

SC21 ACHIEVING SUPPLY CHAIN EXCELLENCE EVENT

19TH JULY 2018
FARNBOROUGH AIR SHOW

SC21 – Delivering Supply Chain Excellence



Sponsored by:



Agenda



10:00 **Welcome**

Paul Everitt
Chief Executive
ADS Group

10:10 **Launch of C+G in Aero & Defence**

Colin Hart
Head of SC21
ADS Group

10:20 **North West SC21 C+G**
Aerospace Cluster of Excellence

Dr David Bailey
Chief Executive
North West Aerospace Alliance

Agenda



10:40 **C+G in a Digitally Enabled
Supply Chain**

Gareth Edwards

Head of Sector – Advanced Manufacturing
National Physical Laboratory (NPL)

11:00 Networking and Refreshments

11:20 **SC21 Operational Excellence
Performance Standard Award
Presentation**

All

12:10 **Panel and Closing Remarks**

Colin Hart

Head of SC21
ADS Group





Welcome

Paul Everitt

Chief Executive

ADS Group

Launch of C+G in Aerospace & Defence

Colin Hart

Head of SC21

ADS Group

SC21 Competitiveness & Growth

Colin Hart

Head of SC21

ADS Group



SC21 C&G - Accelerating Competitiveness in Supply Chains



*‘To **design and construct** Supply Chains to accelerate the **competitiveness** of the aerospace & defence industry and support the needs of the 21st Century.’*

Government support for Productivity

£343 million pounds of investment for research and development projects and to boost productivity. This includes:

- £255 million of joint investment R&D projects supported by the Aerospace Technology Institute and UKRI
- £68.2 million of joint funding with industry for R&D, specifically targeting small and medium sized businesses to help them increase their competitiveness.
- **And a further £20 million of Government and industry match funding will go towards a productivity improvement programme**



Aerospace & Defence Supply Chain Improvement Ladder



Increasing investment in people to address future market challenge and to meet increasing ambition for growth and capability



SC21 C&G - Accelerating Competitiveness in Supply Chains

SC21 C+G and National Manufacturing Competitiveness Levels (NMCL)



The SC21 C&G programme utilises the **National Manufacturing Competitiveness Level**  **System.**

Overall Aim

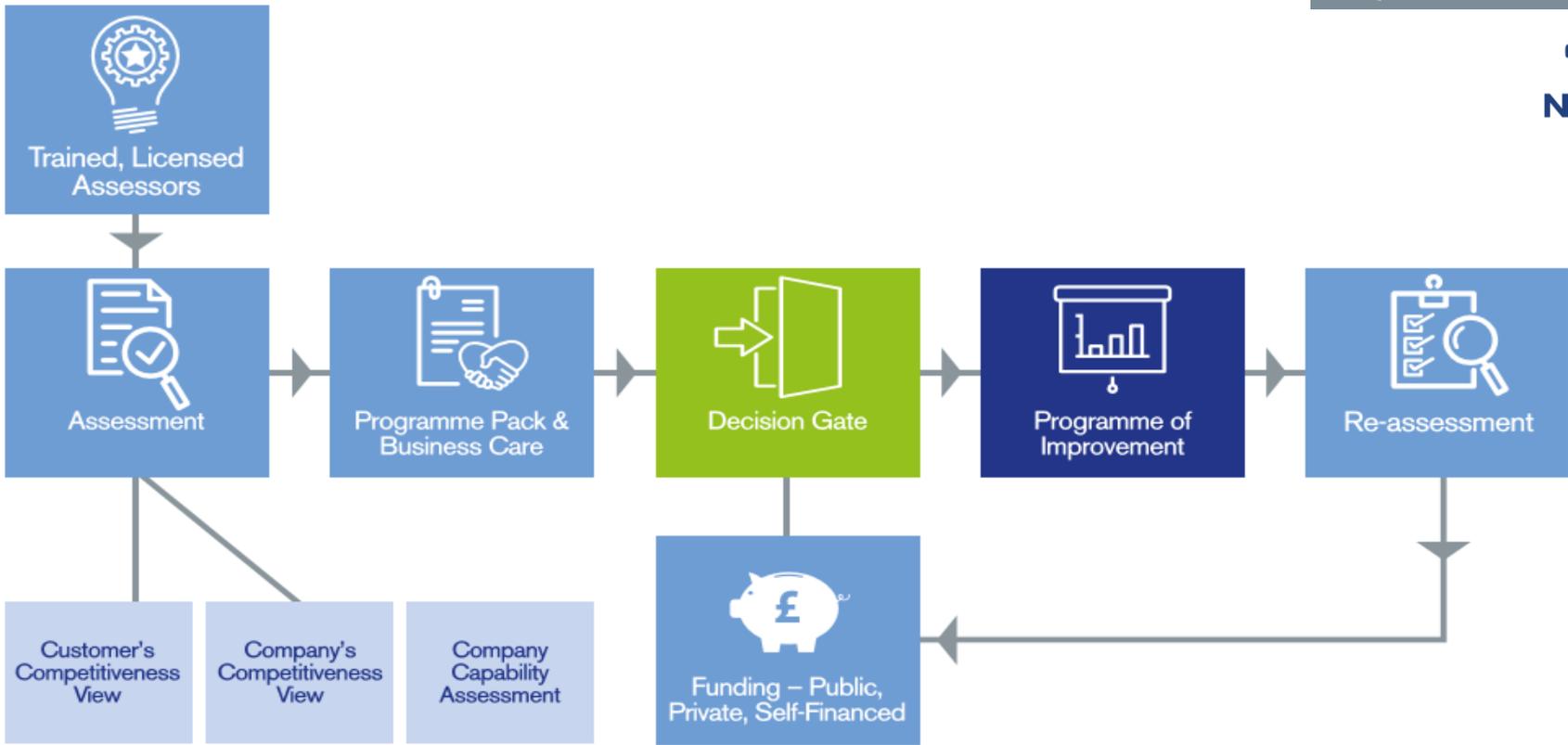
To have a single, national, quality assured, approach to improving the productivity and competitiveness of manufacturing supply chain companies to raise workforce capability, boost economic growth and export

Developed by ADS and SMMT, supported by industry primes and OEMs.

A set of common cross sector processes, tools and techniques that assesses a company's competitiveness, indicates how they are performing, and also highlights areas where improvement can and should be made.

SC21 C&G - Accelerating Competitiveness in Supply Chains

SC21 C & G Deployment Framework

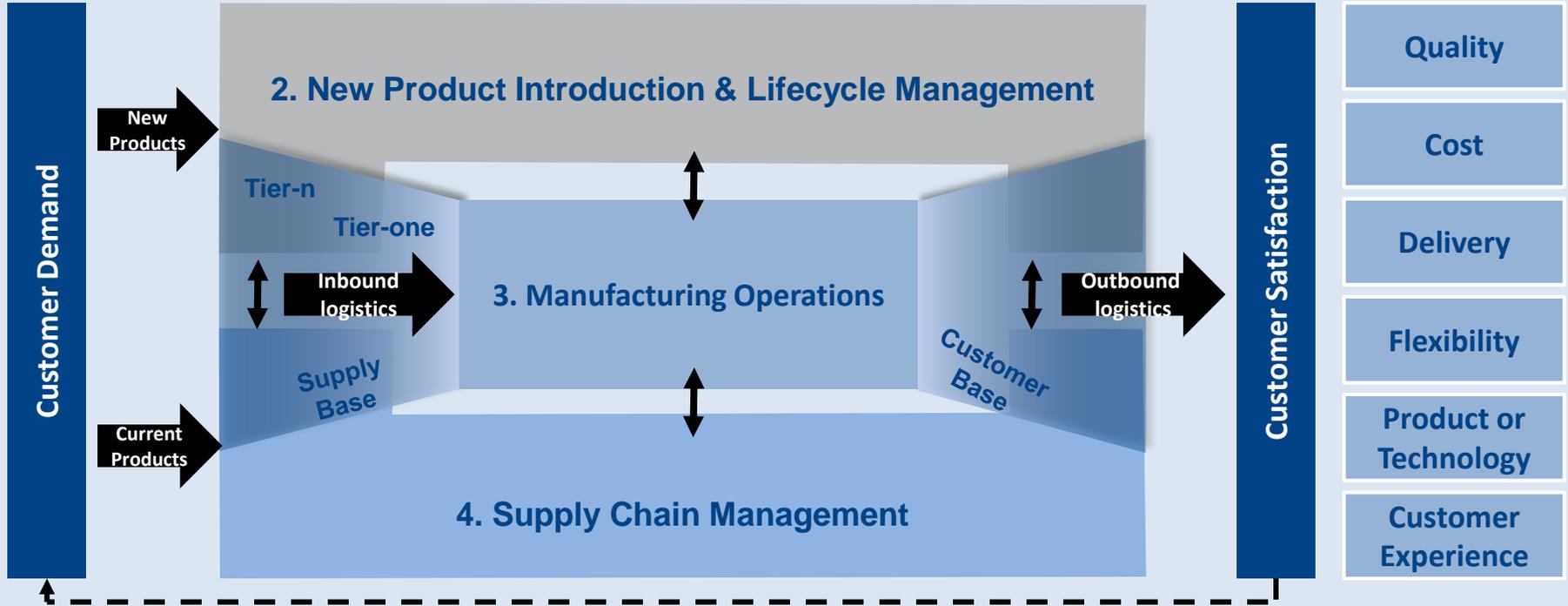


SC21 C&G - Accelerating Competitiveness in Supply Chains

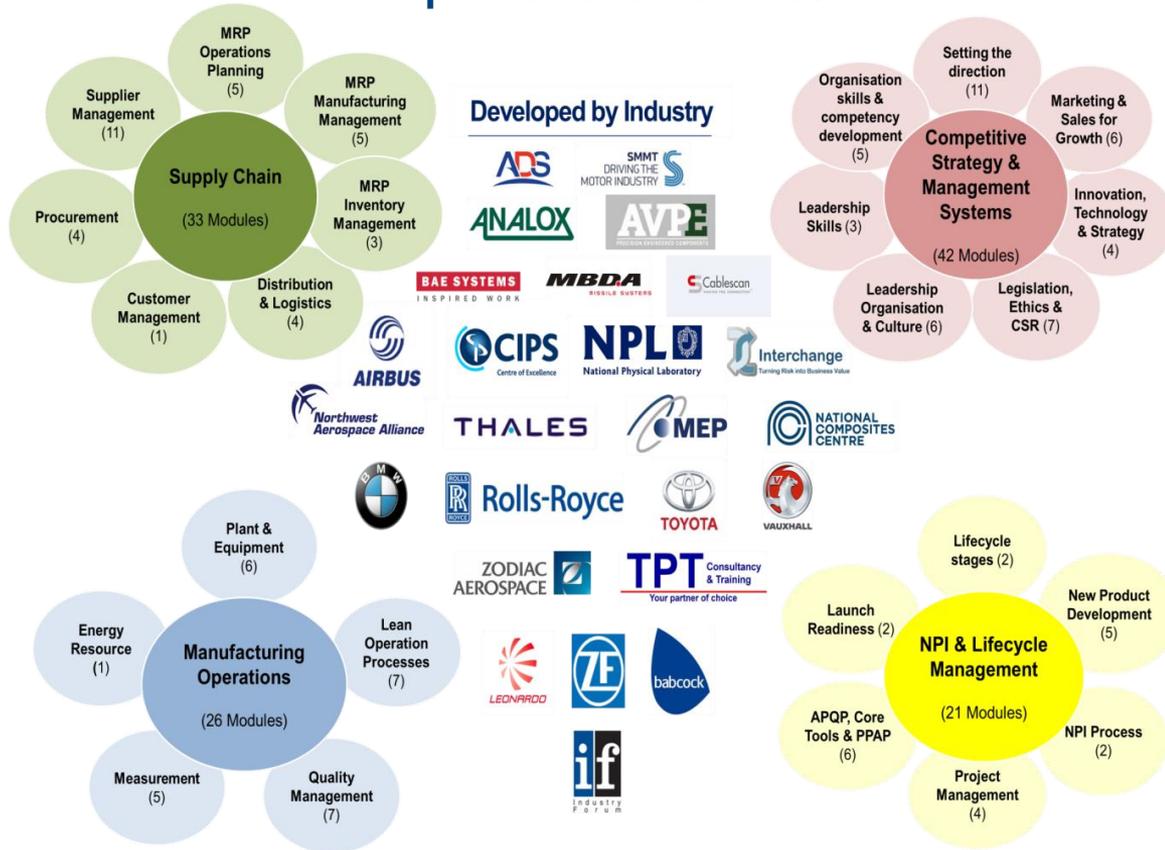
Competitiveness framework



1. Competitive Strategy & Management Systems



Improvement Modules



122 Improvement Modules

- Improvement Modules Syllabus developed with established Institutions
- Syllabus signed off by Industry
- Provider Selection by Industry

SC21 C & G current status



- ✓ Auto Sector deal announced first Capability Assessments planned 3rd quarter 2018
- ✓ Aerospace productivity deal announced at Farnborough International Air Show 2018
- ✓ Supply chain improvement ladder & entry profiling tool now in place for SC21 OE and C+G
- ✓ Successful pilots for NMCL capability assessment completed (A&D, Auto, Rail, Nuclear)
- ✓ Approved assessors in place
- ✓ Approved syllabus
- ✓ Approved providers in place
- ✓ Further C+G candidates now being assessed
- ✓ Further deployment of the National programme planned throughout UK

For further details on **SC21 Competitiveness and Growth (C&G)** and how to register your interest in becoming a participant, please visit www.sc21.org.uk

SC21 C&G - Accelerating Competitiveness in Supply Chains

North West SC21 C+G Aerospace Cluster of Excellence

Dr David Bailey

Chief Executive

North West Aerospace Alliance



**The North West SC21
Competitiveness & Growth
Aerospace Cluster of Excellence**

19th July 2018

www.aerospace.co.uk

AGP Supply Chain Charter – Farnborough 2016

The UK Aerospace Supply Chain Competitiveness Charter

As a signatory to the UK aerospace supply chain competitiveness charter, we commit to:

- > Promote wider participation in structured continuous improvement programmes, such as SC21 and Sharing in Growth, providing informed and ongoing guidance to assist in setting performance targets
- > Provide visibility of future growth opportunities and share with appropriate candidate suppliers
- > Support the focused development and dissemination of technology to radically improve product performance and manufacturing productivity
- > Facilitate access to sources of support, e.g. financial institutions, HVM Catapult, research institutions, government departments
- > Invest in the development of skills and apprentices in order to have the resources, capabilities and experience needed to improve productivity and meet future demand
- > Build long-term relationships with globally-competitive suppliers.

We expect that our UK suppliers will:

- > Engage actively in structured continuous improvement programmes, such as SC21 and Sharing in Growth, to become sustainably globally competitive
- > Invest in technology to radically improve product performance and manufacturing productivity
- > Invest in the development of skills and apprentices in order to have the resources, capabilities and experience needed to improve productivity and meet future demand
- > Invest for growth
- > Build long-term relationships with us.





Within the aerospace and defence sectors organisations will be able to align to the most appropriate programme dependent on their business and leadership capabilities and ability to maximise the value of the support available.

NMCL Multi-Sector Industry Support



MEGGITT



TOYOTA



JAGUAR



AIRBUS



LOCKHEED MARTIN



BOMBARDIER



ASTON MARTIN

CATERPILLAR®



BENTLEY



Rolls-Royce



THALES

NWAA's Response - 2017

- We knew the supply chain needed to start improving immediately.
- We recognised that the SC21 Competitiveness & Growth programme using the National Manufacturing Competitiveness Levels (NMCL) model could provide us with a national standard.
- We felt NWAA had the right skills and capability to lead a group of suppliers and that we would try to convince ADS and SMMT to support us to deliver the pilot.
- We felt we could engage key customers such as AIRBUS, BAE Systems, Rolls-Royce, Safran and Boeing.
- We believed companies would contribute to the costs of running this exclusive pilot; “The North West Aerospace Cluster of Excellence”.



FIA 2018 – We Are Now Working With;



- **Objective** : To pilot the supply chain improvement programme “SC21 Competitiveness & Growth” with 20 aerospace suppliers in the North West of England.
- **Using** : The new cross-sector assessment tool “National Manufacturing Competitiveness Levels” developed by the Aerospace (ADS) and Automotive (SMMT) sector bodies.

The Benefits of being in the NW Pilot

- Members of the Pilot are being assessed formally, and developing a Business Case and Improvement Plan to improve their Competitiveness.
- Companies are benefitting from the NW steering group review process supported by key stakeholders (ADS, SMMT, BAE Systems, Rolls-Royce, Safran and Boeing) and the valuable feedback they provide.
- Companies are benefitting from Mentoring provided by senior representatives of the key customers (typically 2 days per month).
- New business development opportunities are being created from new relationships and new ways of working.
- Companies are seeing opportunities to collaborate on technology development.
- NWAA are marketing the North West Pilot nationally and internationally.

North West SC21 Competitiveness and Growth

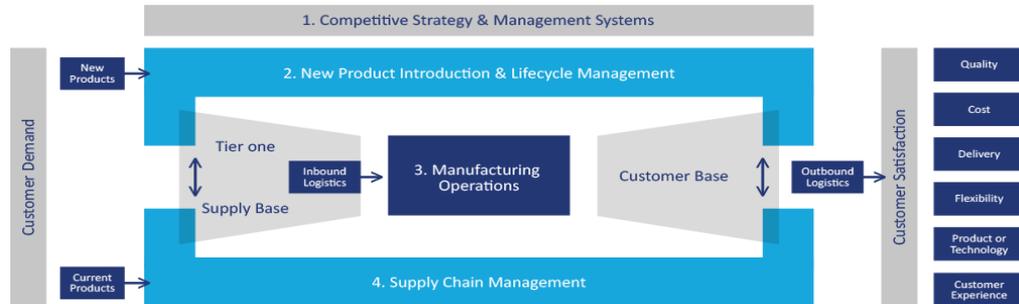


We have received excellent support over the last 12 months?

- ADS and SMMT have provided NWAA with all of the support we've needed and importantly when we've needed it.
- We've probably been challenging because we've been delivering the programme as it's being developed.
- We genuinely couldn't have made this start without the direction and guidance of;
 - **Neil Barnett and Colin Hart, ADS**
 - **Chris Owen and Andy Spence, SMMT Industry Forum**
 - **Ian Bouquet-Taylor, TPT Consultancy and Training**

How does SC21 Competitiveness and Growth work?

- Companies are assessed against the new cross-sector NMCL model which involves;
 - A thorough capability assessment of each aerospace supplier.
 - A competitiveness review with three of the key customers of each supplier to assess their performance in terms of Quality, Cost, Delivery, Technology, Flexibility, and Customer Experience.
 - Development of a detailed improvement plan and financial impact analysis.



Customer competitiveness reviews

To date we have completed competitiveness reviews with;

- BAE Systems
- Bombardier
- GKN
- Marand (Australia)
- MBDA Missile Systems
- Rolls Royce
- Safran
- Senior Aerospace
- Spirit Aerosystems

3 hour reviews;

- Quantitative Analysis
- Qualitative Discussion

Hugely valuable insights into not just the hard performance metrics, but where there are opportunities for collaborative improvement and how suppliers could provide additional value to customers

Our next review is with MTU Aeroengines (Munich)

SC21 Competitiveness and Growth

What have we found so far?

- The aerospace supply chain can significantly improve in;
 - Deployment of strategy into all levels of the business. Ensuring that all teams and individuals genuinely understand how to contribute.
 - The effective use of ERP systems within a Sales, Inventory, Operations and Planning Process.
 - Optimising our manufacturing facilities by better understanding Overall Equipment Effectiveness (OEE) and how to improve it using Asset Management.
 - The development of robust New Product Introduction process to demonstrate process capability at rate.

How will National funding help?

We are delighted that companies have joined our pilot and;

- Funding will now help us to deliver on the ***ambitious improvement plans*** that we have been developing.
- Funding will help us to develop the ***capacity for change*** by establishing the training and coaching expertise our supply chains need.
- Funding will enable us to ***do more*** with industry and government investing together.
- Funding will enable us to improve our global competitiveness ***quickly*** such that we can sustain and grow our share of the global market.
- Funding will lead to ***growth*** and increased ***company investment***.

North West SC21 Competitiveness and Growth





**The North West SC21
Competitiveness & Growth
Aerospace Cluster of Excellence**

Thank you for listening

www.aerospace.co.uk

Competitiveness and Growth in a Digitally Enabled Supply Chain

Gareth Edwards

Head of Sector – Advanced Manufacturing
National Physical Laboratory (NPL)

National Physical Laboratory

- UK's National Metrology Institute/ Public Corporation
- ~750+ staff with ~200 visiting researchers/year
- Over 368 laboratories and engineering centres
- Partner with 200+ organisations and 80+ Universities

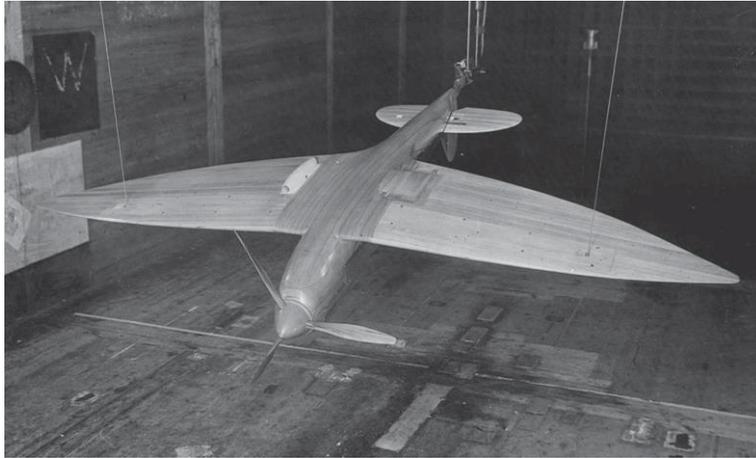


- UK Measurement Strategy aligned to government priorities
- Growth agenda to be present where industry needs us, when it needs us

We provide the underpinning measurement capability for prosperity and quality of life



Enabling advances in Aerospace



Schneider Cup Trophy 1927

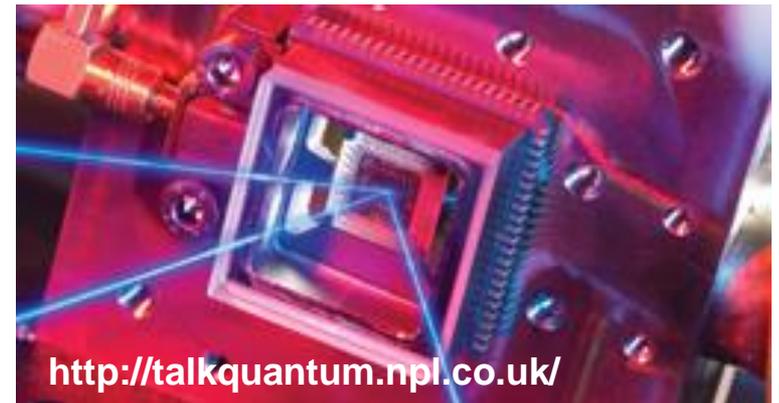


Concorde pre-flight certification 1976



Non-contact measurements with traceability to national standards 2014

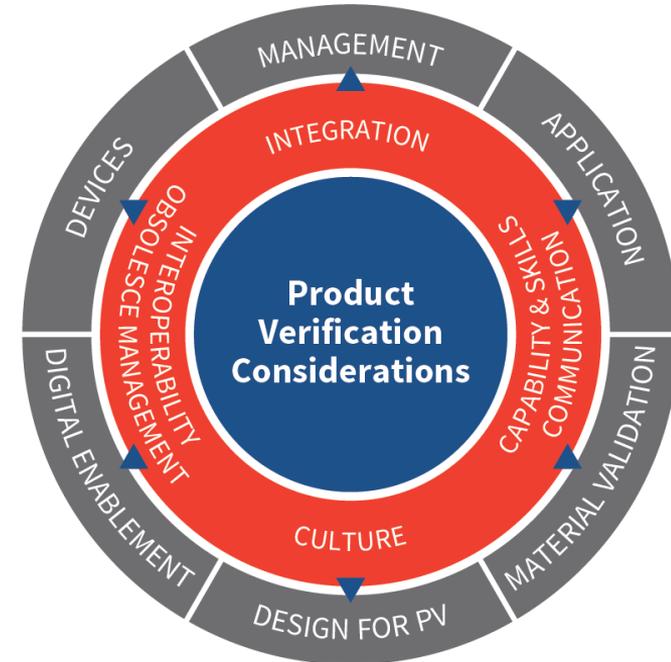
Quantum technologies for future aerospace sensors, navigation and communications 201X



<http://talkquantum.npl.co.uk/>

Trust and confidence to enable progress

- Assurance that a product, service, or system meets requirements and specifications and that it fulfils its intended purpose.
- Increases confidence in a design, process or product, by improving quality and performance through life, increasing both productivity and competitiveness.
- Accelerates the development of new technology and its adoption



The need for product verification thinking

- 75% of all errors are pre-determined in the earliest phases of production. 80% of these are only found during manufacture or after sales.
- The cost to rectify an error typically increases 10 fold at each phase of a production cycle.
- ~1% of GDP is spent on measurement - similar in scale to the UK's spending on R&D
- The benefit-to-cost ratio for investment in better measurement tools and techniques is likely to be between 3:1 and 5:1

PV affects the full product life cycle.

Plan it into design, engineering, manufacturing and production.

How is NPL helping UK Industry?

- Consultancy & Training Services
- Nadcap - Readiness Assessments
- Sharing in Growth delivery partner



- Identifying gaps in measurement and inspection processes
- Recommending improvements to address compliance gaps
- Embedding best practice knowledge and skills in your employees
- Highlighting critical areas to monitor moving forward

Product verification programme



- Supporting 100+ manufacturers
- £11 million cost of quality savings identified
- 425 accredited training certificates issued
- 15 highly committed staff, supported by 550 NPL experts
- Sharing in Growth delivery partner



SHARING IN
GROWTH



GREATER CAMBRIDGE
GREATER PETERBOROUGH
ENTERPRISE PARTNERSHIP



Yorkshire Innovation Fund
Funding access to University
Research and Innovation

Diagnostic
Assessment Tool
(PVHC)

Improvement
Plan

Delivery of
Support

Early wins

"We are now winning on innovation, speed, quality and efficiency, and this will certainly help the company fulfil our growth ambitions"

John Townsend

Managing Director, Stone Foundries

"We have reduced downtime by eight per cent, improved measurement stability and embedded best practice across our entire workforce"

Paul Oldfield

Quality Manager, JJ Churchill

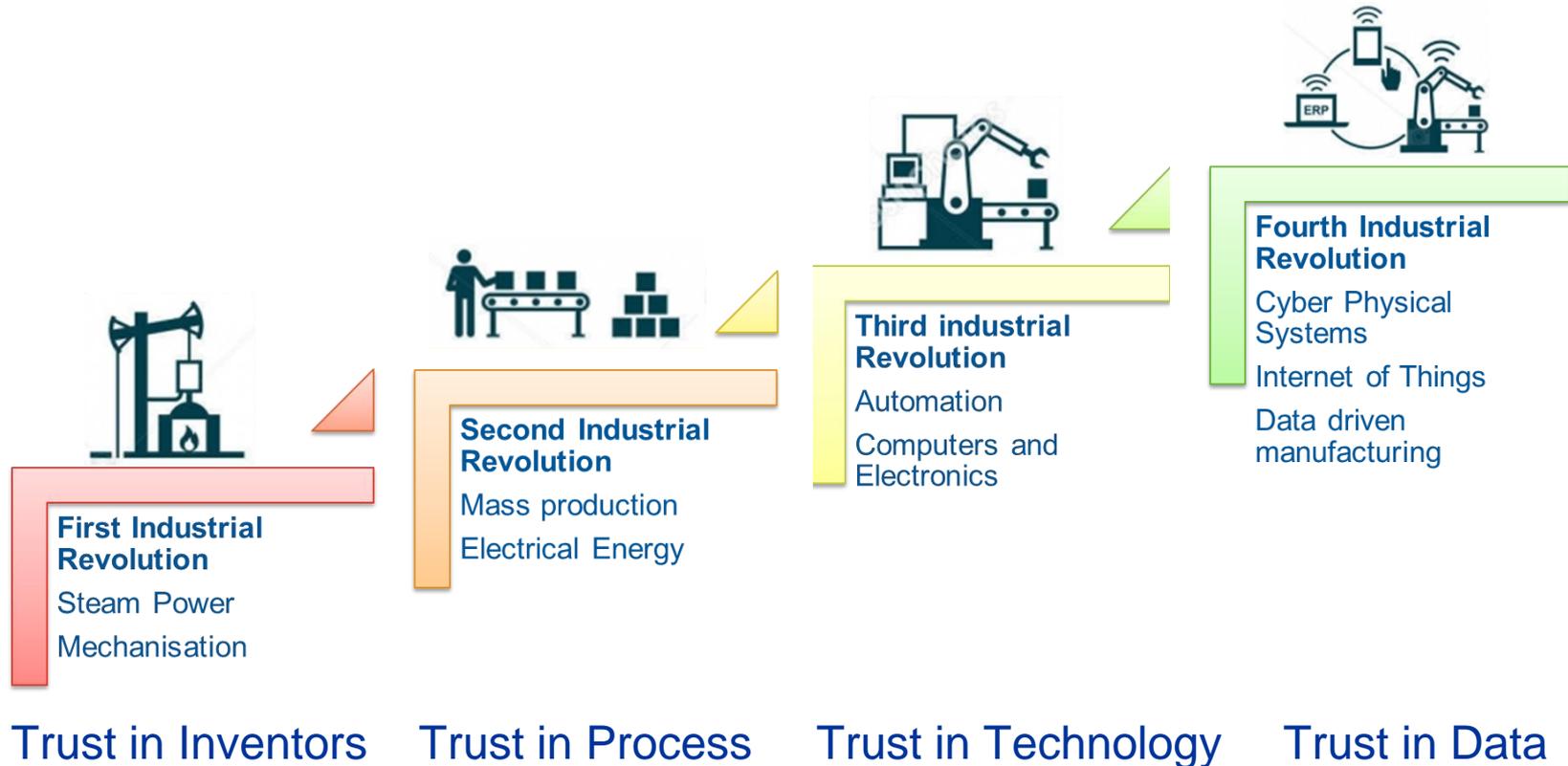


Product verification in a future Supply Chain

- Impacts the full product lifecycle value chain – from research to TLE Services
- Is at the heart of right-first-time manufacturing
- Opens up greater possibilities for data driven improvements in control, decision making and certification.
- Helps with the implementation of new design and manufacturing strategies
- Helps the adoption of new technologies, products and services



How does the 4th Industrial Revolution affect me?



Futurology and the 4th Industrial Revolution

- Digital disruption will displace 40% of companies in the next five years. Those that are ready for digital transformation will be able to seize new opportunities, while organizations that lag could become **obsolete**. (Cisco/IMD Digital Vortex Research, June 2015)
- £455bn benefit to UK economy over the 10 years
- 1.5% to 3% p.a. manufacturing growth
- 175,000 jobs (net gain) throughout the economy
- 4.5% CO₂ emissions reduction
- >25% improvement in industrial productivity

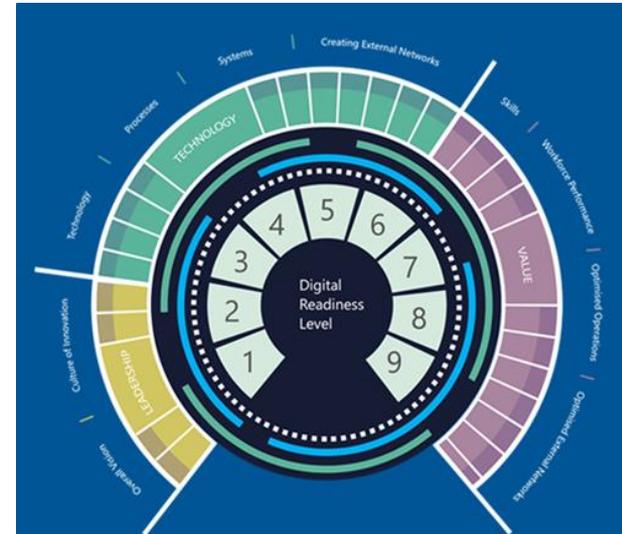


Where do I start?

- Ernst & Young, “Does your business strategy work in a digital world?”
- Bain & Company, “How far is your company on its digital journey?”
- Cisco, “How do you stack up?”

Plenty of studies looking at how to measure and plan for success:
Digital Readiness Level (www.drl-tool.org/)

- What are the skills needed?
- Who are the suppliers I need?
- What do our customers need?
- How will I know that the data I’m using to make my decisions is true?



NPL's DESC Programme will deliver skills and capability in:

- **Data Extraction & Analysis** – giving **Confidence** in how to acquire and process the data you actually need
- **Data Distribution & Verification** – providing **Trust** in the data as it flows between machines and partners
- **Supply Chain Engagement** – understanding how the data can work for you
 - **Increase** in design possibilities, efficiencies and quality
 - **Reduced rework**, compliance concerns and warranty costs
 - **Increased competitiveness**, security of business and growth

Progress so far

Regional demonstrator projects:

- **14.0 Process Control Demonstrator – Scotland distillery**
 - Realising process efficiency savings, compliance with HMRC regulations and new process control skills
- **14.0 Implementation Demonstrator, West Yorkshire manufacturing SME**
 - Low cost, internet enabled, multi-sensor demonstrator system with traceability to national standards
- **Data analysis demonstrator, South Wales automotive**
 - Data set evaluation to improve matching of high volume, precision engineered parts for greater quality system fit and operation

What Next for DESC?

- **Industrial Advisory Group** to help shape the DESC programme
 - Invitations going out – contact us if interested
- **Demonstrator projects**
 - Exploring the potential for short and long term benefit
- **Collaborative funding consortia**
 - ISCF
 - A4I
 - ATI



Fourth Industrial Revolution

Cyber Physical Systems

Internet of Things

Data driven manufacturing

Trust in Data

Thank you for listening



Department for
Business, Energy
& Industrial Strategy

FUNDED BY BEIS

Gareth Edwards
Head of Sector – Advanced Manufacturing
gareth.edwards@npl.co.uk
+44(0)7738 896951

This work was supported by the UK government's Department for Business, Energy and Industrial Strategy

Refreshments and Networking

SC21 Operational Excellence Performance Standard Award Presentation

Awarded Bronze



Sponsor: **Self Starter**
Presenter: **Neil Barnett**



Awarded Bronze



Sponsor:

Self Starter

Presenter:

Neil Barnett



Awarded Bronze



Sponsor: **Self Starter**
Presenter: **Neil Barnett**



Re-Awarded Bronze



Sponsor:
Presenter:

Self Starter
Neil Barnett



Re-Awarded Bronze



H E M P E L
m e t a l s & m o r e



Sponsor:

Presenter:

Self Starter

Neil Barnett



Re-Awarded Bronze



HOW CAN I HELP?



Sponsor:

Self Starter

Presenter:

Neil Barnett



Re-Awarded Bronze



Sponsor:
Presenter:

Self Starter
Neil Barnett



Re-Awarded Bronze



FSL Aerospace Limited



Sponsor:

Self Starter

Presenter:

Neil Barnett



Re-Awarded Silver



- *Cheltenham*
- *Letchworth*



Sponsor:

Presenter:

Self Starter

Neil Barnett



Re-Awarded Silver



Sponsor:
Presenter:

Self Starter
Neil Barnett



Re-Awarded Silver



- *Blackburn*
- *Telford*



Sponsor:

Presenter:

Self Starter

Neil Barnett



Awarded Gold



Sponsor:

Self Starter

Presenter:

Neil Barnett



Re-Awarded Bronze



Sponsor: **BAE SYSTEMS**

Presenter: **Vikky Everson**

Re-Awarded Silver and Bronze Awarded



- *Bristol*
- *Glasgow*
- *Portsmouth*



Sponsor: **BAE SYSTEMS**

Presenter: **Vikky Everson**



Re-Awarded Bronze



**McAuley
Engineering**



Sponsor:

BOMBARDIER
the evolution of mobility

Presenter:

Ciara Kennedy



Re-Awarded Bronze



Sponsor:

BOMBARDIER
the evolution of mobility

Presenter:

Ciara Kennedy

Re-Awarded Bronze & Awarded Bronze



- *Avonmouth*
- *Belfast*



Sponsor:

BOMBARDIER
the evolution of mobility

Presenter:

Ciara Kennedy

Awarded Silver



Sponsor:

Presenter:

BOMBARDIER
the evolution of mobility

Ciara Kennedy

Awarded Gold



Sponsor:

BOMBARDIER
the evolution of mobility

Presenter:

Ciara Kennedy



Awarded Gold



MOYOLA
Precision Engineering



Sponsor:

BOMBARDIER
the evolution of mobility

Presenter:

Ciara Kennedy

Awarded Silver



Sponsor:



Presenter:

Simon Mayo

Awarded Silver



KUEHNE+NAGEL

- *Houndstone*
- *Leonardo Production Stores*



Sponsor:



Presenter:

John Dixon

Awarded Bronze



Sponsor:



Rolls-Royce

Presenter:

John Sibley

Awarded Bronze



Sponsor:



Rolls-Royce

Presenter:

Julian Jonathan



Re-Awarded Bronze



Sponsor:



Rolls-Royce

Presenter:

Julian Jonathan



Re-Awarded Bronze



Sponsor:



Rolls-Royce

Presenter:

Julian Jonathan



Re-Awarded Silver



Sponsor:

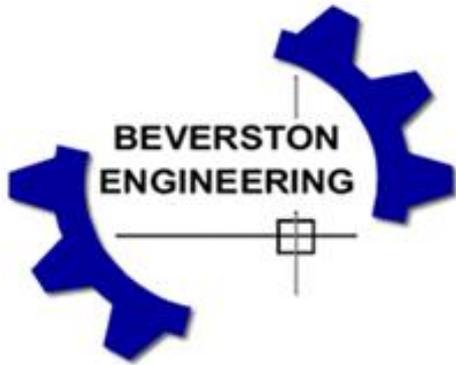


Rolls-Royce

Presenter:

Julian Jonathan

Re-Awarded Silver



Sponsor:



Rolls-Royce

Presenter:

Julian Jonathan

Awarded Bronze



Sponsor: **THALES**

Presenter: **Jerry Mabey**

Re-Awarded Bronze



INNOVATION IN ENGINEERING



Sponsor: **THALES**

Presenter: **Jerry Mabey**

Awarded Silver



Sponsor: **THALES**

Presenter: **Jerry Mabey**

Re-Awarded Silver



***CURTISS-
WRIGHT***



Sponsor: **THALES**

Presenter: **Jerry Mabey**

Re-Awarded Bronze



Sponsor:



Presenter: **Colin Hart, ADS**

on behalf of **WEAF**



Questions to Panel and Closing Remarks

Colin Hart

Head of SC21

ADS Group

Panel & Closing remarks

Become more competitive and further improve your productivity

Government Investment in the Aerospace and Defence Sector

Invest in the right capabilities & skills to add value to your customers (SC21 C+G)

Potential of Industry 4.0 - digitally enabled supply chain

Seen the evidence of the success of the performance award achievers !



Next Event



**SC21 Next “Achieving Supply Chain
Excellence” event**

Tuesday 27th November 2018

Thank you for your support and attendance !



Sponsored by:

