



Smart Manufacturing

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A global business

Our products are in use all over the world, every second of every day.



Customers
in **150**
countries



Operations
in **50**
countries



50,000 employees
around the world
including...



16,500
engineers



Our future

As pioneers, we must continuously innovate to provide the best solutions in the markets we serve.

In the coming years, we believe that the three key trends will define the world's future power needs.

Electrification

Fusion of mechanical and electrical technologies



Digitalisation

Fusion of physical and digital technologies

Growing demand for cleaner, safer and more competitive power

Increasing demand for travel, trade and sustainable energy





Civil Aerospace



35
types of commercial
aircraft powered by
Rolls-Royce engines



13,000
engines in service
around the world



24,600
employees

Defence



Over 150
Customers in over
100 countries



16,000
engines in service
around the world



9,800
employees

Power Systems



>1,200
Development, service
production, and
dealership locations



>20,000
Reciprocating
engines sold per year



11,400
employees



Technology-led innovation



In 2017 we **invested more than £1.3 billion** in research and development.



We also support a global network of **31 University Technology Centres** and **7 advanced manufacturing centres**, which position Rolls-Royce engineers at the forefront of scientific research.



We're investing in **tomorrow's technology**, focusing on engineering excellence and creating a culture of innovation today, to shape the **future of power.**



The Smart Manufacturing Joint Lab

Hardware: Access to sensors and devices

Self-sustaining, cost-efficient, space-efficient, robust

Smart Assembly Systems

Application of intelligent automation across processes such as module assembly, alignment, functional testing and inspection

Future Manufacturing Processes

Development of advanced processes such as additive layer manufacturing (ALM), robotics and surface conditioning



Software: Data analytics

Leveraging sensor data to deliver value to our business and customers

Advanced Fan Blade Manufacturing

Automation of the value chain to enable higher productivity

Integrated Remanufacturing Technologies

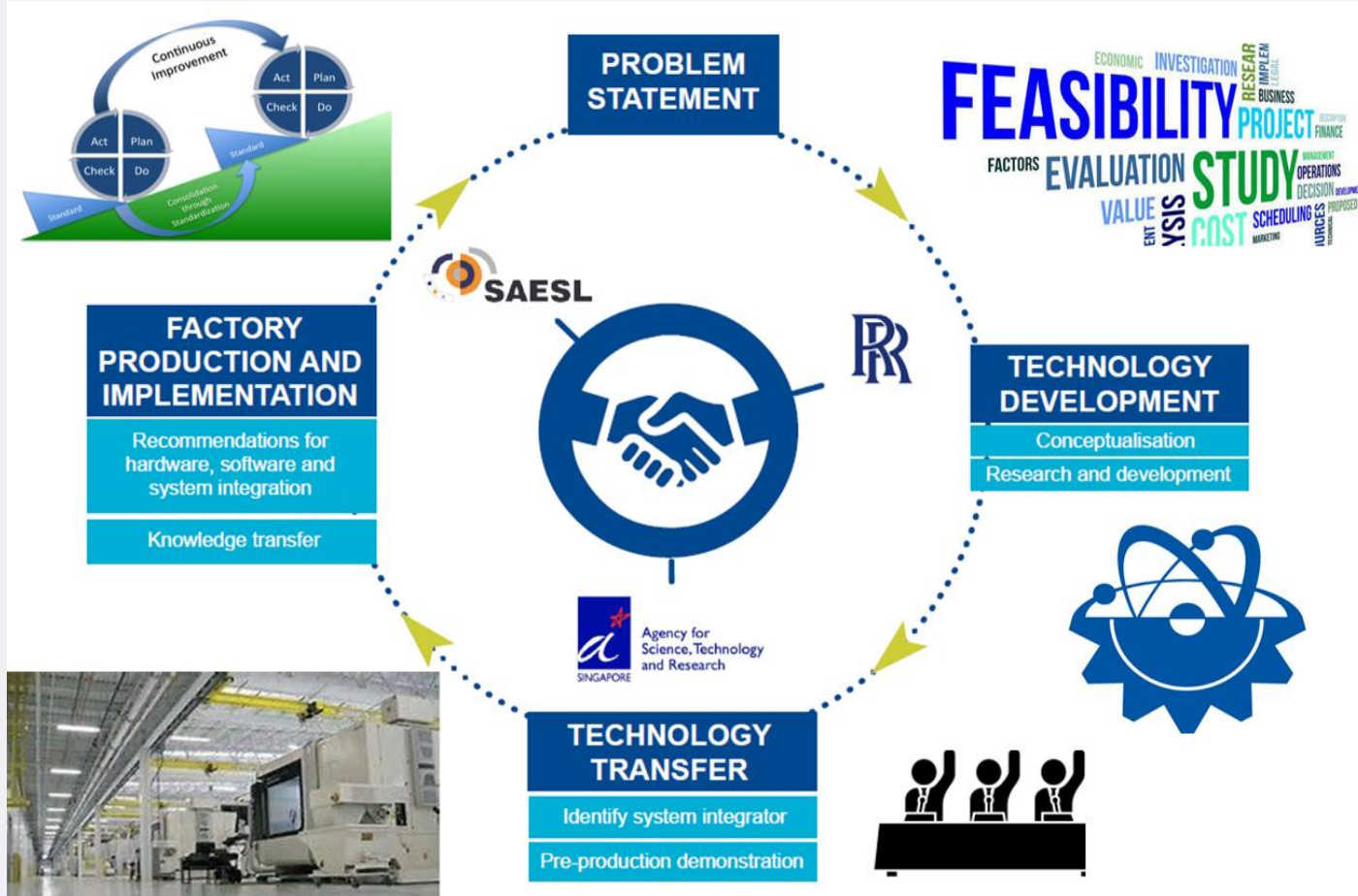
Advanced repair and remanufacturing methods including automation, laser metal deposition, adaptive technology, and smart inspection technology

Knowledge-Based Manufacturing

Use of digital methods to improve quality, cost and delivery performance at process, factory and enterprise levels



A collaborative approach





Engaging SME's

Objective of workshop:

- Create awareness of A*STAR – Rolls-Royce - SAESL Smart Manufacturing Joint Lab
- Use Joint Lab as a platform to outreach and increase supplier base for Rolls-Royce and SAESL
- Measure the suppliers smart readiness level to catalyse the transformation of manufacturing

Speakers:



Rolls-Royce®

FUJITSU



Cambridge Consultants

BEYONDSOFT
beyond your expectations



MetLase
A JOINT VENTURE BETWEEN ROLLS-ROYCE AND UNIPART

Association of
Aerospace Industries
(Singapore)

>35 Companies
attended

>70% Local Small
Medium Enterprise
(SMEs)

Attended by >150
participants





Accessing Maturity of Technology

Technology (TRL)

Research Partners & UTCs



Demonstrators



Engine Programmes



Research Partners & UTCs

Manufacturing Research Centres

Facility Investment

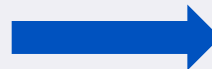
Manufacturing (MCRL)



Benefits of Smart Manufacturing

TALENT

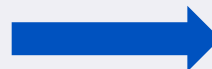
STEM education
Upskilling



Upskill workforce
needed for advanced
engineering

TECHNOLOGY

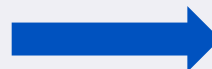
Process/ system
optimisation e.g.
robotics, IoT



Improve productivity
and reduce operational
costs

ECONOMY

Boost R&D landscape
Connectivity



Imperative to drive
digital transformation
to remain competitive

