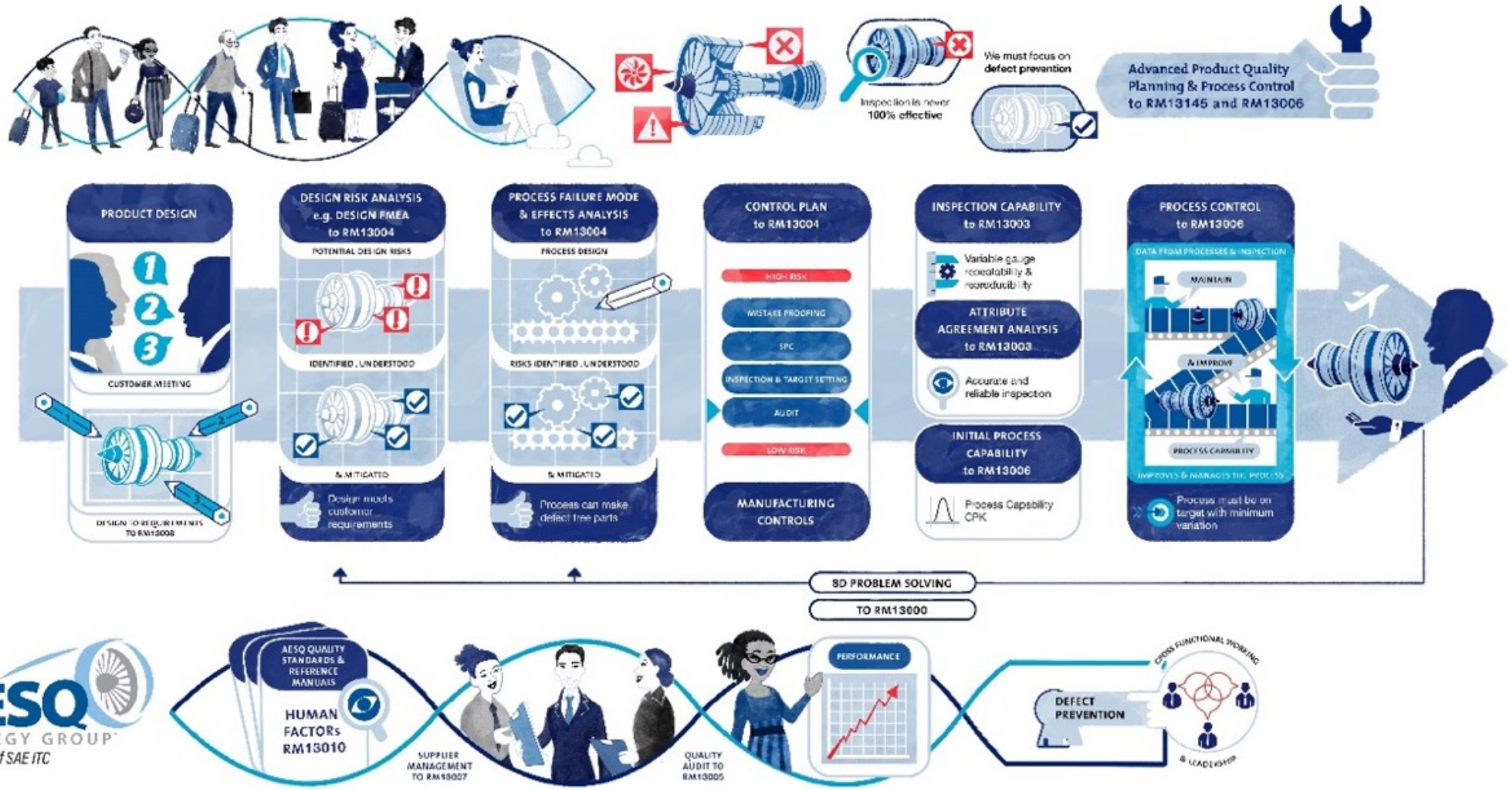
The Standard is supported by free issue Reference Manuals from the AESQ Website:

→ 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

Defect Prevention Key Quality Tools for Zero Defects



Defect Prevention Tools Must Work as a System

AS13100 Supporting Reference Manuals Examples

Marnie Ham

RM13000
Team leader

Helen Djäknegren

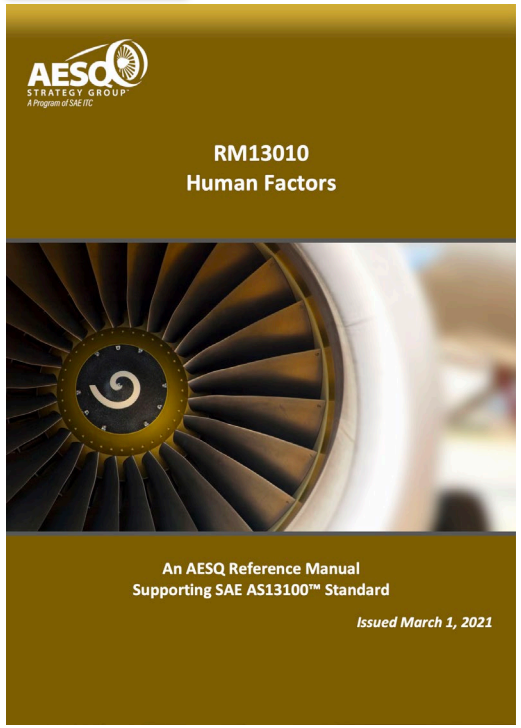
RM13005
Team leader

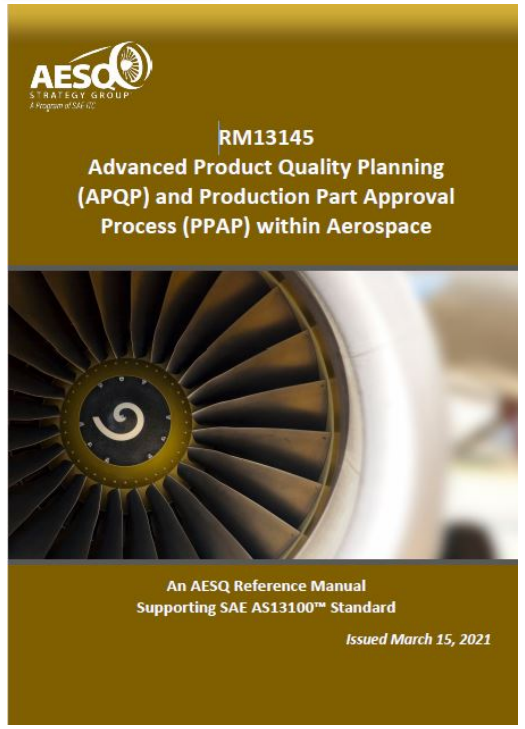
Catherine Catarina-Graca

RM13010
Team leader

Karl Evans

RM13145
Team leader





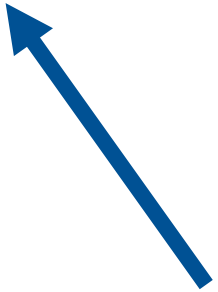
REFERENCE MANUAL RM13000

PROBLEM SOLVING METHODS

MARNIE HAM
SIX SIGMA QUALITY LEADER
GE AVIATION

AS13100 Supporting Material

RM#	Reference Manual and Forms	Issue Date
RM13000	Problem Solving Methods Including 8D • 8D Interactive Tool (PowerPoint) • Supplier 8D Reporting Template (Power Point) • 8D Word Form (Word)	March 8, 2021



The key areas of focus of this group are:

- Problem Solving Approaches
- Problem Solving Methodologies
- Problem Solving using … 8D, 4D, 2D
- Forms
- Case Studies
- Basic Quality Problem Solving Tools

The key material from this group are:

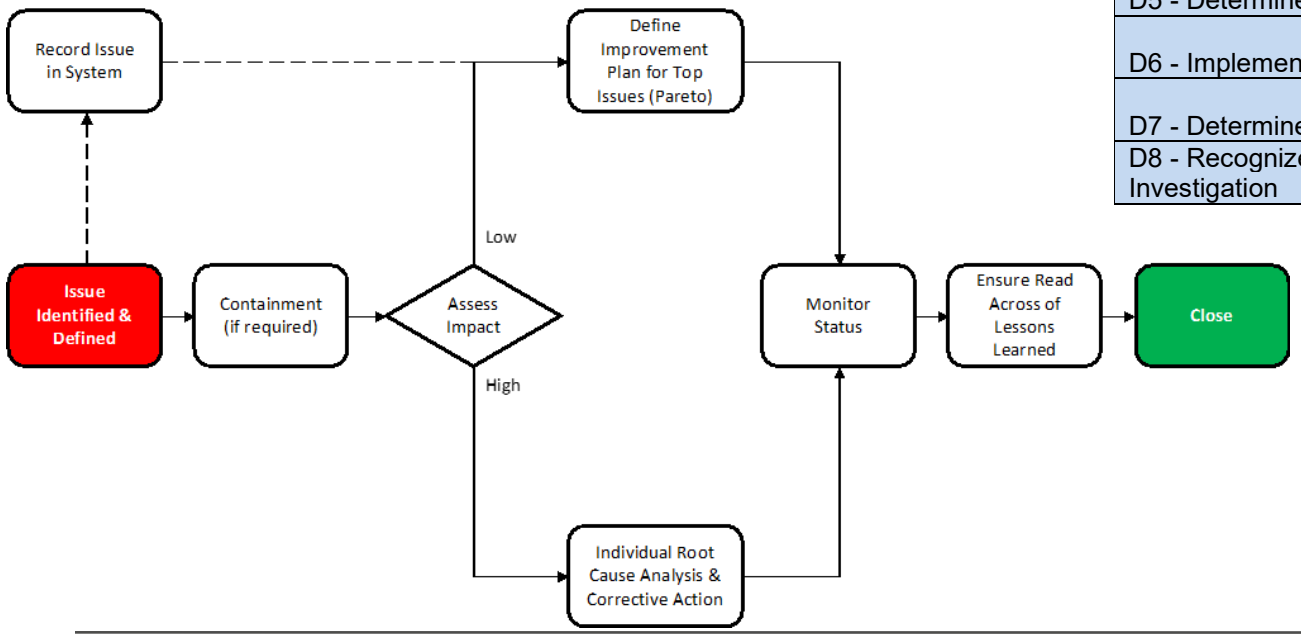
- 8D Interactive Tool
- Reporting Template Directions
- 8D Form (Word)
- 8D Form (PowerPoint)
- 8D From (Excel) – coming soon

Problem Solving Approaches

Structured Problem Solving needed for most issues

Two main approaches:

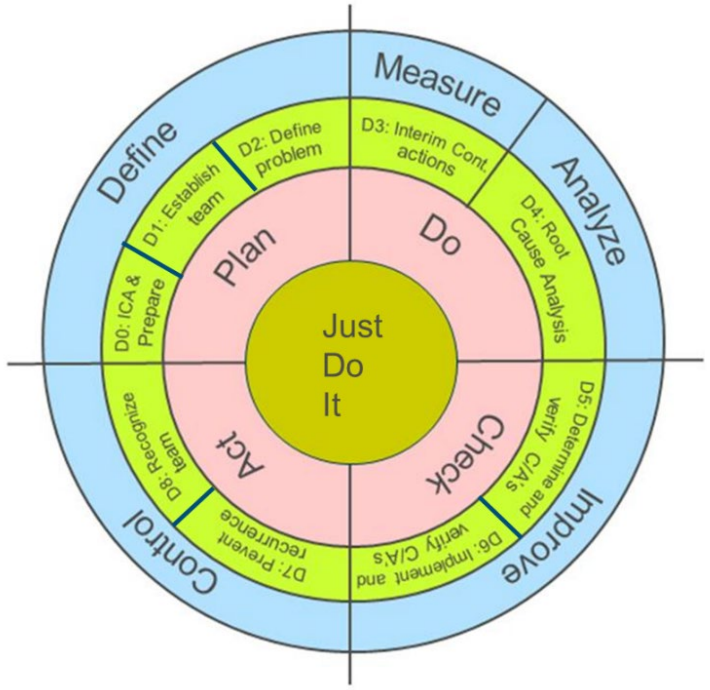
- Individual Root Cause Analysis & Corrective Action
- Themed improvement



RCCA Investigation Comparison Diagram

AESQ 8D Problem Solving Methodology Per RM13000	ARP9136 9S Methodology
D0 - Immediate Containment Action(s)	S0 - Start Immediate Containment Actions
D1 - Form Team	S1 - Build the Team
D2 - Define Problem and Impact	S2 - Define Problem
D3 - Interim Containment Action(s)	S3 - Complete and Optimize Containment Actions
D4 - Determine Root Causes	S4 - Identify Root Cause(s)
D5 - Determine Permanent Corrective Action(s)	S5 - Define and Select Permanent Corrective Action(s)
D6 - Implement Permanent Corrective Action(s)	S6 - Implement Permanent Corrective Action and Check Effectiveness
D7 - Determine Preventative Action(s)	S7 - Standardize and Transfer the Knowledge Across Business
D8 - Recognize the Team and Close Out Investigation	S8 - Recognize and Close the Team

Problem Solving Methodologies



Original Problem Solving - “Plan, Do, Check, Act” approach developed by Walter Shewhart and W. Edwards Deming back in the 1920’s

Maps 8D and Plan, Do, Check, Act to other problem-solving methods

Basic Intent on all problem-solving methods:

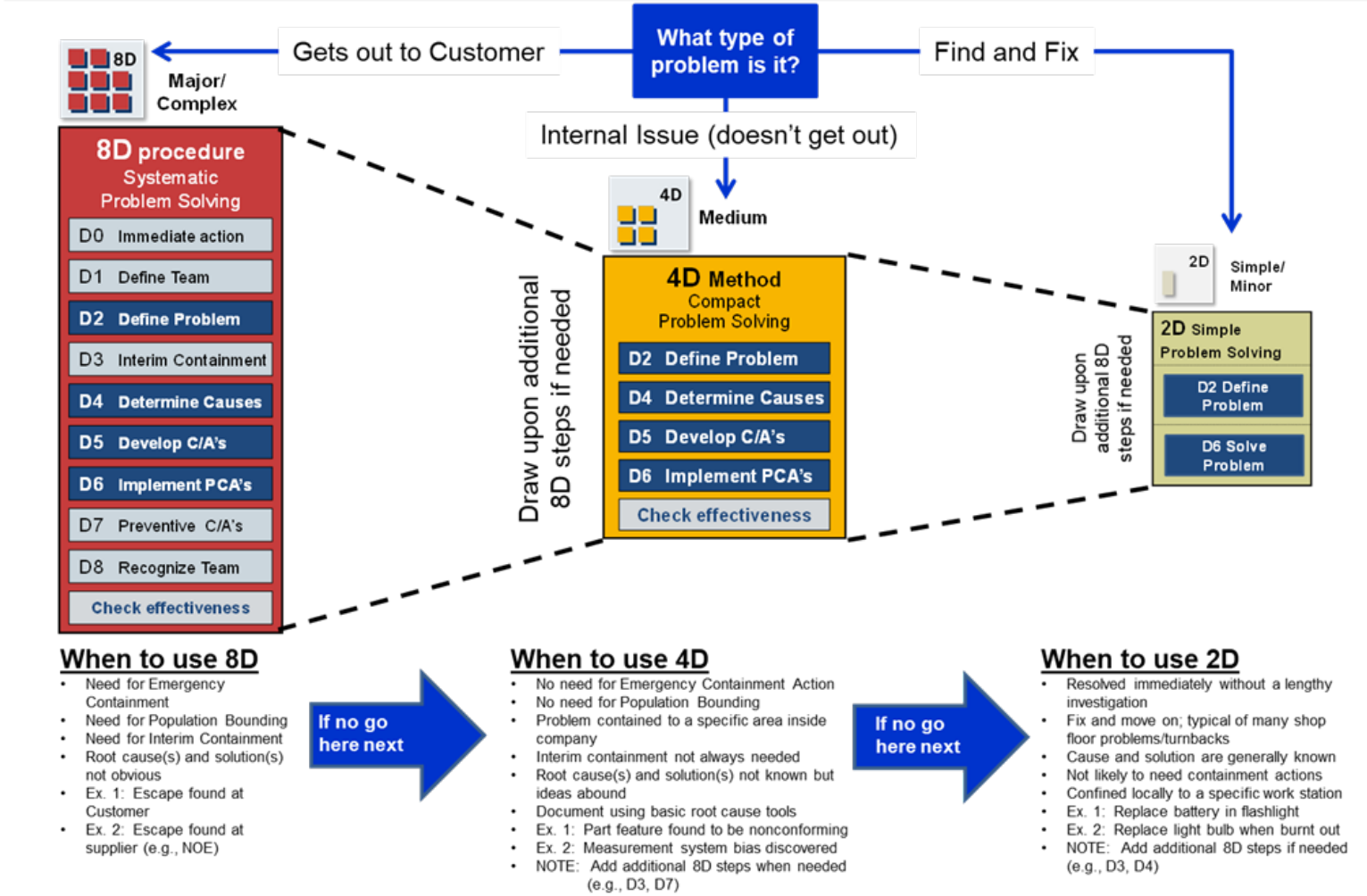
- Define the problem and containment actions
- Understand the root cause
- List and assign actions to fix problem
- Evaluate results and standardise if problem is solved

Problem Solving Methodologies – Road Map

The Road Map shows how to start with the 8D problem-solving process and downsize it to a 4D or 2D methods

- 8D method for all major or complex problem-solving
- 4D method can be used for internal issues (ie problem that have not escaped)
- 2D methods can be used for simple problems

- The same forms can be used



Problem Solving Using 8D (or 4D or 2D)

- The 8D problem-solving process established in 1980s by Ford Motor Company to standardize problem-solving
- This methodology was to be used as a standard tool for Ford suppliers where;
  - The problem cause was not known
  - It was suspected that the problem was complex with potentially several contributory causes
  - A cross functional team approach was required due to the complex nature of the problem being investigated

- The Eight Disciplines of Problem Solving
  - D0 - Emergency Response Actions and Prepare for 8D
  - D1 - Form the Team
  - D2 - Define the Problem
  - D3 - Develop Interim Containment Actions
  - D4 - Diagnosis: Identify and Verify Root Causes and Escape Point
  - D5 - Identify Permanent Corrective Action for Root Cause and Escape Point
  - D6 - Implement Permanent Corrective Action
  - D7 - Prevent Recurrence
  - D8 - Recognize the Team

- 4D Methodology (D2, D4, D5, D6)
- 2D Methodology (D2, D6)

Forms (Excel)

Excel Form derived from the A3 format of having a one-page summary of the problem and the solution.

Other documents and pages are the back up

RM13000 has a case study in the document that walks through how to use this form

8D A3 Worksheet

Problem Name	Problem Statement	Date created	Created by	Reviewed by	Review date

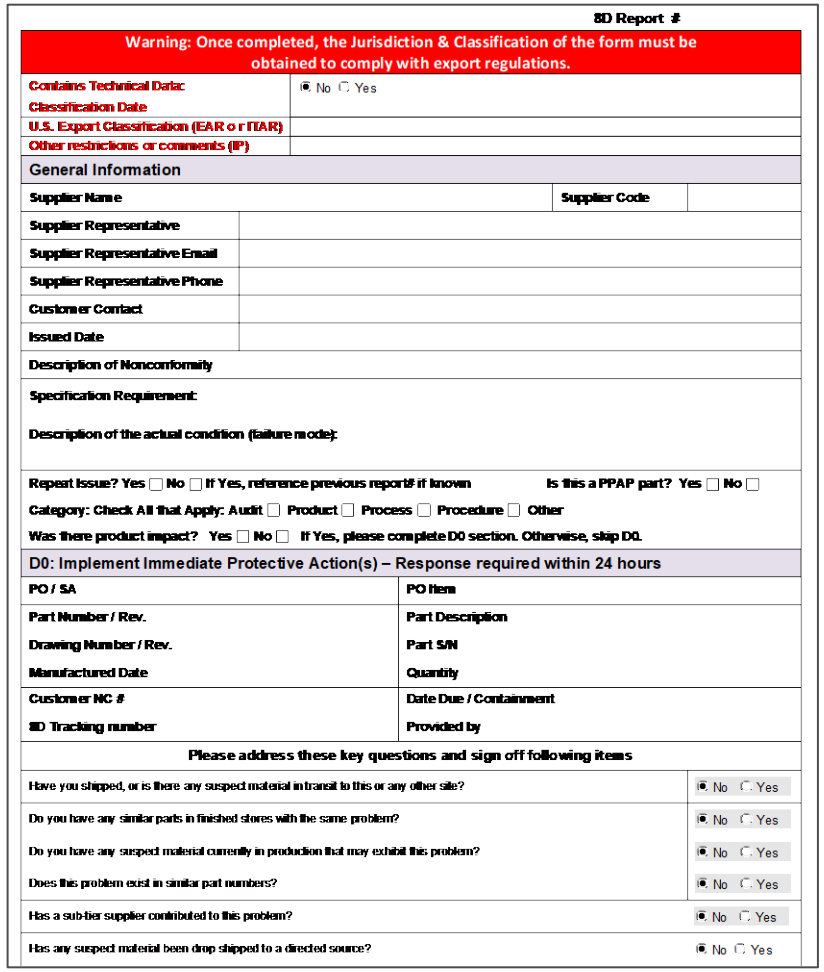
DO: Immediate Containment Action(s)	D5: Determine Corrective Action(s)		D6: C/A Validation
	Direct Cause (addresses generation point)		Implemented? Y__ N__ * Effective? Y__ N__
D1: Form the Team Problem investigation owner: Team members:	Detection Cause (addresses escape points)		Implemented? Y__ N__ * Effective? Y__ N__
D2: Define the Problem	* Describe method of effectiveness check		
	D7: Prevent Recurrence (fix the system) PFMEA updated? Y__ N__ Read across on similar process/product conducted? Y__ N__ Describe updates to QMS/lessons learned/communications to suppliers, etc. **D8: Team Recognition**		
D3: Interim Containment Action(s)			
D4: Find the Root Cause(s)	**Pictures/Drawings/Evidence**		
Direct Root Cause: **Detection Root Cause**			

Forms (Word)

Word Form is a 3 page “short form” 8D, similar the PW 8D

Other documents and pages are the back up

RM13000 has a case study in the document that walks through how to use this form



8D Report #

Warning: Once completed, the Jurisdiction & Classification of the form must be obtained to comply with export regulations.

Contains Technical Data: Classification Date	◉ No ○ Yes
U.S. Export Classification (EAR or ITAR)	
Other restrictions or comments (IP)	

General Information

Supplier Name		Supplier Code	
Supplier Representative			
Supplier Representative Email			
Supplier Representative Phone			
Customer Contact			
Issued Date			
Description of Nonconformity			
Specification Requirement:			
Description of the actual condition (failure mode):			

Repeat Issue? Yes ☐ No ☐ If Yes, reference previous report# if known Is this a PPAP part? Yes ☐ No ☐

Category: Check All that Apply: Audit ☐ Product ☐ Process ☐ Procedure ☐ Other

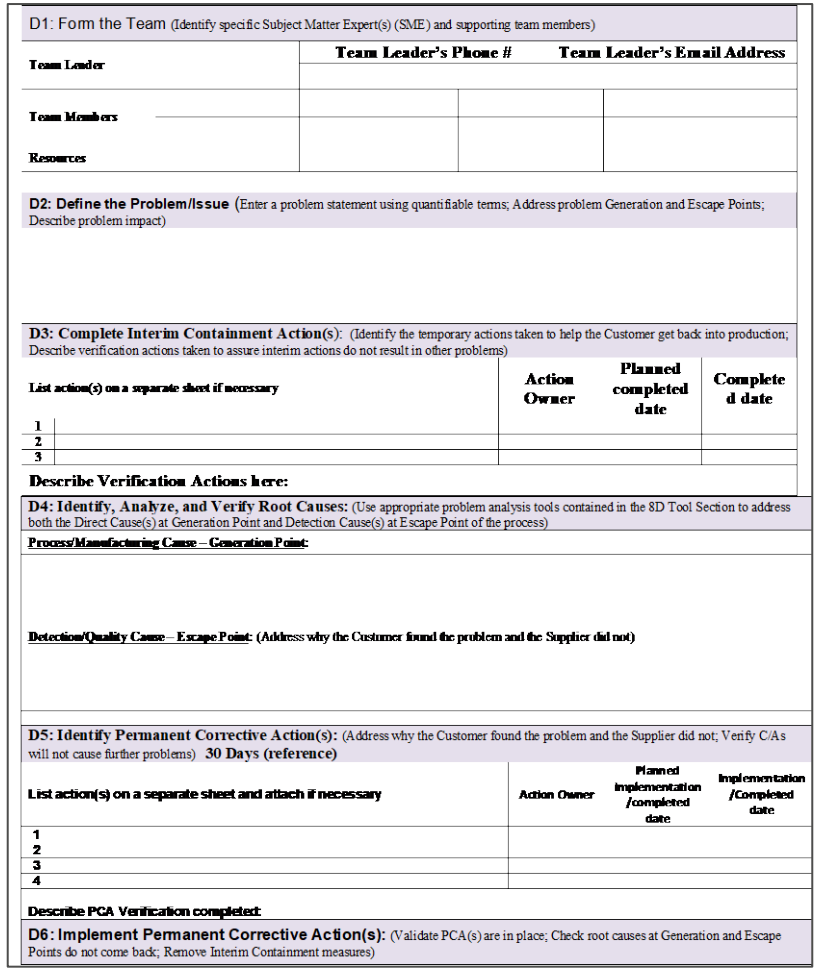
Was there product impact? Yes ☐ No ☐ If Yes, please complete D0 section. Otherwise, skip D0.

D0: Implement Immediate Protective Action(s) – Response required within 24 hours

PO / SA	PO Item
Part Number / Rev.	Part Description
Drawing Number / Rev.	Part S/N
Manufactured Date	Quantity
Customer NC #	Date Due / Containment
8D Tracking number	Provided by

Please address these key questions and sign off following items

Have you shipped, or is there any suspect material in transit to this or any other site?	◉ No ○ Yes
Do you have any similar parts in finished stores with the same problem?	◉ No ○ Yes
Do you have any suspect material currently in production that may exhibit this problem?	◉ No ○ Yes
Does this problem exist in similar part numbers?	◉ No ○ Yes
Has a sub-tier supplier contributed to this problem?	◉ No ○ Yes
Has any suspect material been drop shipped to a directed source?	◉ No ○ Yes



D1: Form the Team (Identify specific Subject Matter Expert(s) (SME) and supporting team members)

	Team Leader's Phone #		Team Leader's Email Address
Team Leader			
Team Members			
Resources			

D2: Define the Problem/Issue (Enter a problem statement using quantifiable terms; Address problem Generation and Escape Points; Describe problem impact)

D3: Complete Interim Containment Action(s): (Identify the temporary actions taken to help the Customer get back into production; Describe verification actions taken to assure interim actions do not result in other problems)

List action(s) on a separate sheet if necessary	Action Owner	Planned completed date	Complete d date
1			
2			
3			

Describe Verification Actions here:

D4: Identify, Analyze, and Verify Root Causes: (Use appropriate problem analysis tools contained in the 8D Tool Section to address both the Direct Cause(s) at Generation Point and Detection Cause(s) at Escape Point of the process)

Process/Manufacturing Cause – Generation Point:

Detection/Quality Cause – Escape Point: (Address why the Customer found the problem and the Supplier did not)

D5: Identify Permanent Corrective Action(s): (Address why the Customer found the problem and the Supplier did not; Verify C/As will not cause further problems) **30 Days (reference)**

List action(s) on a separate sheet and attach if necessary	Action Owner	Planned Implementation /completed date	Implementation /Completed date
1			
2			
3			
4			

Describe PCA Verification completed:

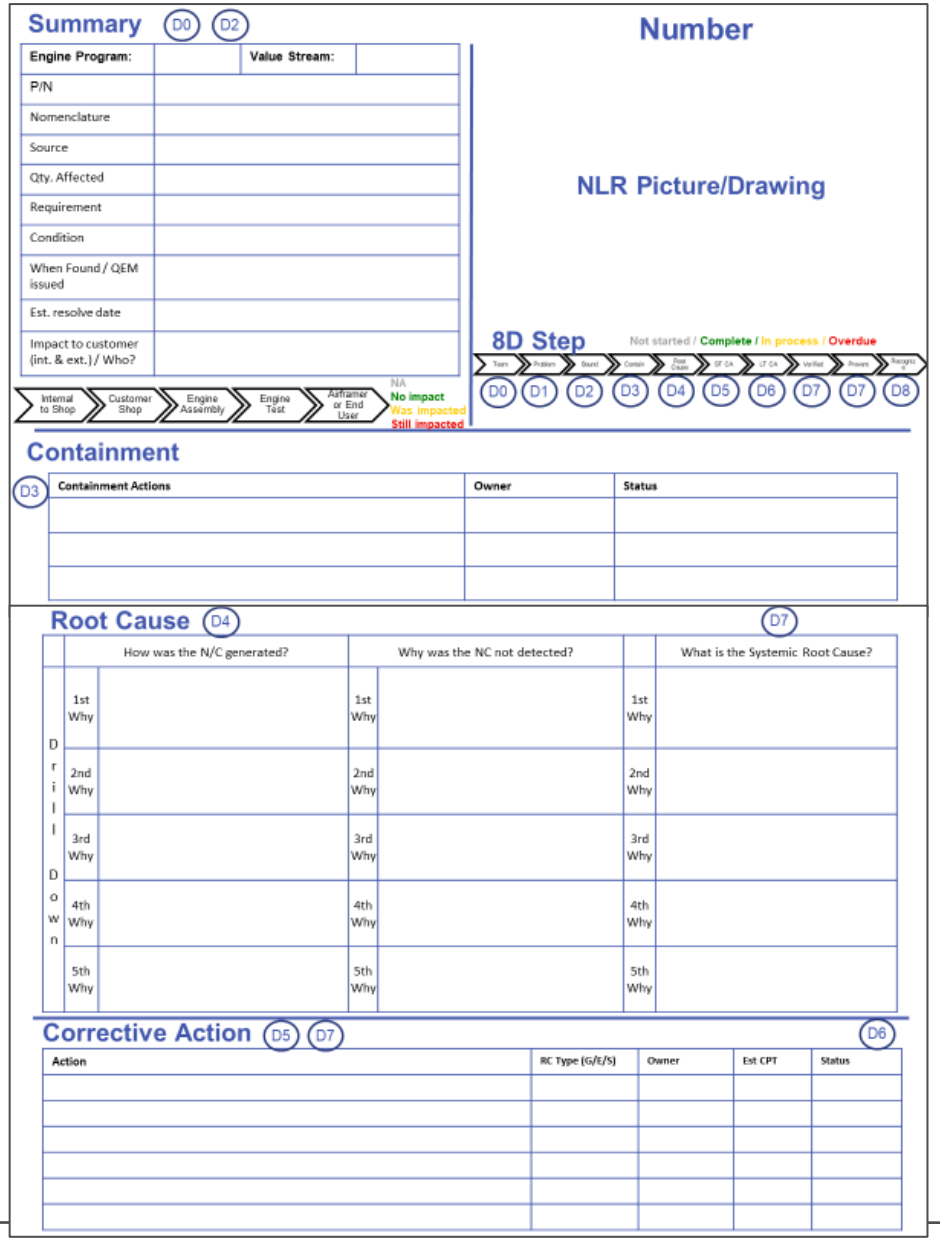
D6: Implement Permanent Corrective Action(s): (Validate PCA(s) are in place; Check root causes at Generation and Escape Points do not come back; Remove Interim Containment measures)

Forms - PowerPoint

PowerPoint Form is a 2-page 8D, similar the GE 3x5 Why

Other documents and pages are the back up

RM13000 has a case study in the document that walks through how to use this form



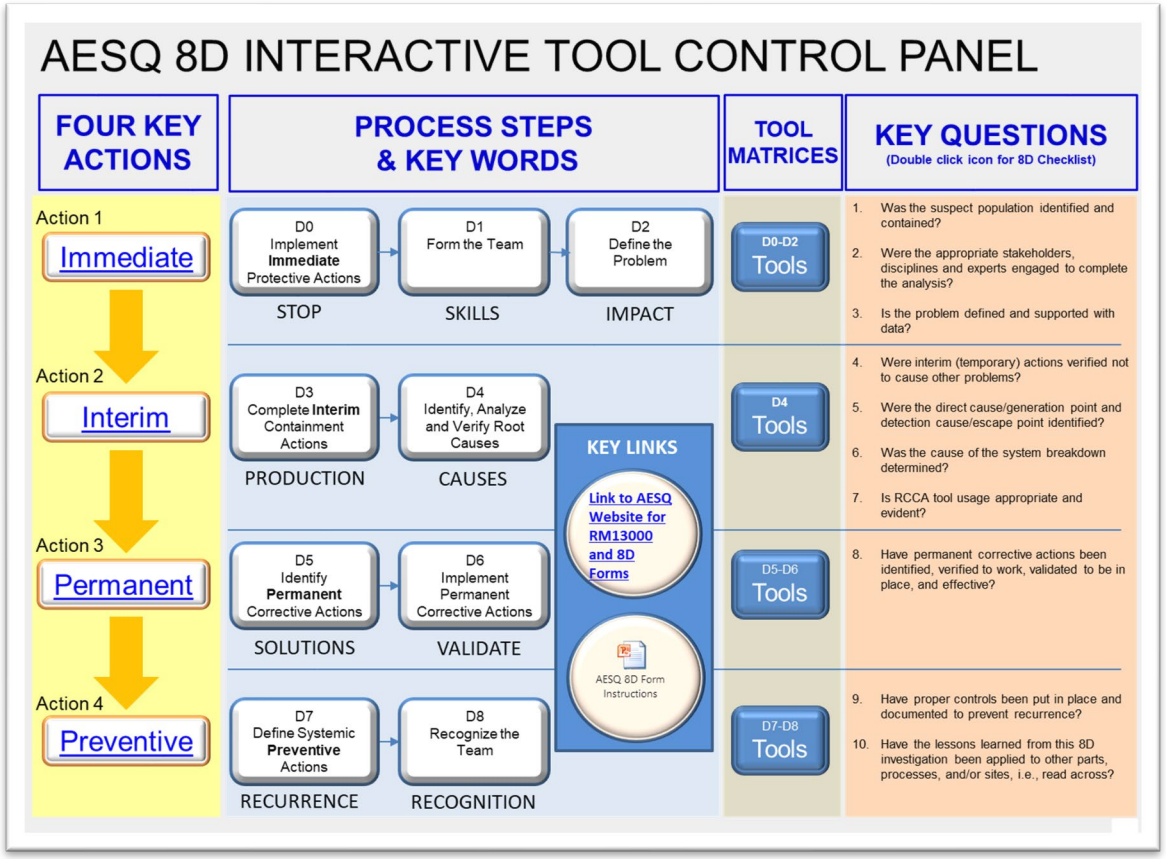
Case Studies

- Real problems solved using 8D
- Each case is presented in a different format (Excel, Word, PowerPoint), all of which are acceptable
- The common thread is the 9 steps of the 8D process.

Basic Quality Problem Solving Tools

The 7 Basic Quality Tools for Process Improvement

- Cause-and-effect diagram
- Check sheet
- Control chart
- Histogram
- Pareto chart
- Scatter diagram
- Stratification (flowchart or run chart)

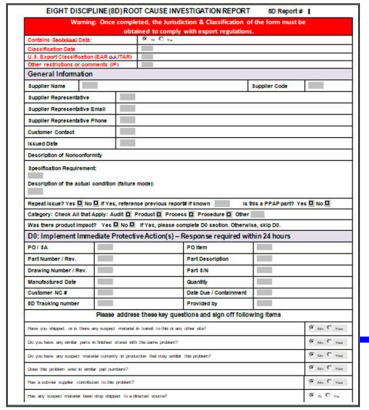


https://asq.org/quality-resources/seven-basic-quality-tools

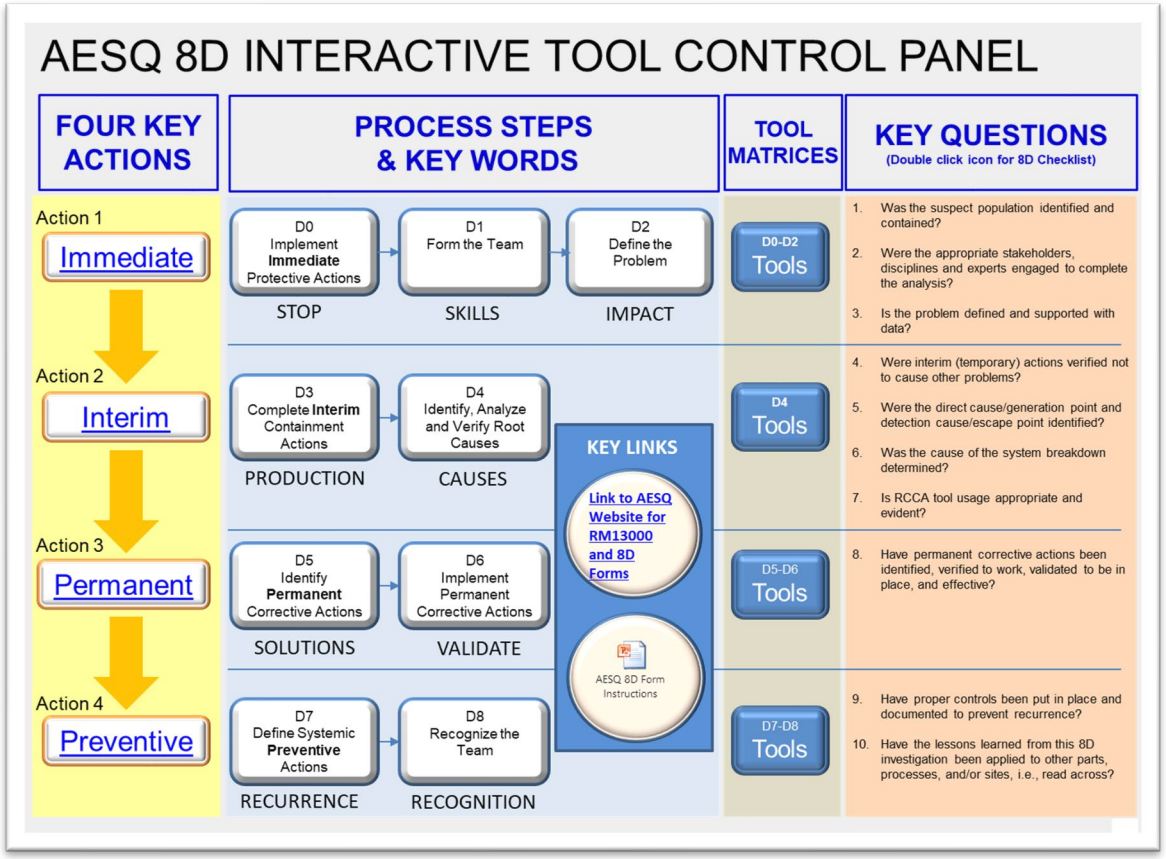
Additional Resources

Step by step instructions to assistant with each discipline (D)

They are matched to the Word Form


EIGHT DISCIPLINE (8D) ROOT CAUSE INVESTIGATION REPORT

Please address these key questions and sign off following items	
Have you shipped, or is there any suspect material in transit to this or any other PW site?	○ No ○ Yes
Do you have any similar parts in finished stores with the same problem?	○ No ○ Yes
Do you have any suspect material currently in production that may exhibit this problem?	○ No ○ Yes
Does this problem exist in similar PW part numbers?	○ No ○ Yes
Has a sub-tier supplier contributed to this problem?	○ No ○ Yes
Has any suspect material been drop shipped to a PW directed source?	○ No ○ Yes



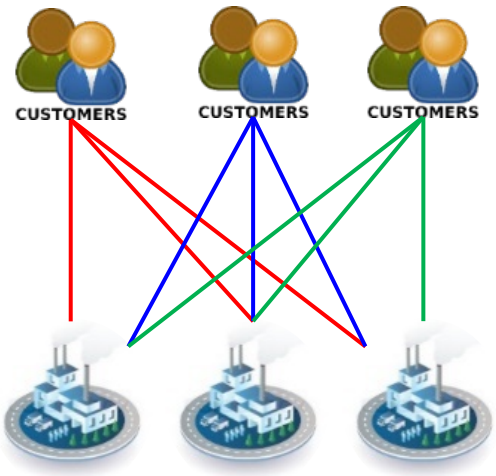
REFERENCE MANUAL RM13005

QUALITY AUDIT

HELEN DJÄKNEGREN
DIRECTOR GLOBAL SUPPLIER QUALITY
GKN AEROSPACE

Quality Audit Requirements – Driving factors

Current state



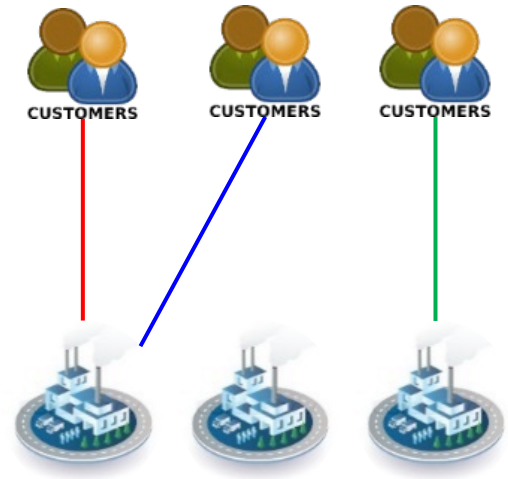
Internal audits to many requirements

- Audit – a formal requirement to assure compliance and identifying areas of improvement
- Many external audits for an organization is, in many cases, a duplication between customers
- Audits constantly find evidence of non compliance

- RM13005 clarifies the audit requirements to drive a higher rigour in the internal audit program
- Organizations that can demonstrate a successful internal audit program and a lower risk level may be subject to fewer audits by the customer

Future state

Risked based auditing



One internal audits requirement

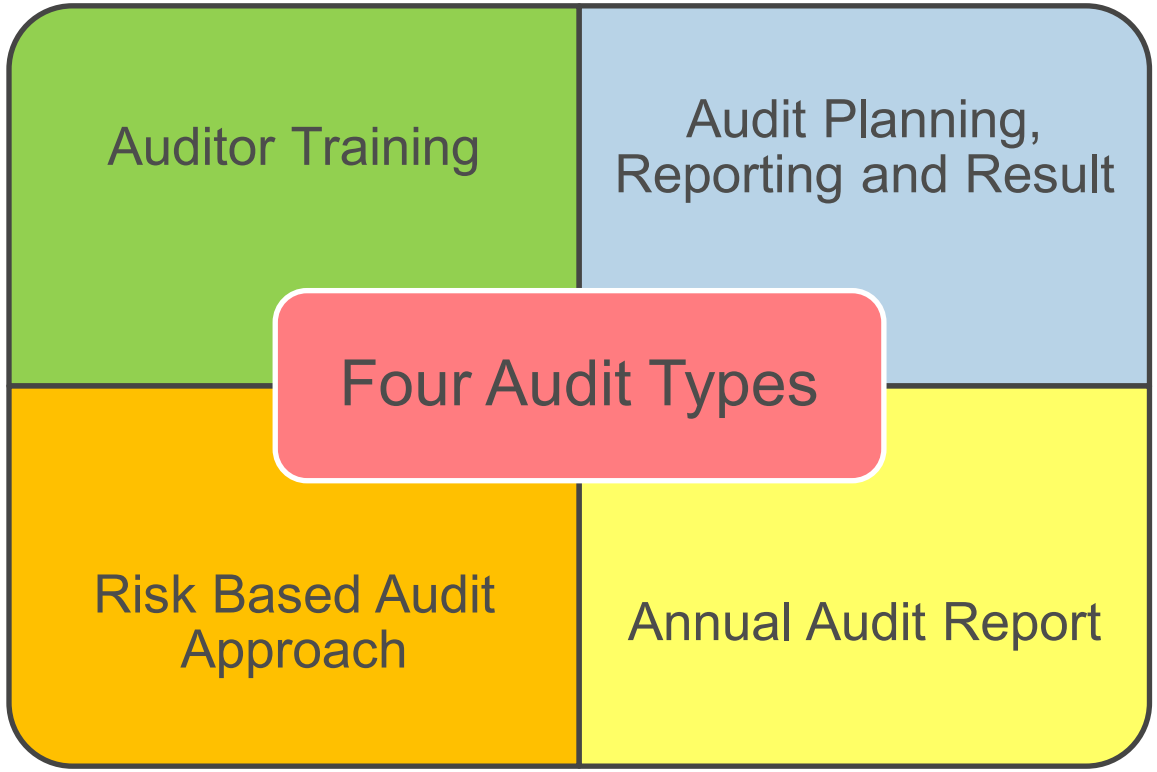
Quality Audit Requirements – Main Content

Enhance the requirements on the:

- **Organizations internal audits**

and the

- **Organizations audits of its suppliers**



Quality Audit Requirements – Four Audit Types

Quality System Audit

Intend to:

- Cover all quality management system processes to verify compliance to AS9100 and AS13100 as well as customer-specific requirements

Frequency:

- Complete Quality Management System shall be covered in a 3-year cycle
- Selected processes yearly

Quality Audit Requirements – Four Audit Types

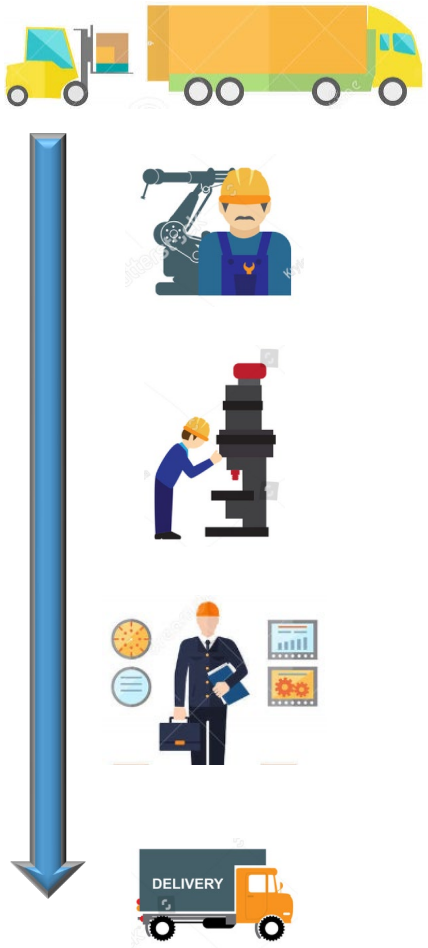
Production Process Audit

Intend to:

- Evaluate the effectiveness and efficiency of each step of the manufacturing process – from receiving to dispatch
- Ensure it is capable of producing conforming parts

Frequency and checklists:

- Every manufacturing process must be audited on a 3-year cycle
- An approved checklist is provided in the RM13005



Quality Audit Requirements – Four Audit Types

Product Audit

Intend to:

- Independently verify that the finished product fully conforms to the customer requirements
- Ensure that the production process verification processes remain accurate and stable

Frequency and scope:

- Part selection based on risk
- The parts to be audited shall be agreed with the customer
- Audit scope defined in RM13005

Quality Audit Requirements – Four Audit Types

Special Process Audit

Intend to:

- Evaluate that the process is compliant to the requirements
- Ensure it is capable of producing conforming parts.

Frequency and Checklists:

- Every special process shall be audited yearly
- Nadcap Self Audit “Process Checklist” will cover the requirement when performed yearly
- Non Nadcap certified processes shall have an approved checklist

Quality Audit Requirements – Annual Audit Report

Annual Audit Report

- Organizations summary of all performed audits, results and improvement activities.
- Shall be avaliable for the customer on request.
- Can be used by the customer as a part of their risk assessment tool for supplier audit planning.

Quality Audit Requirements – Auditor training

A powerful and good audit relies on well trained auditors

- AS13100 requires quality auditors to receive industry recognized auditor training to AS9100 as part of their qualification program.
- In addition, auditors must be trained in the requirements of applicable regulations, certification programs and customer requirements.
- Auditors should also have a good knowledge and understanding of the production process and products that they are auditing.

Quality Audit Requirements – TEAMWORK!

A special thanks to all team members that have contributed to the requirements and the RM13005

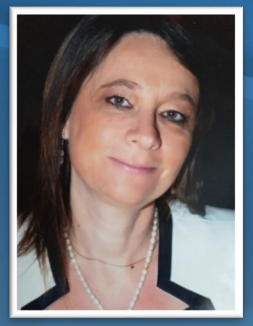
James Clifton	PCC	Jim Wilson	PW
Ola Nydén	GKN	Rohnda McNiel	Alcoa
Ian Riggs	RR	Jeremy Johnson	RR
Olivier Castets	Safran	Junichirou Teshima	IHI
Robert Caudill	GE	Melanie Renault	Safran
Per Rehndell	GKN	Lisa Stömer	MTU
Jeff Long	P&W	Susie Neal	UTAS
Aaron Stahl	PCC	Hayley Roberts	GE
Barrie Hicklin	Honeywell	Robert Czanik	GE
Michael Gehrmann	MTU	Deborah Oberhausen	PW/UTC
Brett Whitington	Meggit	Catherine Catarina-Garca	Safran
Helen Djäknegren	GKN	Austin Shears	PCC

Quality Audit Requirements

- Audit is a powerful tool for the organization to constantly drive improvements.
- Correctly managed and performed, it will reduce the risk in your organization and thru the supply chain.
- Our goal has been to build a set of requirements that will help us in this journey and ultimately reduce the number of audits from your customers.

REFERENCE MANUAL RM13010

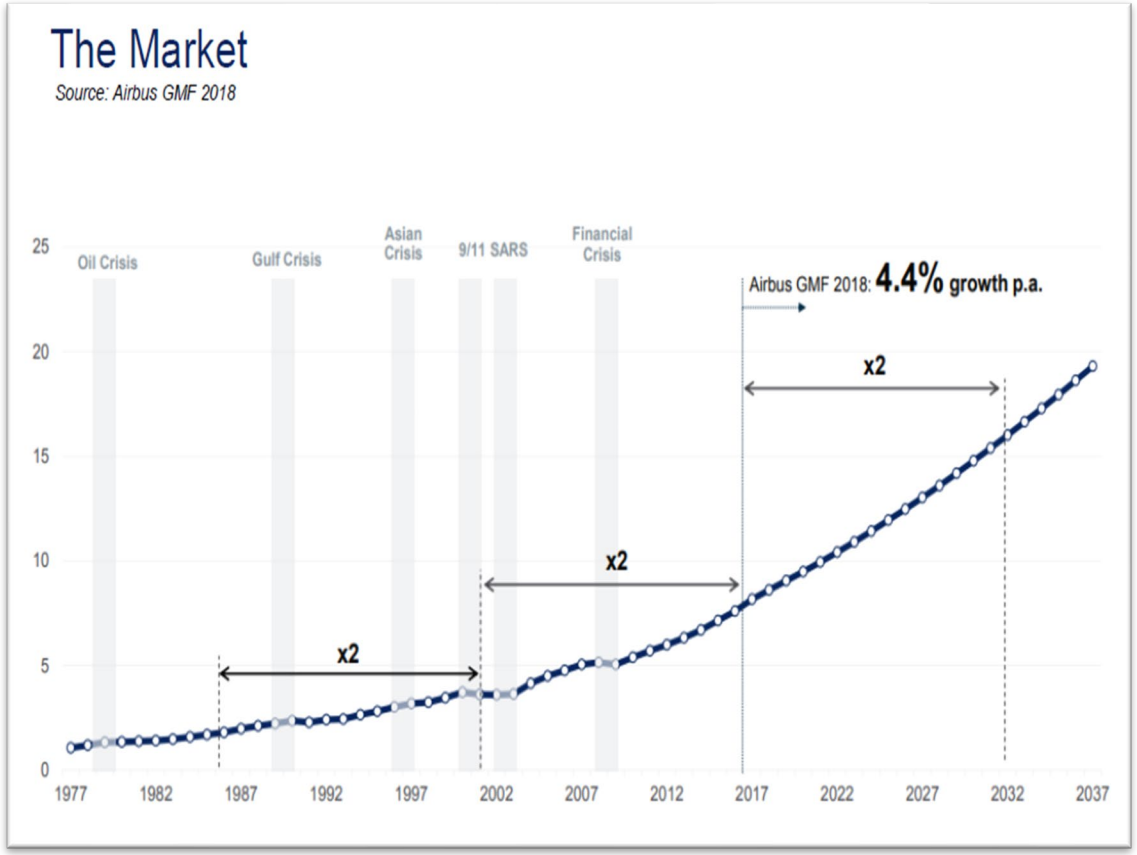
HUMAN FACTORS



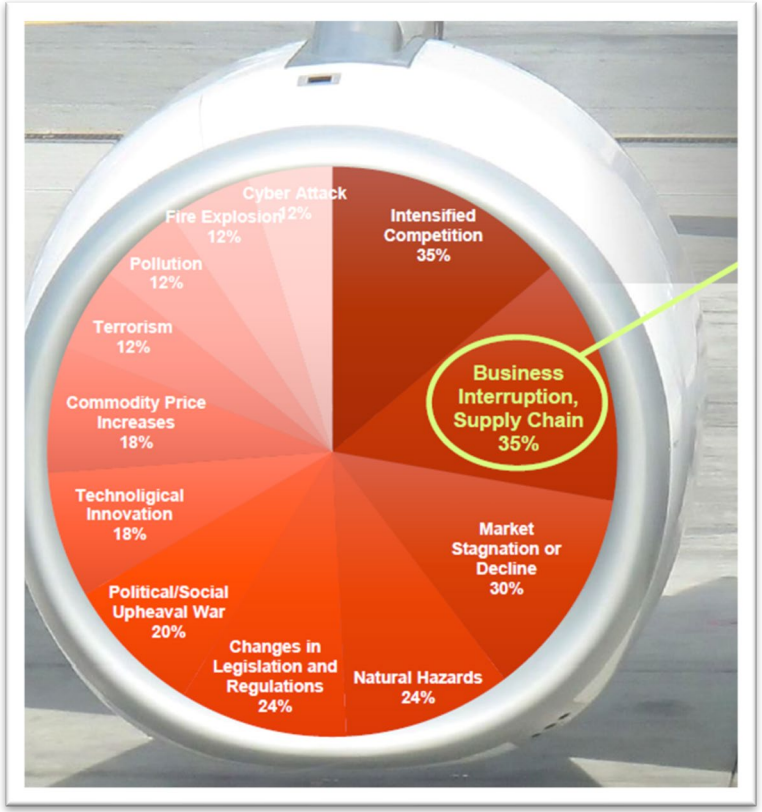
CATHERINE CATARINA-GRACA
SUPPLIER MANAGEMENT SYSTEM COORDINATOR
SAFRAN AIRCRAFT ENGINES

Why Human Factors in AS 13100

- Air traffic should double every 15 / 20 years



- Supply Chain risks are today one of the greatest concern for aviation stakeholders



Human Errors are the origin of most supply chain issues (About 80%)

Source: Allianz Risk Barometer 2014
Note: Respondents could select more than one risk

Human Factors Overview

Human Factors are becoming a key theme in the Part 21 Aerospace Industry due to

- Human Factors has been required in Maintenance organizations for the past 20 years
- Increase is non-conformance causal factors related to Human Factors
- Airframers are now demanding it as a requirement for their suppliers
- Human Factors are a key element of the ICAO Annex 19 Safety Management System requirements (Due to be published in 2022)

AS13100 Supplemental Paragraph Reference	
4.4.3	*All processes in the QMS must be documented , HF as part of this QMS needs to be documented*
5.1.1.1	*Leadership : **Top Management shall reflect a commitment to Human Factors***
5.2.1.1	*Leadership: Establishing the Quality Policy / HF Policy*
7.3.1	***Human Factors Awareness. The organization shall provide an appropriate program of training and awareness of Human Factors based on role***

Human Factors Quality Management System

Human Factors should be at least an integrated part of:

- Product and service design,
- Manufacturing / assembly,
- Product servicing

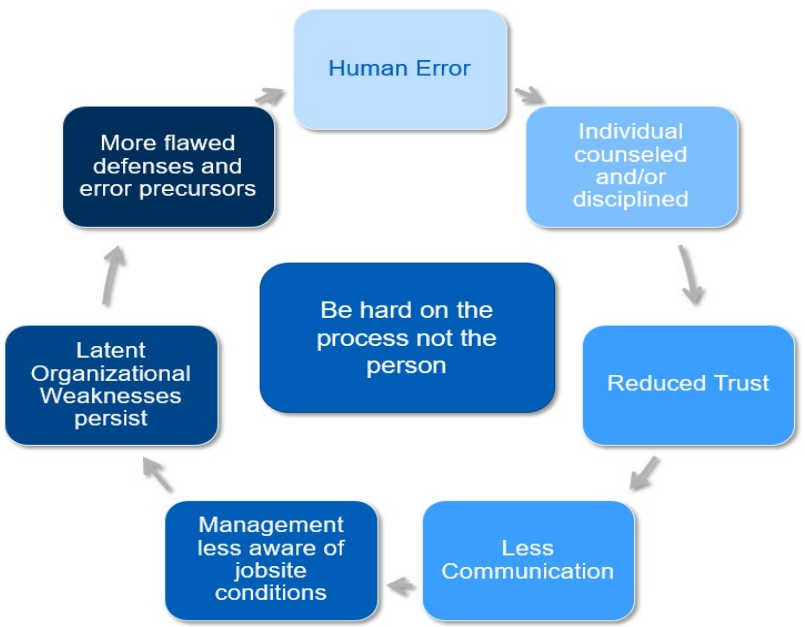
Human Factors Quality Management System

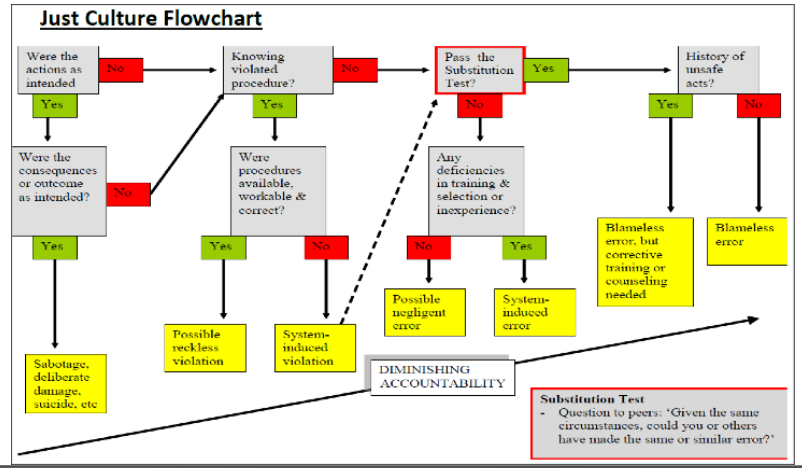
1

2

* Aéroplanes Henry Potez
In your work, an error,
something forgotten or bad workmanship
can cause the death of one or more people
……
A person who makes an error must report it
An error is a repairable and pardonnable mistacke
<u>But hiding it is a crime</u>

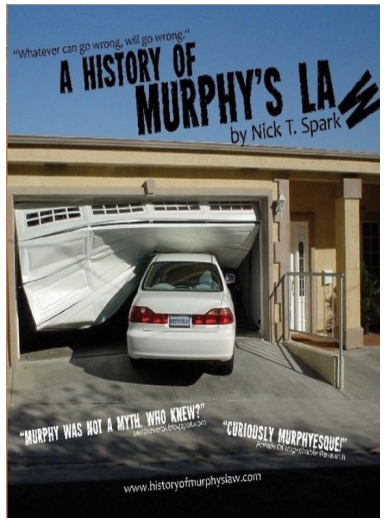
3

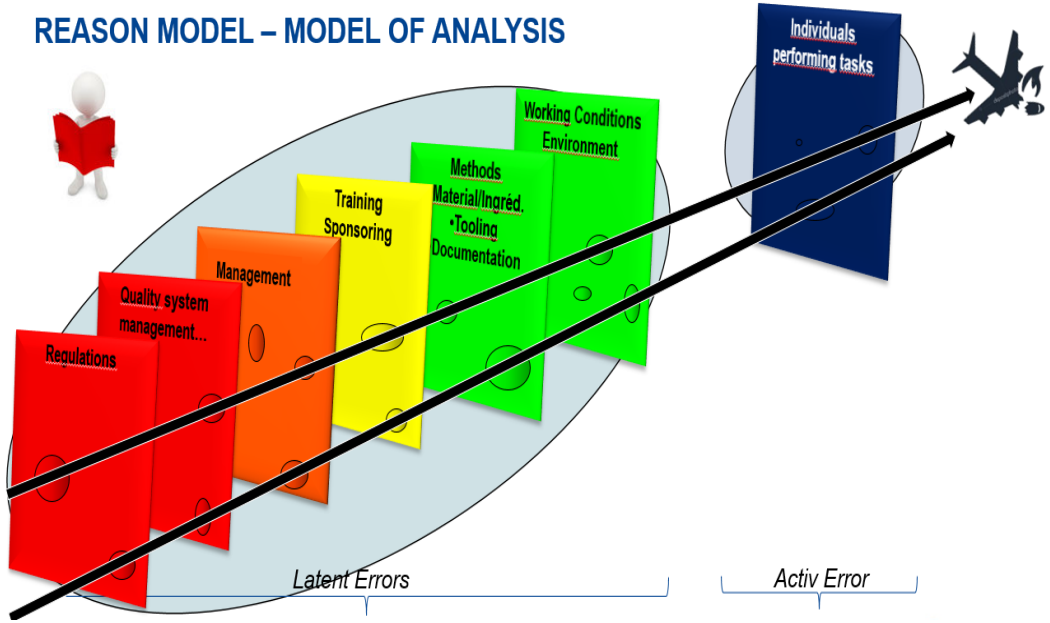




Human Factors Quality Management System

4





5

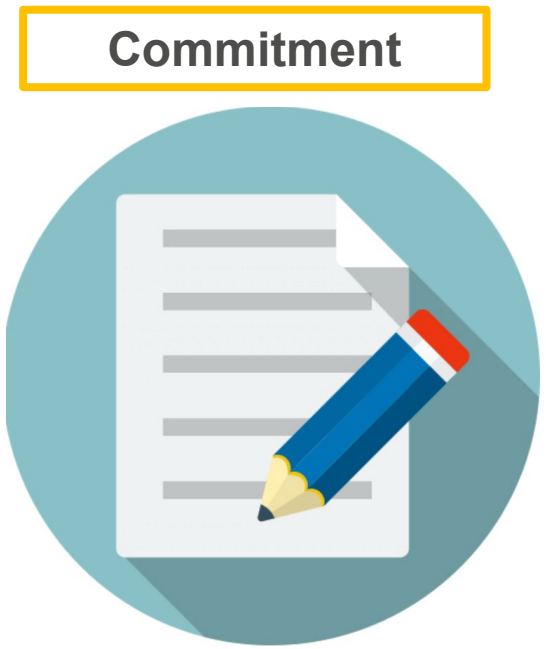
Human Factors Leadership and Policy

Human Factors Leadership

Top Management shall reflect a commitment to Human Factors

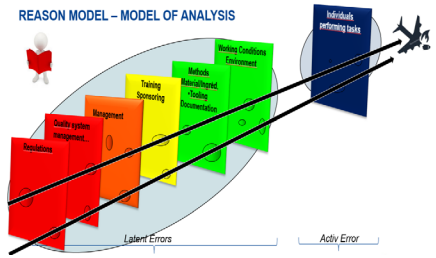
HF Policy

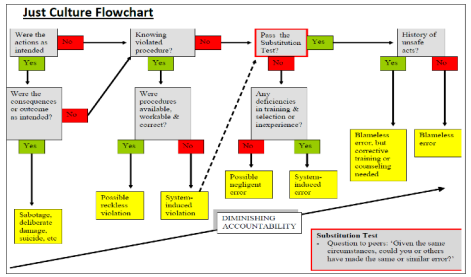
The organization shall have a policy that promotes Human Factors



Human Errors

Minimizing human errors in the supply chain is key toward product safety, quality and delivery





Special Thanks to the Team

Catherine Catarina	SAFRAN
Christine Brown	RR
Nicholas Watling	P&W
Ludovic Chevet	Airbus
Brandon Richard	GE
Hakan Bjorkalv	GKN
Richard Bolingbroke	TIMET

Part of the team speaking One VOICE about Human Factors requirements at a common supplier facility Nov 2019

REFERENCE MANUAL RM13145

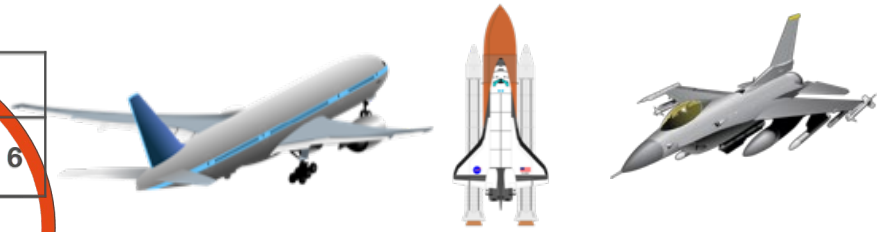
ADVANCED PRODUCT QUALITY PLANNING

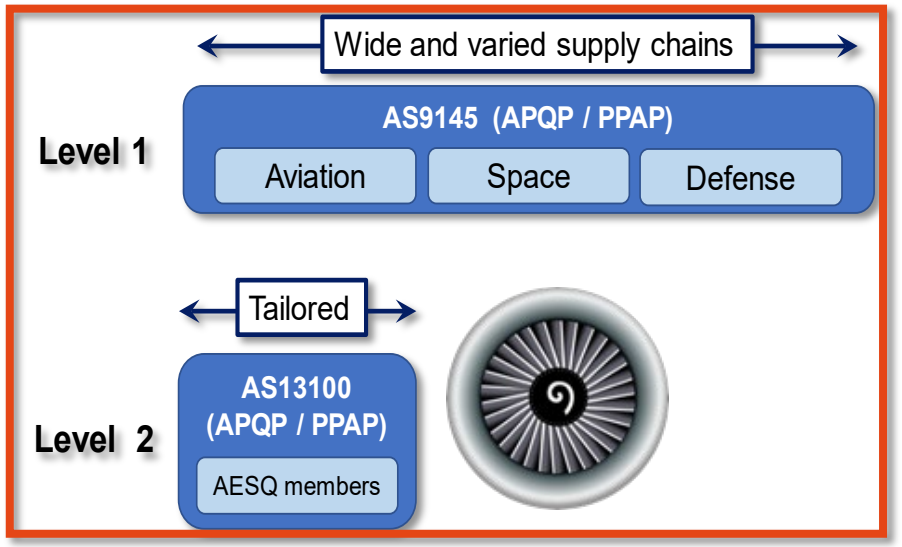
KARL EVANS
APQP TECHNICAL PROJECT MANAGER
ROLLS-ROYCE

Why AS13100 APQP and PPAP?

			Clause Numbers					
AS9145	APQP / PPAP Standard for Aviation, Space and Defense Industry		1	2	3	4	5	6

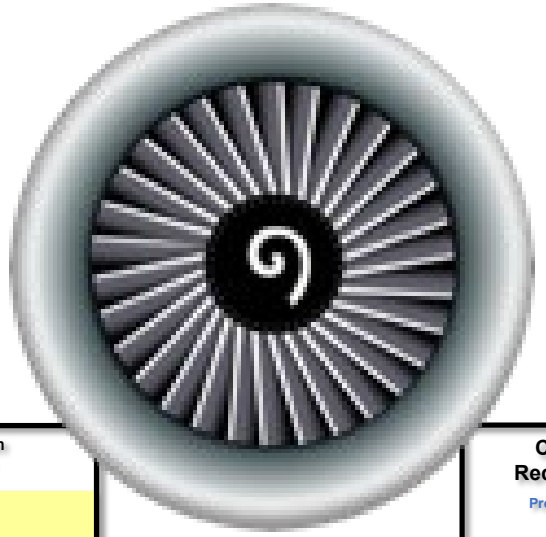
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6
AS13100	Aero Engine Quality Management System Standard	Defines supplementary requirements to AS9100 and/or ISO9001										Defines supplementary requirements to AS9145					

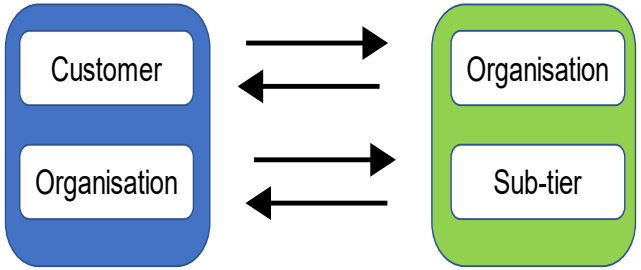




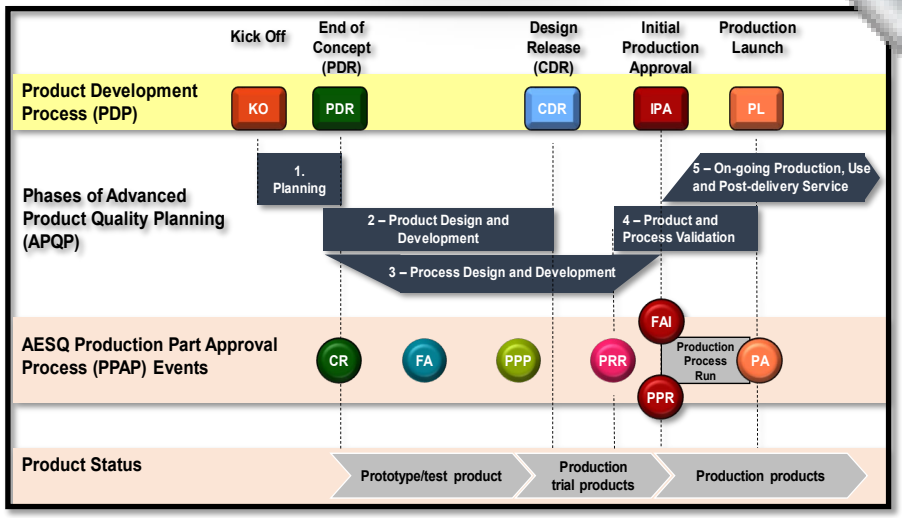
- Reduce customer specifics.
- Establish common supply chain practices.
- Better customer/supplier application.
- Provide foundations for wider use;
  - All change situations – product, process and transfers.
  - It's a Team sport - multi-disciplinary/ team to team working

Aligned to Time and Customer/Supplier Based Management.

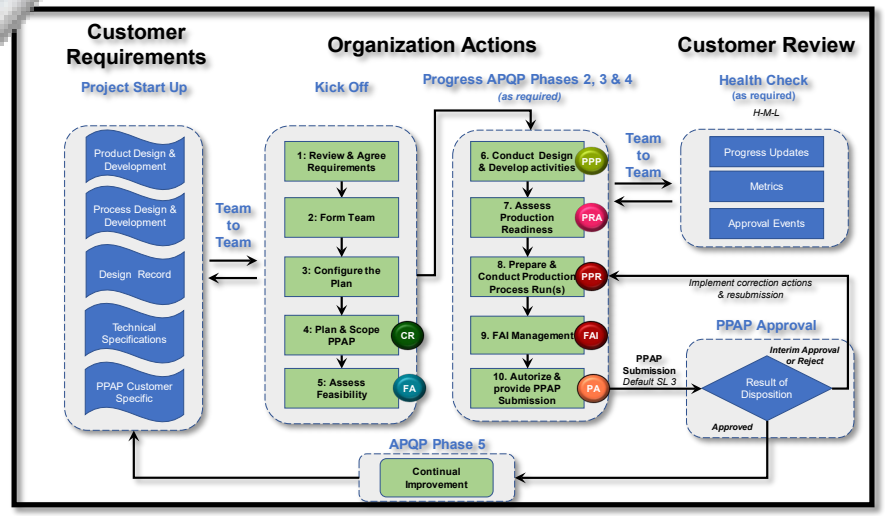




APQP and PPAP Timing Chart (Time-based framework)



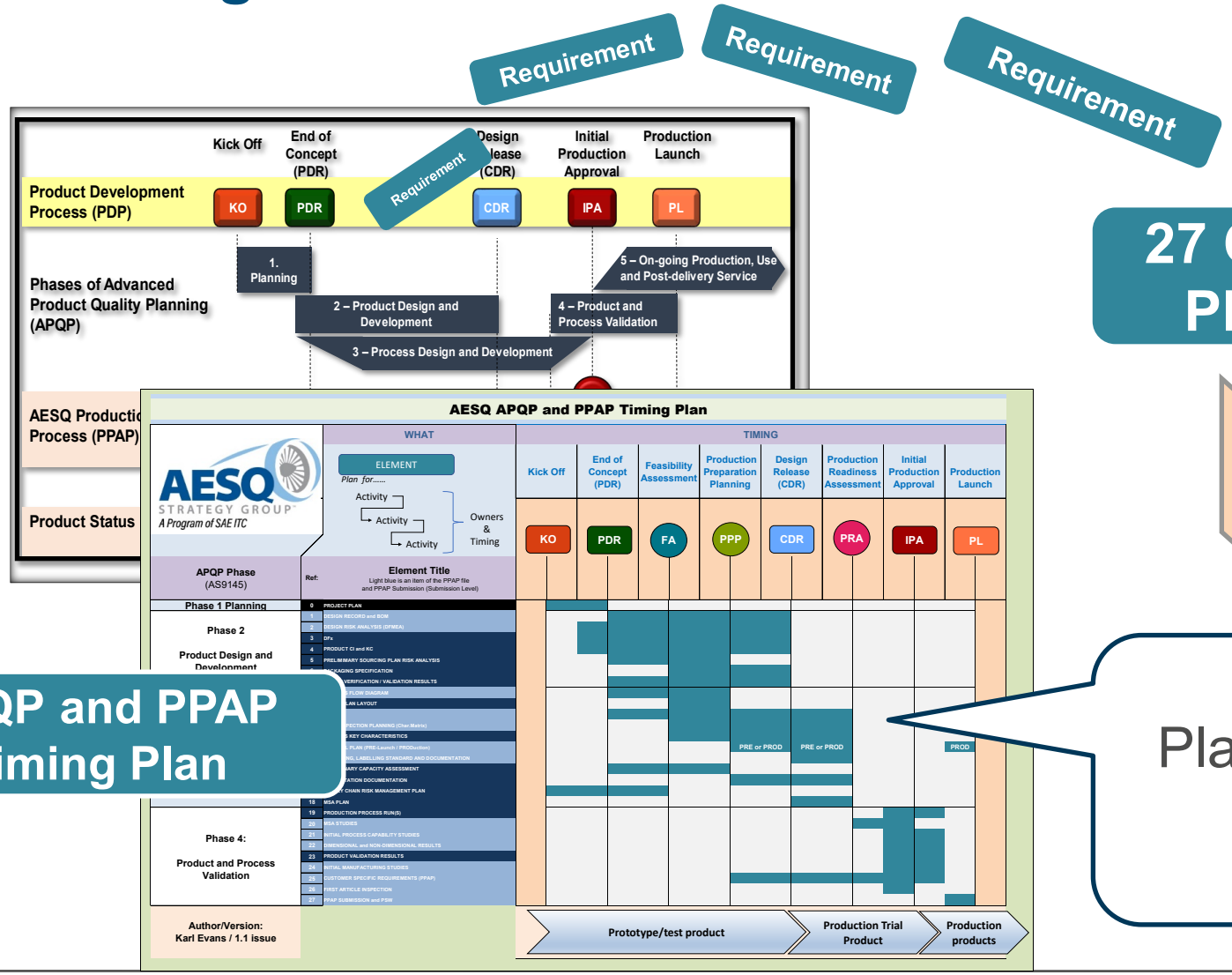
APQP and PPAP Flow Diagram (Customer/Supplier Management Process)



Example Reference Manual Content - APQP and PPAP Elements and Planning Toolbox

What

When



APQP and PPAP Timing Plan

27 Core APQP and PPAP Elements

Planning for APQP and PPAP

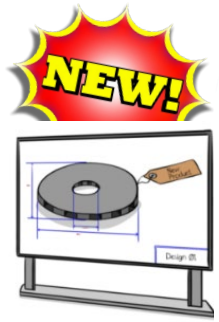
Example Reference Manual Content – Configurable for various “Change Situations”

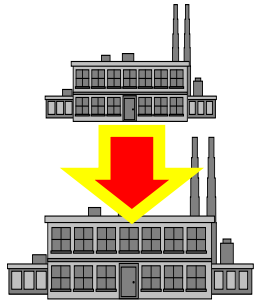
AESQ STRATEGY GROUP
A Program of SAE ITC

27 Core APQP and PPAP Elements

APQP and PPAP Elements and…..
- ✓ APQP Phases
- ✓ APQP and PPAP Events
- ✓ Planning Deliverables (KO>PDR)

Where





New Product Design
V
Transfer

Configure based on “Application Tables”

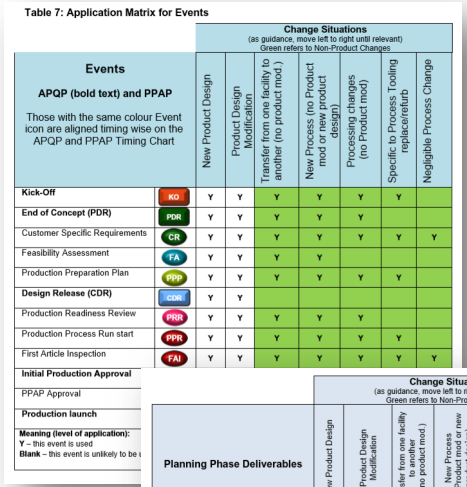


Table 7: Application Matrix for Events

Events — APQP (bold text) and PPAP. Those with the same colour Event icon are aligned timing wise on the APQP and PPAP Timing Chart		Change Situations (as guidance, move left to right until relevant; Green refers to Non-Product Changes): New Product Design	Product Design Modification	Transfer from one facility to another (no product mod.)	New Process (no Product mod or new product design)	Processing changes (no Product mod)	Specific to Process Tooling replace/refurb	Negligible Process Change
Kick-Off	KO	Y	Y	Y	Y	Y	Y	
End of Concept (PDR)	PDR	Y	Y	Y	Y	Y		
Customer Specific Requirements	CR	Y	Y	Y	Y	Y	Y	Y
Feasibility Assessment	FA	Y	Y	Y	Y			
Production Preparation Plan	PPP	Y	Y	Y	Y	Y	Y	
Design Release (CDR)	CDR	Y	Y					
Production Readiness Review	PRR	Y	Y	Y	Y	Y		
Production Process Run start	PPR	Y	Y	Y	Y	Y	Y	
First Article Inspection	FAI	Y	Y	Y	Y	Y	Y	Y
Initial Production Approval								
PPAP Approval								
Production launch								

Meaning (level of application):
Y – this event is used
Blank – this event is unlikely to be

Planning Phase Deliverables	Change Situations (as guidance, move left to right until relevant; Green refers to Non-Product Changes): New Product Design	Product Design Modification	Transfer from one facility to another (no product mod.)	New Process (no Product mod or new product design)	Processing changes (no Product mod)	Specific to Process Tooling replace/refurb	Negligible Process Change
Product Design Requirements/specs *	X	X					
Project Targets	X	X	X	X	X		
Preliminary CI / KC's*	X [1]	X [1]					
Preliminary BOM*	X [1]	X [1]					
Preliminary process flow diagram	X [3]	X [3]	X	X [3]			
SOW review	X	X	X	X	X		
Preliminary sourcing plan	X	X [2]	X [2]	X [2]	X [2]		
Project Plan	X	X	X	X	X		

Key:

* When no new product design or modification is taking place (green zone). These are represented by the established Design Record, Product Specifications and BoM.

X - Mandatory if Customer and/or Regulator and/or AS13100 require this, otherwise recommended. Either:
- Create new,
- Update the existing,
- Develop in part aligned to what has changed.

X [NOTE] – as above X and consider these Notes:
[1] - this would be design responsible organizations only (not Make to Print)
[2] - when supply chain has the potential to be impacted
[3] - appropriate to the process scope. I.e.: method and/or Supply Chain

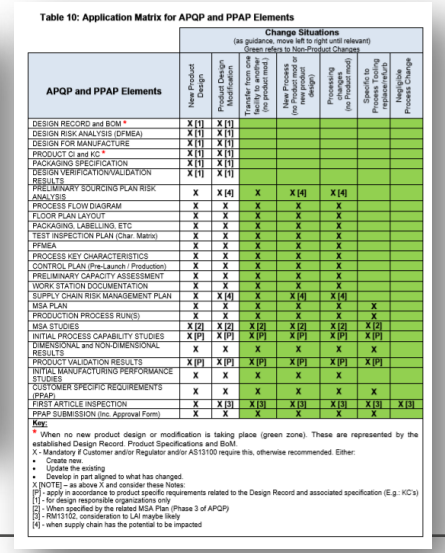


Table 10: Application Matrix for APQP and PPAP Elements

APQP and PPAP Elements	Change Situations (as guidance, move left to right until relevant; Green refers to Non-Product Changes): New Product Design	Product Design Modification	Transfer from one facility to another (no product mod.)	New Process (no Product mod or new product design)	Processing changes (no Product mod)	Specific to Process Tooling replace/refurb	Negligible Process Change
DESIGN RECORD and BOM *	X [1]	X [1]					
DESIGN RISK ANALYSIS (DFMEA)	X [1]	X [1]					
DESIGN FOR MANUFACTURE	X [1]	X [1]					
PRODUCT CI and KC *	X [1]	X [1]					
PACKAGING SPECIFICATION	X [1]	X [1]					
DESIGN VERIFICATION/VALIDATION RESULTS	X [1]	X [1]					
PRELIMINARY SOURCING PLAN RISK ANALYSIS	X	X [4]	X	X [4]	X [4]		
PROCESS FLOW DIAGRAM	X	X	X	X	X		
FLOOR PLAN LAYOUT	X	X	X	X	X		
PACKAGING, LABELLING, ETC	X	X	X	X	X		
TEST INSPECTION PLAN (Char. Matrix)	X	X	X	X	X		
PFMEA	X	X	X	X	X		
PROCESS KEY CHARACTERISTICS	X	X	X	X	X		
CONTROL PLAN (Pre-Launch / Production)	X	X	X	X	X		
PRELIMINARY CAPACITY ASSESSMENT	X	X	X	X	X		
WORK STATION DOCUMENTATION	X	X	X	X	X		
SUPPLY CHAIN RISK MANAGEMENT PLAN	X	X [4]	X	X [4]	X [4]		
MSA PLAN	X	X	X	X	X	X	
PRODUCTION PROCESS RUN(S)	X	X	X	X	X	X	
MSA STUDIES	X [2]	X [2]	X [2]	X [2]	X [2]	X [2]	
INITIAL PROCESS CAPABILITY STUDIES	X [P]	X [P]	X [P]	X [P]	X [P]	X [P]	
DIMENSIONAL and NON-DIMENSIONAL RESULTS	X	X	X	X	X	X	
PRODUCT VALIDATION RESULTS	X [P]	X [P]	X [P]	X [P]	X [P]	X [P]	
INITIAL MANUFACTURING PERFORMANCE STUDIES	X	X	X	X	X		
CUSTOMER SPECIFIC REQUIREMENTS (PPAP)	X	X	X	X	X	X	
FIRST ARTICLE INSPECTION	X	X [3]	X [3]	X [3]	X [3]	X [3]	X [3]
PPAP SUBMISSION (Inc. Approval Form)	X	X	X	X	X	X	

Key:

* When no new product design or modification is taking place (green zone). These are represented by the established Design Record, Product Specifications and BoM.
X - Mandatory if Customer and/or Regulator and/or AS13100 require this, otherwise recommended. Either:
- Create new,
- Update the existing
- Develop in part aligned to what has changed.

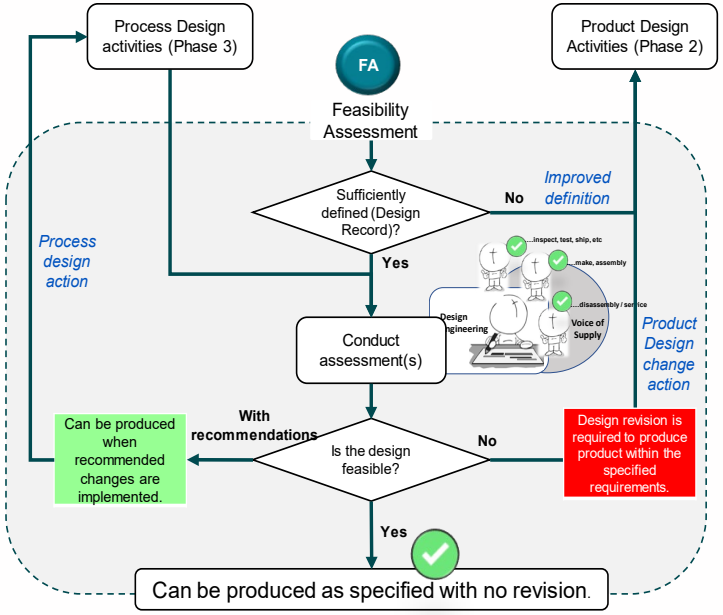
X [NOTE] – as above X and consider these Notes:
[P] - apply in accordance to product specific requirements related to the Design Record and associated specification (E.g.: KC's)
[1] - for design responsible organizations only
[2] - When specified by the related MSA Plan (Phase 3 of APQP)
[3] - RM13102, consideration to LAI maybe likely
[4] - when supply chain has the potential to be impacted

Example Reference Manual Content – How To's

How

FA **F**easibility **A**ssessment

Process



Tools

Table 13: Feasibility Assessment (Example format)

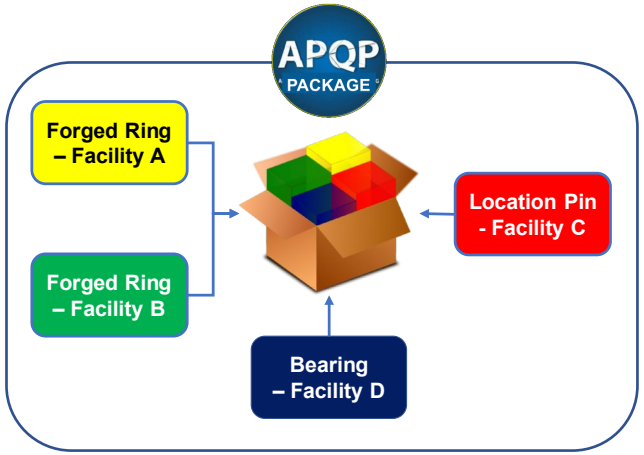
Agree?		Considerations:
Yes	No	
		▪ Is the product adequately defined to enable feasibility evaluation?
		▪ Can the product be produced to design requirements (as written)?
		▪ Can the product be produced to design specifications / tolerances?
		▪ Can the product be produced with process capability to meet requirements?
		▪ Is there adequate capacity to produce product?
		▪ Does the design allow the use of efficient material handling/shipping techniques?
		▪ Can the product be produced within cost parameters?
		▪ Do capabilities exist to produce the product? Or can they be acquired?
		▪ Can the product be produced without incurring any unusual: ▪ Costs for capital equipment? ▪ Costs for tooling? ▪ Alternative methods? ▪ Compliance issues such as REACH?

Feasibility Assessment Outcome:	
Feasible:	Can be produced as specified with no revision.
Feasible with recommendation:	Can be produced when recommended changes are implemented.
Not feasible:	Design revision is required to produce product within the specified requirements.

Notes associated with outcome:

Example Reference Manual Content - APQP and PPAP working together

APQP Package v PPAP Submission



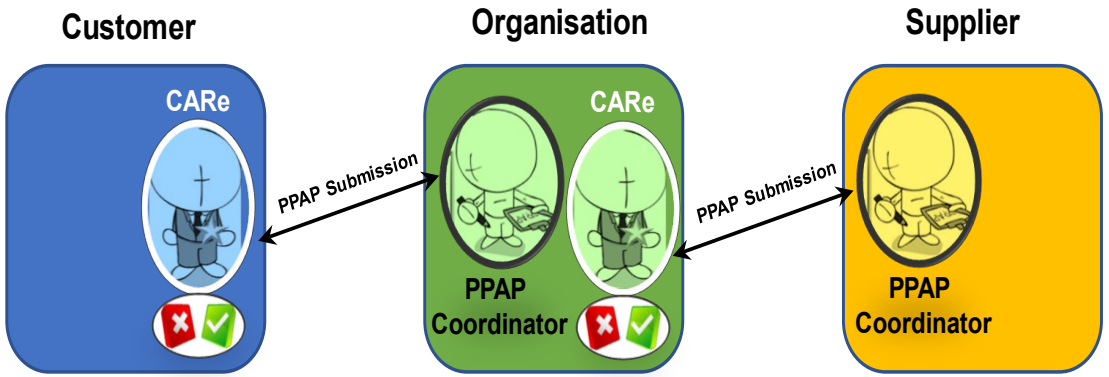
Process Management Tools.

E.g.: Submission Level Table

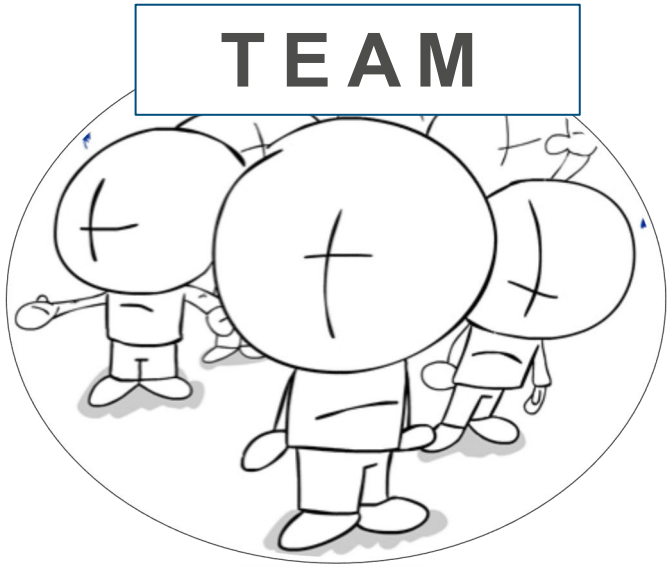
Table 11 - Submission/Retention Levels

PPAP ELEMENT NUMBER	AESQ PPAP ELEMENT	SUBMISSION LEVEL				
		SL1	SL 2	SL 3	SL 4	SL 5
1	Design Record	S R	S R	S R	C R	S R W
2	Design FMEA	R [1]	R [1]	S R [1]	C R [1]	S R W [1]
3	Process flow diagram	R	R	S R	C R	S R W

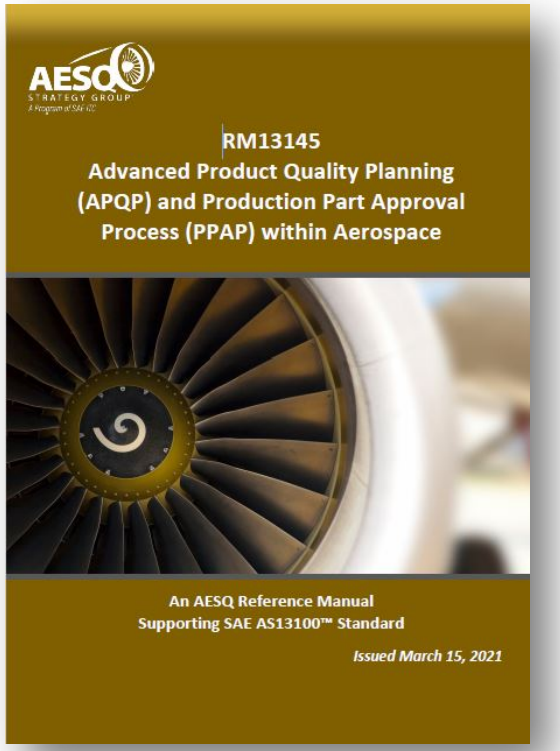
Standard Approvers, Training and Qualifications



Its Not Exclusive to Quality…….It's a Team Sport



Team and Leadership Guidance



Special Thank You……

Organization	Representative
Rolls-Royce	Karl D Evans – Team Leader
GE Aviation	Melanie Deroo
GE Aviation	Micheal Fuehner
MTU	Thomas Herter
GKN Aerospace	Ake Winkvist
GKN Aerospace	Inger Henstrom
Pratt & Whitney	Brian Murphy
Safran	Nathalie Noblet

Pause

Return in 15 Minutes

Pause

Return in 14 Minutes

Pause

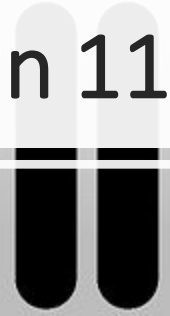
Return in 13 Minutes

Pause

Return in 12 Minutes

Pause

Return in 11 Minutes



Pause

Return in 10 Minutes

Pause

Return in 9 Minutes

Pause

Return in 8 Minutes

Pause

Return in 7 Minutes

Pause

Return in 6 Minutes

Pause

Return in 5 Minutes

Pause

Return in 4 Minutes

Pause

Return in 3 Minutes

Pause

Return in 2 Minutes

Pause

Return in 1 Minute

AS13100
SUBJECT MATTER INTEREST GROUPS

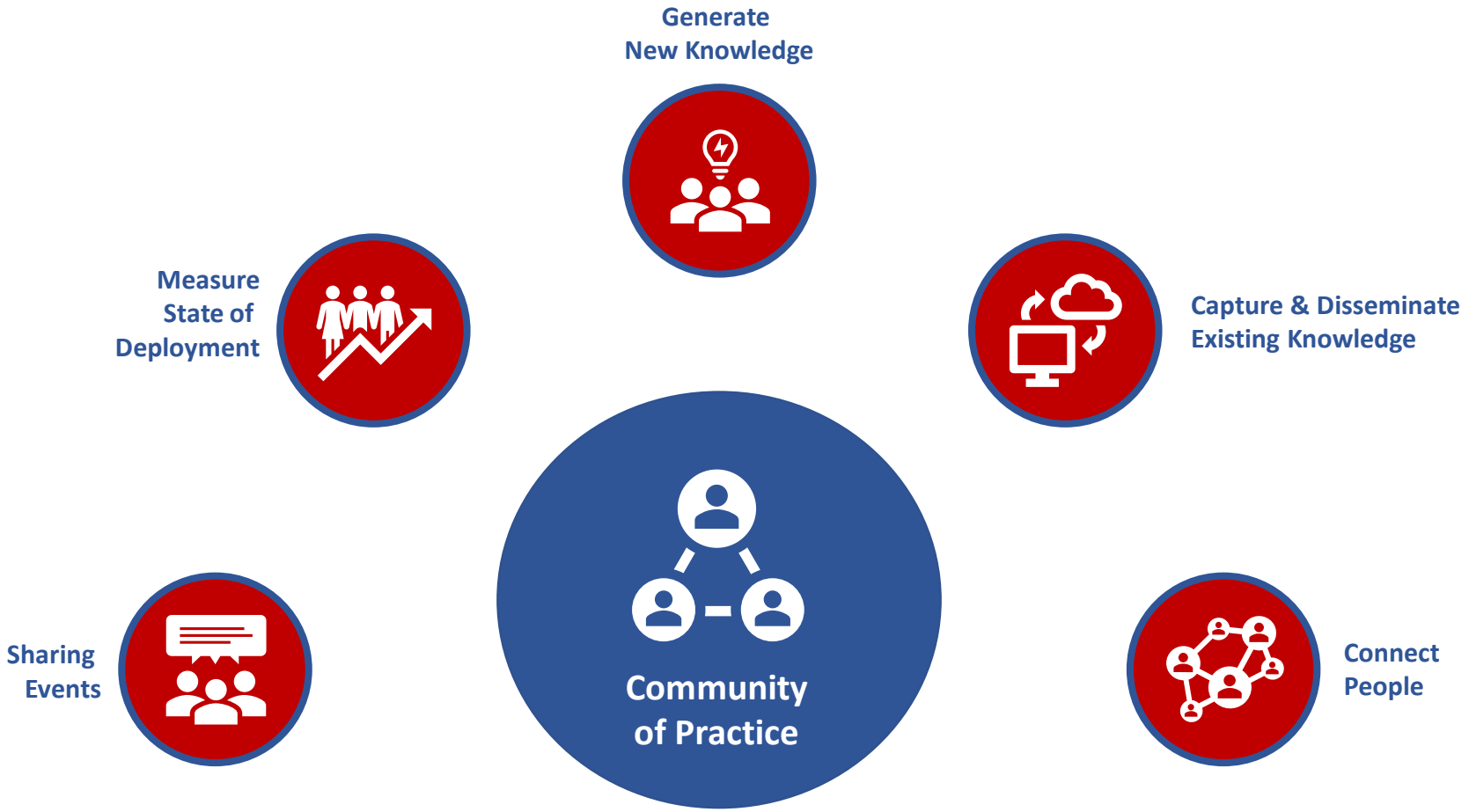
EMMANUEL VIVIER
VP QUALITY COMMERCIAL ENGINES
SAFRAN AIRCRAFT ENGINES

What is a Subject Matter Interest Group?

- The purpose of the Subject Matter Interest Group is to promote the effective deployment of the Key Quality Subject across the AESQ Supply Chain.
- The Group is made up of Subject Matter Experts from the AESQ Member Companies.
- It is accountable for the AS13100 related Requirements and associated Reference Manual content, ensuring that it is up to date and reflects current knowledge and best practice.
- It shall promote the effective deployment of the Reference Manual using Communities of Practice (CoP). The CoP is open to any subject matter expert from the AESQ Member Companies and the wider AESQ supply chain.
- Activities will include webinars, best practice sharing, development of shared training materials, conferences and published papers.

Subject Matter Interest Group Accountabilities

Community of Practice Activities



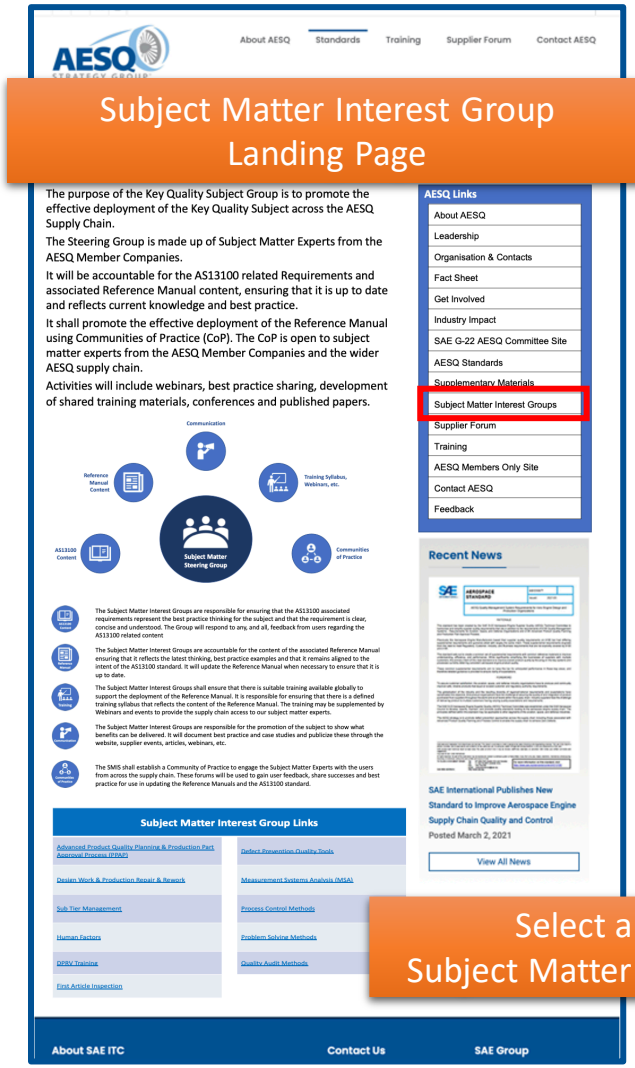
Subject Matter Interest Groups

AESQ Subject Matter Interest Groups	
Advanced Product Quality Planning & Production Part Approval Process (PPAP)	Defect Prevention Tools to support APQP & PPAP
Design Work & Production Repair & Rework	Measurement Systems Analysis (MSA)
Sub Tier Management	Process Control Methods
Human Factors	Problem Solving Methods
DPRV Training	Quality Audit Methods
First Article Inspection	

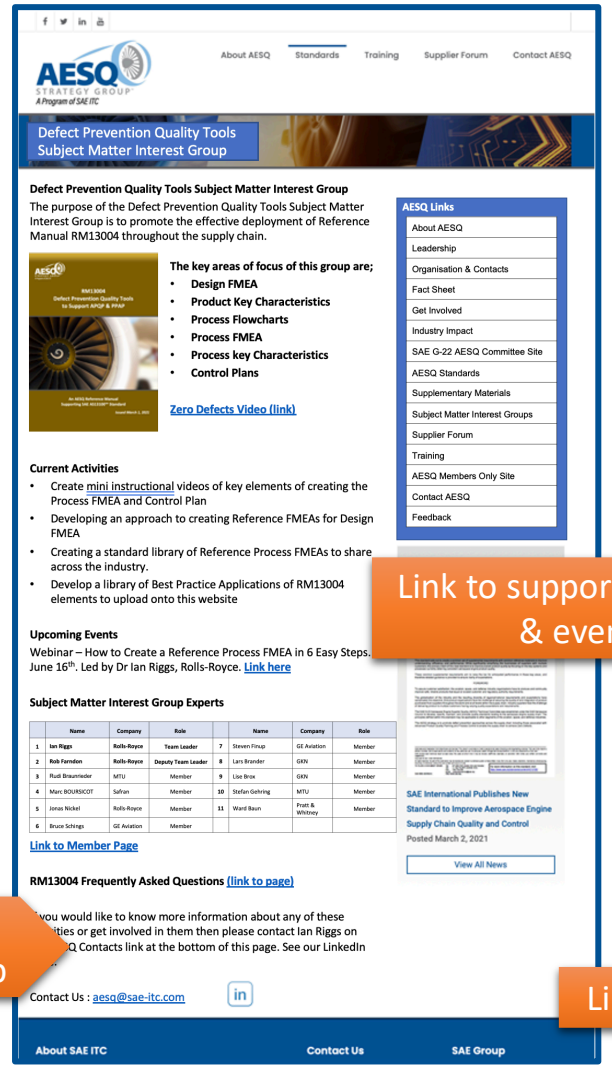
Subject Matter Interest Groups on the AESQ Website

AESQ STRATEGY GROUP
A Program of SAE ITC

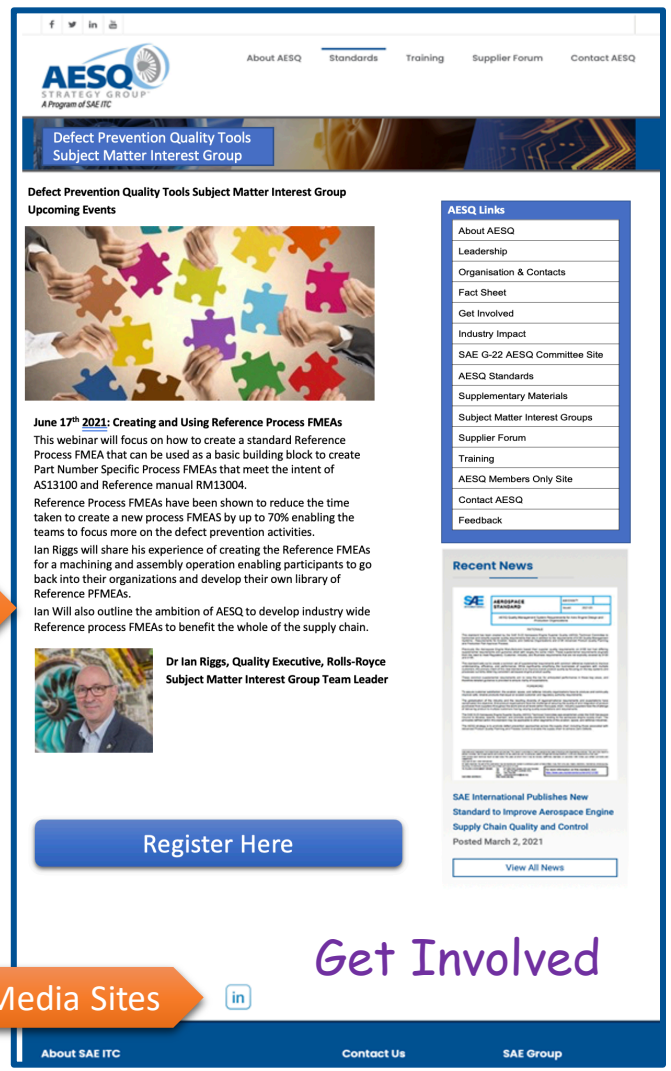
Subject Matter Interest Group Landing Page



Select a specific Subject Matter Interest Group



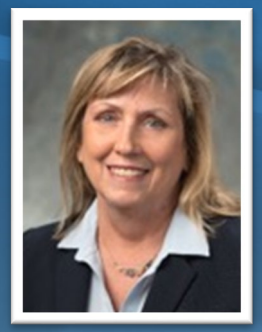
Link to support materials & events



Get Involved

Link to Social Media Sites

AS13100 TRAINING SUPPORT



LISA CLAVELOUX
SENIOR DIRECTOR GROUP QUALITY
PRATT & WHITNEY

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

Executive Overview

https://discover.sae.org/AS13100-Executive-Overview

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 Approved AS13100 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 Management Standards through an **AESQ approved AS13100 Requirements** training course.

Recommend for functional leaders responsible for creating or managing processes that are impacted by AS13100 Requirements (7.2.4)

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.

This course is also recommended for design engineering, manufacturing engineering and operations roles (7.2.4)

AS13100 Training for Quality & Functional Leaders

Level One	SAE Executive Overview	Five Part Video Series, 35 minutes Executive perspectives from across the industry detailing why compliance is critical to your company's success	No cost
Level Two	SAE AS13100 Requirements Course	Self-paced & online, 10-hours, 365 Days of Access Comprehensive Course on AS13100 **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	$399
Level Three	SAE Quality Foundations Course (Available Fall 2021)	Virtual or Classroom, 3-days **Required** for Quality Leaders with responsibility for supporting the design, manufacturing, and assembly operations **Recommended** for design engineering, manufacturing engineering and operations roles	$1095

SAE AS13100 Requirements Course Demonstration

On Demand, 10 hours

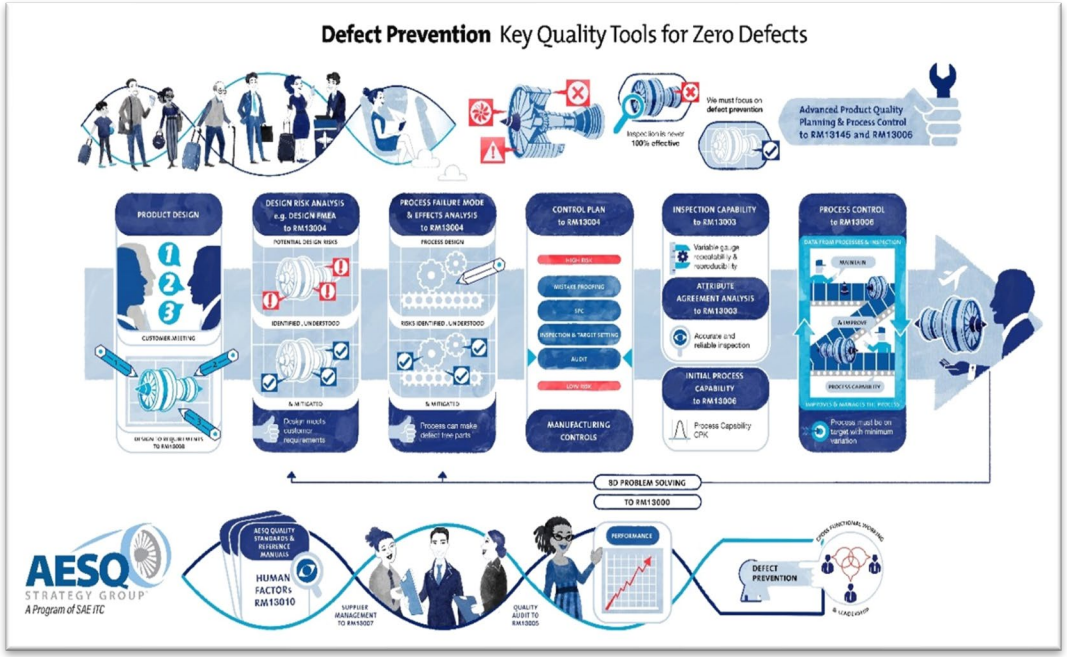
Developed in partnership with the AESQ and the G-22 writing committee SMEs

SAE 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
- Provides knowledge and insight for each of the AESQ supplemental requirements
- Provides knowledge that helps the learner assess, design, maintain and comply with the business processes & adds value to the business

SAE AS13100 Quality Foundations Course Overview

- Designed to bring together the key quality systems, processes and methodologies to show how they work as part of a system to focus on Defect Prevention.
- Supports Quality Leaders, at all levels in the organisation, to understand how these tools and processes work and what are the characteristics of successful deployment.
- Recommended for other functions with accountability for the quality of the design, production, assembly and test areas of the organisation including those in Design, Manufacturing Engineering, Operations, Maintenance and Business Improvement.



AS13100 Required Training Summary

- Available online, self-paced, closed-captioning in 7 languages
  - AS13100 Requirements Course
- Available as virtual Instructor-led & traditional Instructor-led
  - DPRV Training currently delivered in 7 languages via a virtual format.
  - Training for the Foundations Course will be offered in English initially, with the addition of 7 languages

For more information:

Visit https://aesq.sae-itc.com/training

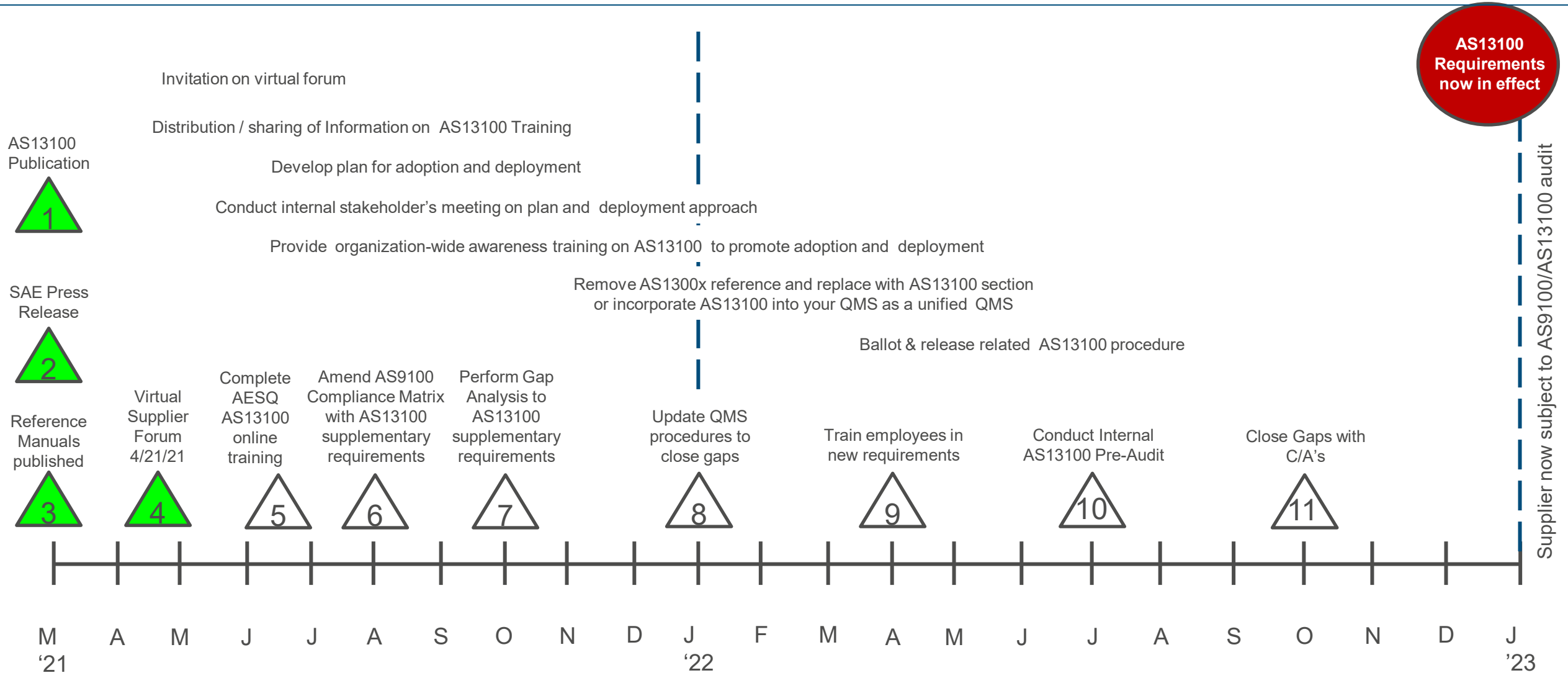
Visit https://discover.sae.org/AS13100

AS13100
DEPLOYMENT APPROACH

OSA OMORUYI
DIRECTOR OF QUALITY
HOWMET AEROSPACE

AS13100 Supplier Preparation Milestone Plan

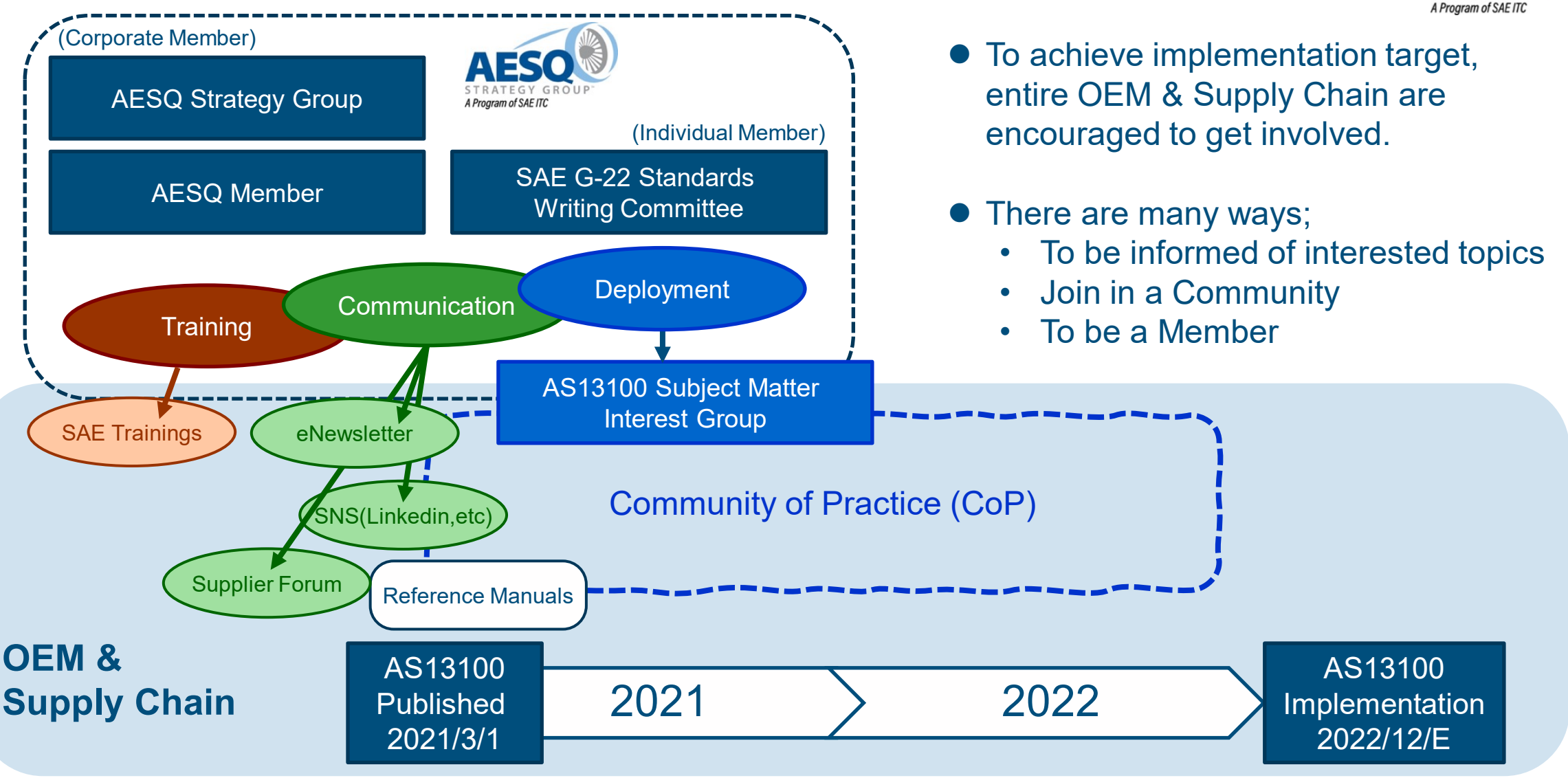
Key milestones to achieve compliance to AS13100 by 1/1/2023



AESQ
HOW TO GET INVOLVED

JUN SAKAI
CHIEF ENGINEER
IHI CORPORATION

How to Get Involved - Overview

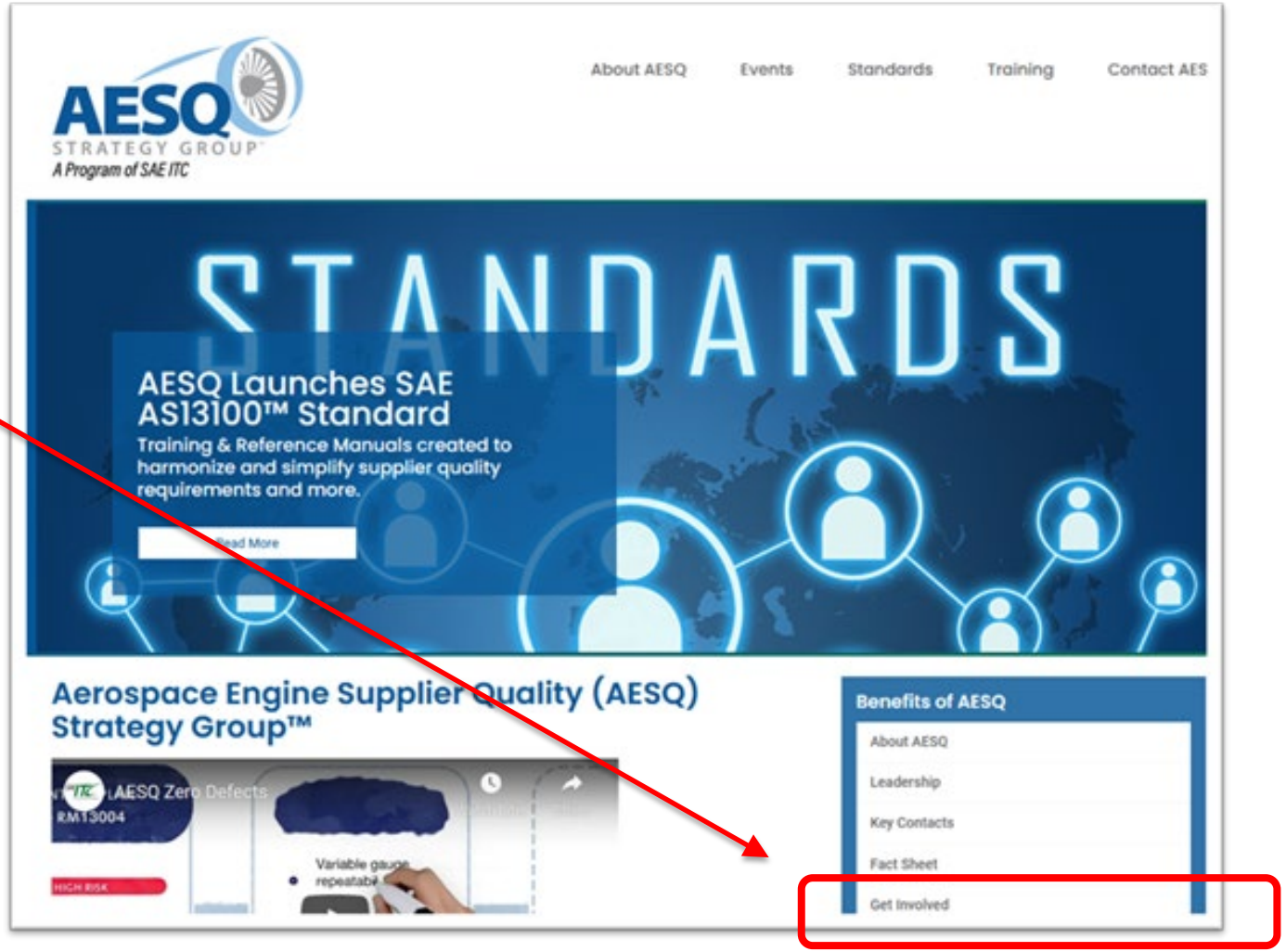


- To achieve implementation target, entire OEM & Supply Chain are encouraged to get involved.
- There are many ways;
  - To be informed of interested topics
  - Join in a Community
  - To be a Member

“Get Involved” with AESQ

- Go to AESQ Homepage
  https://aesq.sae-itc.com/

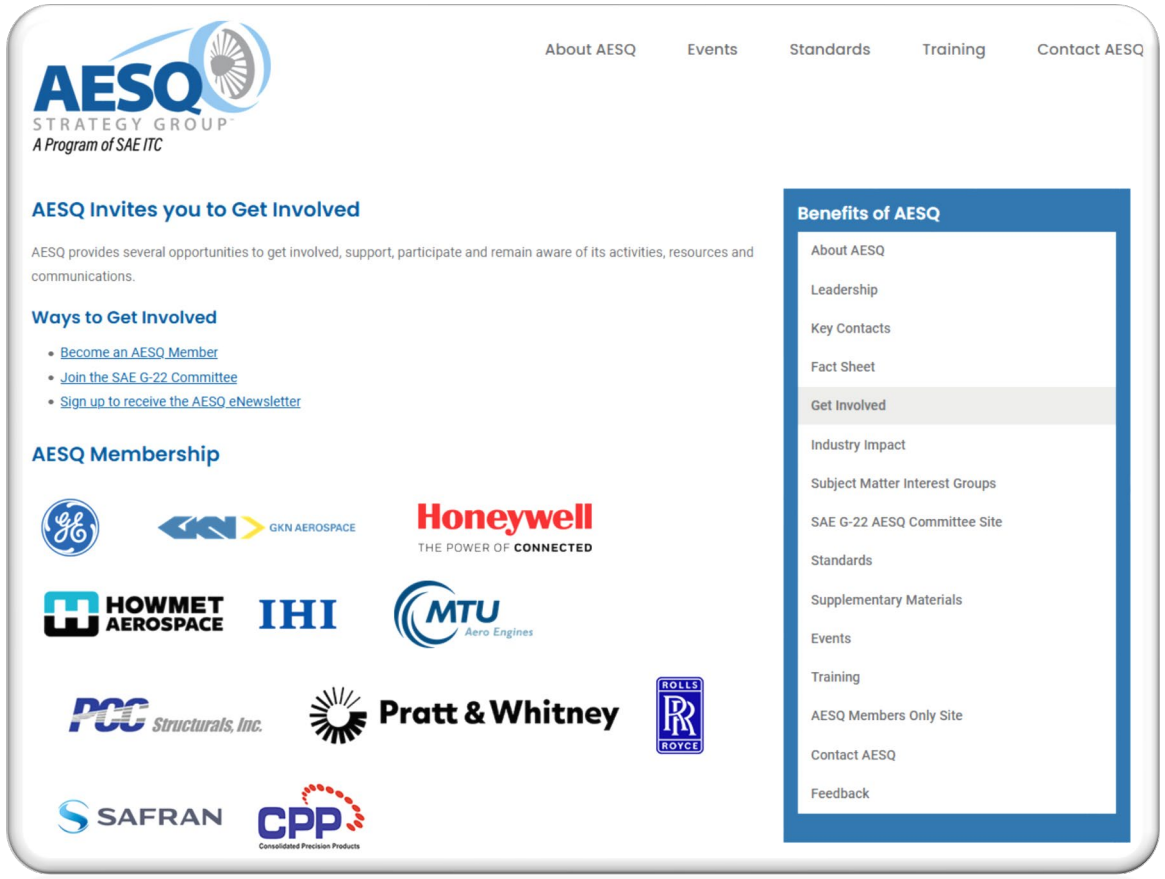
- Click “Get Involved”



“Get Involved” Options

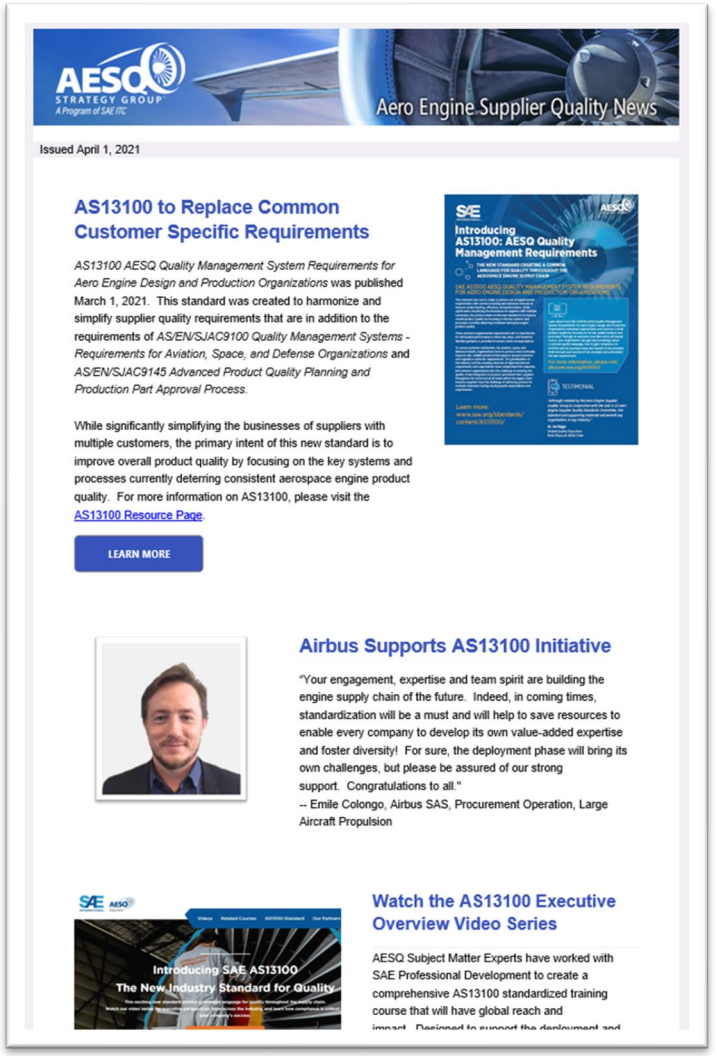
1. Sign up to receive AESQ eNewsletter
2. Become an AESQ Member
3. SAE G-22 Standards Writing Committee

Click on the appropriate link for additional information



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

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



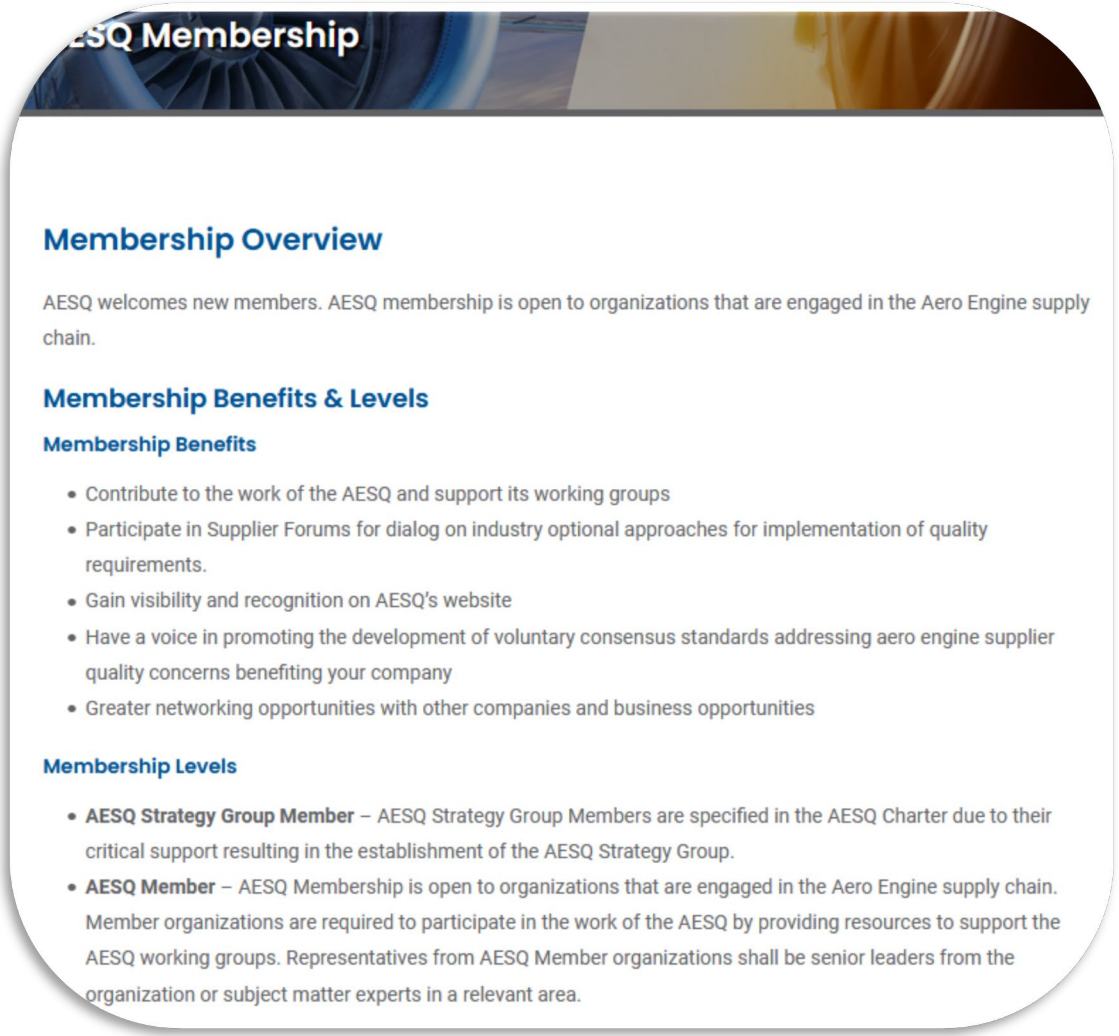
“Get Involved” – Become an AESQ Member

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

“Get Involved” – Additional Options

- Attend AESQ Events (Supplier Forum, Webinar)
- Attend Subject Matter Interest Group Webinar or Join on LinkedIn
- Take a AS13100 Training Course
- Download Reference Manuals
- Watch the “Zero Defects” Video
- Listen to a Podcast

“Get Involved” – Attend a Supplier Forum

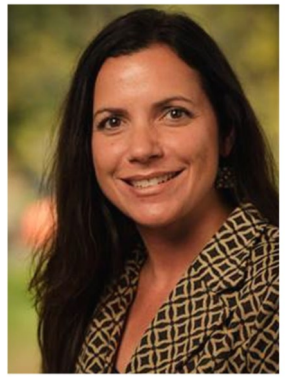
- Review presentations from previous events on the AESQ website.
- Watch for future events.

“Get Involved” – Watch “Move with SAE Mobilus” Webinar

This monthly webinar series will take a special look at AS13100.

Wednesday, May 19, 2021
11:00am (-5GMT) – 1 Hour

Special Guest Speakers:



Barbara Negroe
Executive Sourcing Quality Leader
GE Aviation

Larry Bennett
Principal Engineer, Global Sourcing Quality
GE Aviation

“Get Involved” – Subject Matter Interest Groups

- Follow AESQ’s New Subject Matter Interest Groups
- Participate in a Community of Practice
- Sign up for a Subject Matter Interest Group Webinar
- Join Subject Matter Interest Group on LinkedIn

SUMMARY & QUESTIONS

JAMES CLIFTON
VP QUALITY
PCC STRUCTURALS

Summary

AS13100 Standard & Reference Manuals now published

Plan to get compliant by the end of 2022

Compliance is via self-assessment and customer audit

Get trained in the AS13100 Requirements and Quality Foundation courses

Consider getting your organization to become an AESQ member and take part in the Subject Matter Interest Groups

Improve your knowledge and capabilities by getting involved in the AESQ Communities of Practice

Delivery improved Quality Performance and Business Results

Stay in touch with AESQ through the website aesq.sae-itc.com

Question & Answer "Q&A" Ground Rules

We will now accept questions via the Chat function focused on but not limited to:

- AS13100 Standard
- AS13100 Training
- AESQ Reference Manuals
- Deployment and Transition

Please avoid questions regarding:

- Commercialism
- Pricing
- ITAR
- Export Control

Use the Chat Function to Ask a Question..

… or just make a comment.

be kind

Thanks for Attending

Stay in Touch on aesq.sae-itc.com