



# Certification and Resilience

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BSI



By Royal Charter

- Introduction to BSI Group
- Why have certified management systems?
- Beyond Quality – Organisational Resilience
- Summary



# BSI is a Global Company

**4,300**  
colleagues  
& **11,450**  
experts

**81,000**  
clients in  
**181**  
countries

**13,000** active  
product  
certifications

**Over**  
**37,000**  
standards

**191,000**  
audit days  
delivered

**134,000**  
delegates  
trained

**58,000**  
consulting days  
delivered

Globally  
recognised  
for  
excellence

**Experienced:** The world's first National Standards Body; founding member of ISO

**Thought Leaders:** Shaped world's most adopted standards including ISO 9001, ISO 14001, ISO 45001



BSI Kitemark<sup>®</sup> a mark of excellence you can

**TRUST**



# BSI - an innovator for over a century



## Quality Management

BS 5750 (1979) > ISO 9001 (1987)  
(ISO 13485, IATF 16949, AS 9100)



## Environmental Management

BS 7750 (1992) > ISO 14001 (1996)



## Occupational Health and Safety

BS 8800 (1996) > BS OHSAS 18001 (1999)  
> ISO 45001 (2018)



## Information security

BS 7799 (1995) > ISO 27001 (2005)



## Business Continuity

BS 25999 (2007) > ISO 22301 (2012)



## Organizational Resilience

BS 65000 (2014) and world's first Index on Organizational Resilience



## Kitemark

The ultimate symbol of trust since 1903.  
88% of consumers state Kitemark provides more trust

# BSI – Key streams to support you



**Standards;** Materials, systems, testing, calibration etc.



**Consultancy;** An independent part of BSI.



**Certification.** Providing Business Assurance throughout the supply chain. Corporate Reputation is protected.



**Product Testing;  
Kitemark**

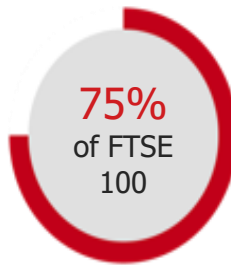
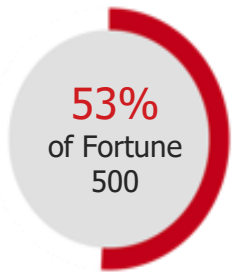
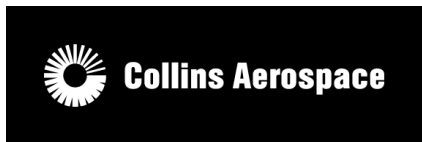
The ultimate symbol of trust since 1903. 88% of consumers state Kitemark provides more trust



**Training.** Training in system implementation, auditing, specialist tools (APQP, MSA, LEAN etc.)

88,000 Clients Globally

bsi.





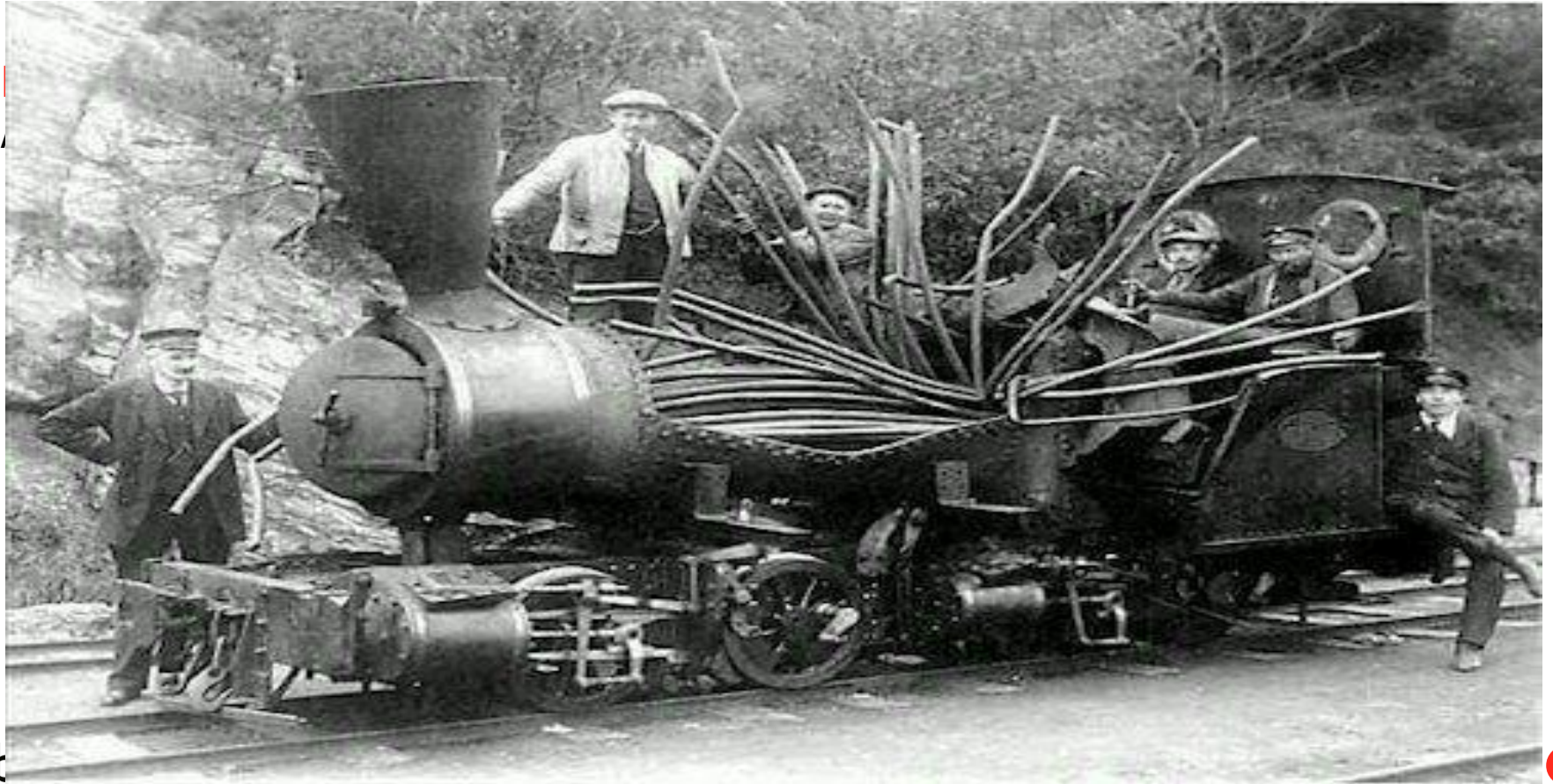
## Certification

Why have certified  
Management Systems?





# Why have regulation and Quality Management Systems?





# Objectives of a Quality Management System?

- Quality; Right First Time, On Time
- Safe service delivery and operations
- Flight safety
- Meeting customer expectations
- Cost effective
- Assure all stakeholders

## Beyond Quality

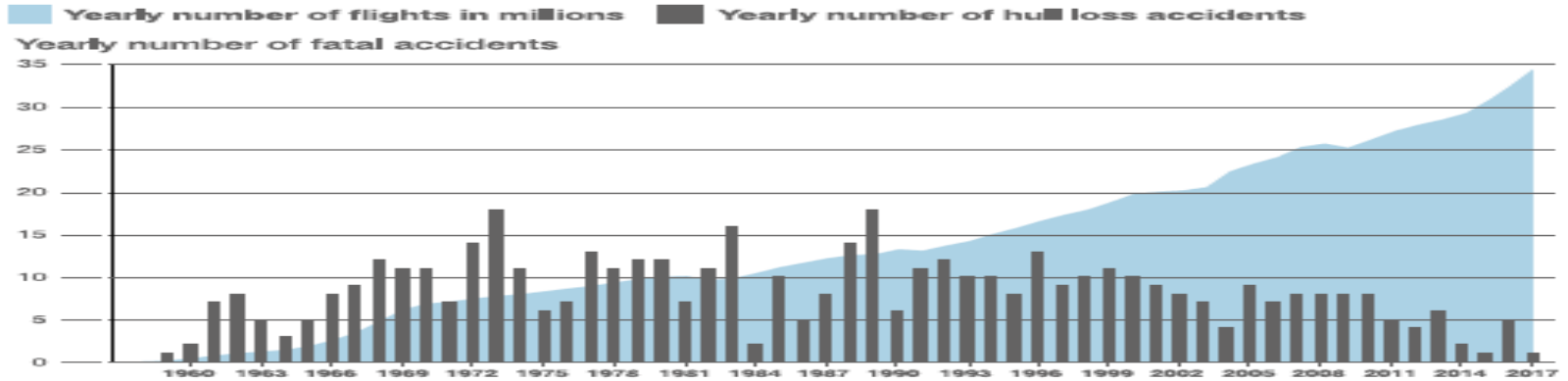
- Profitable, sustainable, anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper; be *resilient*
- Corporate Reputation – integrity, environment, health and safety; employees and stakeholders, product safety, bribery and corruption, good partner for business, data and cyber security.....

# Maintenance, Repair & Overhaul focus – Part 145 = AS9110 Requires.....

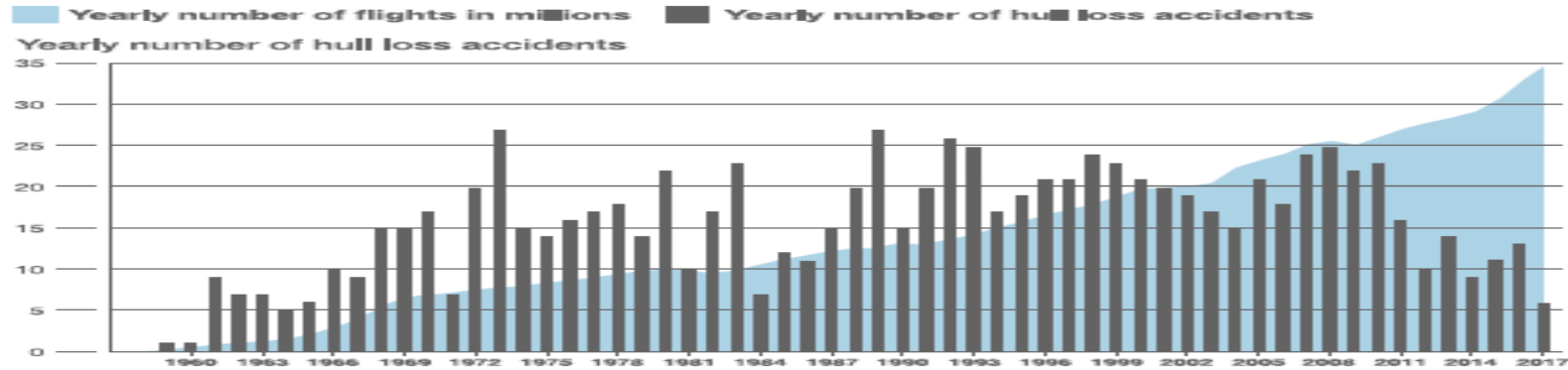
- (a) The organisation shall establish a safety and quality policy for the organisation to be included in the exposition under 145.A.70.
  - (b) The organisation shall establish procedures agreed by the competent authority taking into account human factors and human performance to ensure good maintenance practices and compliance with this Part which shall include a clear work order or contract such that aircraft and components may be released to service in accordance with 145.A.50.
2. The maintenance procedures established or to be established by the organisation under this paragraph shall cover all aspects of carrying out the maintenance activity, including the provision and control of specialised services and lay down the standards to which the organisation intends to work.
- Got to have a QMS
  - Needs to be effectively implemented
  - How can you have confidence in it, get the best from it?
  - As senior management or the Accountable Manager, how do you know it really works for you? How can you prove it to your customers?

# Standards and Quality Management in all aspects of aerospace mean..

(figures courtesy of Airbus)



Fatal



Hull loss

# 2017 was a record year for safety!

No passenger jet crashes

12 fatalities in total (depending on how the data are collected)

## 2017 safest year for air travel as fatalities fall

🕒 2 January 2018

f 🗨️ 🐦 ✉️ ↩️ Share



**2017 was the safest year in history for commercial airlines, according to industry research.**

There were no passenger jets crashes anywhere in the world, separate reports by Dutch consultancy To70 and The Aviation Safety Network found.

# But 2018 was back up to 118 fatalities

## Lion Air 610 – still being investigated, but we do know;

**23:22** - The plane's automatic anti-stalling system pushes the plane's nose down for 10 seconds. The flight crew correct this by manually pointing the plane's nose up.


**23:22** - The co-pilot asks for the aircraft's ground speed as shown on the air traffic controller's radar display.

**23:25** - The anti-stalling system pushes the plane's nose down again, and crew correct this by pointing it up. This sequence continues for the rest of the flight.

**23:29** - The air traffic controller notices that the flight appears to be descending. The co-pilot says they have a flight control problem and are flying the plane manually.

**23:31** - The crew say they cannot determine the altitude of the plane, because ***all the aircraft instruments are indicating different altitudes.*** They ask the arrivals controller to block the air space 3,000 ft above and below them so they can avoid other traffic. The controller approves this request.

# EASA Presentation in Washington DC March 2018

 SIS Common findings

SIS 2013, SIS 2014, SIS 2015, 2016 and also 2017

- Quality System not in place/ not effective
  - No audit plan or existing plan not followed
  - No audit of the product lines
  - Audit function not independent (QC vs QA)
- Approved data not available
  - No up to date CMMs
  - Production drawings used for the repair process with no instructions for disassembly, cleaning, troubleshooting
- **In 2015 and 2016, 20% of all visited organisations lost their EASA approval.**
- In 2017 unfortunately a similar situation was observed

5th March 2018 A Symposium 2018 6



# When all is well...



# When it goes wrong??



# To which Quality Management System standard should an MRO be certified?



THE APAQG IS COMPRISED OF ORGANIZATIONS SPACE AND DEFENSE INDUSTRY IN THE ASIA PACIFIC REGION.



AS 9100  
AS 9110  
AS 9120



# 9100-Series; 9100, 9110 & 9120 Written by the Aerospace Industry

- But why have 3<sup>rd</sup> party certification?
- Essential – Expected by the primes and their supply chain
- Independent, rigorous assurance
- Assures your clients
- Assures your Regulator (Will you be in the 20%?)
- Globally recognised; promoted by the primes.
- Drives your business;
  - Continual improvement
  - Culture – ownership, responsibility, just
  - OASIS Registration – free global database!

# 9110 – Written for MRO.

- Addresses the particular requirements , risks and issues of MRO; 9100 is general, not specific.
- Quality and safety systems
- MRO processes
- Focuses on roles and responsibilities in MRO; accountable manager, certifying staff etc.

## Intended application

*This document is intended for use by organizations that design, develop, or provide aviation, space and defence products and services; and by organizations providing post-delivery activities, including the provision of maintenance, spare parts, or materials for their own products and services.*



# A 9110-certified MRO can;

- Assure this;



- Prevent this;





# Beyond Quality – How resilient is my business?



The ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper.

***BS 65000 – guidance on organizational resilience***



# A brief history of **Organizational Resilience**



Concept of different levels of **'resilience'** maturity

Emerging as a principle in academic areas over last 15 years



BS 65000  
World's first Standard for **Organizational Resilience**

**Designed by industry,**

**for industry**

**and backed by government**

2000

2014

2016

# Organizational Resilience



**Global supply chain**

**Project complexity**

**Integrated systems**

Quality Management

New technology,  
Regulations & standards

Security, IP, Counterfeit

Carbon neutrality

Procurement

Origin & Traceability

Business & Supply Chain Ethics

Brand Reputation

Organisational Behaviour  
(Social, Environmental, values)

Innovation

OHAS

Production Methods

Business Continuity

CSR

Sustainability

Material Cost & Lean  
Manufacturing

Information  
Security

Carbon neutrality

Energy Efficiency



Organisational Behaviour

Asset/ Facilities  
Management

**The Supply Chain Resilience Domain** – building  
and maintaining an aircraft



## The Information Resilience Domain – What you should consider

We enable organizations to secure information from cyber-threats, strengthening their information governance and in turn assuring resilience, mitigating risk whilst safeguarding them against vulnerabilities in their critical infrastructure.



### Cybersecurity

Penetration testing, vulnerability management, incident response and cloud security services.



### Security awareness

Phishing and user awareness training, SaaS solutions, social engineering and simulation testing



### Data management and privacy

GDPR services, information lifecycle management and eDiscovery and forensics



### Compliance and testing

PCI DSS services, cyber lab testing and product and software assessments (CC, CAS-T/CPA)





# Organizational Resilience Benchmark



# Focus on Resilience (Slide from the IAQG Busan Conference)



- The Executive Committee has focused on progressing the strategic objective:

## Deploy an Operating / Resiliency Plan Accelerating IAQG Product to Stakeholders

- Engaged **BSI** to progress a common understanding of '**resiliency**' and to help define a Plan

# Summary

- We all have a part to play in the continuing and sustained improvement in safety
- MROs should be certified to AS/EN/SJAC 9110 –
  - get the correct certification for MRO; get the benefits
  - Implement and sustain best practice
  - Continually improve all aspects; performance, cost-effectiveness, growth
- Organisational Resilience. BSI's unique thought leadership. Go beyond quality;  
*be resilient!*

Does that fly for you?

Certification

Training

Resilience

