

# COMPOSITES TECHNICIAN TRAILBLAZER APPRENTICESHIP

**Brian Thornton**  
TB Coordinator

# COMPOSITES TECHNICIAN TRAILBLAZER APPRENTICESHIP

**Steering Group Chairman  
Dean Jones**

**Lead Company  
Rolls Royce**



# STEERING GROUP MEMBERS



The Institute of Materials,  
Minerals and Mining



# COMPOSITES TECHNICIAN TRAILBLAZER APPRENTICESHIP

Supported by



# PROGRESS TO DATE

March 2015  
Standard Approved

August 2016  
Assessment Plan Approved

Funding Level Allocated  
December 2016

# PROGRESS TO DATE

January 2017

Assessment Plan Unconditional Approval

February 2017

Framework Published

Enrol for Sept. 17 Start

**Initial Phase**  
**Knowledge & Competence**

Technical Certificate  
Mandatory Units  
(inc. Behaviours)

**Recommended**  
Level 2 NVQ Composites Engineer  
Core & Options

**Recommended**  
**Gateway to Progression**  
**Pass/Progress or fail/retake**

Technical Certificate (Continued) Optional Units	Options dependent on the sector	<b>Recommended</b> Level 3 NVQ Composites Engineer Core + Options
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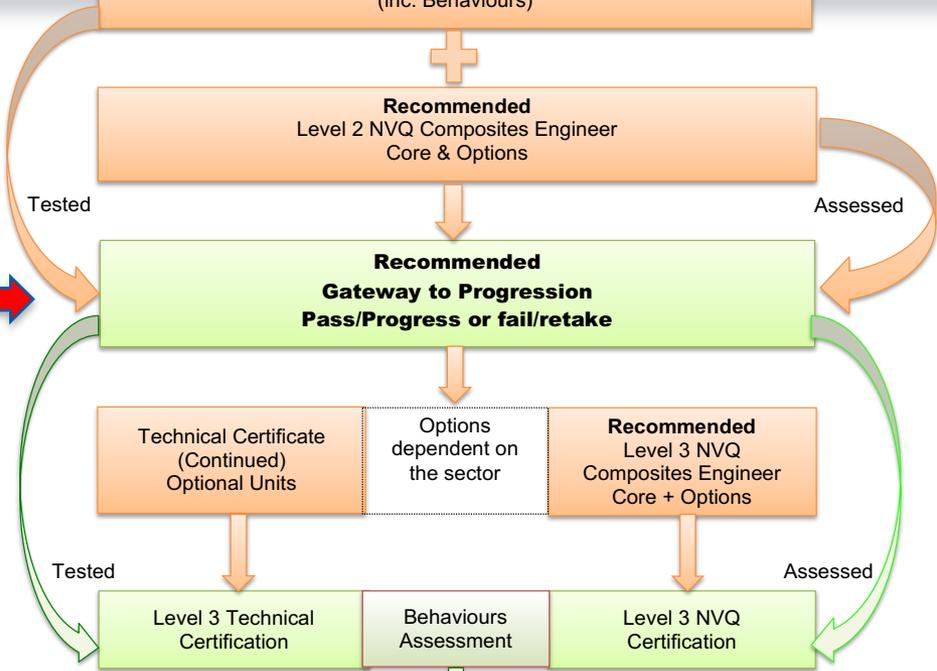
Level 3 Technical Certification	Behaviours Assessment	Level 3 NVQ Certification
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**Mandatory Gateway 2**  
**Framework Completion**  
**Meets Eng. Tech membership Criteria**

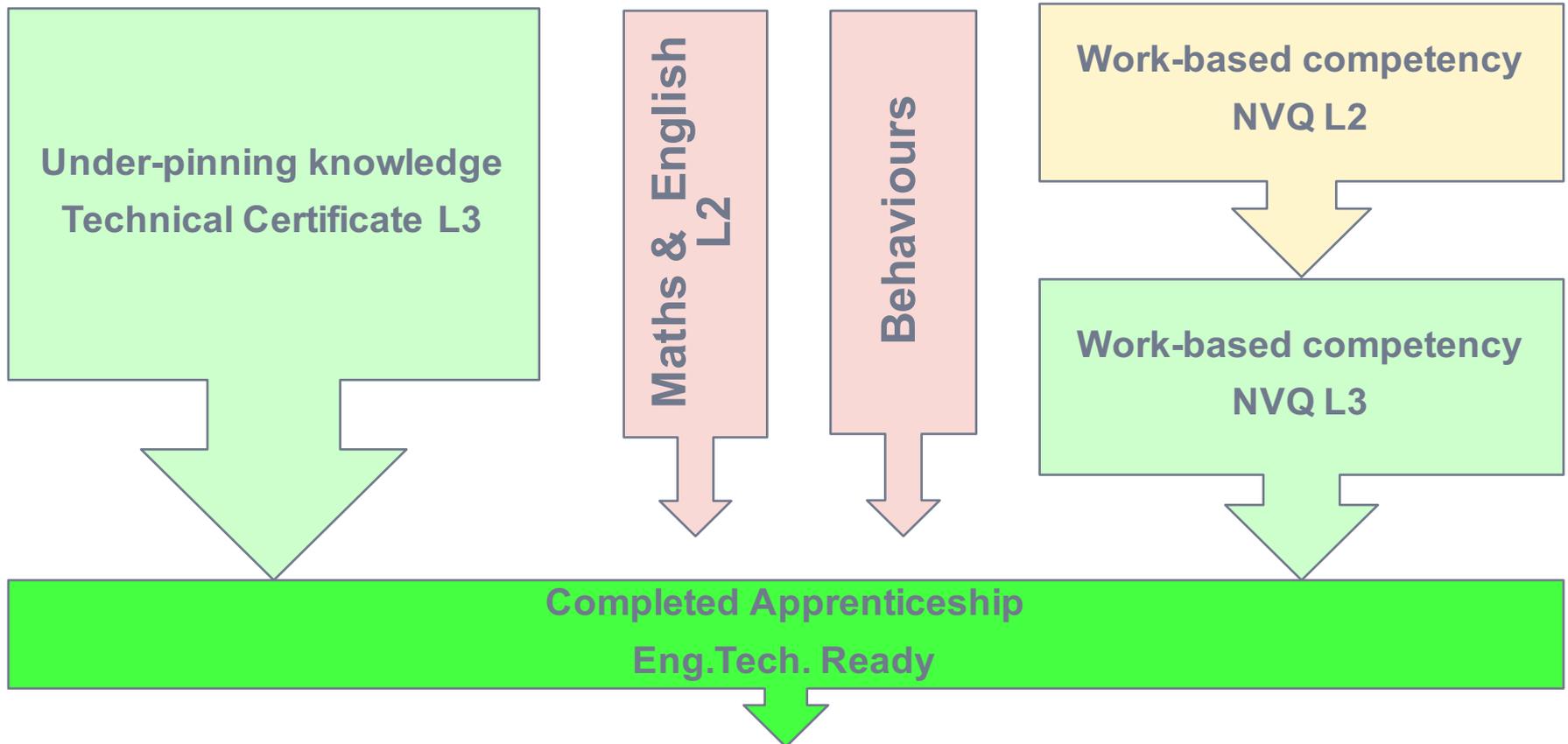
**End Point Assessment**  
Includes a project review & viva,

**PASS**  
**APPRENTICESHIP COMPLETION AWARD**

Level 2  
Maths & English



# 36-48 Month Program



# Mandatory Units

1. Understand employer H & S Policy (Inc.Statutory Regs)
2. Interpret Eng.Data and Work instructions
3. Work Effectively and Efficiently – (inc. intro. to BIT)
4. Awareness of Materials
5. Awareness of Processes –(inc.Tooling)
6. Awareness of Product Design and Applications
7. Awareness of Defects and Detection in Composites
8. Production of a Part using a Hand-lay up Technique

## Optional Units – Minimum 2 required

- An understanding of Prepregs
- An understanding of Wet layup
- An understanding of Spray Layup
- An understanding of RI/RTM
- An understanding of Automated Processes
- An understanding of Assemblies, Jointing, Bonding
- An understanding of Repair Techniques
- An understanding of Curing Technique
- An understanding of Tooling and Tool Prep.

# Awarding Body preference

Pearsons

- B-TEC- L3

+

• EAL NVQs

- Composites Engineer Level 2
- Composites Engineer Level 3

# Training Provision

**An Opportunity for FE**

# CLF – Market opportunity

2030 OPPORTUNITY	2030 OPPORTUNITY	2030 OPPORTUNITY	2030 OPPORTUNITY	2030 OPPORTUNITY	2030 OPPORTUNITY	2030 OPPORTUNITY	2030 OPPORTUNITY
UPPER £3,590m 19%	UPPER £1,150m 8%	UPPER £3,490m 16%	UPPER £160m 7%	UPPER £1520m 10%	UPPER £370m 4%	UPPER £1,100m 33%	UPPER £1,100m 4%
LOWER £1,250m	LOWER £910m	LOWER £1,430m	LOWER £130m	LOWER £1240m	LOWER £320m	LOWER £320m	LOWER £880m
2020 FORECAST	2020 FORECAST	2020 FORECAST	2020 FORECAST				
UPPER £1,160m 33%	UPPER £950m 20%	UPPER £530m 7%	UPPER £100m 12%	UPPER £640m 12%	UPPER £270m 4%	UPPER £340m 86%	UPPER £690m 3%
LOWER £1,040m	LOWER £920m	LOWER £480m	LOWER £80m	LOWER £510m	LOWER £240m	LOWER £80m	LOWER £650m
							
AEROSPACE	DEFENCE	AUTOMOTIVE	RAIL	CONSTRUCTION	MARINE	OIL & GAS	RENEWABLES
£270m	£380m	£380m	£60m	£360m	£220m	£20m	£600m

**2015**  
£2,290

**2020**  
£4,670  
15% CAGR

**2030**  
£12,480  
12% CAGR

# UK Advanced Manufacturing Skills – Probable Market Failure

## CURRENT AND FUTURE SHORTAGE OF SKILLED PEOPLE

UKCES Working Futures 2014-2024 - Evidence Report 100 April 2016

.... manufacturing growth will be driven by advanced (high-technology)

**The availability of skilled labour will be an essential determinant of growth, and that skill shortages are a sizeable concern, and will be an important constraint on growth.**

EEF Skills Report 2016 – An Up-skill Battle

**73% of manufacturers experience highly skilled staff recruitment problems, particularly in engineering and manufacturing skills.**

59% expect to need more management, leadership and production-related skills in the next three years.

## CURRENT AND FUTURE SHORTFALL OF THE MEANS TO GENERATE SKILLED PEOPLE

Engineering UK 2016 - The State of Engineering

....supply data shows an annual shortfall of 29,000 people with level 3 skills and **40,000 with level 4+ skills.**

**.....the UK at all levels of education does not have the current capacity or the required rate of growth needed to meet the forecast demand for skilled engineers and technicians by 2022.**

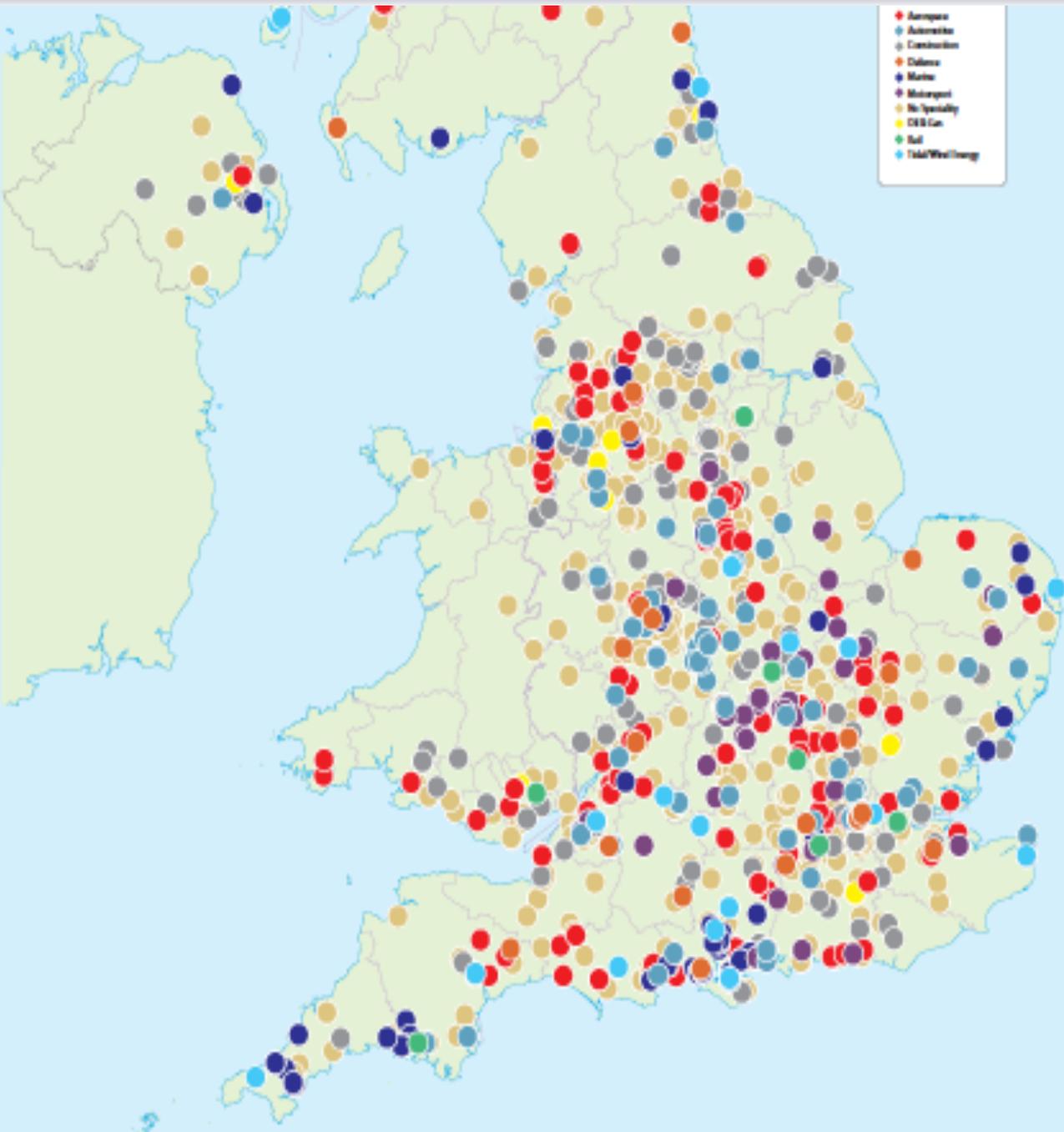
**More than 80% of the workforce of 10 year's time is already in work. Apprenticeships / Graduates are essential, Up / Re – skilling is critical.**

**“WE HAVE A SKILLS CHALLENGE IN GERMANY, YOU HAVE A SKILLS CRISIS IN THE UK”  
(Wright Report 2014)**

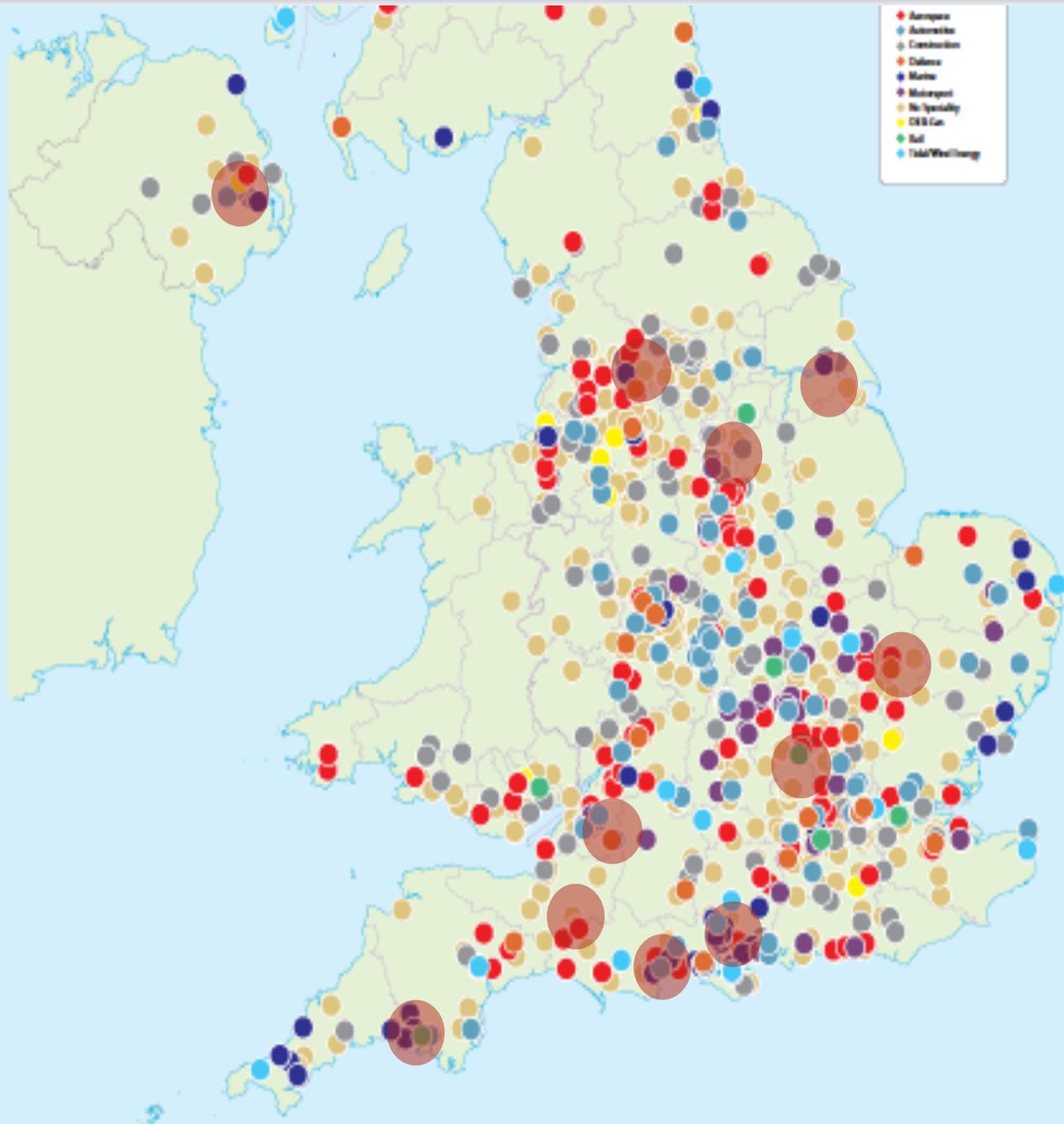
# Circa 1300 companies

## Primary Markets

- Aerospace
- Automotive
- Construction
- Defence
- Marine
- Motorsport
- No Speciality
- Oil & Gas
- Rail
- Tidal/Wind Energy



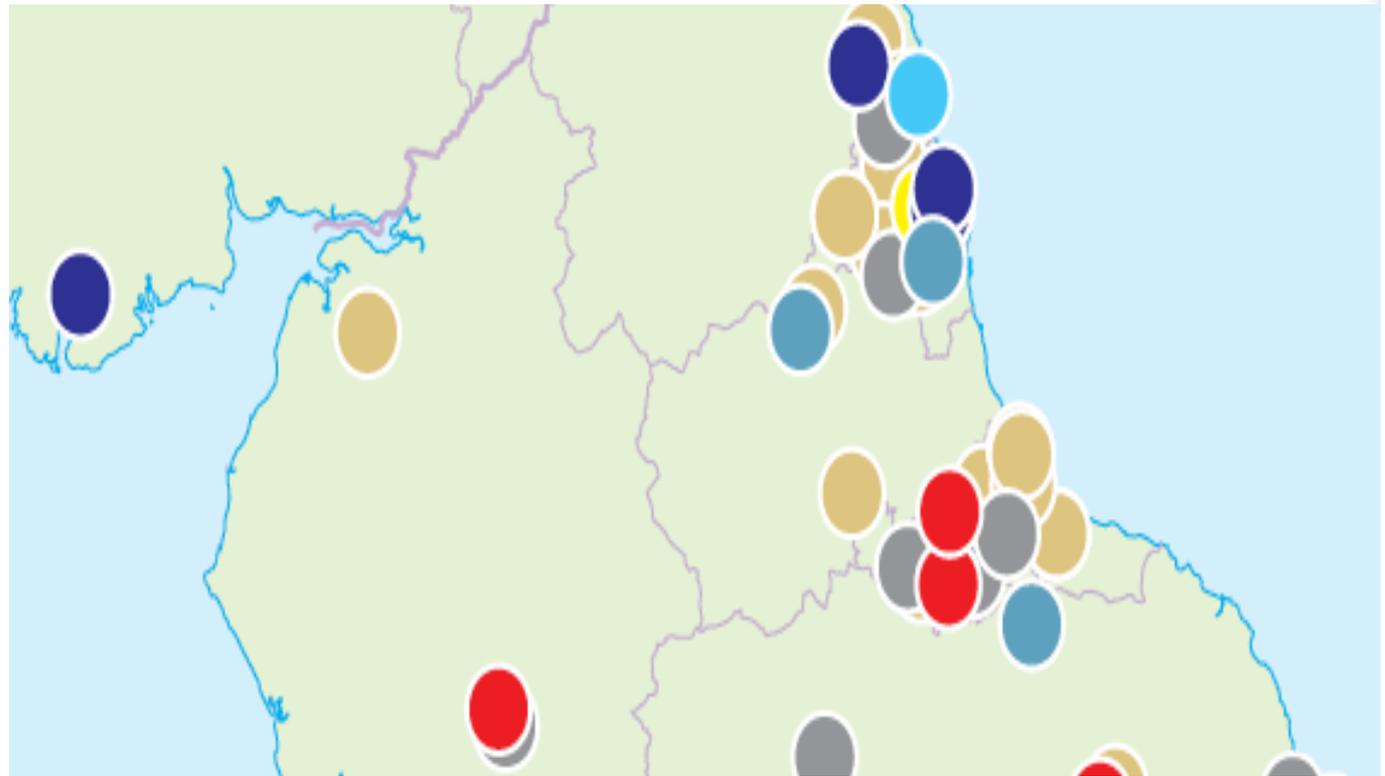
# Current Provision (Limited) ●



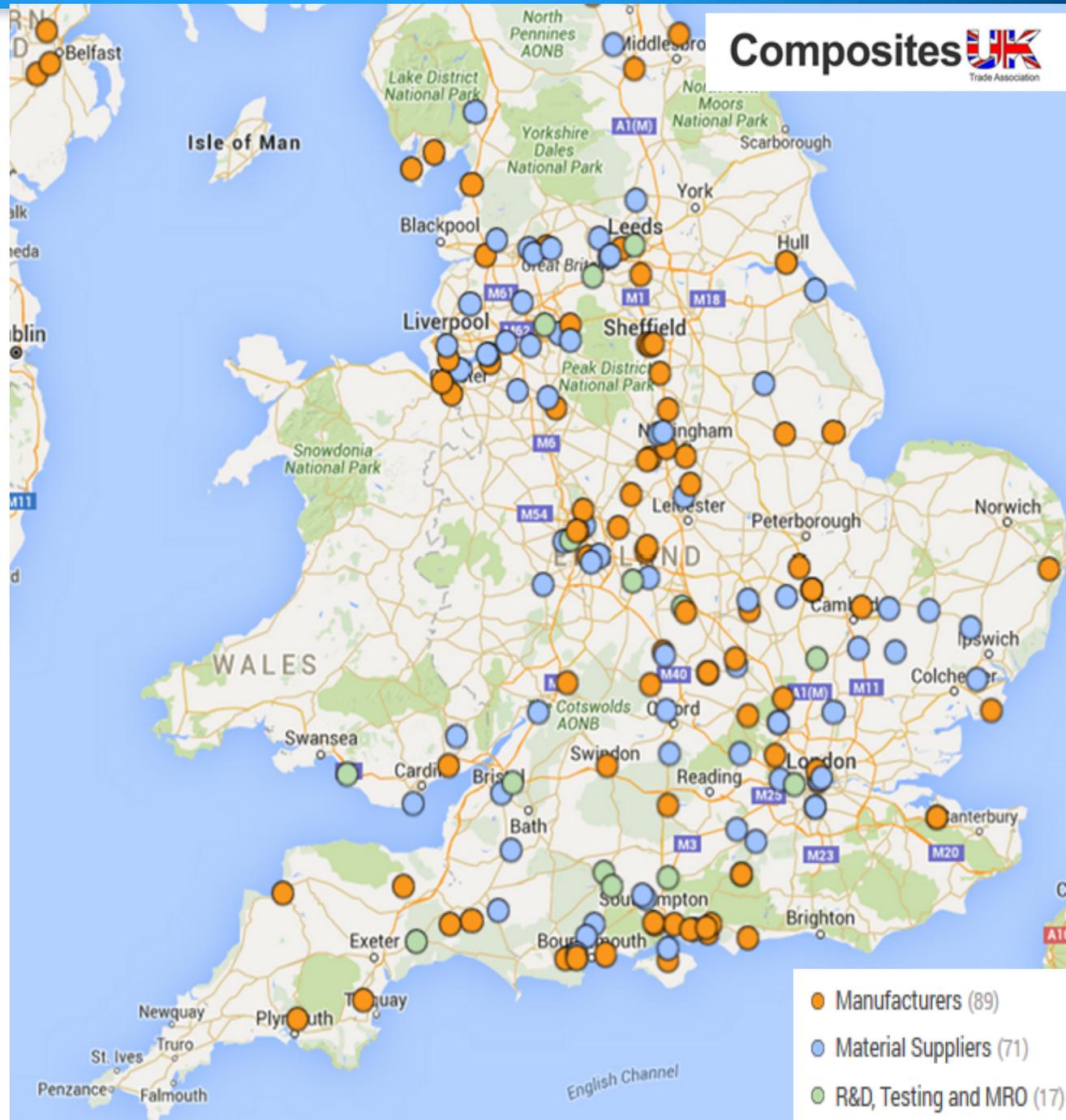
# NE Cluster

## Primary Markets

- Aerospace
- Automotive
- Construction
- Defence
- Marine
- Motorsport
- No Speciality
- Oil & Gas
- Rail
- Tidal/Wind Energy

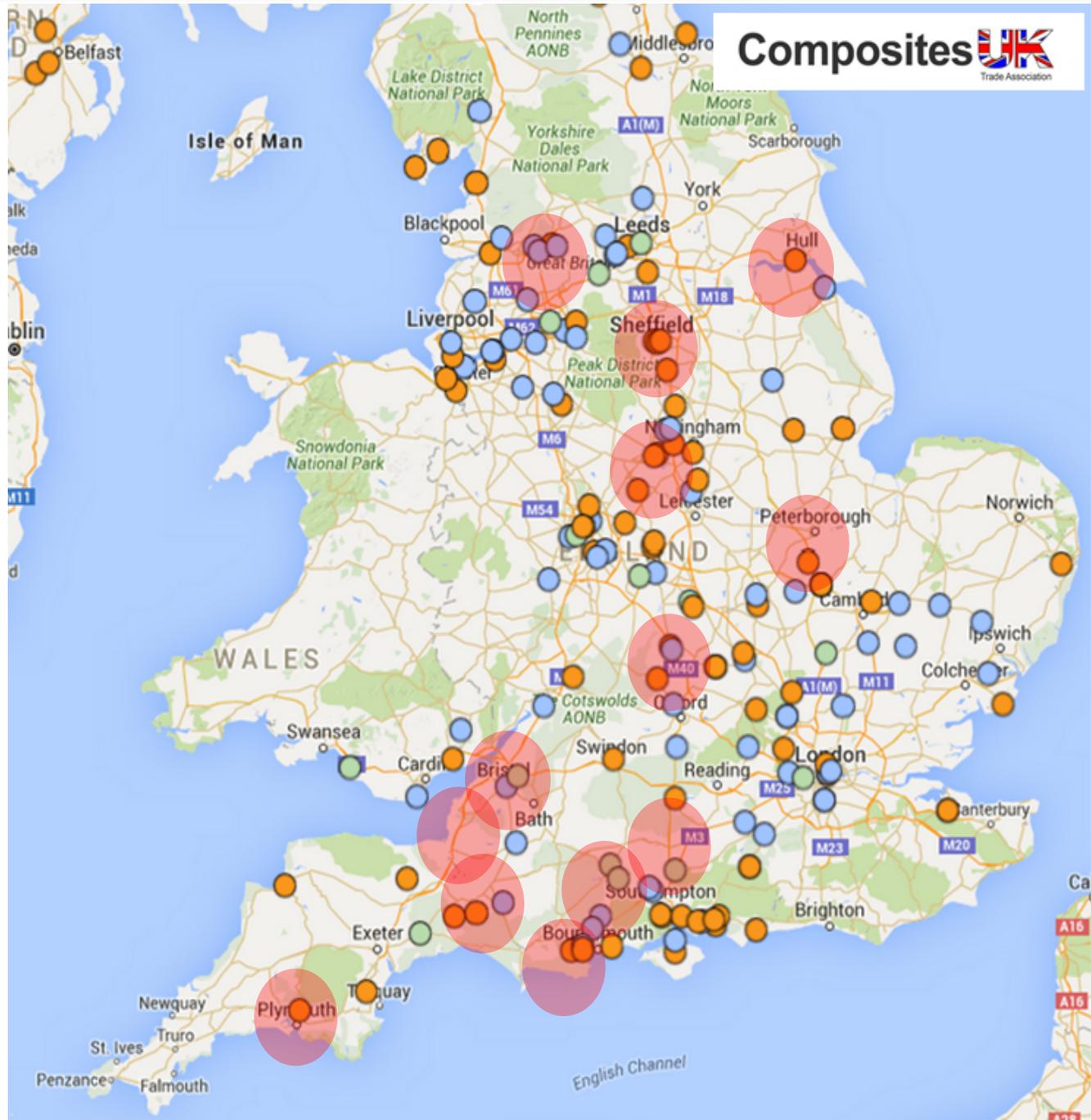


# CUK Membership





## Current Provision (Limited)



# INCREASING THE PROVISION

## NCC-Train the Trainer Program

# INCREASING THE PROVISION

**Modular 8 Day Program  
Delivered at NCC or Regional centres**

**Turn-Key Solution**  
(To include training moulds and manuals)

# Flexible Delivery ?

8 x 1 day

4 x 2 day

2 x 4 day

# Supported Delivery

Facilitate & Support

Coordinate & Aggregate Demand

# Summary

**Identified Skills shortage**

**Supported Delivery**

**Deliver from 2017**

**Level 5 Funding (£27k)**



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