INSTITUTES OF TECHNOLOGY

Conference 2025

Boosting Opportunity, Skills & Growth Through Collaboration

#InstitutesofTechnology
#OpportunitySkillsGrowth

Contents Page

#InstitutesofTechnology
#OpportunitySkillsGrowth

Skills to Kickstart Economic Growth: Addressing the Industrial Strategy Skills Needs (Panel)

Session Overview (Slides not used)

This panel will explore how skills can drive growth in sectors identified in the UK Industrial Strategy and Skills England priorities. Panellists from across education, industry and policy will offer insight into key skill needs, collaborative approaches and lessons from successful interventions. The discussion will also examine how training provision can remain agile in the face of evolving economic demands.

Chair: Yewande Akinola MBE, Conference Host

Panellists:

- Laurence Grafton | Head of People and Skills, Industrial Strategy Unit, Department for Business & Trade
- Debbie Johnson | Head of Innovation Talent & Skills, Innovate UK
- John McNamara | Master Inventor, IBM
- Rosa Wells | Chair, The National Network of Institutes of Technology

#InstitutesofTechnology
#OpportunitySkillsGrowth

Employer-Engaged Skills Development: Investing in the Future Workforce (Panel)

Session Overview (Slides not used)

This session will explore how and why employers work with education providers to shape skills provision for the future workforce. It will showcase examples of sustained collaboration, including co-designed programmes and employer investment, and examine what motivates business to engage - from securing talent to meeting regional needs. Panellists will discuss the conditions that support impactful employer involvement across different sectors and business sizes.

Chair: Yewande Akinola MBE, Conference Host

Panellists:

- Darush Dodds | Group Director of Corporate Affairs & Social, Esh Group
- Stephen Evans | CEO, Learning and Work Institute
- Rachel Quinn | Executive Director, East Midlands Institute of Technology
- Gert Rohrmann | Training & Development Manager, Siemens GB&I

#InstitutesofTechnology
#OpportunitySkillsGrowth

Powering Regional Growth: Skills, Industrial Strategy & Local Economic Development (Panel)

Session Overview
This session will examine how regional and local actors are aligning skills policy with economic development priorities to drive inclusive, sustainable growth. It will explore how the UK's Industrial Strategy and devolved economic agendas are creating new expectations and opportunities for skills planning, investment and delivery at a local level. Through local examples, panellists will discuss what's working, what's missing, and how different players within the system – employers, providers, local leaders and government – can work together to strengthen the regional skills-growth link.

Chair: Kay Church, Principal Business Transformation Leader, Met Office

Panellists:
- Claire Arbery | Director, West of England Institute of Technology
- Nicola McLeod | Director of Education, Work and Skills, Greater Manchester Combined Authority
- Poorvi Patel | Head of Education, Employment & Skills, Heathrow
- Matt Tudge | Head of Skills Planning & LSIP Project Manager, Business West

#InstitutesofTechnology
#OpportunitySkillsGrowth

INSTITUTES OF TECHNOLOGY

Conference 2025

Skills for Clean Energy Technologies: Electrification

Presenters:

Simon Warburton | Chief Technical Officer, Autocraft Solutions Group

Rosa Wells | Chair, The National Network of Institutes of Technology | Dean of STEM and FE Principal, University College Birmingham

Paul Whiteside | Head of Programme, Electrification Skills Network

#InstitutesofTechnology
#OpportunitySkillsGrowth

INSTITUTES OF TECHNOLOGY

SKILLS FOR CLEAN ENERGY TECHNOLOGIES: ELECTRIFICATION

Professor Rosa Wells

FE Principal & Dean for STEM
University College Birmingham

Paul Whiteside

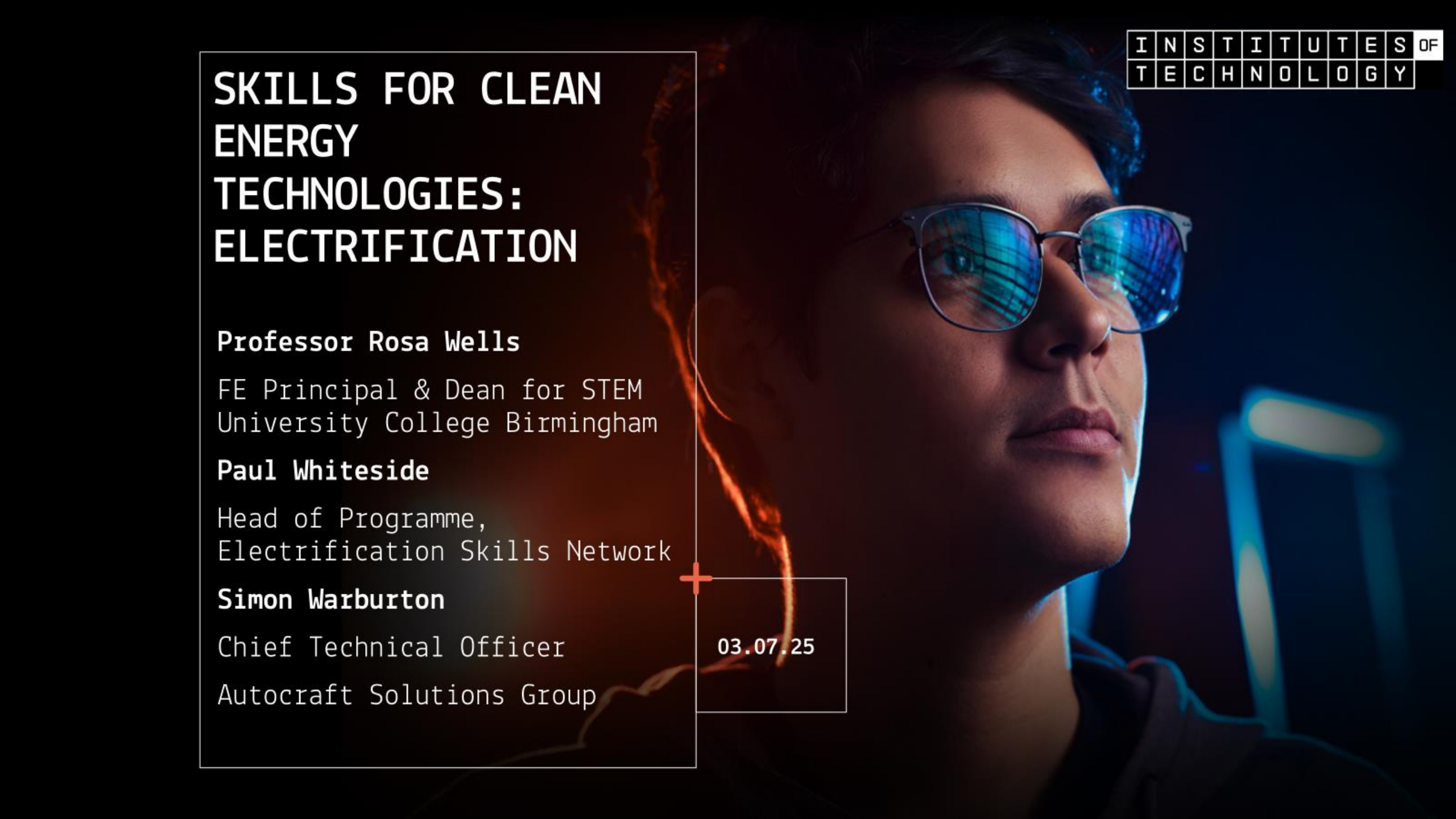
Head of Programme,
Electrification Skills Network

Simon Warburton

Chief Technical Officer

Autocraft Solutions Group

03.07.25



Battery Skills – Highlights from Advanced Manufacturing Sector Plan (Industrial Strategy)

- Battery manufacturing is a priority within the Advanced Manufacturing Plan and critical to achieving clean energy and mobility goals.
- The Battery Innovation Programme (formerly Faraday Battery Challenge) will drive Innovation, building on prior successes
    - £452m through to 2030
    - Cross-sector innovation in emerging and next generation technologies
    - R&D for battery safety
    - Funding for Industrial Skills, building on established success to target skills gaps

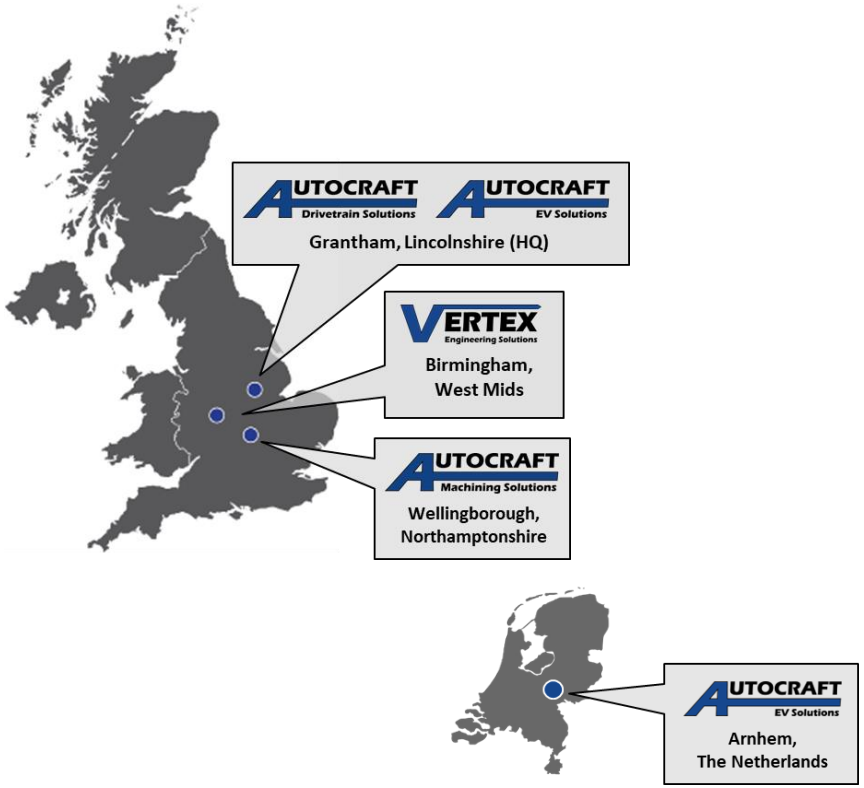
“There are significant battery hubs in the West Midlands and North East, showcasing the sector’s ability to secure regional economic growth through the development of skills and manufacturing clusters”

AUTOCRAFT
EV Solutions

Why do we need EV Battery Skills?

Autocraft Solutions Group

- Europe's leading independent ICE remanufacturer for over 40 years
  - Currently remanufacturing 36,000 engines per annum
- Autocraft EV Solutions was established in 2018. Since then:
  - Our UK EV battery facility in Grantham has been in volume "battery servicing" since 2019 – so we have huge levels of experience
  - Operational in Arnhem (Netherlands) since August 2023 for Batteries
  - Currently servicing over 4000 EV battery packs per annum (BEV & PHEV)
- Further European expansion and establish North America facility planned for 2025 using our proven "Hub & Spoke" expansion plan
  - **Aiming for over 20 sites in Europe / North America by 2030**

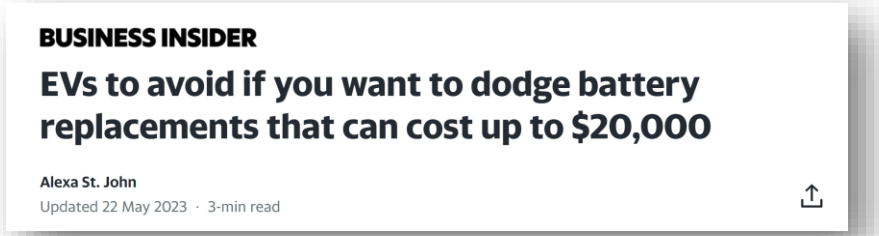


A selection of our customers:

HYUNDAI MOBIS · HYUNDAI · KIA · JLR · LG Energy Solution ESS Battery Division · ASTON MARTIN · NISSAN · FOREVER ENERGY

STELLANTIS · JCB · VOLVO · Ford · CATERPILLAR · GENESIS · GEELY AUTO · Diamond AIRCRAFT

Our EV World – On a Daily Basis!


BUSINESS INSIDER

EVs to avoid if you want to dodge battery replacements that can cost up to $20,000

Alexa St. John

Updated 22 May 2023 · 3-min read


The Telegraph

News Election Euros Sport Money Travel Business Health Opinion Podcasts Ukraine Royals

UK news Politics World Health news Defence Science Education Environment Investigations Global Health Security

Electric carmakers 'breaking the law' by failing to collect scrapped batteries

Damaged units pose a fire risk and manufacturers are legally required to retrieve them

Gareth Corfield, TRANSPORT CORRESPONDENT

8 May 2024 • 3:30pm


Reuters

World Business Markets Sustainability Legal More

Autos & Transportation | Circular Economy | Exploration & Production | Climate Change | EV Battery

Dead EV batteries turn to gold with US incentives

By Nick Carey, Paul Lienert and Victoria Waldersee

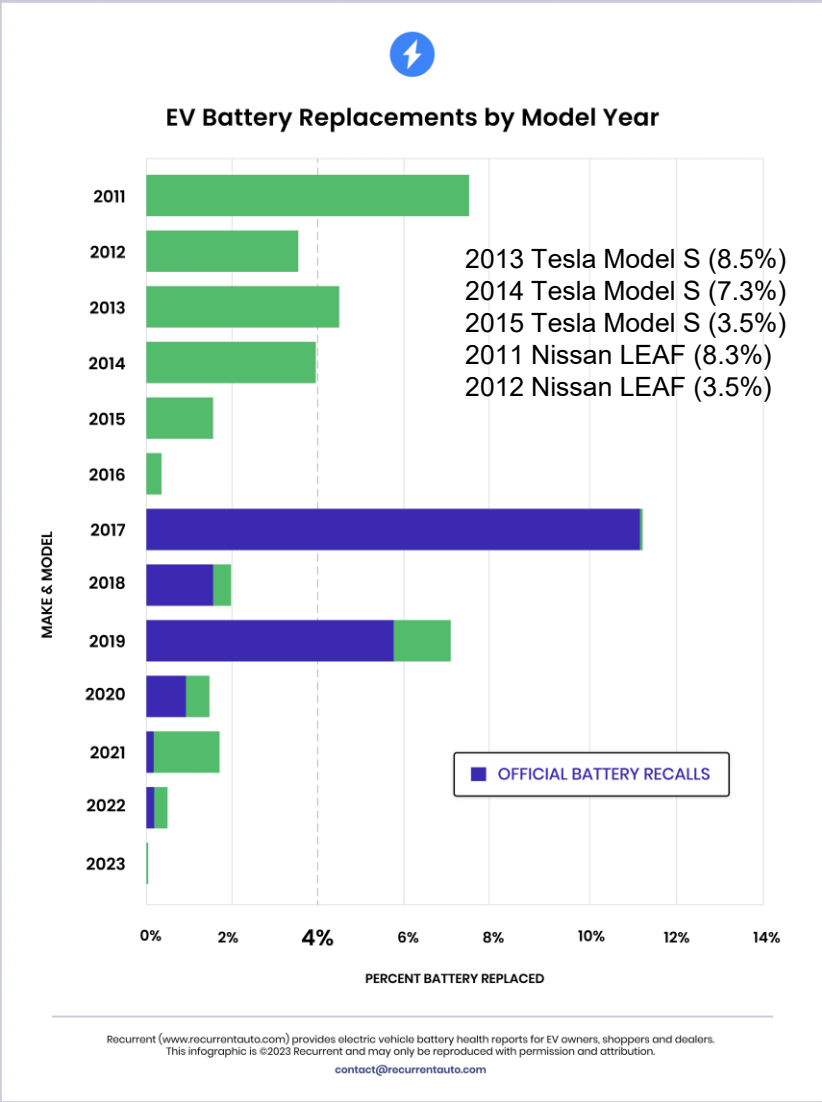
July 21, 2023 8:49 PM GMT+1 · Updated a year ago


His electric vehicle battery died. One year later, he's still waiting for a replacement

Supply chain issues, changing technology make it harder to find batteries for older EV models

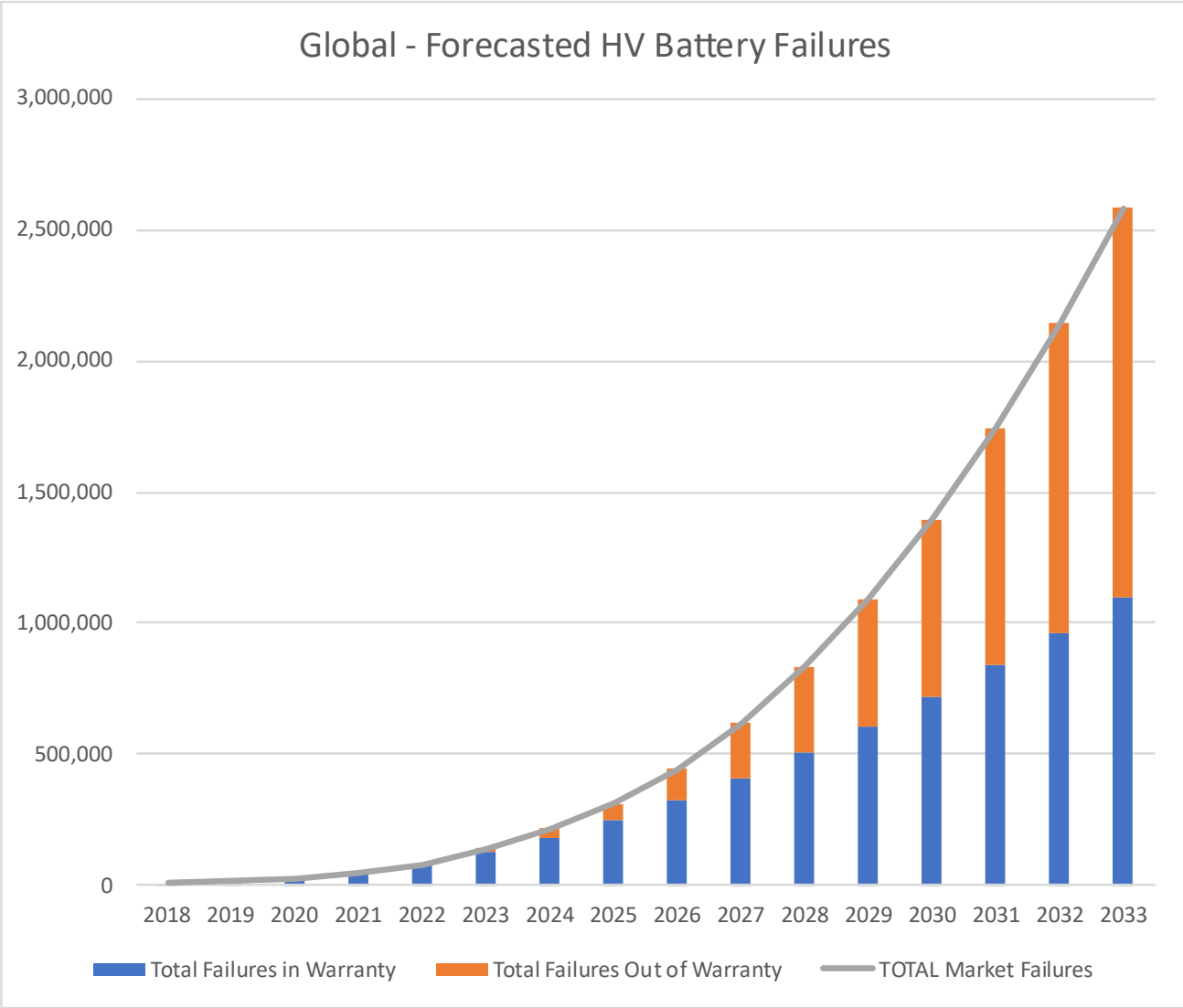
Ryan Patrick Jones · CBC News · Posted: Dec 22, 2023 4:00 AM EST | Last Updated: December 22, 2023

Failure Rates - Independent Evidence



- As batteries age with time and usage the failure rates increase
  - 8% or more ownership failure rates seem commonplace
  - The degradation makes remanufacture (over 90% SoH) more difficult but our London Taxi experience proves it is not impossible and if not possible a repair is a lower cost option to keep vehicles with lower residual values on the road
- The Independent Aftermarket (IAM) volume will surpass the warranty market by 2030
- Average age of a passenger vehicle in the UK = 9.4 years
- Average time to EoL = 17 years

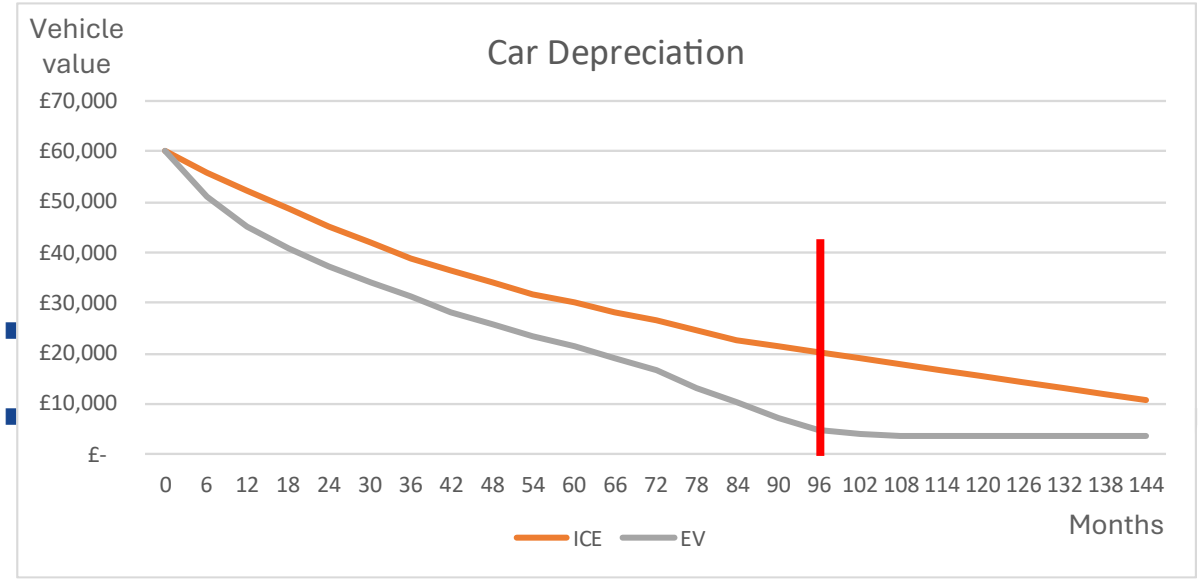
Forecast – Prematurely Failed EV Batteries



- By **2033** we forecast that over **2.6 Million EV Batteries will PREMATURELY fail per annum!**
- These are **NOT End of Life Batteries.** These are **PREMATURE FAILURES**
  - **In Warranty (OEM)**
  - **Out of Warranty (IAM)**
- Currently, the Independent (IAM) volumes are very low but …….
  - In 2027 we forecast over 200k failures
  - In 2031 the IAM becomes larger than the OEM market
  - In 2033 we forecast over 1.4M failures
- As remanufacturers we need to be ready to serve this market!

EV Depreciation

- EV depreciation* significantly higher than ICE



- EV depreciation being higher than ICE creates several challenges for further EV adoption
- Combine that with a £20k (RRP) or higher replacement battery cost and after 60 months a new battery as a replacement is not economically viable
  - ICE replacement typically just £10k (50% of EV)
- 60 months is less than most battery warranties (8 years / 96 months) therefore if batteries fail in cars over 8 years old they are write-offs without an affordable aftermarket solution
- Almost 1-in-10 consumers of out of warranty EVs will experience a write off. This is driving the poor residual values
- Autocraft targeting €5k per battery remanufacturing cost, at scale, in 2030 to keep older vehicles on the road!

*Depreciation graph created from numerous reports published on the internet

EV Battery Evolution Favouring Reman

COMPLEXITIY + RANGE/DENSITY

Simple batteries that can be repaired by garages

Increased technical complexity and some packs are designed NOT to be repairable

Highly complex batteries that are repairable but only with industrial processes such as laser welding.
OEMs realise that batteries MUST be repairable or the warranty cost is too high!

TOYOTA

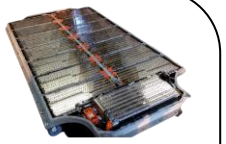
PRIUS *(Ni-MH)*

BMW

i3

NISSAN

LEAF

TESLA

Model 3

JLR

iPACE

HYUNDAI

IONIQ 5

Ford

MACH-E

ZEEKR
CATL

CTP

BYD

BLADE

SAIC 上汽集团 SAIC MOTOR

SOLID STATE

NIO

ET7 SEMI-SOLID STATE

2005 2015 2018 2025 2030 2035

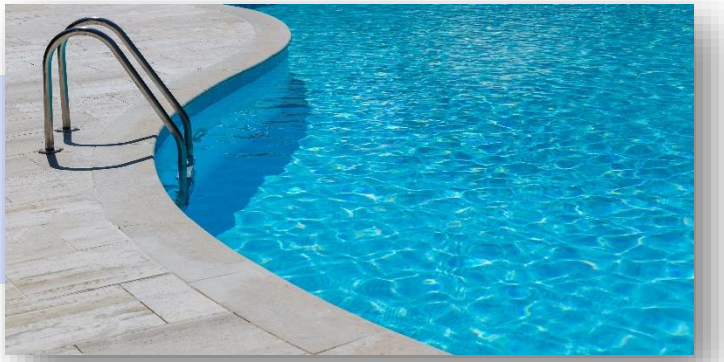
TIME

Size of the Environmental Benefits

Remanufacturing a SINGLE 82kW Pack Saves:

12,989 kg of CO_2eq which is
7 flights from London to Sydney
(4,550 people)

595,657 litres of Water which is
30 home swimming pools
(4m x 1.2m)



24,188 kWh of Electricity which is **up to 125,000 km in an EV**

*Average of 26kg per tree. www.tariff.com

- By achieving our 10% Market Share in 2033 Autocraft will be saving the planet
  - **4.7 Billion kg of CO2**
  - **8.8 Billion litres of Water**
  - **217 Billion kWh of Electricity**

<u>500 trees per battery....</u>
Saving equivalent to planting 181 Million trees per annum!*

Autocraft Whitepaper – Environmental Benefits

WHITEPAPER

CLOSING THE EV CONFIDENCE GAP:
THE ROLE OF BATTERY REMANUFACTURING

Despite significant progress towards electrification, uncertainty around battery health remains a barrier to widespread adoption. The standard practice of replace-and-recycle simply does not inspire consumer confidence, underlining the need for robust repair solutions.

Our latest report tackles this challenge head-on, offering practical insights and real-world data to show how targeted EV battery repair and remanufacturing can unlock the future of electrification.

READ MORE

- **NEW REPORT RELEASED! – The environmental benefits are transformative for the Remanufacturing Industry!**
- Please visit https://autocraftsg.com/white-papers/ to read the report

AUTOCRAFT

EV Solutions

WWW.AUTOCRAFTSG.COM

Paul Whiteside – ESN Head of Programme

Who are the Electrification Skills Network?

'We are a neutral initiative supporting workforce readiness for electrification, via a Framework for Electrification and informed advice, support and guidance.'

E4N | Electric Revolution Skills Hub | Coventry University | Enginuity | UK Battery Industrialisation Centre | UKRI Delivered by Innovate UK | WMG The University of Warwick

How we do this

Connecting

We connect employers, awarding organisations and skills providers via an Electrification Skills Framework

Offering a neutral and informed voice

We offer a neutral and informed voice for the Electrification Skills community including policymakers on the local and national level

ELECTRIFICATION SKILLS NETWORK

Showcasing

We showcase initiatives and support the development of electrification courses and qualifications

Sharing and supporting via our communities

We share national and international best practices and subject expertise to support skills provision in the UK

Providing insight

We use Workforce Foresighting data and market intelligence to identify electrification skills gaps

Electric Revolution Skills Hub | Coventry University | Enginuity | UK Battery Industrialisation Centre | Delivered by Innovate UK | WMG THE UNIVERSITY OF WARWICK

Activities to date

- Electrification Skills Provider and Accrediting Body groups established and active
- Electrification Masterclasses delivered, with over 400 bookings!
- Establishment of a Skills Framework for Electrification
- Agreement and creation of over 30 Common Sets of Skills in Electrification
- Quarterly ESN Forum established and delivered
- Presence at key industry events such as Cenex, Battery Expo, and Advanced Engineering
- Close collaboration with the battery skills projects in the Midlands and the North-East

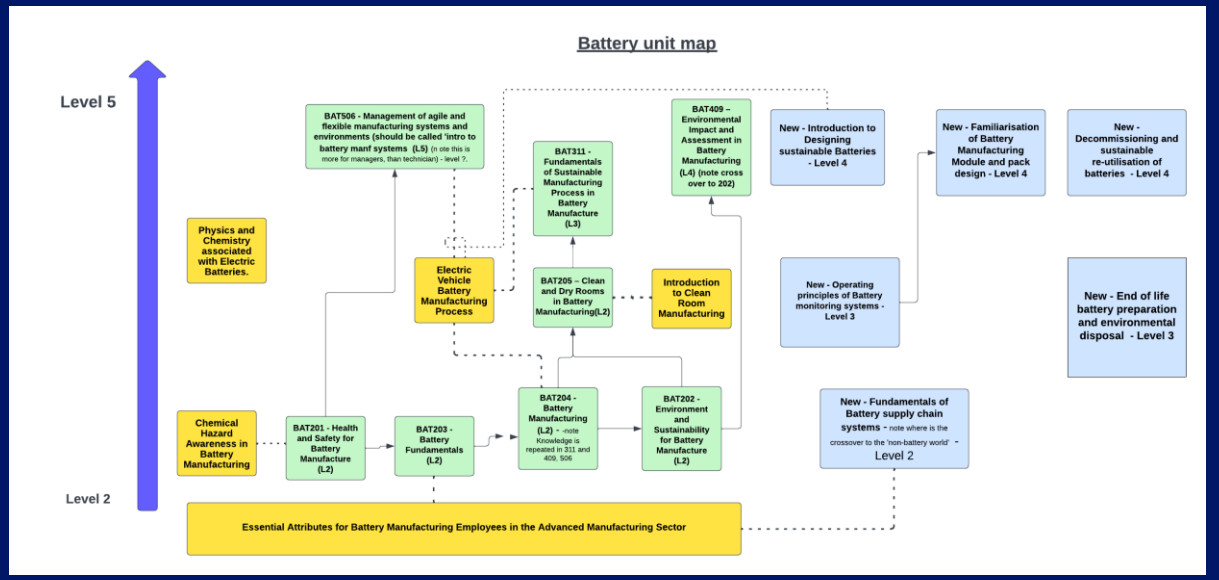
2025 and Onwards

- Skills Framework for Electrification released as an interactive resource in early 2025
- Completion of the Masterclass sessions
- Further expansion of the Skills and Accreditation Communities
- Continuation of the ESN Forum
- Expand collaboration with electrification skills projects in Europe
- Further expansion of the Framework for Electrification

E4N Electric Revolution Skills Hub | Coventry University | Enginuity | UK Battery Industrialisation Centre | UKRI Delivered by Innovate UK | WMG THE UNIVERSITY OF WARWICK

Defining a skills framework for electrification

- Signposting to current solutions, or highlighting gaps
- Supporting employers in the understanding of current and future skills needs
- Supporting skills providers by giving them a potential delivery structure
- Supporting accrediting bodies by endorsement of their solutions
- Acting as a neutral body to facilitate collaboration

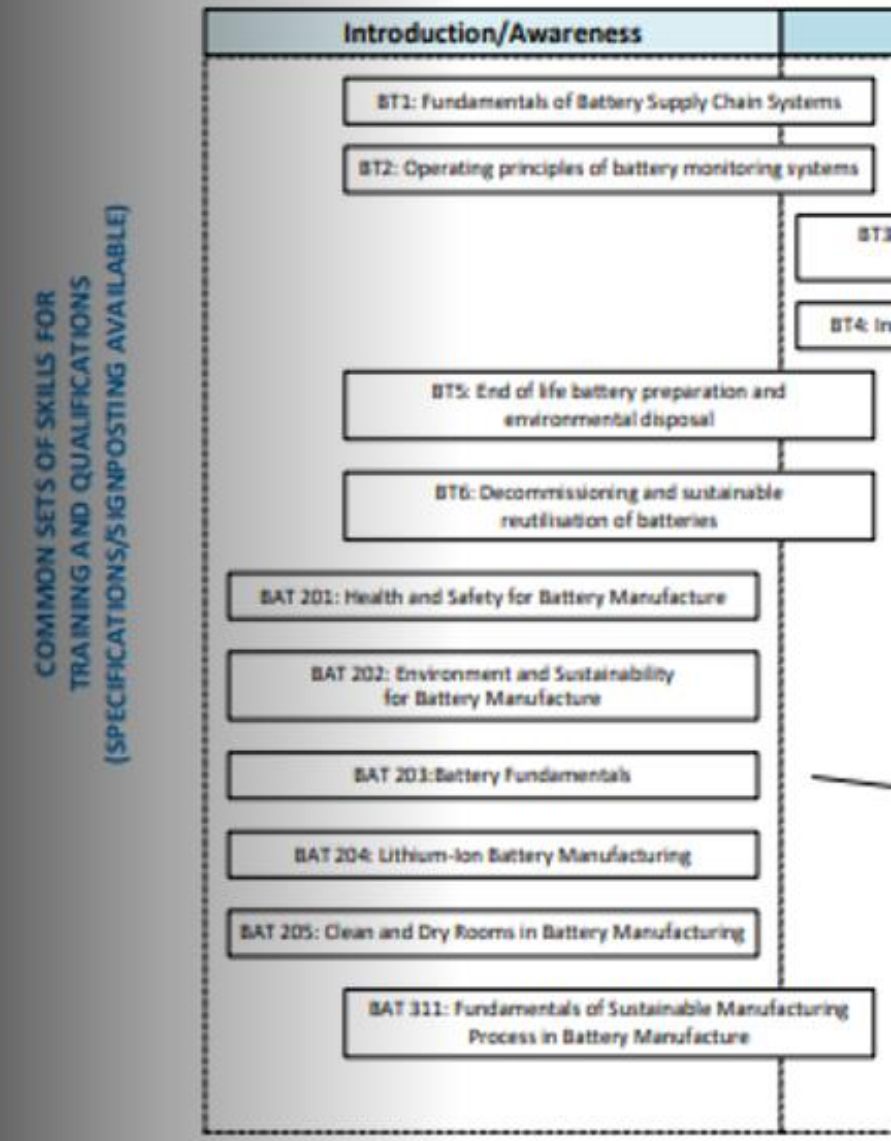


E4N Electric Revolution Skills Hub | Coventry University | Enginuity | UK Battery Industrialisation Centre | UKRI Delivered by Innovate UK | WMG The University of Warwick

The ESN Framework Model

- Four Levels (Introduction to Expert)
- *Common Sets of Skills*
- Signposting to training/qualifications
- Standardised approach to listing/linkage

- Review and feedback (Spring - Autumn 2024)
- Online Framework Tool (Autumn - Winter 2024)
- Launch (Spring 2025)



Example Common Set of Skills

Common Set of Skills/Understanding

Title: Battery Fundamentals

Level: Introduction/Operator

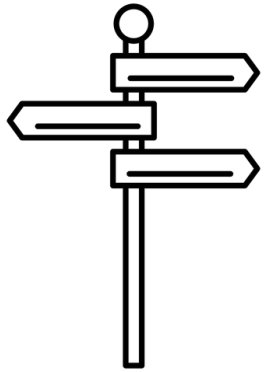
Theory or practical focus: Theory

Objectives:

1. Understand battery functions, materials, classifications and capacity
2. Understand battery structures
3. Understand battery conditioning, charge cycles and configurations
4. Understand battery cell chemistry advantages and disadvantages

Additional notes (minimum expected coverage related to objectives)

1. Raw materials used in battery manufacture, pros and cons of batteries, battery classifications and uses, energy and power density, calendar life and cycle life
2. Types and applications of cells, components, dry and wet cells
3. Charging and discharging operations, series and parallel configurations, cell matching
4. Lead acid, Nickel Cadmium, Nickel Metal Hydride, lithium-ion



Signposting to related courses and qualifications.

Users can search for specific skills or filter *Common Sets of Skills* by title, framework area, level and/or focus.

Available Spring 2025 via:
www.electrificationskillsnetwork.co.uk

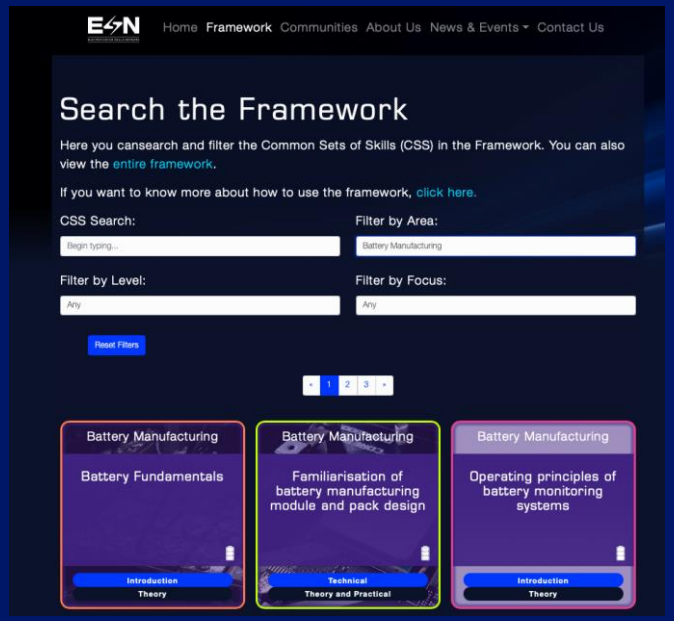
Delivered by Innovate UK
WMG THE UNIVERSITY OF WARWICK

CSS – Initial Release

- Battery Fundamentals
- Fundamentals of Battery Supply Chain Systems
- Operating principles of battery monitoring systems
- Familiarisation of battery manufacturing module and pack design
- Introduction to designing sustainable batteries
- End of life battery preparation and environmental disposal
- Environmental Impact and Assessment in Battery Manufacturing
- Decommissioning and sustainable reutilisation of batteries
- Environmental Impact and Assessment in Battery Manufacturing
- Health and Safety for Battery Manufacture
- Management of Agile and Flexible Manufacturing Systems and Environments
- Environment and Sustainability for Battery Manufacture
- Battery Fundamentals
- Lithium-Ion Battery Manufacturing
- Clean and Dry Rooms in Battery Manufacturing
- Fundamentals of Sustainable Manufacturing Process in Battery Manufacture

- Magnetics in Power Electronics
- Introduction to Power Electronics
- Power Semiconductor Devices
- Switching Techniques and Circuits
- Power Conversion Techniques
- Magnetics in Power Electronics
- Thermal Management in Power Electronics
- Control Methods for Power Electronics
- Power Quality and Harmonics
- High-Frequency Power Electronics
- Advanced Power Electronic Converters
- EMI/EMC in Power Electronics
- Reliability and Fault Diagnosis

E4N Electric Revolution Skills Hub Coventry University Enginuity UK BATTERY INDUSTRIALISATION CENTRE UKRI Delivered by Innovate UK WMG THE UNIVERSITY OF WARWICK



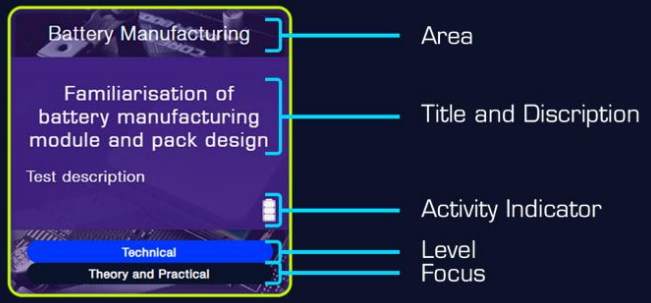
How to use the framework

The Framework's core is the Common Sets of Skills (CSS), which are positioned across four levels for each technology area: Introduction, Technical, Senior Technical, and Expert.

You can view the entire framework, but you may find it easier to search the framework. This will allow you to complete a CCS Search using a keyword or filter by area, level, or focus.

As you examine each CSS, you will notice a summary on each of the square tiles, which will inform you:

- The area covered by the CSS, e.g. Battery, Power Electronics etc.
- The title of the CSS, e.g. "Introduction to Power Electronics" and, where appropriate, a short description.
- The level of the CSS, e.g. Technical
- The focus of the CSS, e.g. Theory



Electric Revolution Skills Hub | Coventry University | Enginuity | UK Battery Industrialisation Centre | Delivered by Innovate UK | WMG The University of Warwick

Building supported communities within electrification

Accrediting bodies

Skills providers

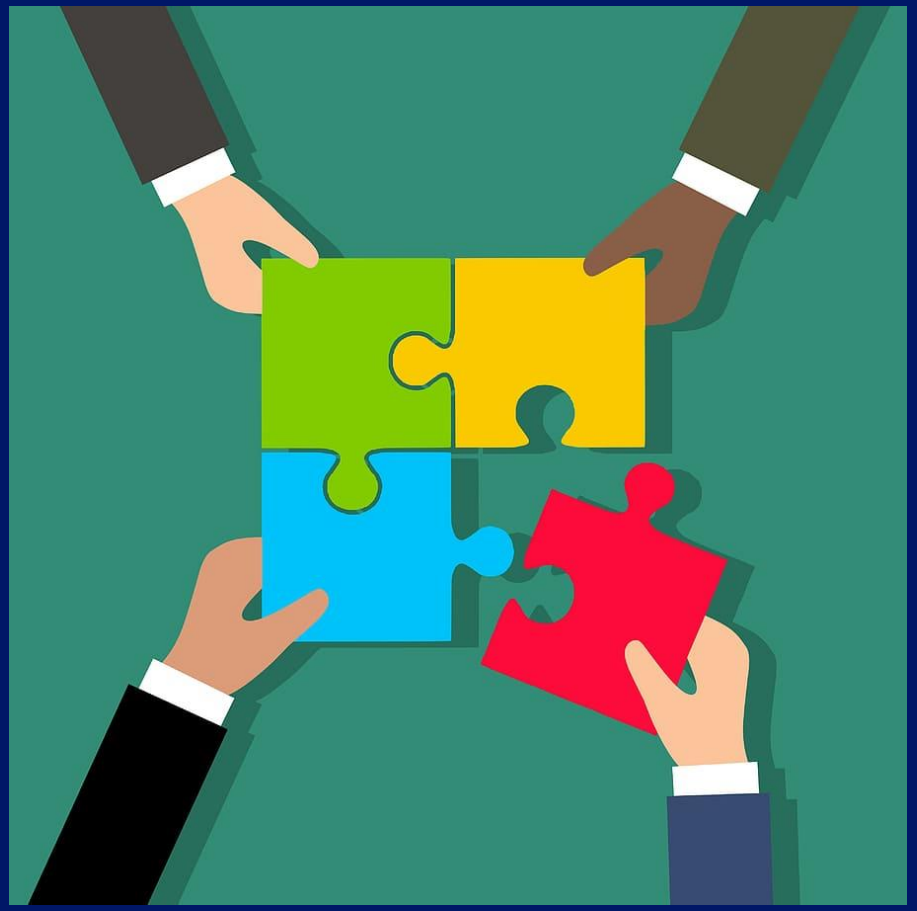
- Sharing experiences and facilitating collaboration
- Providing neutral advice and guidance
- Linking skills demand and skills supply
- Providing upskilling opportunities and awareness

Delivery of a national forum for electrification

- Raising awareness of other initiatives
- A regular 'home' for stakeholders across electrification
- Further enhancing opportunities to collaborate and share ideas

How can I engage with ESN?

- Join one of our communities for regular updates and support
- Attend our national forum
- Search our framework to find and access skills solutions
- Add your courses and qualifications to the framework to increase global exposure
- Contact us, and through our network, communities and insight, we'll work with you to find a solution



QR code for the website

E4N Electric Revolution Skills Hub | Coventry University | Enginuity | UK Battery Industrialisation Centre | UKRI Delivered by Innovate UK | WMG THE UNIVERSITY OF WARWICK

Thank you for your time today!

DEBUT-WM

B-MSP: Battery Manufacturing Skills Programme

Rosa Wells
FE Principal & Dean for STEM
University College Birmingham

DEBUT-WM Project Objectives & Ambition

HUB & SPOKE

Create a single regional training entity, governance and delivery mechanism.

Convene technologists/industry/education/training partners, **and local government** as a focal point for the shift to battery electric vehicle production.

Collaboratively work with others to curate **suitable existing education and training provision.**

Provide a training initiative which will be developed by piloting delivery through University College Birmingham and their GBS IoT partner institutions.

Maximise regional engagement through, outreach and equality diversity and inclusion.

Secure committed funding to ensure upfront investment in resources will facilitate a sustainable delivery and business model.

Alignment with the Electrification Skills Network **(ESN)** to support delivery of skills foresighting and industrial demand

Battery Manufacturing Training Skills

Partners

University College Birmingham

WMG, The University of Warwick

Cranfield University

RAVMAC, Industry Led Innovation

Official Supporters

Rockwell Automation

Autocraft Drivetrain Solutions

delta Cosworth

Atlas Copco

JLR

Microsoft

YAZAKI

PI-KEM

Advisory Group

E4N, Electrification Skills Network

Greater Birmingham & Solihull Institute of Technology

mtc, Manufacturing Technology Centre

UK Battery Industrialisation Centre

West Midlands Combined Authority

INSTITUTES OF TECHNOLOGY

SKILLS FOR CLEAN ENERGY TECHNOLOGIES: ELECTRIFICATION

Professor Rosa Wells

FE Principal & Dean for STEM
University College Birmingham

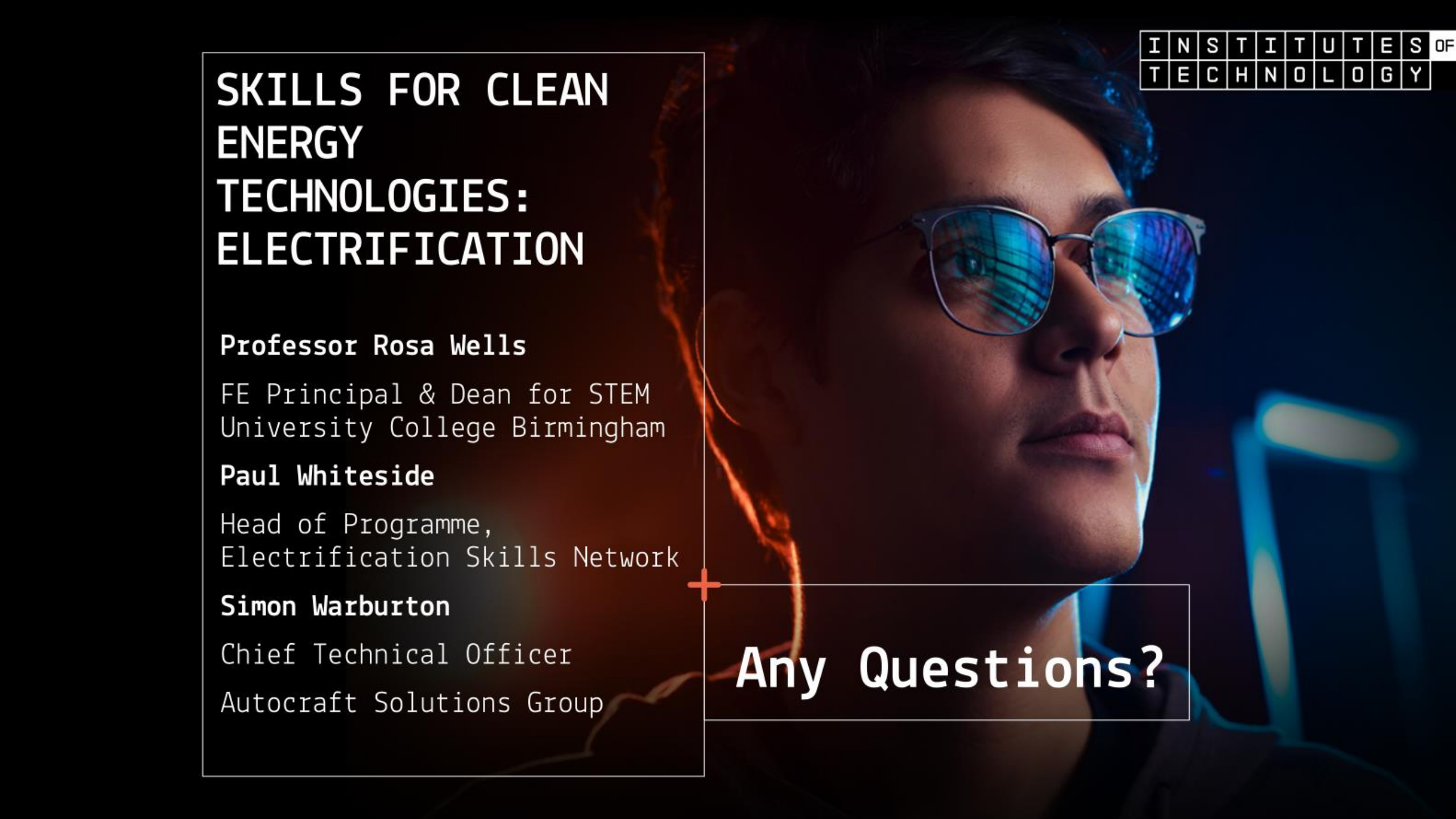
Paul Whiteside

Head of Programme,
Electrification Skills Network

Simon Warburton

Chief Technical Officer

Autocraft Solutions Group



Any Questions?

INSTITUTES OF TECHNOLOGY

Conference 2025

Skills for Agritech Innovation: Digital, Robotics & Sustainable Practice

Presenter:

Edward Keyes | Course Manager, Askham Bryan College

#InstitutesofTechnology
#OpportunitySkillsGrowth

Wifi network: CHWGuests
Password: Central1912Hall

Skills for Agritech Innovation: Digital, Robotics & Sustainable Practice

Edward Keyes

edward.keyes@askham-bryan.ac.uk

ASKHAM BRYAN COLLEGE

Creating Intelligent Decision Makers

How Do We Do This?

Data Collection And Interpretation

Looking Beyond What You Can See

Creating Graduates Who Can Meet Industry Requirements

Bridging Skills Gaps

Addressing Labour Shortages

Tackling Environmental Challenges

Turning This

↓

Into This

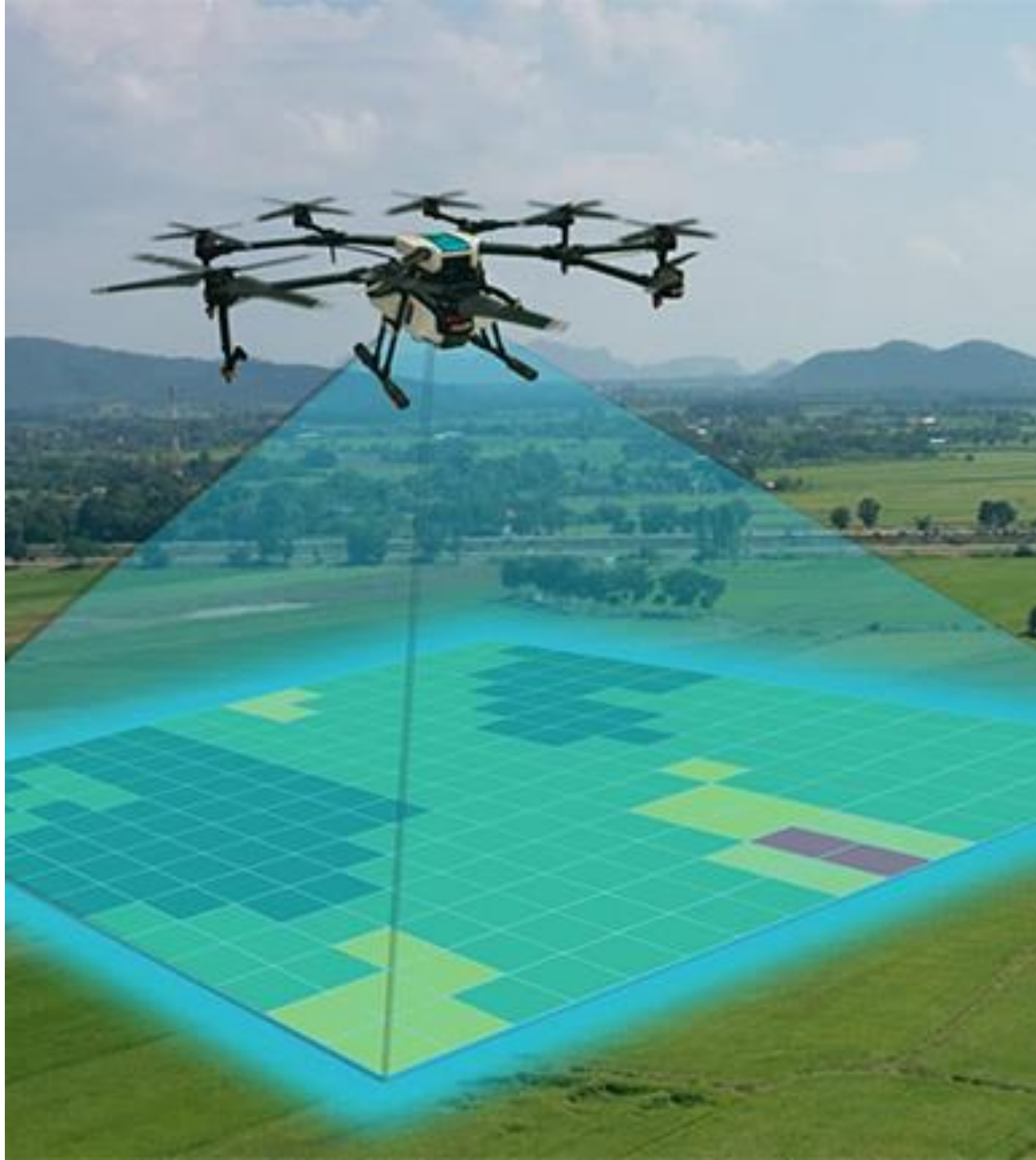
↓

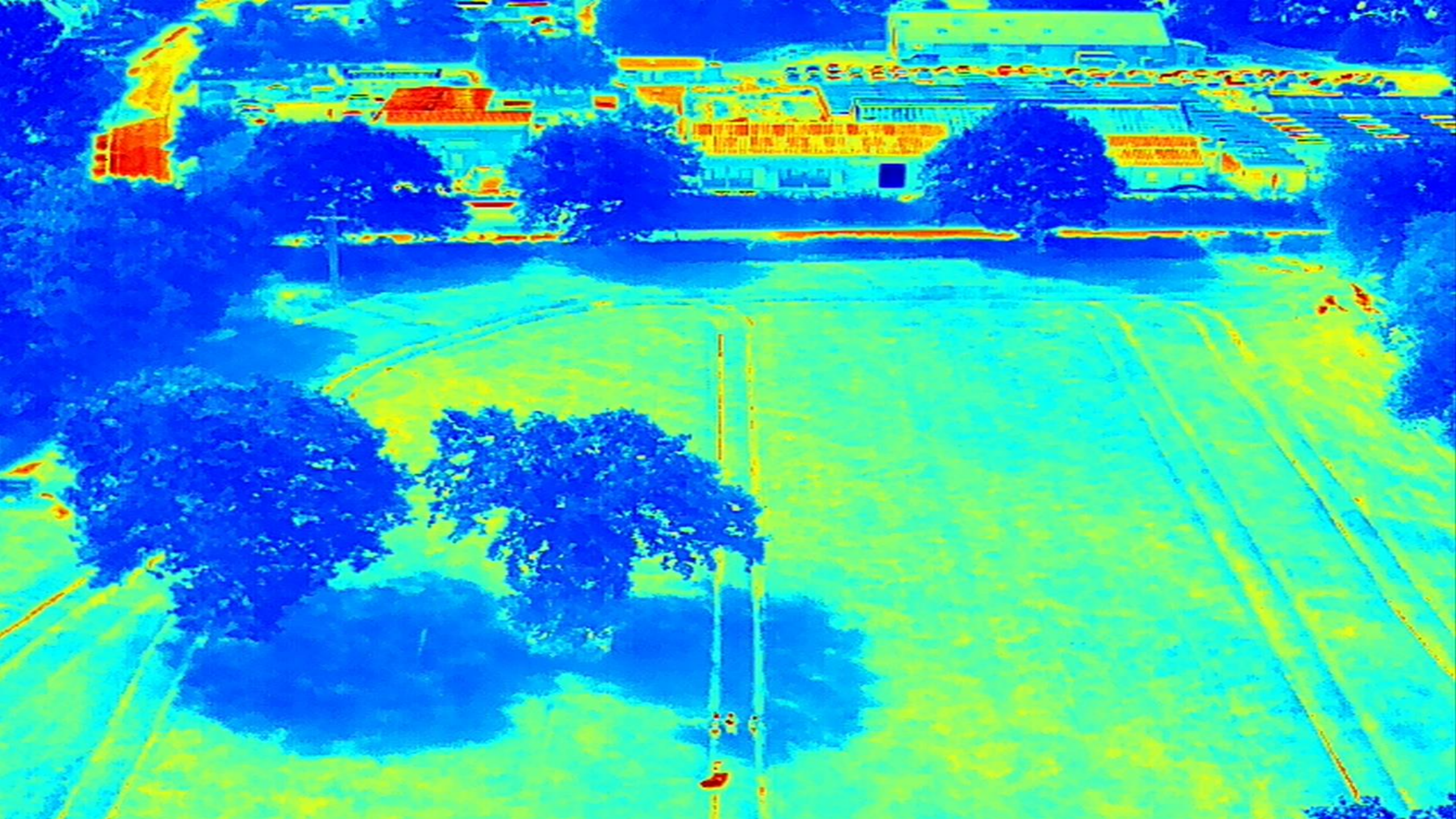
Which Hopefully Translates Into This…

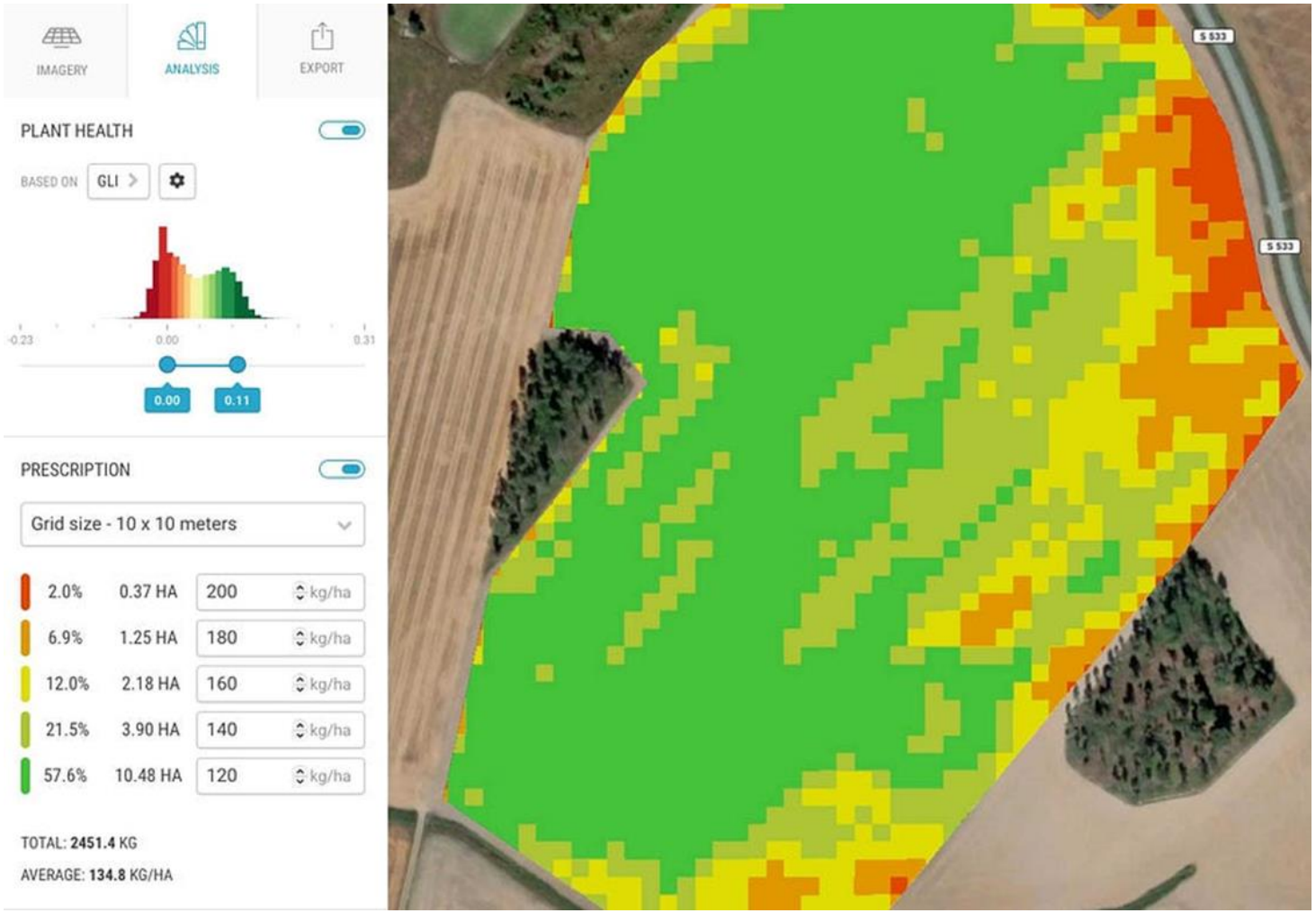
Where Do We Start?

Utilising plant and soil mapping via the use of drone technology

Measuring what we can't see







Managing Inputs To Improve Business Sustainability

- Reduce artificial fertiliser use by 25%
- Improve application timings for increased efficiency and quality
- Improving soil health and the farmed environment
- Increasing farm profitability

Dairy Farming in the UK: Then vs. Now

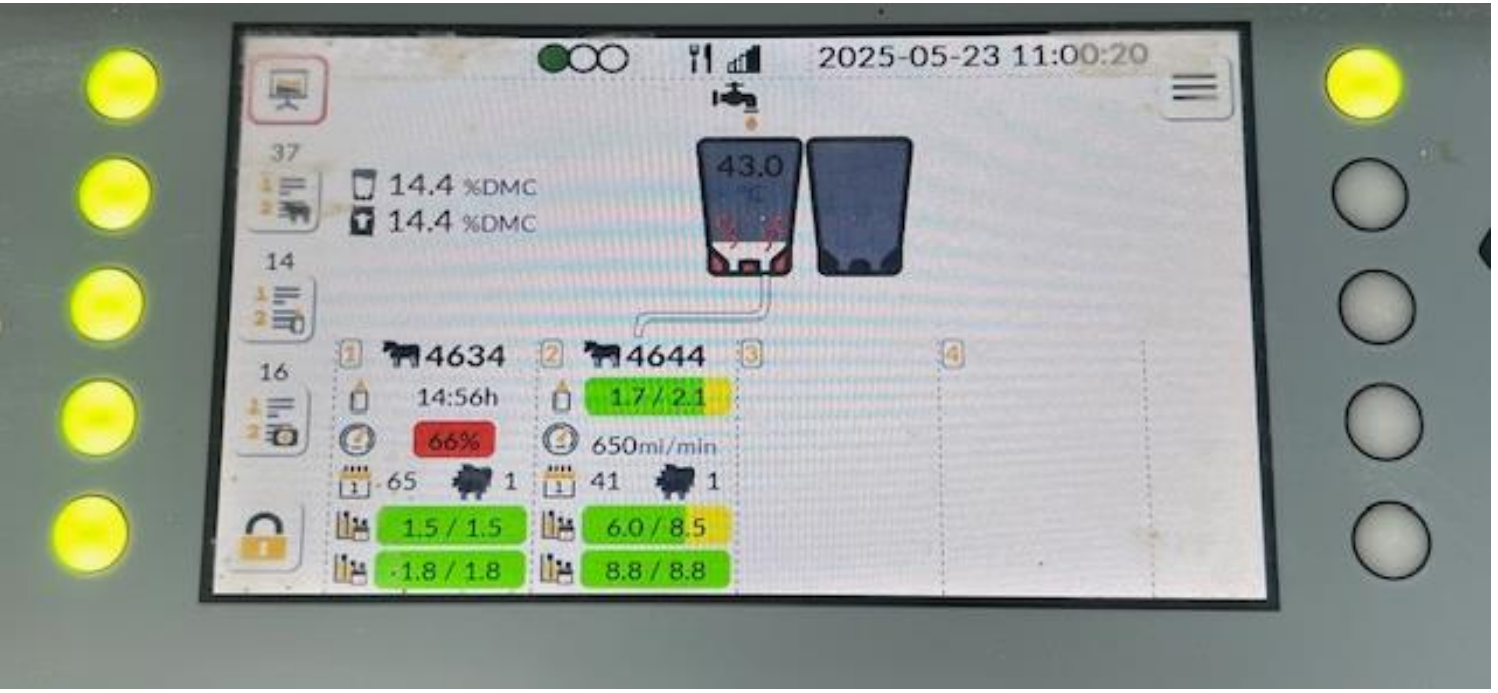
Year 2000	Year 2024
🚜 23,286 dairy farms	🚜 7,130 dairy farms (↓ 69%)
🐄 2.3 million dairy cows	🐄 1.62 million dairy cows (↓ 30%)
🥛 14.4 billion litres produced	🥛 15 billion litres produced (↑ 4%)

The Pressure On Farming Is Vast But The Opportunities Are Enormous

Putting This Into Practice…

How Does This Stack Up?

	Calf Group A	Calf Group B
Colostrum	18 Brix (Low)	27 Brix (High)
Health	2 x Pneumonia (£55) 2 x contracted scours (Rotavirus) (£45)	No underlying health issues
Bulling Weight	Underweight	Correct weight
Conception	3 services on average	1.5 services on average
Calving age	27 Months	24 Months
Calving Body Weight	72% of mature weight	85% of mature weight



How Do We Measure It?

- IOT technology
- Students can track progress in detail at every step
- Allows for evidence-based decision making

What Was The Difference?

- £1630 per animal
- £8150 per calf group

Calf group B required fewer antibiotics, less concentrate feed and entered the herd more quickly. This produced a more efficient animal with a lower net carbon output

The Difference In Cost Is Not Recoupable

It All Has To Link Together…

- Utilising technology across the whole process is vital for improving efficiency and reducing inputs
- It is vital that we are in control

Dashboard

Herd Summary:

Open	I	Pd+	Pd-	B	D	Cows	Young stock	New born calves
85	113	243	9	36	63	549	688	8
15%	21%	44%	2%	7%	11%			

Attentions:

In heat	Cycling	Pregnancy Check	To Dry Off	Calving	Tasks
6	40	12	15	16	20
64	Open 6 / 24				

High activity cows	Ketosis	Low milk	High conductivity	Milk Withdrawal Period
9	6	6	7	5

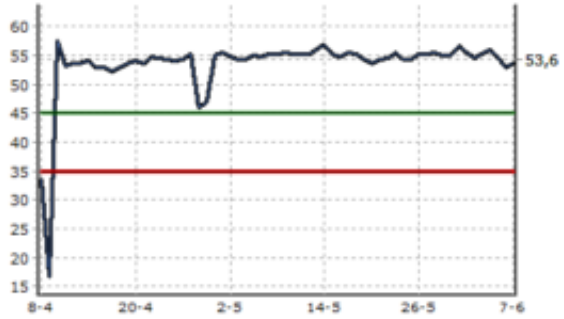
Processes:

AutoMate | Todo 29 | External links

Utilising AI

KPI:

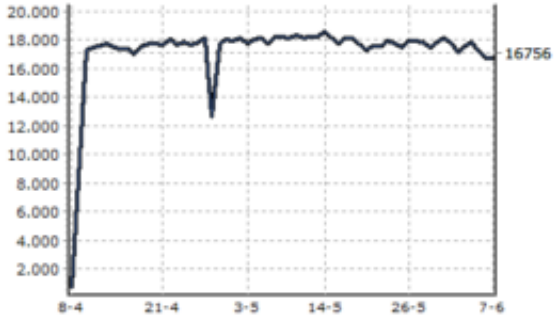
Standard Peak Production (Milk Meter)



Somatic Cell Count (Milk Recording)

Expected calving interval

Total day production all animals



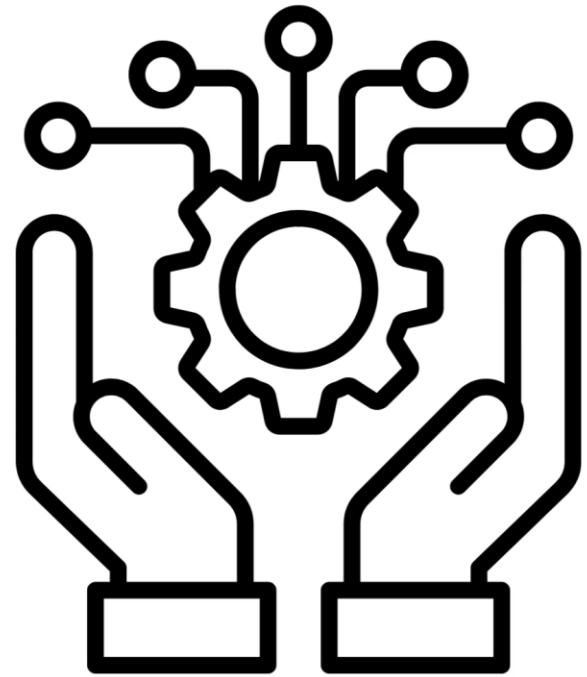
Average milk production per cow per day

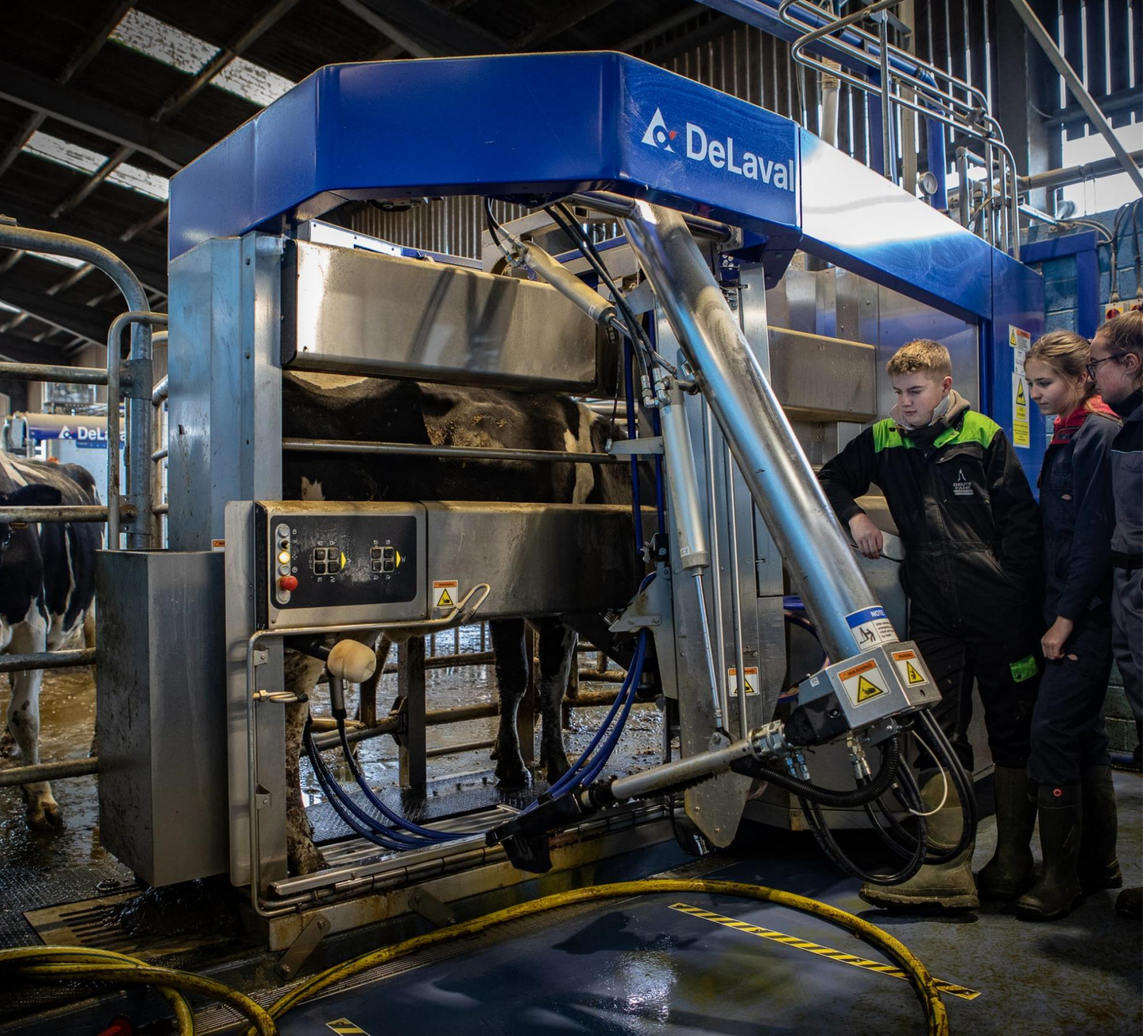
Average DIM	% Dead born calves	Average week production per cow	Insemination Rate
153 (162)	8 (11)	35,9 (36,2)	66

Calving age heifers	Lifetime production	Overall Pregnancy Rate	Conception Rate
27,1 (27,0)	26661 (16632)	25	41

Dashboard

IMPLEMENTING THE INSTITUTE OF TECHNOLOGY INTO EDUCATION





Thank you

Any questions or ideas?

Contact:

Edward Keyes

Agricultural Course Manager HE

edward.keyes@askham-bryan.ac.uk

ASKHAM BRYAN COLLEGE

INSTITUTES OF TECHNOLOGY

Conference 2025

Advanced Manufacturing: Skills for Innovation, Growth & Digitalisation

Presenters:

Georgina Barnard | Vice Principal, Newcastle and Stafford Colleges Group | Lead, Stoke-on-Trent & Staffordshire Institute of Technology

David Thomas | Training & Development Manager, Siemens

#InstitutesofTechnology
#OpportunitySkillsGrowth

Wifi network: CHWGuests
Password: Central1912Hall

STOKE-ON-TRENT & STAFFORDSHIRE
INSTITUTE OF TECHNOLOGY

Stoke-on-Trent & Staffordshire Institute of Technology

NSCG NEWCASTLE AND STAFFORD COLLEGES GROUP

+

Keele University
Burton and South Derbyshire College
Axia Solutions
STOKE ON TRENT COLLEGE
South Staffordshire College
DELL
HITACHI Inspire the Next
MOOG
SIEMENS
/NDURENT

Georgina Barnard
Vice Principal
Newcastle & Stafford Colleges Group

OUR CORE PARTNERS

5 CORE EMPLOYER PARTNERS

DELL · HITACHI Inspire the Next · MOOG · SIEMENS · INDURENT

4 FURTHER EDUCATION PROVIDERS

NSCG Newcastle and Stafford Colleges Group · Ofsted Outstanding Provider · Burton and South Derbyshire College · South Staffordshire College · Stoke on Trent College

1 HIGHER EDUCATION PROVIDER

Keele University

1 PRIVATE TRAINING PROVIDER

Axia Solutions

ONE COLLABORATION


NSCG

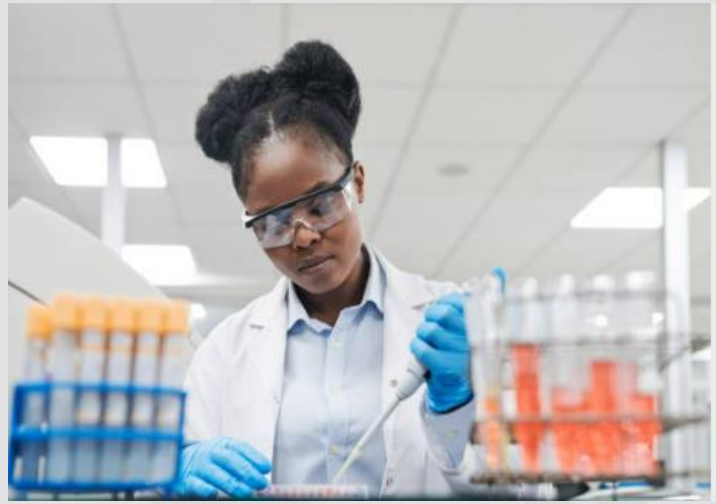

NSCG


NSCG

PRIORITY SECTORS

- Advanced Engineering and High Value Manufacturing
- Modern Methods of Construction
- Creative, Digital & High Tech
- Health & Life Sciences

STOKE-ON-TRENT & STAFFORDSHIRE INSTITUTE OF TECHNOLOGY



CAREERS IN ADVANCED ENGINEERING AND HIGH VALUE MANUFACTURING

- Engineering Manufacturing Technician
- Electrical / Electronic Engineer
- Mechanical Engineer
- Product Design Engineer
- Automation and Robotics Engineer
- Lead Engineering Maintenance Technician

STOKE-ON-TRENT & STAFFORDSHIRE
INSTITUTE OF TECHNOLOGY

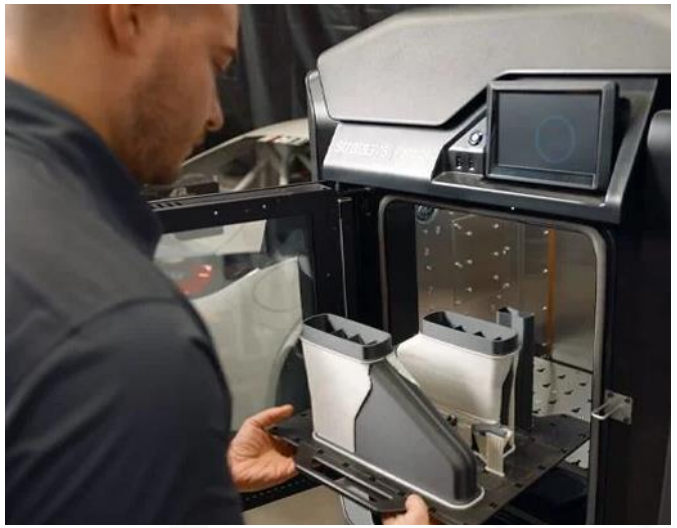
FACILITIES & EQUIPMENT

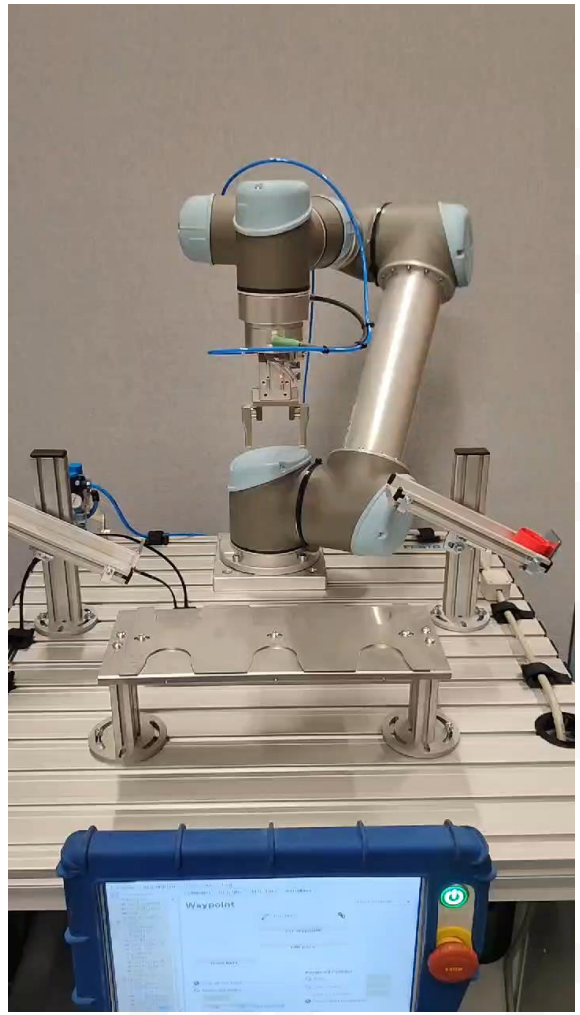
Learning Factory

+ Robotics, Automation and Mechatronic Control

Expansive Product Design Centre

+ Fully equipped Computer Aided Design Room
+ Electronics Laboratory
+ Large Format CNC Machine
+ 3D Printing Equipment
+ Coordinate Measuring Machines - CMM
+ Materials Testing Equipment
+ Client Meeting Rooms





STOKE-ON-TRENT & STAFFORDSHIRE
INSTITUTE OF TECHNOLOGY

Siemens & SoTSIoT Partnership

D. Thomas

People & Business Support Manager

SIEMENS

Our purpose

We create **technology** to transform the everyday, for **everyone**

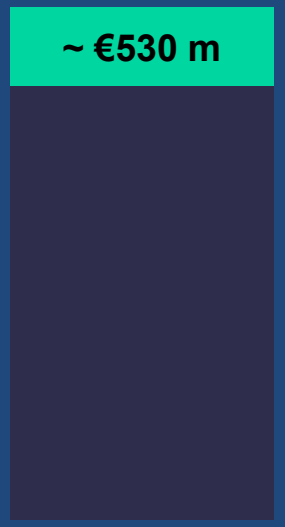
SIEMENS

Focus on eleven Company Core Technologies

Strategic R&D across all Siemens businesses

Siemens R&D
(FY 2024)

€6.3 bn



stringent investments
in future growth fields

- **Company Core Technologies**
- **Advanced Manufacturing & Circularity**
- **Connectivity & Edge**
- **Cybersecurity & Trust**
- **Data Analytics & Artificial Intelligence**
- **Future of Automation**
- **Integrated Circuits & Electronics**
- **Power Electronics**
- **Simulation & Digital Twin**
- **Software Systems & Processes**
- **Sustainable Energy & Infrastructure**
- **User Experience**

SIEMENS

The Challenge

We need a **pipeline** of **people** to transform the everyday, for **Congleton**

SIEMENS

Collaboration with SoTSIoT as a Strategic Partnership

NSCG NEWCASTLE AND STAFFORD COLLEGES GROUP
SIEMENS

2015
Preferred Early Careers Provider
Decision to move Apprenticeship provision to Newcastle & Stafford College Group.

2016
Adult Learning Provider
NSCG to also support Adult learning (Part Time Technical Courses & on-site functional Skills – Eng, Maths & ICT)

2018
NSCG Nominated at Strategic Partner
Decision made for NSCG to be Strategic Education Partner for Siemens Congleton. Ensuring a high-quality partnership for both NSCG & Siemens

2021
Agree To Support Institute of Technology Bid
Siemens Congleton agrees to support IoT Bid as an Anchor Partner

2024
IoT Partnership Delivering win-wins
Opportunity to influence curriculum.
Access to future talent – T-Levels.
Increased Siemens brand presence.

Student Visits & Lean Training
Access to technology / networks.
Staff CPD Days
Donation of Equipment

2025
SaSIoT Factory Move Activities Support
IoT Partners support 2 week factory move project through delivering 12 Sessions on Future Skills

Supporting the success of both the Stoke-on-Trent & Stafford Institute of Technology and Siemens Congleton.

STOKE-ON-TRENT & STAFFORDSHIRE INSTITUTE OF TECHNOLOGY
SIEMENS
High Quality Partnership

SIEMENS

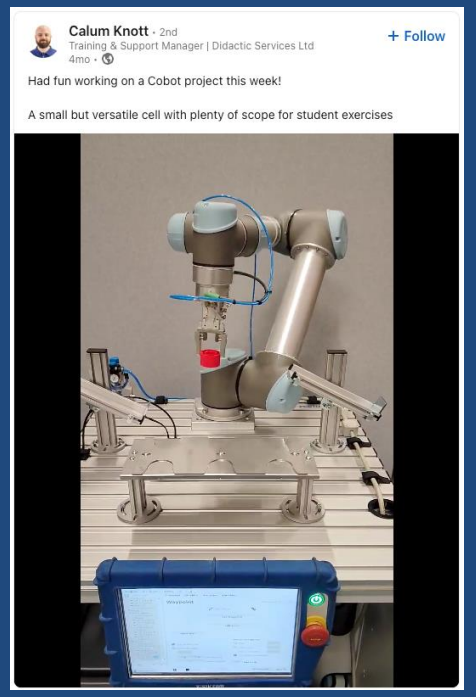
Our Successes

Amy Dodd

Production Engineer - Congleton

Biography

- Started with Siemens in 2012 as a production operator
- Studied BTEC & HND at N&SCG
- Graduated from University of Salford with a 1st
  - Control & Automation Engineering
- Won IET Local Network Prize
- Won Siemens UK Growth Mindset Award



Kit Donation – 2 x Collaborative Robots

SoTSIot Student Factory Tour & Lean Training

Advanced Sustainability Training : Delivered on site by Academic Parter (Keele Uni)

Intro To AI Training : Delivered on site by Academic Partner (Axia Solutions)

SIEMENS

Next **Steps**?

SIEMENS

Thank You

Dave Thomas
David.n.Thomas@siemens.com

SIEMENS

INSTITUTES OF TECHNOLOGY

Conference 2025

Construction:
The Future of Sustainable Construction Skills

Presenters:

Mark Cottam | Social Value Lead, Laing O'Rourke

Claire Foreman | Director, Greater Manchester Institute of Technology

Sharon Grant | Director, North East Institute of Technology

#InstitutesofTechnology
#OpportunitySkillsGrowth

Wifi network: CHWGuests
Password: Central1912Hall

The future of Sustainable Construction Skills


GREATER MANCHESTER
INSTITUTE OF TECHNOLOGY
Greater Manchester Institute of Technology
Working together to upskill the region's future workforce
Claire Foreman
Mark Cottam

(Image: Bruntwood SciTech)

Manchester's Construction Scene

GMIoT and Salford Crescent / University plans

Excellent FE Sector in GM

Construction trade courses are widely available

T Level and LSIF has fostered developments in facilities, new programmes and new skills learning including fitting of ground or air heat pumps and solar panel installations

FE Colleges have responded well to recent demographic growth at 16

Construction Colleges of Technical Excellence are pending

Construction Courses GMIoT

- Additional opportunities across the City for
  - HNC / HND Civil Engineering
  - HNC / HND Construction Management (Design and Build)
  - HNC / HND Construction Management
  - Higher Apprenticeships Construction Site Superviser
- New courses
  - HNC / HND Modern Methods of Construction
  - HNC Quantity Surveying for England
  - CERT HE Construction Project Management
  - Degree Apprentice Quantity Surveying
- HTQ accreditation

Working in Partnership with Employers

- Identify skills gaps and educational needs for both new talent and existing staff
- Critically appraise curriculum content
- Participate in recruitment activities
- Support in delivery of curriculum
- Expand the learning experience of students
- Support staff CPD

Seddon

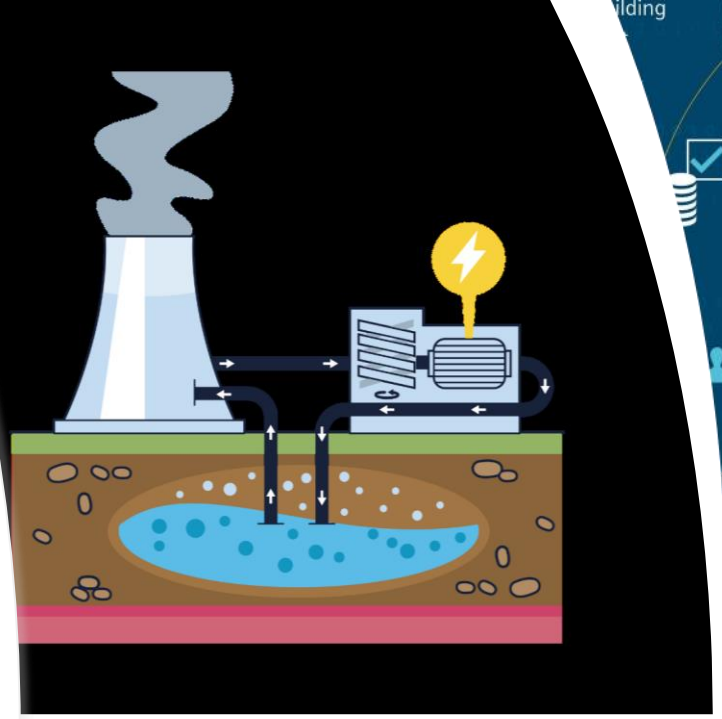
LAING O'ROURKE

Balfour Beatty

Detailed Curriculum Content

Sustainability as a cross-cutting thematic

- BIM and digital twins
- Design to meet +10% biodiversity net gain
- Modular and off-site build
- Retrofit short courses – little demand, pending HN modules

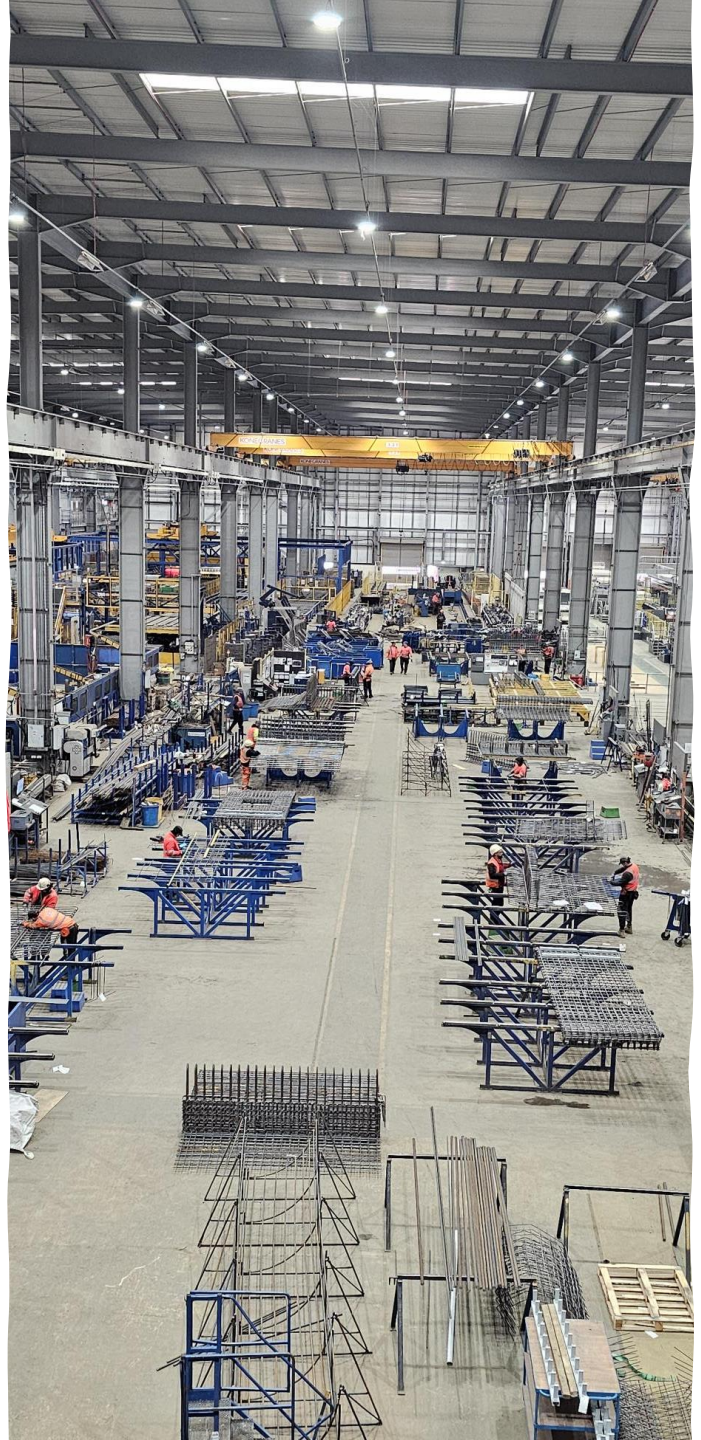


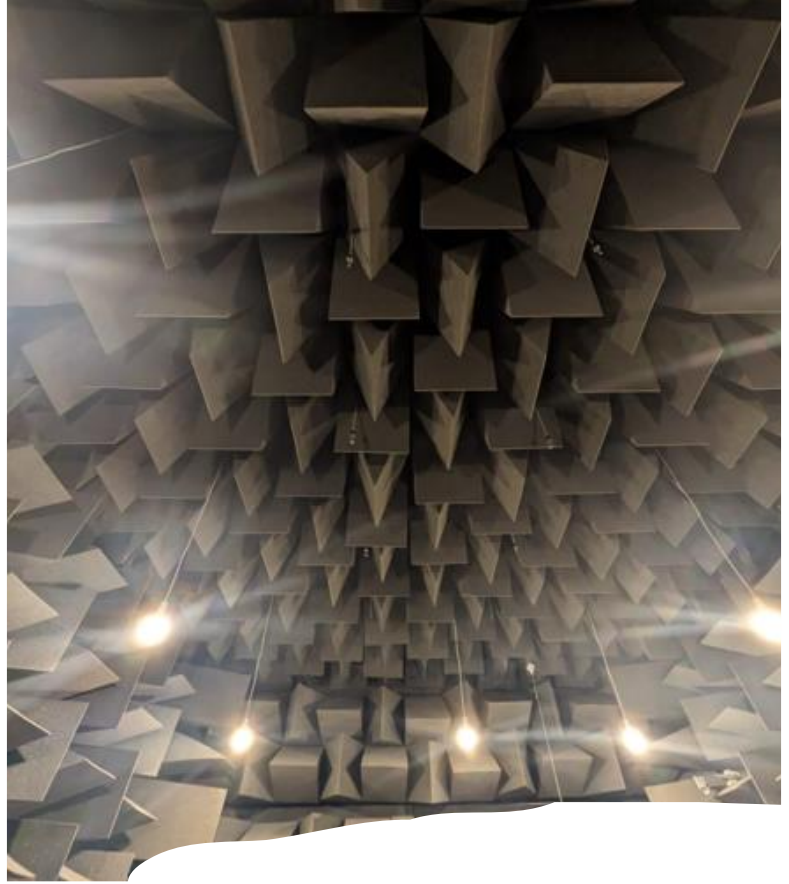
CAVE

Unique IoT student experience

- Access state-of-the-art, industry-standard equipment and technologies
- Gain qualifications and training that have been developed with respected industry partners
- Learn from expert teaching staff with a wealth of industry experience
- Benefit from highly supported courses and apprenticeships
- Learn a host of employability skills while boosting their technical knowledge
- Be confident that the skills gained meet the needs of industry

Employer visits

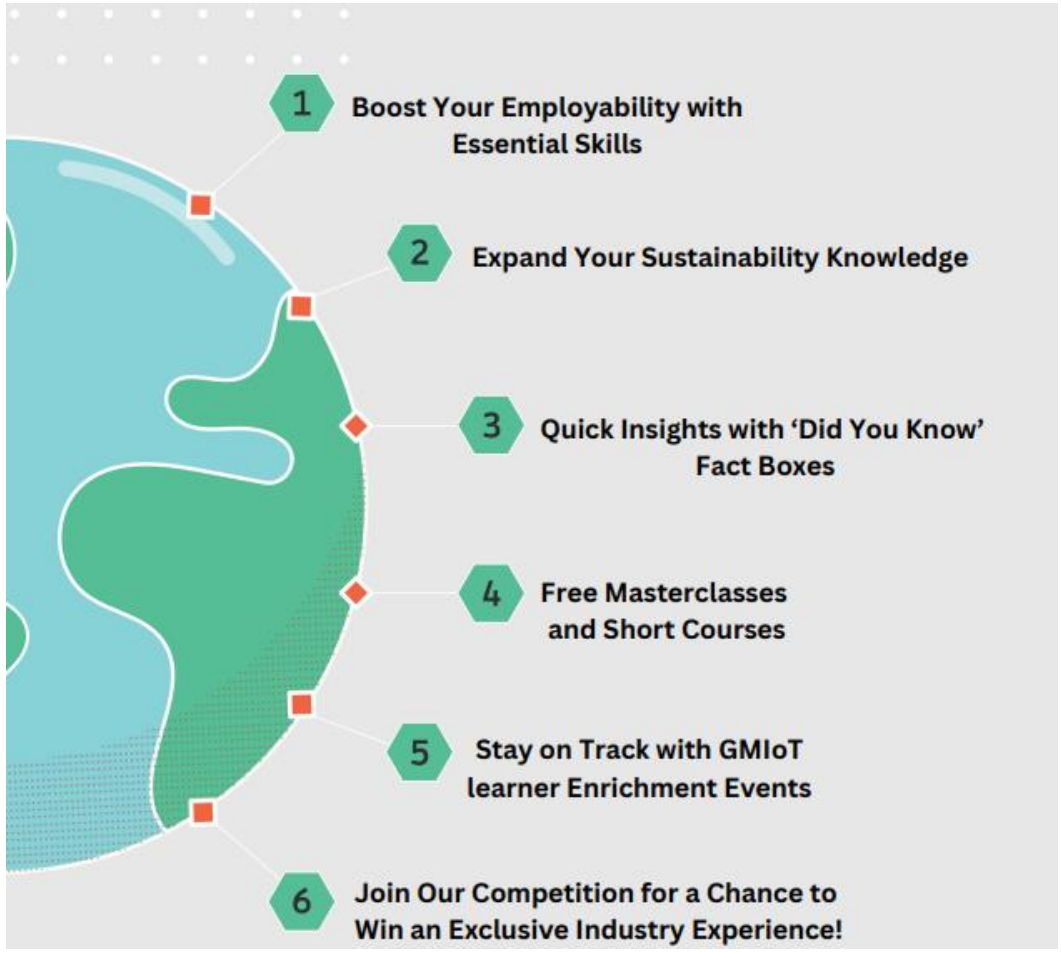


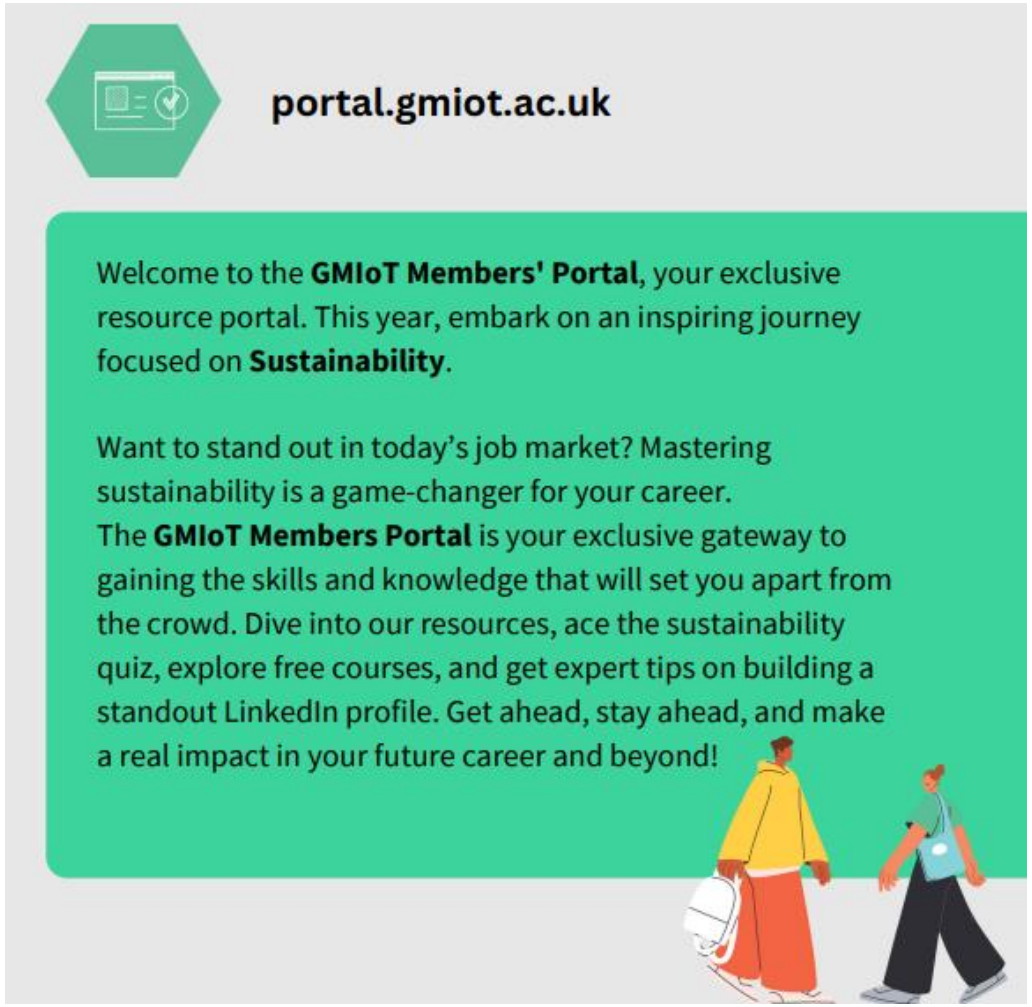


Research informed:
Energy House 2.0 & Acoustics visit

Student & Employers benefit from access
North of England Robotics Innovation Centre (NERIC)

Members Portal





Construction Case Study

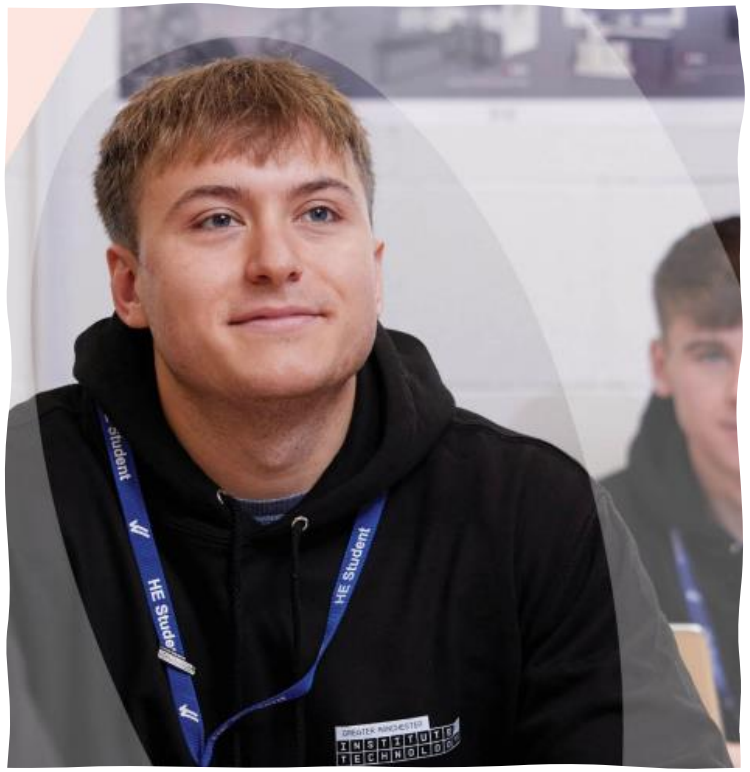
Daniel Watson, Trainee Planner, Laing O’Rourke, Construction Site Supervisor Apprenticeship - UoS

Daniel is currently a Trainee Planner at Laing O'Rourke and is enrolled on the Construction Site Supervisor apprenticeship programme at the University of Salford. With a clear vision for his future, Daniel is already aiming to progress onto the Construction Site Management apprenticeship following completion of his level 4 programme.

Laing O'Rourke offers Daniel a wealth of opportunities to apply and deepen his knowledge in real-world settings. As a forward-thinking organisation, Laing is at the forefront of modern methods of construction and the digital transformation of the industry. This innovative environment places Daniel in a prime position to engage with cutting-edge construction practices.

“I chose the Level 4 apprenticeship route because it offers the perfect balance between gaining hands-on experience and continuing my academic development. It’s an ideal platform that allows me to explore different career paths, progress from Level 4 to Level 5 and beyond, and earn industry-recognised qualifications along the way".

Throughout his studies, Daniel has been able to directly apply university theory to his work, including gaining valuable experience at the Centre of Excellence for Modern Construction (CEMC) in Nottinghamshire. This has given him a comprehensive understanding of modern construction techniques.



GMIoT Students


GREATER MANCHESTER
INSTITUTE OF TECHNOLOGY
Greater Manchester Institute of Technology
Working together to upskill the region's future workforce

NORTH EAST INSTITUTE OF TECHNOLOGY

INSTITUTES OF TECHNOLOGY

The Future of Sustainable Construction Skills

3rd July 2025

Dr Sharon Grant - Director NEIoT





NEIoT Partners

www.neiot.ac.uk

#NEIoT

NORTH EAST INSTITUTE OF TECHNOLOGY

Newcastle University

East Durham College

middlesbrough college

New College Durham

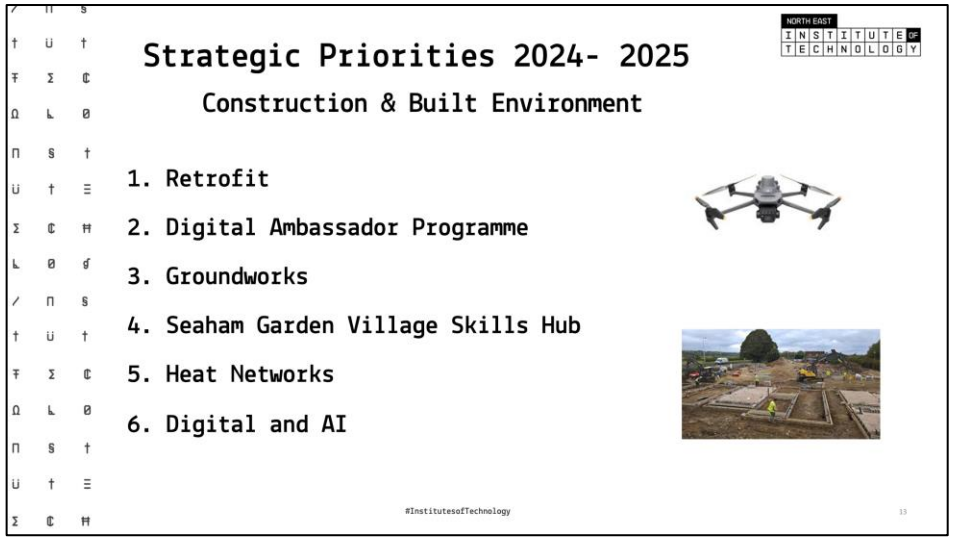
NISSAN

TyneCoastCollege

Hartlepool College of Further Education

Bishop Auckland College

Derwentside College



NEIoT Construction & Built Environment Advisory Board

Curriculum Support:

1. In Work Skills Pilot - BIM
2. Modern Methods of Construction (MMC) Bootcamp
3. NEIoT Retrofit Courses
4. Groundworks

NEIoT Retrofit Courses

NEIoT Retrofit Training USPs

Fully Accredited
Accredited qualifications align to job roles stipulated by PAS 2035, the industry standard required to be met to access government-funded programmes

Funding
Fully or part funded, heavily subsidised, course fees minimised through multiple funding bodies.

Face-to-Face
Emphasis on face-to-face delivery in a classroom, workshop and site delivery to ensure students get the right support throughout their studies

Entry Routes
Unemployed; gain new skills. **Existing Workforce**; upskilling to meet sector demand. **New Entrants**; mobilising learners to enter emerging sector.

Regional Coverage
Standardised delivery model available across the region with 4 delivery sites in; North of Tyne, County Durham and the Tees Valley.

Collaborative Approach
Developed collaboratively by businesses, colleges and employer representative bodies including NELEP, CITB and CENE.

Flexible Delivery
Flexible delivery models to accommodate industry constraints, relating to staffing level and work schedules.

Onsite Training
Employers who operate in the retrofit sector will provide assisted onsite training to further develop learners understanding.

Online Assisted
Online modules will ensure that students always have access to course content and support materials.

Evidenced Based
Students will collate evidence from their employers and mentors to meet the requirements.

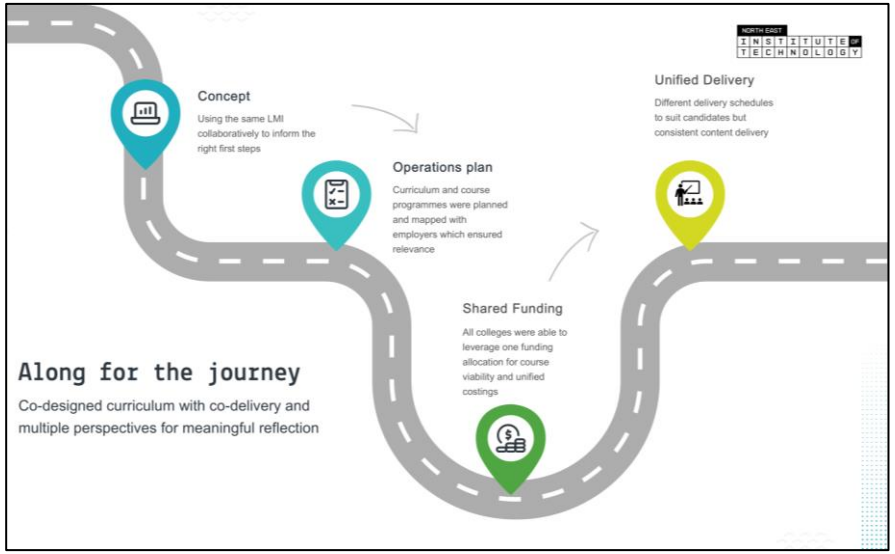
Mentorship
Employer supported mentor programme providing students with a point of contact for queries, and exposure to real life projects.

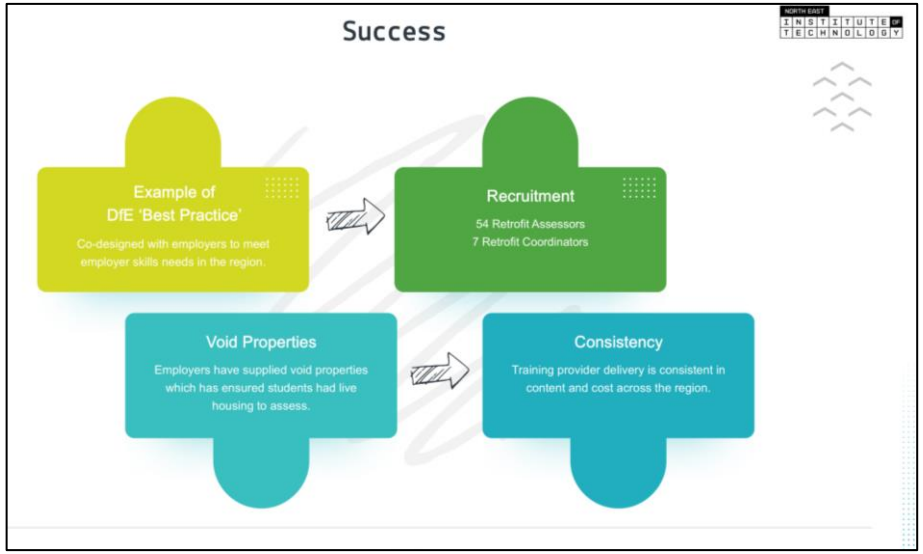
Industry Intelligence
Course content informed by industry – this intelligence ensures current and relevant best practice embedded.

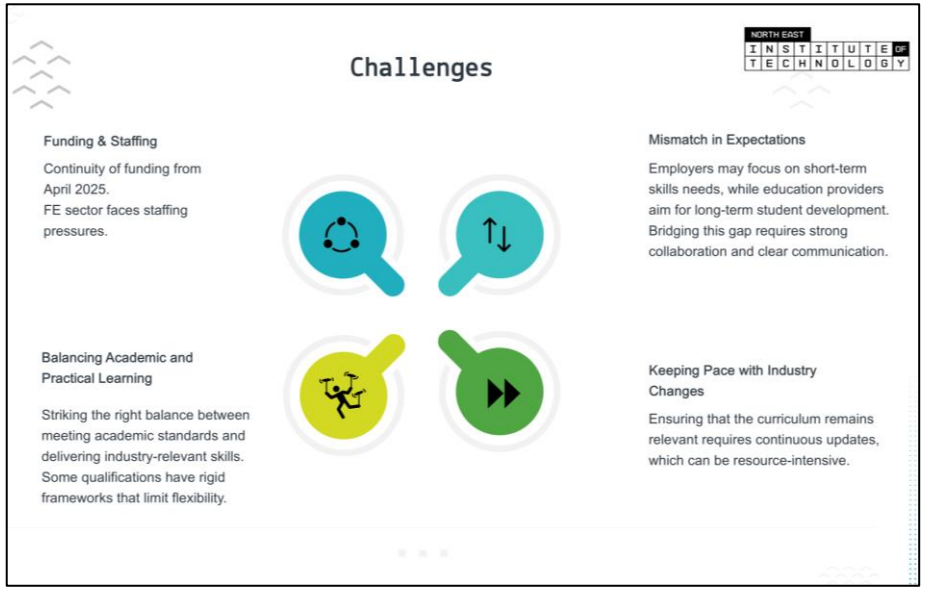
Course Specification

	The Course	The Participant
Retrofit Advisor	Encompasses essential elements for a Retrofit Advisor, such as sustainability, climate change, and the science of Retrofit installation, along with communication and health and safety considerations.	Individuals aspiring to become Retrofit Advisors in Construction and aims to upskill and re-skill existing workforce or new entrants from a customer service background.
Retrofit Installer	Specialised training in energy-efficient measures. Topics include installation techniques, energy-efficient measures, and safety protocols specific to retrofit projects.	Experienced workers looking to specialise in retrofit installation and newcomers seeking entry into the industry. New entrants will be enrolled onto an NVQ programme in their chosen EEM.
Retrofit Assessor	Aligns with PAS 2035, preparing construction professionals for the role covering all aspects of assessment and report production, including understanding retrofit principles, building structures, and occupancy assessments.	This qualification accommodates learners from the built environment or construction sector, allowing them to showcase their acquired skills and knowledge, leading to nationally recognised certification in DEA and RA.
Retrofit Coordinator	Covers the necessary skills for domestic retrofit coordination, meeting standards set by PAS 2035 and the Each Home Counts Quality Mark. Topics include end-to-end project management, risk assessment, and compliance with industry regulations.	Designed for individuals interested in becoming Retrofit Coordinators for domestic retrofit projects. It is essential for those seeking to protect client and public interests while managing technical and process risks in retrofit projects.

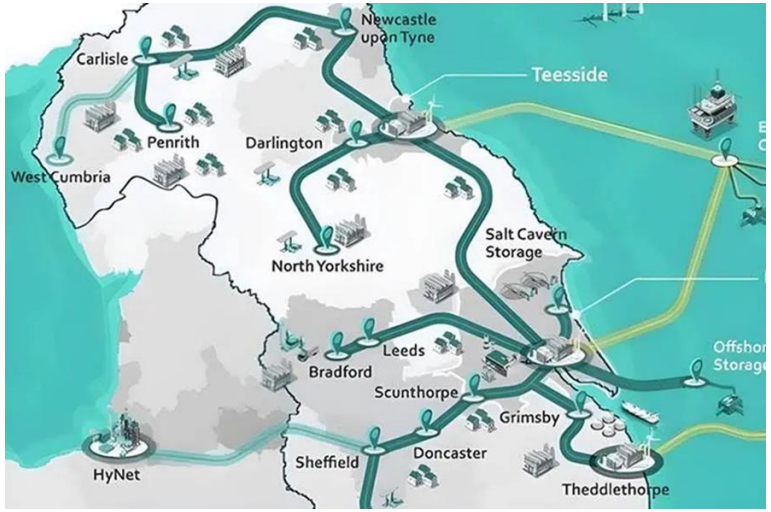
NEIoT Retrofit – An Industry- Education Collaboration







Groundworks
A Regional Demand & Response



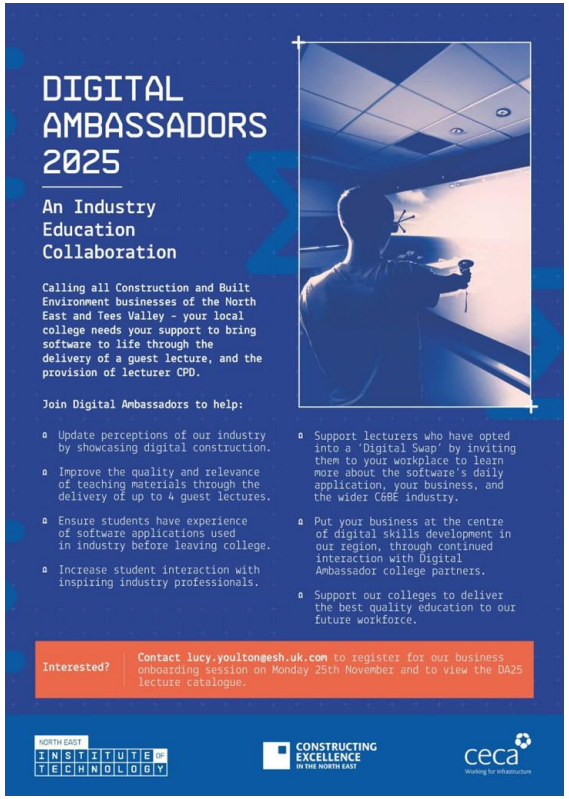
NORTH EAST INSTITUTE OF TECHNOLOGY

#InstitutesofTechnology

Digital Ambassador Programme

Desired Outcomes

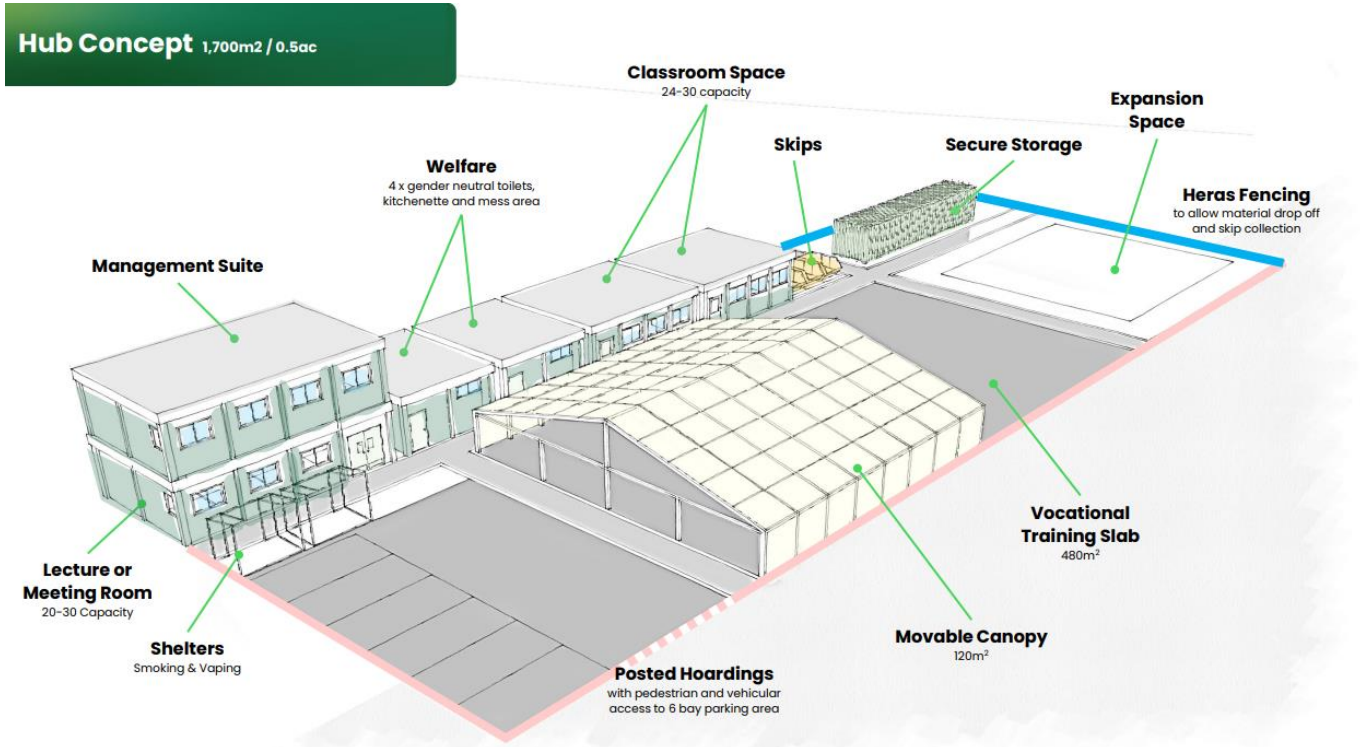
- Update perceptions of the construction industry.
- Improve the quality and relevance of teaching material.
- Ensure students have experience of software applications used in industry.
- Increase student interaction with inspiring industry professionals.
- Support lecturers who have opted into a ‘Digital Swap’ by inviting them to workplaces.
- Put businesses at the centre of digital skill development.
- Support the region’s colleges to deliver the best quality education to the future workforce.



#InstitutesofTechnology

Seaham Garden Village – Constructing Local Training Hub

- Seaham Garden Village (SGV) is a unique development situated in the heart of the NECA region and one of the North East's most ambitious house building projects.
- The £250m, 1,500-unit scheme consist of 750 net zero affordable homes heated by district heating, powered by solar PV with battery storage, and 750 homes for private sale.
- It is our intention to demonstrate how large-scale construction projects can create clear pathways into employment, deliver high quality training and retraining and create jobs for local people of all backgrounds.



Mission 4 - Home of real opportunity.

Supporting the Hub will assist NECA in removing barriers to opportunity for residents of one of the most deprived areas of our region by delivery high quality training, raising aspirations and providing clearer employment pathways and progression opportunities in the construction sector.

The Hub will...

1. Connect people to opportunity by offering free transport to and from the Hub.
2. Ensure progress by delivering skills programmes relevant to a key sector of our region's growth plan.
3. Make special provision for learners with literacy, numeracy and digital skills needs.
4. Make it easier for businesses to support educational pathways, learner progression and tap into the local labour market.
5. Provide learners with access to full breadth of trades in one place through consistent, structured and guaranteed access to high demand/low provision trades.
6. Address the 'leaky pipeline' of site ready graduates and increase progression to good quality jobs by training with employers in a live construction environment.
7. Develop a better understanding of the changing skills requirements presented by the low carbon transition.

Target Outcomes...

- Deliver **1.5m learner hours of high-quality site-based training** providing every learner with multiple real site experiences.
- Deliver a minimum of **30 sector-led bootcamps** creating clear pathways to employment, moving adults into new or better jobs.
- Create a minimum of **12 jobs directly via Esh Construction and Karbon Homes.**
- Create a minimum of **10 jobs indirectly via supply chain partners.**
- Create an additional **150+ college places** in high demand construction courses delivered over 5-year period.
- Support the delivery of **2,000+ apprentice training weeks** and **54 weeks of T-Level site placement**.
- Create **22 new apprentice starts** for Durham and Sunderland residents of which **10 being from low socioeconomic backgrounds and 10 via foundation, accelerated or fast-tracked apprenticeships**.
- Recruit a minimum of **5 time served tradespeople to lecture** in local colleges in retirement.

#InstitutesofTechnology

NEIoT - HTQ Construction Courses

1. Construction Site Supervisor
2. Civil Engineering
3. Construction Quantity Surveying Technician
4. Construction Design & Build Technician

NORTH EAST INSTITUTE OF TECHNOLOGY

Benefits of Studying at the NEIoT

Employer Engagement

Current skills & needs in NE
Employer led curriculum content
Skills demand and Skills gap
Future proofing

University Partner

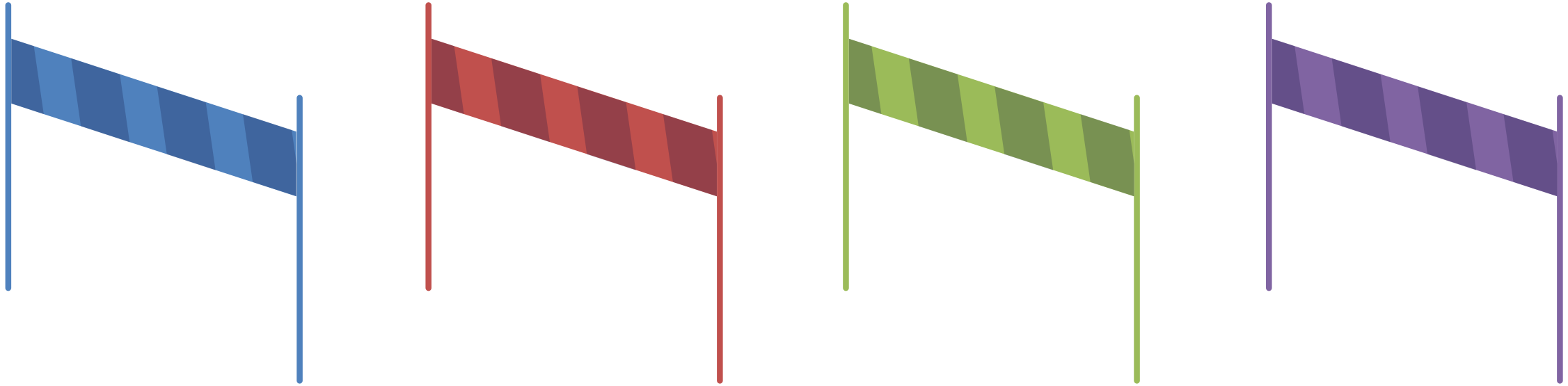
Current Research-staff CPD
Informed learners
Horizon Scanning
Clear Progression Pathways
Combining skills & knowledge

Facilities & Resources

State of the art facilities
Current industrial equipment
Work ready

Quality Brand

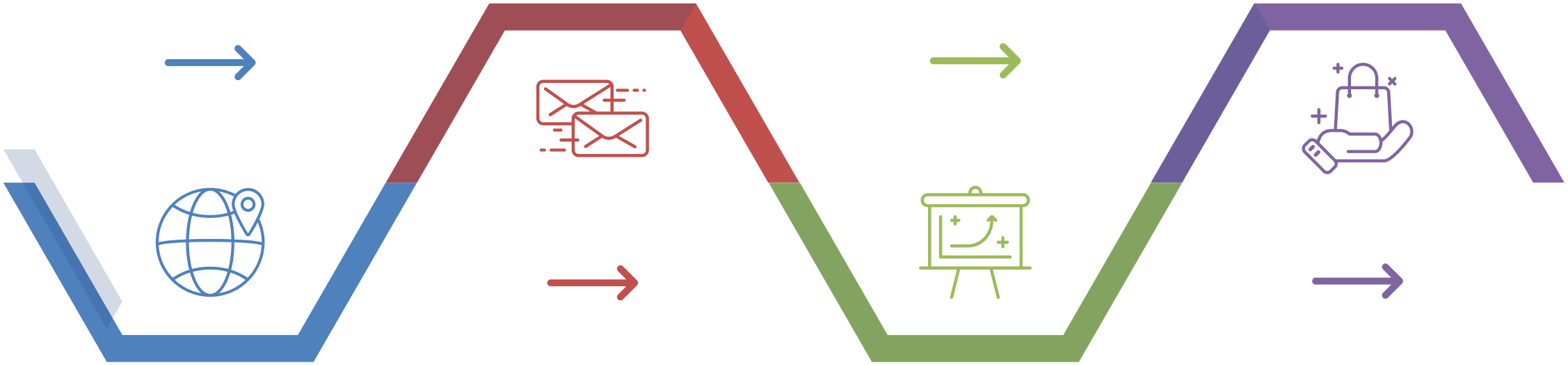
Prestigious technical skills training
A mark of quality



NORTH EAST INSTITUTE OF TECHNOLOGY

Talent Pipeline in the North East Region

'A coordinated approach'



Primary

Wow! factor
Raising Awareness
Progression Pathways
Parent/Carer Engagement
Teacher Awareness

Secondary

Reinforcement/Mapping out
Raising Awareness
Raising Aspirations
Inspiring - Role Models
Parental Engagement
Teacher Awareness

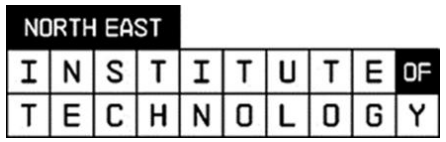
16-24

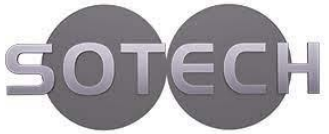
Women in STEM
Highest Unemployment Rate
Socioeconomic Challenges
Social Mobility
Mature Learners

Employers

Schools
Colleges
STEM Ambassadors
Apprentices - Role Models
Education/Industry Engagement

NEIoT Employer Network





#NEIoT

NORTH EAST INSTITUTE OF TECHNOLOGY

www.neiot.ac.uk

Technical. Skills. Work.

INSTITUTES OF TECHNOLOGY

Conference 2025

Green Energy: Skills for a Sustainable & Resilient Power Sector

Presenters:

Stephen Mariadas | Executive Director, South West Institute of Technology

Rachel Quinn | Executive Director, East Midlands Institute of Technology

#InstitutesofTechnology
#OpportunitySkillsGrowth

Wifi network: CHWGuests
Password: Central1912Hall

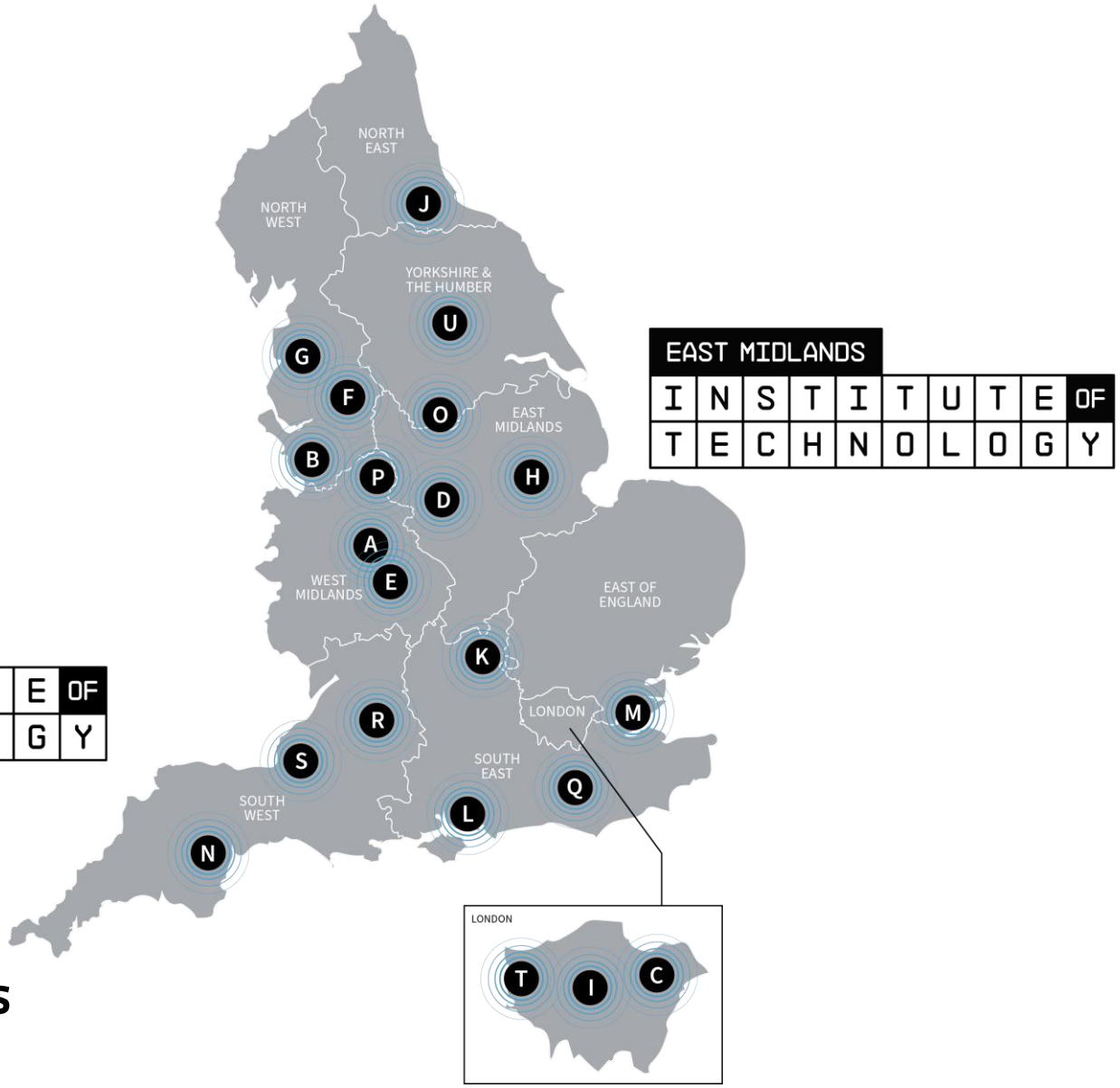
GREEN ENERGY: SKILLS FOR A SUSTAINABLE & RESILIENT POWER

Rachel Quinn and Stephen

3 July 2025

GREEN ENERGY: SKILLS FOR A SUSTAINABLE & RESILIENT POWER SECTOR

INSTITUTES OF TECHNOLOGY



EAST MIDLANDS INSTITUTE OF TECHNOLOGY

SOUTH WEST INSTITUTE OF TECHNOLOGY

Nuclear :

The Social and Economic Skills Impact

The FESH Project: Findings and Recommendations

Rachel Quinn, EMIoT

Objectives

AIM

Ensuring skills are an active contributor and driver of the East Midlands growth and decarbonisation ambitions

STRATEGIC OBJECTIVES

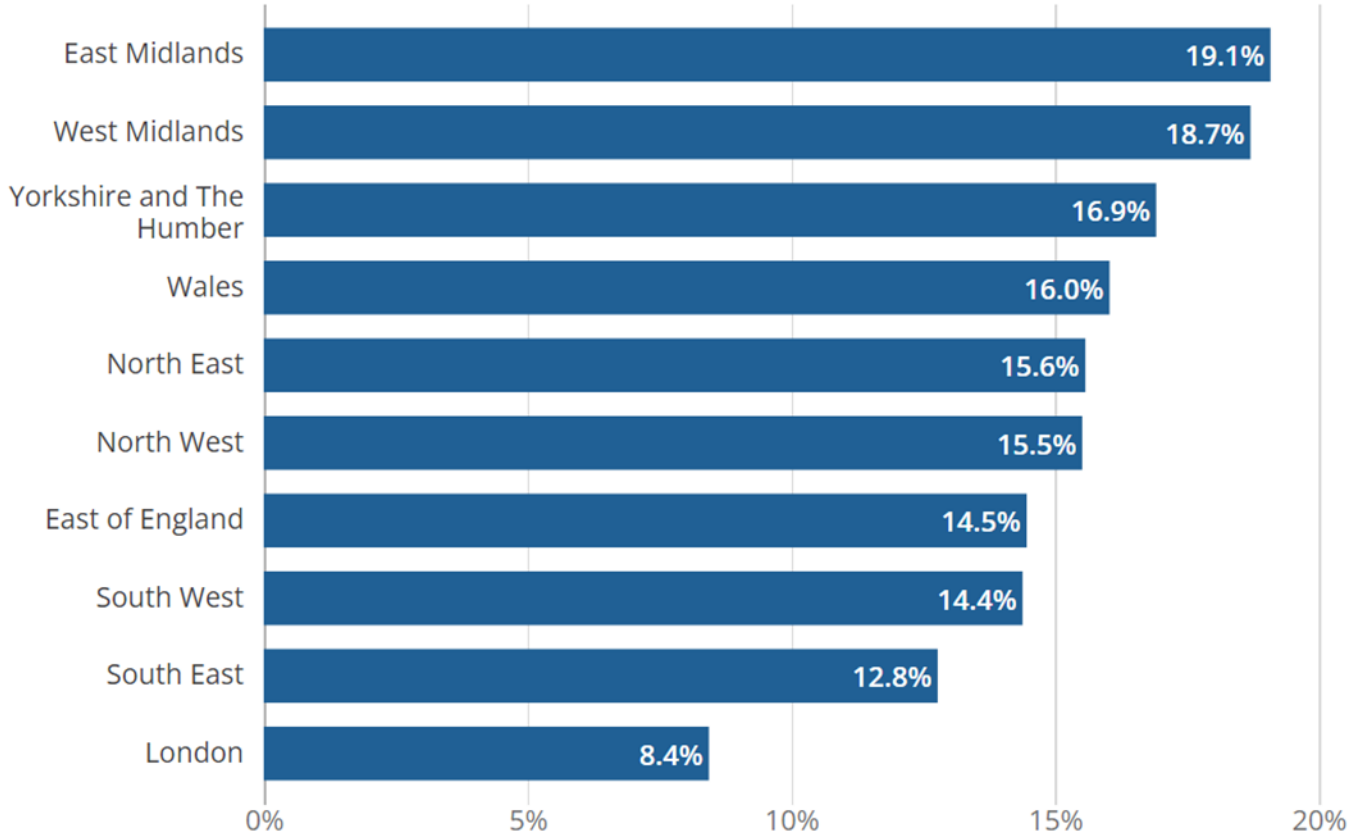
- Enabling collaboration and coordination between skills providers and industry in the delivery of energy-related skills content and
- Enabling consistent information dissemination across the East Midlands on the skills and job opportunities in net-zero energy industries

To deliver engineering, digital and leadership skills pathways; enabling site safe, industry standard skills across a range of new and sustainable energy platforms

Why?

1 in 5 Midlands workers were in high-emissions industries, compared with 1 in 12 workers in London

Percentage of workers in high-emissions industries by region or nation, England and Wales, 2021



Engagement overview

Energy Producers interviewed

- Uniper
- Cadent Gas
- NESO
- E.ON
- National Grid
- Geopura
- Balfor Beatty
- UKAEA

Off-takers interviewed

- Toyota
- MAG
- Maersk
- UKIFS
- Integrated Doorsets
- Greene Tweed & Co. Ltd
- Hoben International Ltd
- Grangers International
- A G W Electronics Ltd
- RA Labone & Co. Ltd
- Bloc Digital
- Pentaxia
- Wright Engineering
- Northfield Construction Ltd
- Celloglas Leicester Ltd
- Global Brands
- Abacus Lighting Ltd
- Gary Fletcher Surfacing Ltd
- Intelligent Energy
- Cressall Resistors Ltd
- Beckett Thermal Soutions Ltd
- Direct Trade Bags Europe
- Emeg Group Ltd
- Safety & Access Ltd
- R M S Construction Developments
- Canning Conveyor Co. Ltd
- Harrison Castings Ltd
- Nottingham Zinc Group Ltd
- PJ Lilley Ltd
- Denman
- Summit Engineering Co
- Strata Products Ltd
- Trans-continental Marketing Ltd
- Shine Mark UK Ltd
- Hamilton Adhesive Labels Ltd
- Caress Manufacturing Ltd
- G T S Maintenance Services Ltd
- Subframes UK Ltd
- Saica Flex
- Centrum Pile Ltd
- Murphy & Son Ltd
- Pyramid International
- Antone Displays Ltd
- Datalink Electronics Ltd
- Daher Aerospace Ltd
- Excel Process Systems Ltd
- Quarry Manufacturing & Supplies Ltd
- A1 Sheet Metal Flues Ltd
- Focus Label Machinery Ltd
- Windmill Extrusions
- Mason & King
- W G Tanker
- J B Transport
- Thomas Bow City Asphalt
- Randall's Fabrications Ltd
- T Q C Ltd
- Clearmark Solutions Ltd
- DSF Refractories & Minerals Ltd

Providers Interviewed

- Nottingham College
- Mira Technology Institute
- N.Warwickshire & S Leicestershire College
- Loughborough College
- Derby College
- Fusion Training Centre
- Nottingham Trent University
- University of Derby
- University of Warwick
- Loughborough University
- University of Nottingham

Other organisations

- East Midlands IoT
- EM Freeport
- Nottingham City Council
- Midlands Connect
- East Midlands Combined Authority

Invited for Interview but not available

- Rolls Royce
- Buxton Lime
- Alfracell
- EPC Group
- Lubrizol
- Reabrook
- Wescom Group
- Avanti Gas
- Star Energy Group
- Conrad Energy
- Roadgas
- SSE
- Framatome

Preliminary Report: Infrastructure Build & Skills Shortages

Key Infrastructure Context

Hydrogen: East Coast pipeline (2033-34), Bardon Hill (HAR2), High Marnham green hydrogen

Nuclear: STEP fusion plant at West Burton (construction 2030), Rolls-Royce SMR expansion

Grid: Great Grid Upgrade

Renewables: 858MW operational, 237MW under construction, 2,844MW approved

Persistent Skills Shortages in Key Technical Roles

Immediate

Engineering disciplines: Electrical, chemical, process, mechanical, materials, and safety engineers

Project management: Large-scale infrastructure coordination and delivery

Construction skills: Immediate priority with high cross-sector demand

Future

Specialist roles: High-pressure pipeline expertise, fusion energy specialists, digital skills for automation

Key Findings

Workforce Development - Key Challenges

Large Employers (>250 employees)
- Massive expansion expected across energy, construction, and logistics sectors over 5-10 years
- Critical skills gaps in electrical power industry - operatives, project managers, supervisors
- Supply chain vulnerabilities - heavy reliance on contractors/SMEs with inadequate upskilling support
- Demand for flexible, intensive training rather than traditional long-form models

SMEs (50-249 employees)
- Limited strategic planning for energy transition despite general awareness
- Need practical, modular training integrated into day-to-day operations
- Skills gaps in Environmental Management and Health & Safety compliance
- Engagement barriers - unaware of opportunities, lack time/resources to access training

Training Provider Challenges
- Funding structures favour long-duration qualifications over flexible upskilling
- Market uncertainty hinders new course development
- SMEs underserved due to lack of scale and commercial viability
- Skills gap in integrating new technologies with legacy infrastructure

Strategic Recommendations by Clean Energy Vector

Electricity (Immediate Demand)

- Scale up workforce development for grid infrastructure and emerging technologies
- Invest in real-world tech facilities (smart metres, EV chargers, solar PV)
- Embed emerging tech modules in traditional courses
- Collaborate with employers on current and future skills requirements

Hydrogen (2030+ Significant Demand)

- Embed hydrogen awareness modules into existing courses
- Work with Skills Accelerator for curriculum development
- Establish industry-provider collaboration for incremental workforce planning

Nuclear Fusion & SMRs (Mid-Late 2030s)

- Embed introductory modules in STEM degrees for early exposure
- Establish Master's/PhD programmes for advanced pipeline
- Engage regional supply chain for workforce development assessment

EAST MIDLANDS INSTITUTE OF TECHNOLOGY

Emerging Priorities for FESH

Cogent Skills
for science and technology

Recommendations

Within EMIoT influence?

- Industry-relevant curriculum and technological alignment
- Development and delivery of flexible and modular training models

In partnership?

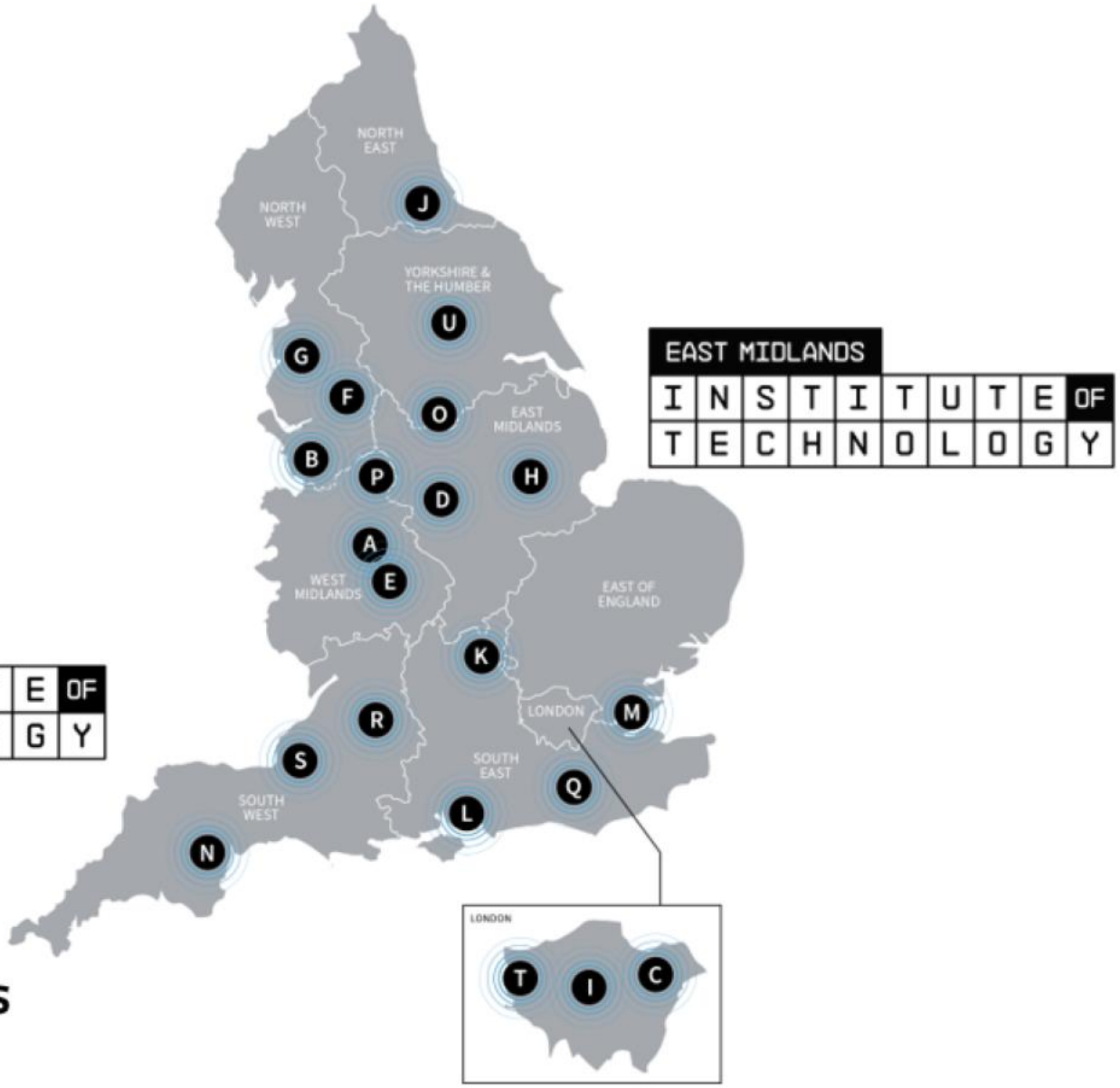
- Strategic Skills Governance and Coordination
- Centralised Access and Visibility of Training
- Inclusive Talent Development and Diversity
- SME-Focused Skills Support

External Support Needed?

- Coordination of the regional training offer
- Development of employer anchor network and Best Practice Sharing

GREEN ENERGY: SKILLS FOR A SUSTAINABLE & RESILIENT POWER SECTOR

INSTITUTES OF TECHNOLOGY



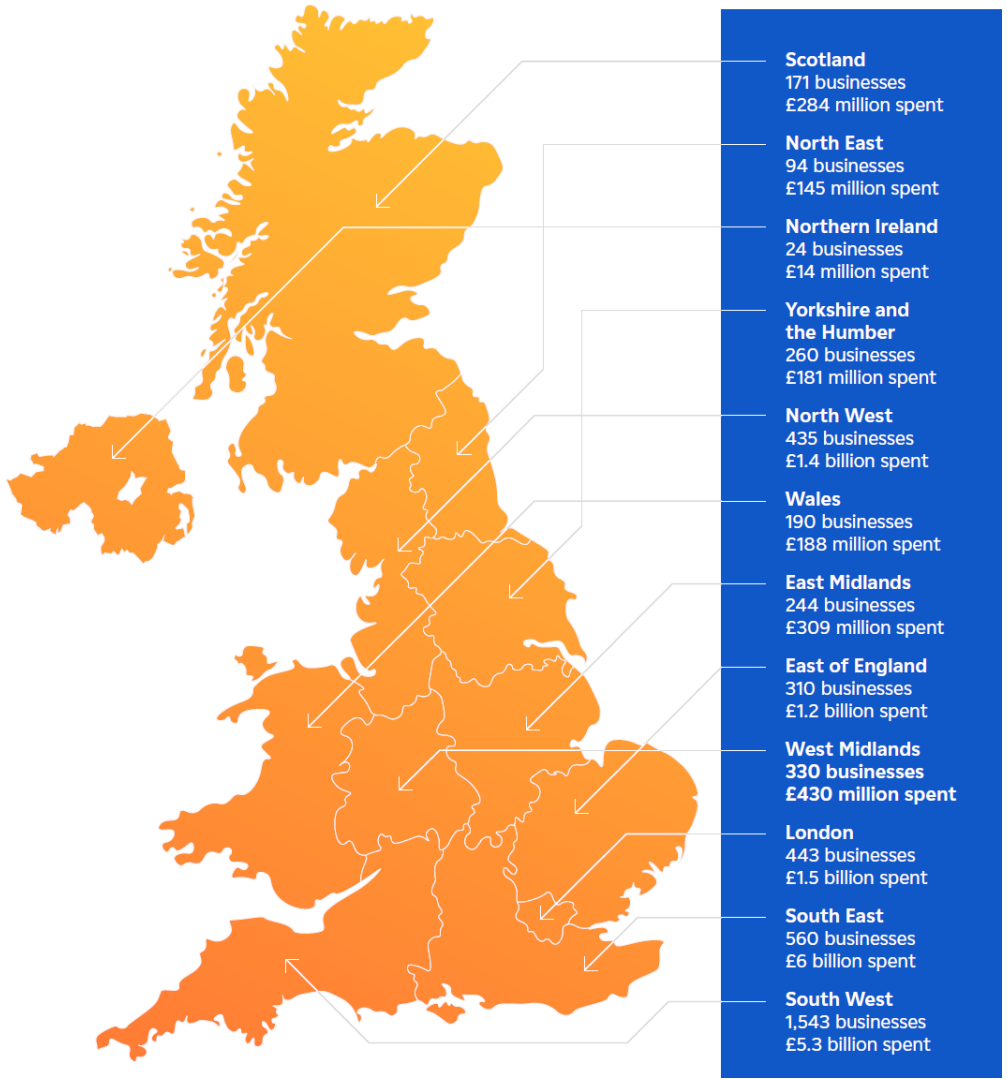
EAST MIDLANDS INSTITUTE OF TECHNOLOGY

SOUTH WEST INSTITUTE OF TECHNOLOGY

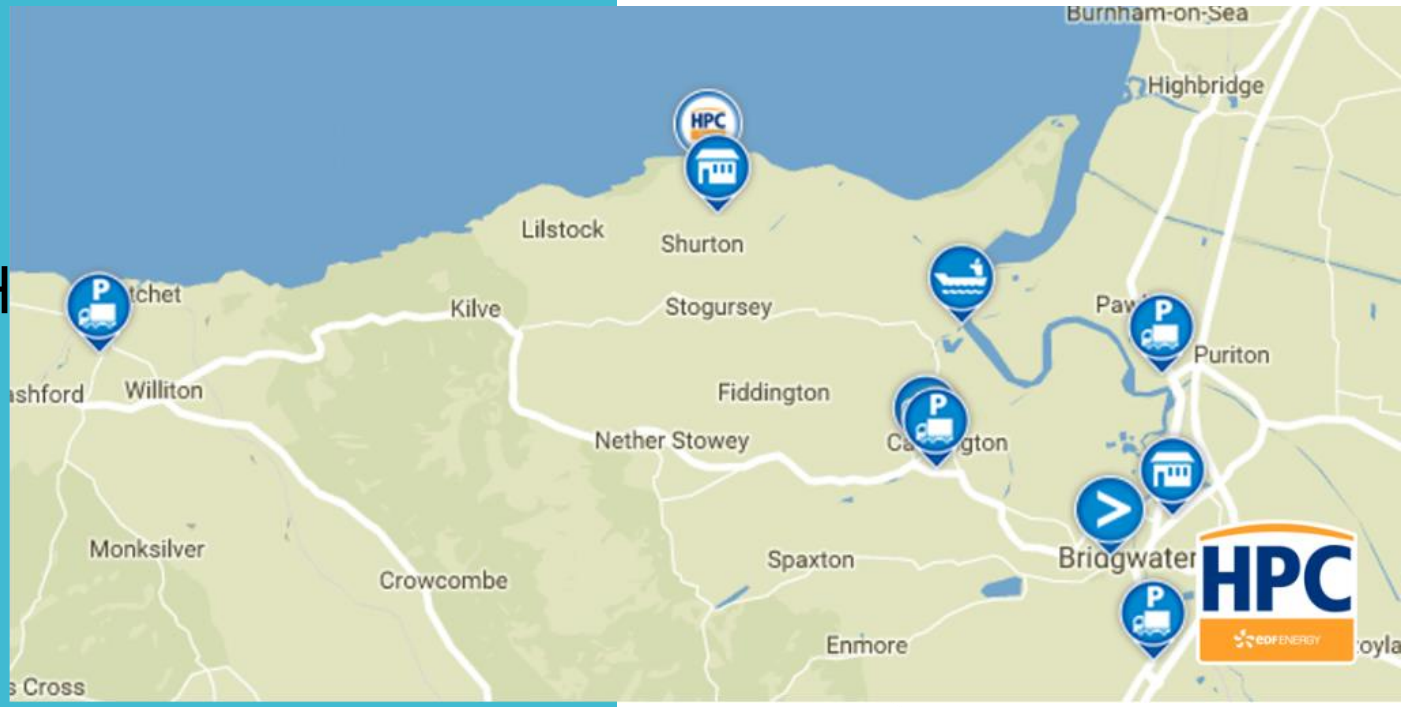
Nuclear :

The Social and Economic Skills Impact

Nuclear : The Social and Economic Skills impact

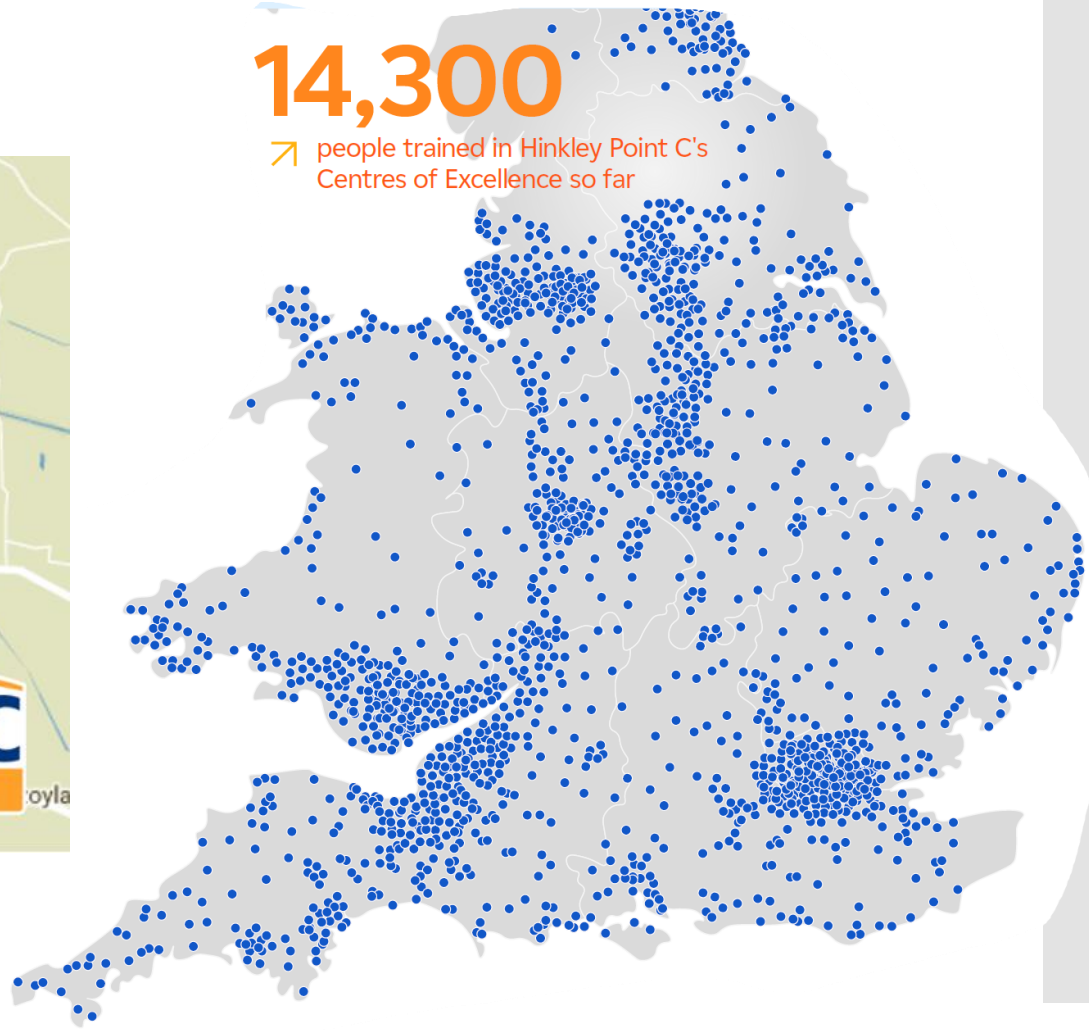


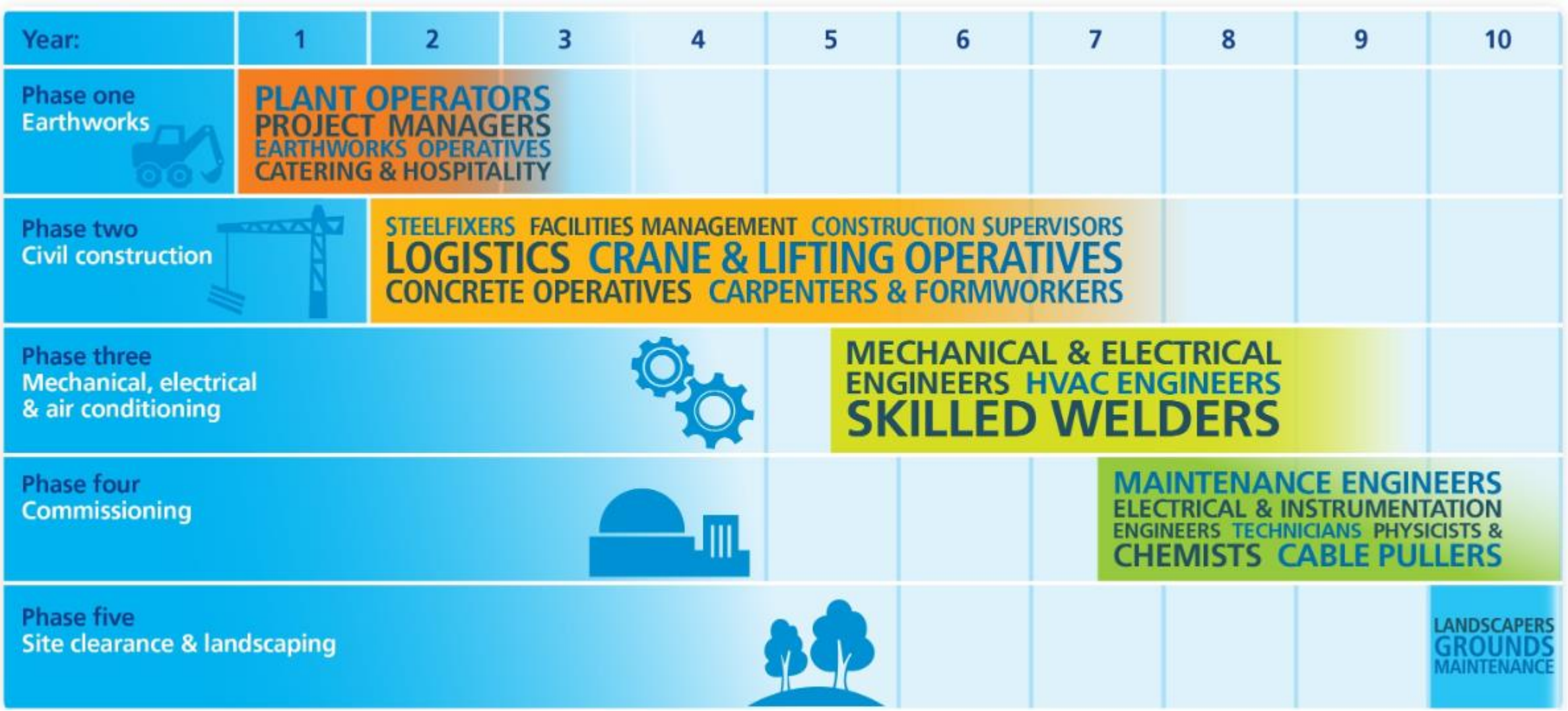
H



14,300

people trained in Hinkley Point C's Centres of Excellence so far




Year:
1
2
3
4
5
6
7
8
9
10
Phase one
Earthworks
PLANT OPERATORS
PROJECT MANAGERS
EARTHWORKS OPERATIVES
CATERING & HOSPITALITY
Phase two
Civil construction
STEELFIXERS FACILITIES MANAGEMENT CONSTRUCTION SUPERVISORS
LOGISTICS CRANE & LIFTING OPERATIVES
CONCRETE OPERATIVES CARPENTERS & FORMWORKERS
Phase three
Mechanical, electrical
& air conditioning
MECHANICAL & ELECTRICAL
ENGINEERS HVAC ENGINEERS
SKILLED WELDERS
Phase four
Commissioning
MAINTENANCE ENGINEERS
ELECTRICAL & INSTRUMENTATION
ENGINEERS TECHNICIANS PHYSICISTS &
CHEMISTS CABLE PULLERS
Phase five
Site clearance & landscaping
LANDSCAPERS
GROUNDS
MAINTENANCE

Impact on Jobs

Investment in people, skills and industrial capacity

Hinkley C is driving growth across Britain, increasing productivity and giving thousands of people new skills and jobs. The latest report shows that it has far surpassed the commitments made on socio-economic impact when the project was proposed.

Investment to re-establish nuclear skills in Britain has paved the way for the twin project at Sizewell C as well as the development of small modular reactors.

It will give Britain the expertise to deliver the infrastructure it needs for growth and future prosperity.

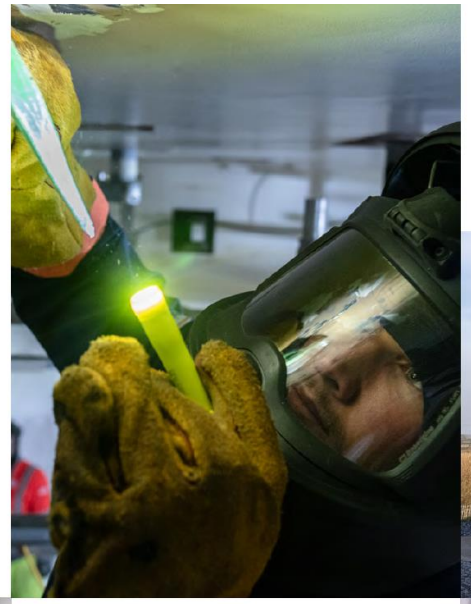
- Backed by new training facilities and courses to help people take advantage of the opportunities, the project is creating thousands of higher-skilled, well-paid jobs across the supply chain. In turn, these opportunities are helping to boost growth and directly improve the prospects of businesses and people from across the country.
- At the national level, the construction of Hinkley Point C is an important catalyst for growth with the project currently contributing an estimated £13.3 billion in Gross Value Added to the economy. A project of Hinkley Point C's size also creates a huge increase in employment with over 26,000 direct and indirect jobs supported across the country. Around 9,000 people are working in growth-driving sectors such as advanced manufacturing and clean energy industries alone.
- The project is also helping to overcome the recognised social mobility challenges seen across the country with over one-third2 of those employed directly by the project being from some of the country's most deprived areas.

‘Local’ Cen
Excellence

Welding Centre of Excellence

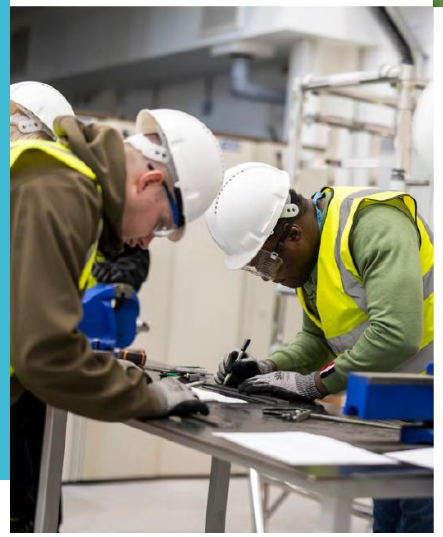
The Welding Centre of Excellence in Bridgwater provides comprehensive training for the many welders needed to complete the fit-out of Hinkley Point C.

Training ranges from basic skills to advanced techniques for nuclear component fabrication. Students are accessing the opportunities through apprenticeships or the government’s Bootcamp scheme, creating a direct pathway to employment.



Mechanical Centre of Excellence

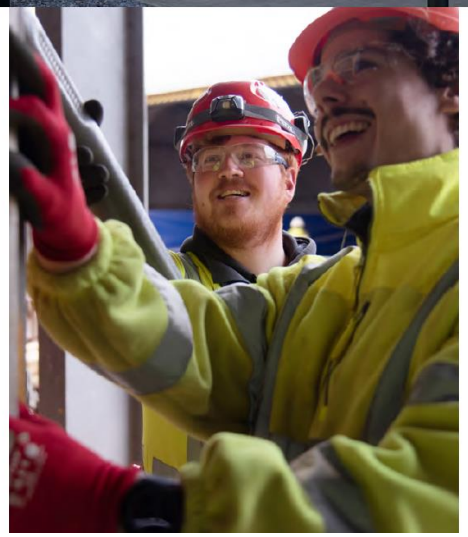
The newest of the centres, the Mechanical Centre of Excellence in Cannington, is developing the mechanical engineering skills needed for the fit-out of the power station. It is providing high-quality training in essential mechanical disciplines such as pipefitting, steel erection and plating.



Electrical Centre of Excellence

To ensure a skilled workforce for the mechanical and electrical fit-out phase of Hinkley Point C, the Electrical Centre of Excellence, situated in Bridgwater’s Somerset Energy Innovation Centre, provides a wide range of training opportunities, including the project’s Hinkley Support Operative programme.

The Centre offers more than 70 different courses designed to meet the specific needs of the project.



Construction Skills and Innovation Centre

To address the initial demand for skilled workers the Construction Skills and Innovation Centre at Bridgwater & Taunton College was launched in 2015. Funded by a £1.5 million investment from Hinkley Point C, the College has today become a vital training hub providing a realistic construction site environment.

It continues to equip students with essential skills in steel fixing, crane supervision and other essential trades, directly linking them to job opportunities at Hinkley Point C.

National College for Nuclear

Founded and operated by Bridgwater & Taunton College and supported by Hinkley Point C, the National College for Nuclear in Cannington serves as a dedicated centre for developing a highly skilled workforce for the UK's nuclear sector. The college delivers technical training and qualifications ranging from entry-level courses and apprenticeships to degree-level qualifications, all designed in close collaboration with partners from across the nuclear sector.

Local and national businesses are also enrolling their own employees in the training schemes, which are helping to strengthen the country's industrial capability.

"What's really impressive is how the college and Hinkley Point C are working together to ensure apprentices are industry-ready with the most up-to-date skills. This is a project of national significance – not just for the local community but for the UK's energy infrastructure."

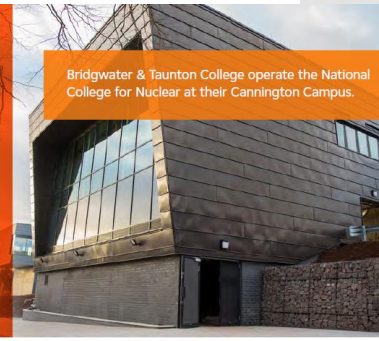
Bridget Phillipson MP, Secretary of State for Education

Long-term partnerships

Bridgwater & Taunton College has helped train over

1,300

of the 1,500 apprentices



Bridgwater & Taunton College operate the National College for Nuclear at their Cannington Campus.

Bridgwater & Taunton College

Insights from Matt Tudor, Vice Principal of Strategy & Partnerships.

The collaboration between Bridgwater & Taunton College and Hinkley Point C has been transformative, both for the college and the wider region. From our first discussions in 2011, we have worked closely with the project and its supply chain partners to ensure that the skills pipeline aligns with the demands of one of the UK's largest and most important infrastructure projects.

Impact

The impact of this collaboration is profound and multifaceted. Not only has it significantly enhanced our educational offerings, making Bridgwater & Taunton College a leader in nuclear education and training, it has also provided the local community with an economic boost through job creation and skill development. We have now trained over 1,300 of the 1,500 apprentices for the project at an average achievement rate of 90% - One of the highest success rates in the country.

The ultimate benefit for our college is that the significant employment opportunities created by Hinkley Point C have raised the employment aspirations of hundreds of adults in the local community – including people who were formerly long-term unemployed and learners with special educational needs and disabilities. In particular, the award-winning supported internship we have created with Hinkley Point C is helping young people with disabilities, giving them the opportunity to undertake work placements, providing them with employment-focused skills and ultimately achieving long-term paid employment.

Our collaboration with Hinkley Point C has positioned the South West as a leading centre for nuclear and engineering excellence, ensuring long-term skills development in the region.

Lessons for the future

Our partnership has demonstrated the value of industry-education collaboration, ensuring training remains high quality, responsive and aligned with workforce needs. Investing in specialist facilities such as the National College for Nuclear and the Construction Skills & Innovation Centre has created a lasting resource in the local area that will be poised to support future projects and the country's Industrial Strategy.

Providing clear career pathways has also been essential. The partnership has reinforced the importance of structured routes into the sector, including apprenticeships, T Levels and reskilling programmes, ensuring a steady pipeline of skilled professionals.

Supporting the region to reach net zero

Bridgwater & Taunton College is committed to further expanding its training capabilities to cement the South West's status as a centre of excellence for low-carbon growth. We will continue to strengthen our regional partnerships, working closely with other education providers, industry partners, and government to build a sustainable skills ecosystem that extends beyond the catalyst provided by Hinkley Point C.

"The impact of this collaboration is profound and multifaceted. Not only has it significantly enhanced our educational offerings, making Bridgwater & Taunton College a leader in nuclear education and training, it has also provided the local community with an economic boost through job creation and skill development"

Tra
Ap

Hinkley Point C's reactor was installed in December 2024. The first of two 13m long "reactor pressure vessels" will produce enough energy alone to generate reliable low-carbon electricity for 3 million homes.

Wider Skill

Supporting people into better jobs

5,000
people from across the region are expected to be building Hinkley Point C in 2025

24,780
people from within 90 minutes of the site supported in job applications since 2021

89
employment events held in 2024

14,500
people from within 90 minutes of the site registered on the Hinkley Point C Jobs portal

Hinkley Point C is committed to ensuring that at least a third of the project's workforce is within a 90-minute drive from the construction site. The Hinkley Point C Jobs Service works in partnership with Jobcentre Plus and Somerset Council to help people into work, regardless of their background or current skillset.

The team organises and delivers its own regular outreach and recruitment events in Somerset whilst also attending other local jobs fairs. Expert advice is also available for anyone looking to access the opportunities with careers advice and CV writing support available.

In a new and developing partnership with the SBA, a Somerset-based Community Interest Company, and Somerset Council, the project will be working to support those struggling to access the world of work with targeted engagement events and support.

Job service priorities

1. **Matching people** to available jobs at Hinkley Point C
2. **Providing targeted support** for local people looking for careers advice
3. **Arranging and attending events** to raise awareness of opportunities
4. **Working in partnership** with Somerset Council and JobcentrePlus as part of the **Somerset employment hub network**

INSTITUTES OF TECHNOLOGY

Conference 2025

Health & Life Sciences: Preparing the Workforce for the Future of Healthcare

Presenters:

Matt Butcher | Vice Principal Commercial, Skills and Partnerships, New College Swindon, Swindon and Wiltshire Institute of Technology

Alex Clancy | Assistant Principal, Employer Engagement, Yeovil College, West of England Institute of Technology

#InstitutesofTechnology
#OpportunitySkillsGrowth

Wifi network: CHWGuests
Password: Central1912Hall


SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB
New College
SWINDON
SWINDON AND WILTSHIRE
INSTITUTE OF
TECHNOLOGY
INNOVATING
FOR THE FUTURE OF
HEALTH AND CARE

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

INNOVATING
FOR THE FUTURE OF
HEALTH AND CARE

Funding

SWITCH has been funded by Department of Education under the Skills Development Fund. It has allowed the college to design and build a simulations suite with Learning Space and Manikins to enhance the delivery of our Full Time Provision and also design multiple short courses for clinical skills and soft skills.

SWITCH

SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

INNOVATING
FOR THE FUTURE OF
HEALTH AND CARE

Project Aim

- The **Swindon & Wiltshire Innovative Technology Care Hub (SWITCH)** is a collaboration between New College Swindon and Wiltshire College to enhance and upskill health and social care staff across Swindon, Wiltshire and beyond.
- Moved to the IOT in 2024
- SWITCH will accelerate skills development in health, care and life science through immersive technologies such as clinical simulation, augmented reality and virtual reality, where learners 'learn by doing' rather than by simply watching.
- Embedding reality technology allows us to offer unparalleled simulation activities across a broad provision for job roles within hospitals, care homes and beyond.

What Areas do we Have

The Simulation Suite has:

- A 3-bed maternity ward with trough sink and working sluice
- A 3-bed nursing ward.
- A delivery suite
- A side room area
- A GP clinic room
- A mental health therapy room
- A 24-seat classroom
- A large room used for multiuse from classes to VR Space
- A “morgue” to store our manikins
- A immersive room with the break area.

- Learning Space throughout
- Task Trainers
- Anatomage Clinical Table
- Reception Area

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

SWINDON AND WILTSHIRE INSTITUTE OF TECHNOLOGY

Benefits for Learners

- A selection of courses that build upon mandatory training and provide essential knowledge and clinical skills
- The opportunity to learn in a fun and interactive way
- Immersive technology and environments that enable you to experience risk-free scenarios, allowing for mistakes and repetition without endangering a live patient
- Lecturers with expertise and current industry experience

Benefits for Employers

- Access to industry-leading technology not available to you elsewhere
- A safe, efficient and cost-effective way to bridge the skills gaps within the sector
- Flexible delivery with the option to create bespoke training for your organisation or health setting
- Programme leaders who are currently work on the front line, which means they are well placed to understand the urgent training needs within the sector.
- Focus on the wider IOT employer base

The ethos

- Our learners can enhance their knowledge of process and protocols through the use of Virtual Reality and online platforms.
- We can enhance the knowledge with the impact of the immersive space.
- Then we can enhance the learning journey through the use of simulation to challenge practice and the dexterity of skills and clinical judgement within the nursing space.

We have the following manikins with specific reasoning:

- Ares – for emergency situations and deteriorating patients that need emergency input.
- Juno – for nursing skills scenarios and training around intimate or personal skills such as hygiene, oral care, hair care, stoma, catheter care.
- Lucina – for maternity scenarios for our Midwifery students to experience assisting the midwife with several deliveries and the journey through pregnancy.
- Luna – to enhance baby care and use with Lucina for continuation of baby care.
- Aria and Hal for care of children which we are starting to deliver as a T-Level in 2024.

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

SWINDON AND WILTSHIRE INSTITUTE OF TECHNOLOGY

Our Ward Spaces

- Our 3-bed ward environments each with their own “nurses stations act as perfect spaces to simulate.
- We rotate and select the correct equipment to suite the activity required.

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

INNOVATING
FOR THE FUTURE OF
HEALTH AND CARE

Virtual Reality

- Our two platforms of VR were purchased deliberately to enhance our learners at the appropriate level.
- Our main platform is nursing focus but can be adapted by us to ensure we are targeting the correct skills and build our own scenarios.
- Our other platform is used for our lower levels and is mapped to Level 2 and 3 courses

We also use this interactive board and a TV to cast the contents so that others can see and peer assess.

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

INNOVATING
FOR THE FUTURE OF
HEALTH AND CARE

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

INNOVATING
FOR THE FUTURE OF
HEALTH AND CARE

Immersive Room

- Our 6M^2 Immersive room can be utilised to play 360 images, videos or build interactive lesson and activities
- We also purchased a 360 camera and stand so we can make our own videos and experiences with the two software platforms we have access to.

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

INNOVATING
FOR THE FUTURE OF
HEALTH AND CARE

Supporting Equipment

We have our set of task trainers that support us with specific clinical skills training – this enables us to free up our manikins for scenarios.

We have a anatomage clinical table which enables a clear link between our theoretical teaching around anatomy and physiology within the clinical space and bridges the theory practice gap for many learners.

Learning Space allows us to record and reflect upon scenarios within the space and also generate clear evaluation of any activity within our simulation suite. We also have the portable system so we can replicate the reflective playback within any area we perform simulation within.

SWITCH
SWINDON AND WILTSHIRE INNOVATIVE TECHNOLOGY CARE HUB

SWINDON AND WILTSHIRE INSTITUTE OF TECHNOLOGY

Any Questions?

West of England IoT

Alex Clancy - Assistant Principal Employer Engagement
Yeovil College

Preparing the Workforce for the Future of Healthcare

WEST OF ENGLAND
INSTITUTE OF TECHNOLOGY

WEIoT Partners

Employer Partners

AIRBUS

GE Aviation

GKN

Jisc

iO Academy

National Composites Centre

North Somerset Council

Jones Building Group

St Monica Trust

Bamboo – Connect Grow

NHS University Hospitals Bristol and Weston NHS Foundation Trust

Rolls-Royce

Leonardo Helicopters

Education Partners

sgs – South Gloucestershire and Stroud College

UWE Bristol – University of the West of England

Weston College – Lead Partner

City of Bristol College

Bath College

Yeovil College

Mission and Purpose – Skills for our Digital Future

- Through regional collaboration and innovation increase the number of people accessing higher technical skills
- Initial focus on
    - Advanced Engineering and Manufacturing
    - Digital & High Tech
    - Health and Life Sciences

Yeovil College strategy – support gross value added (GVA), increasing the value generated with each engagement in the production of goods and services.

Teeth

Digital Dentistry

Historic Development

Digital Dentistry has been evolving over decades, starting in the 1960s with the development of tomography, thesis of scanning in the 1970s, with the first digital restoration taking place in the 1980s.

The 90s saw the introduction of interactive software.

Now there is a concerted trend towards a more digital workplace.

Benefits

The use of digital imaging and data transfer improves accuracy and removes the need for re-work. This also reduces costs and speeds up the treatment process.

The ability to create digital moulds without taking impressions provides the ability to show patients what their treatment will look like, thereby enhancing the patient experience.

Traditional methods of getting impressions just aren't good enough anymore because there's more scope for error.

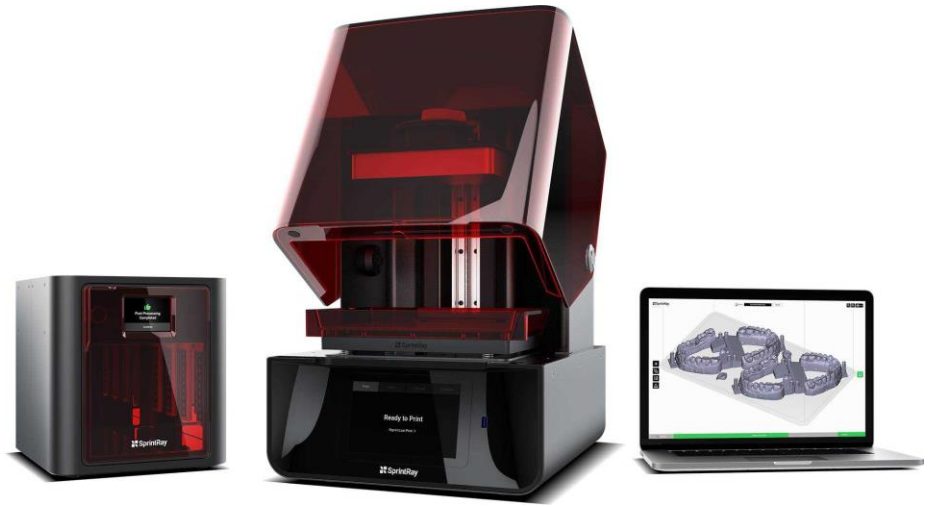
Opportunity

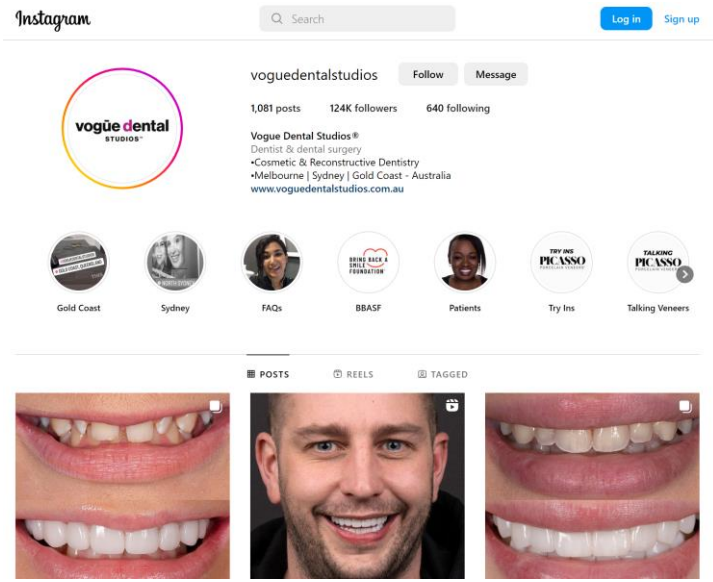
The global dental market is projected to grow from £30.47 billion in 2022 to £50.16 billion by 2029, exhibiting a CAGR of 7.4% during forecast period.

Growth will be influenced by the rise in periodontitis (gum disease), malocclusion (alignment) and tooth decay.

NPD such as intraoral scanners and ceramic 3D printing will increase gross value added and increase service levels within the industry.

Furthermore the growing demand for aesthetic dentistry such as invisible orthodontics, implants and prosthetics.





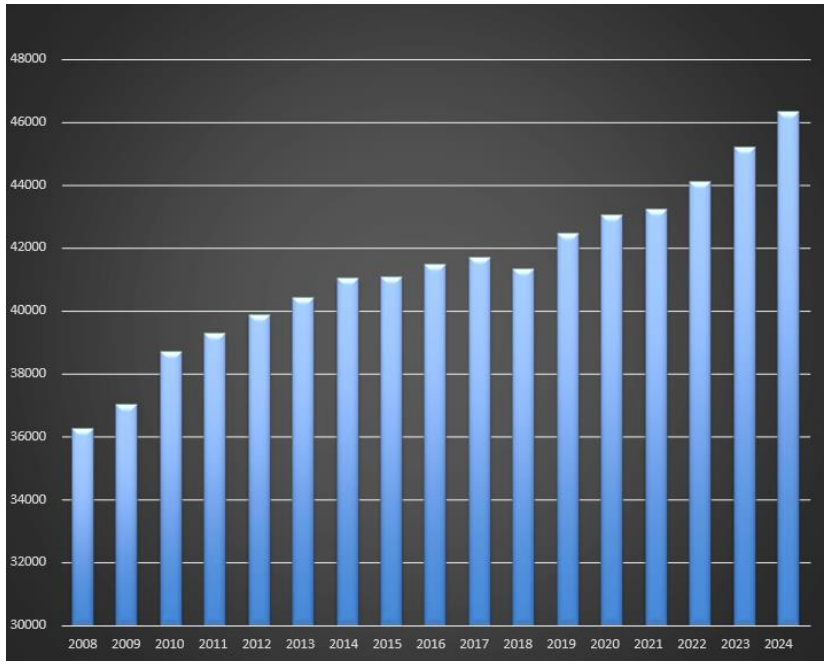
Recruitment Challenge in the UK

- Rising demand, falling supply
- Long-standing vacancies across labs
- Regional hiring gaps
- Education and skills gap
- Impact on services and turnaround times

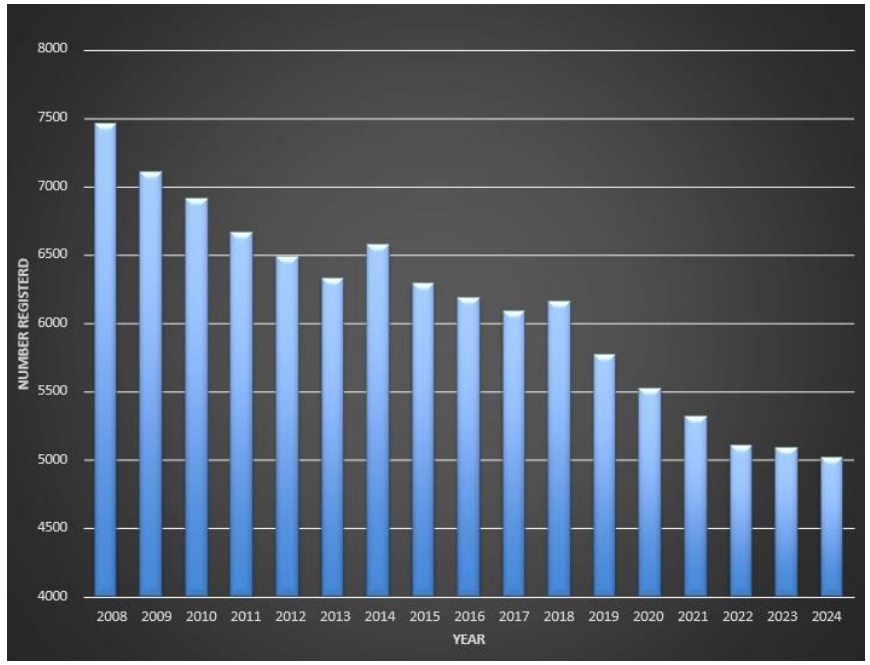
- "The Curious Demise of Dental Technicians" – Dentistry.co.uk (Jan 24)
- "Is This the End for Dental Technicians?" – Dentistry.co.uk (Aug 24)
- "Technically Speaking – How to Solve Recruitment Issues" – Dentistry.co.uk (Mar 2023)
- "Addressing the Recruitment Crisis in Dental Technology" – Dental Technologists Association (Sept 2024)
- "UK Dentistry & Dental Technology: Opportunities and Challenges Ahead" – Dental Technology Showcase (Mar 2025)

Recruitment Challenge in the UK

Registered Dentists in the UK



Registered Dental Technicians in the UK



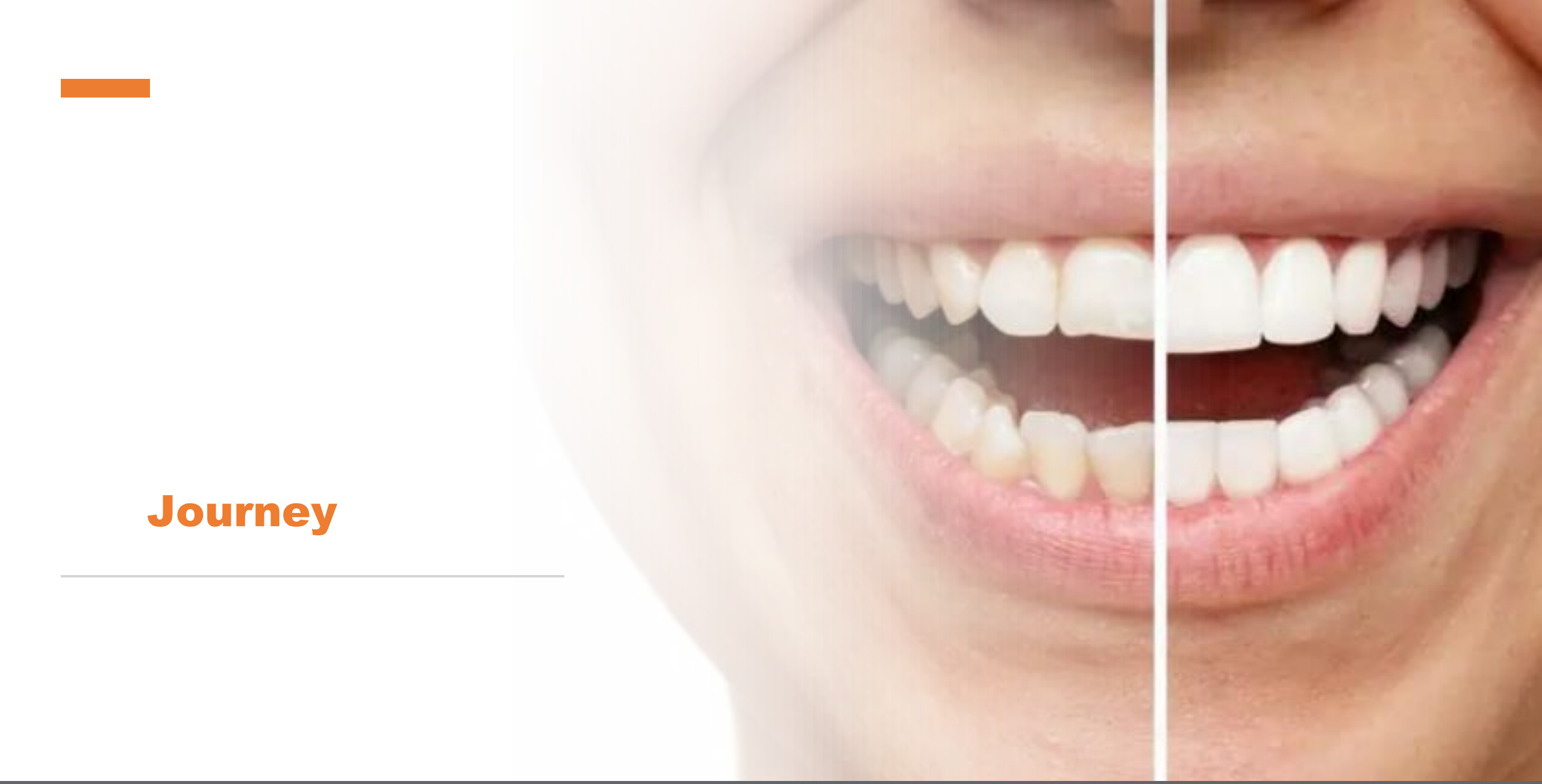
Composition of the register by professional title

Registration title	Number of registered titles	Percentage	Number of new titles added in 2024	Percentage
Dentist	46,362	34.1%	2,164	18.2%
Dental Nurse	65,123	47.9%	6,670	56.1%
Dental Hygienist	10,493	7.7%	1,189	10.0%
Dental Technician	5,025	3.7%	168	1.4%
Dental Therapist	7,363	5.4%	1,567	13.2%
Orthodontic Therapist	1,157	0.9%	123	1.0%
Clinical Dental Technician	439	0.3%	13	0.1%
Total	**135,962**	**100%**	**11,894**	**100%**

Average age Registered Dental Technician - 54

Source - GDC

Journey



Stakeholder Led

David Smith

- 30 years' experience running one of the largest dental laboratories in the UK.
- Honorary lecturer - Peninsula Dental School in dental technology.
- General Dental Council member
- Lifetime achievement award - dental technology, Dental Laboratory Awards.
- Former chairman of the Dental Laboratories Association
- Former president of the European Federation of Dental Laboratories.

Yeovil College Digital Dental IQA

Michael Wheeler

NHS England Programme Manager – Dental Apprenticeships

Dental Trailblazer Chair

NHS England

Stakeholders driving joint vision and purpose

Links to key employers and stakeholders as a result

Experts provides instant stakeholder confidence

Challenges :

- Attracting talent in an invisible career
- The right skills in a digital age
- The mix of knowledge and understanding of dental tech (anatomy, materials science, chemistry, conventional dental manufacturing and working in a team)
- And what is the right mix of digital scanning, digital design and computer aided manufacturing? It is not an ‘either or’ but a ‘both’

WEST OF ENGLAND INSTITUTE OF TECHNOLOGY

Curriculum

Level 3 Laboratory Technician apprenticeship (dental)

Level 5 Dental Technician (integrated degree) apprenticeship

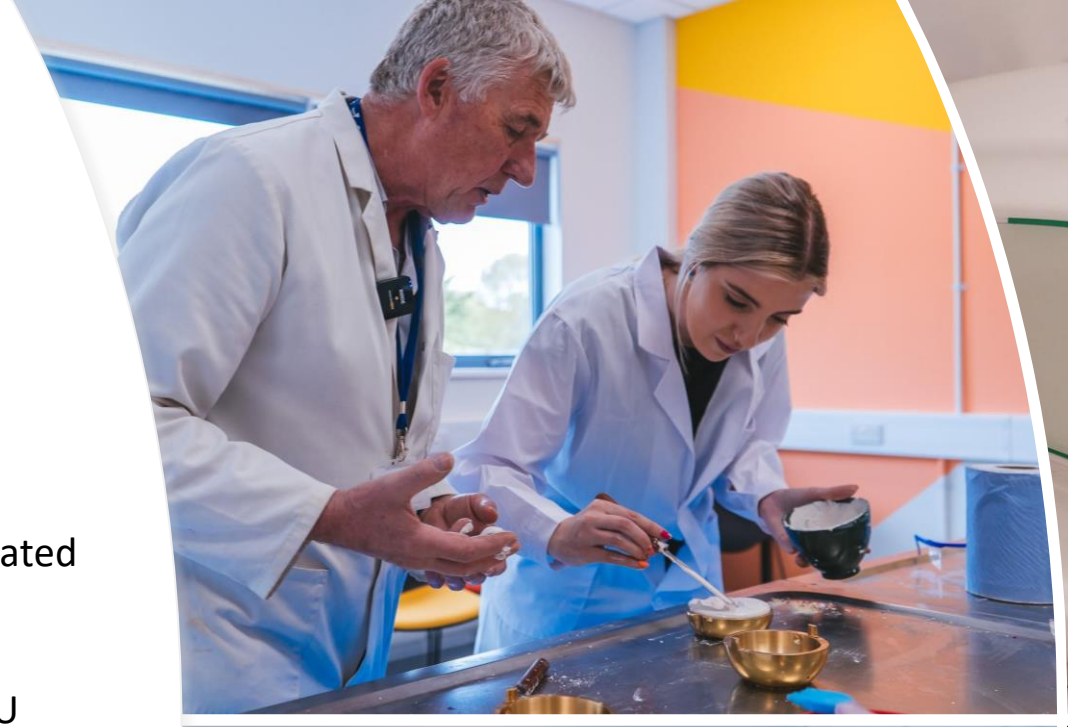
Foundation Degree in Dental Technology – validated by the OU

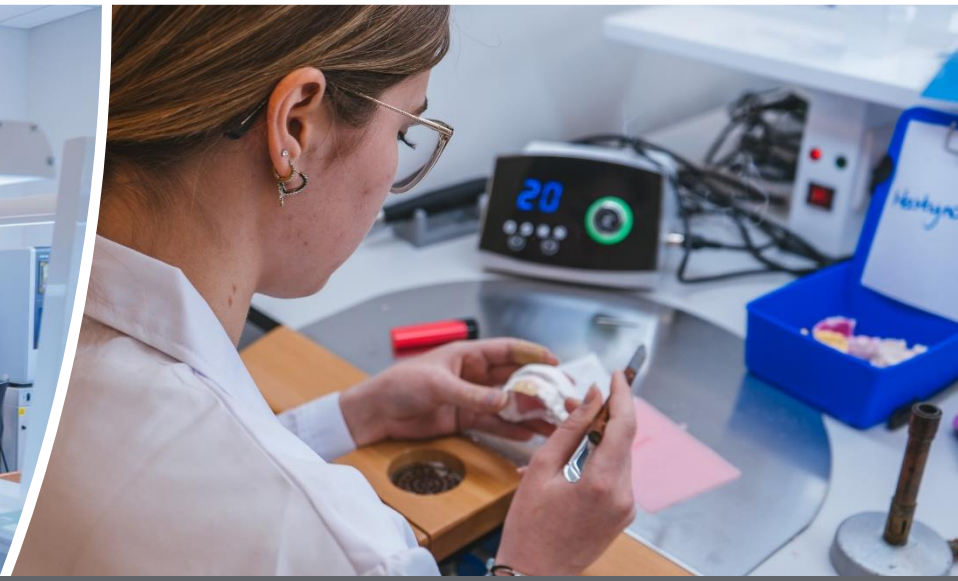
In development:

Level 6 Enhanced Clinical Practitioner (Digital Skills) apprenticeship.

Level 3 Dental Nurse Apprenticeship

Level 4 Oral Health Practitioner Apprenticeship





Skills Transformation

Advancements

Dental CAD

Ceramic AM technology

Optical intra-oral scanning

5 Axis dental milling

AR / VR in dentistry

Skills

Digital Impressions

CAD / Additive Manufacturing

New to market laser dentistry

VELscope - light abnormality identification

New Curriculum: Higher & Degree Apprenticeships

Upskilling/ Updating Staff in Industry

AR / VR Capabilities

Digital

Cutting edge digital and traditional workshop facilities

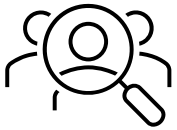
Digitally isolated infrastructure

High spec industry equipment

Upskilling/ updating staff in industry – online

WEST OF ENGLAND INSTITUTE OF TECHNOLOGY

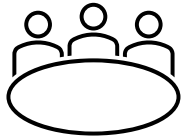
Digital Dental Impact so far



FE impact

4 new staff recruited
3 months OU Validation
1 degree in development
6 cohorts to date
1 level 5 cohort started
15 resources developed
£500k new equipment

Skills Bootcamps Potential expansion



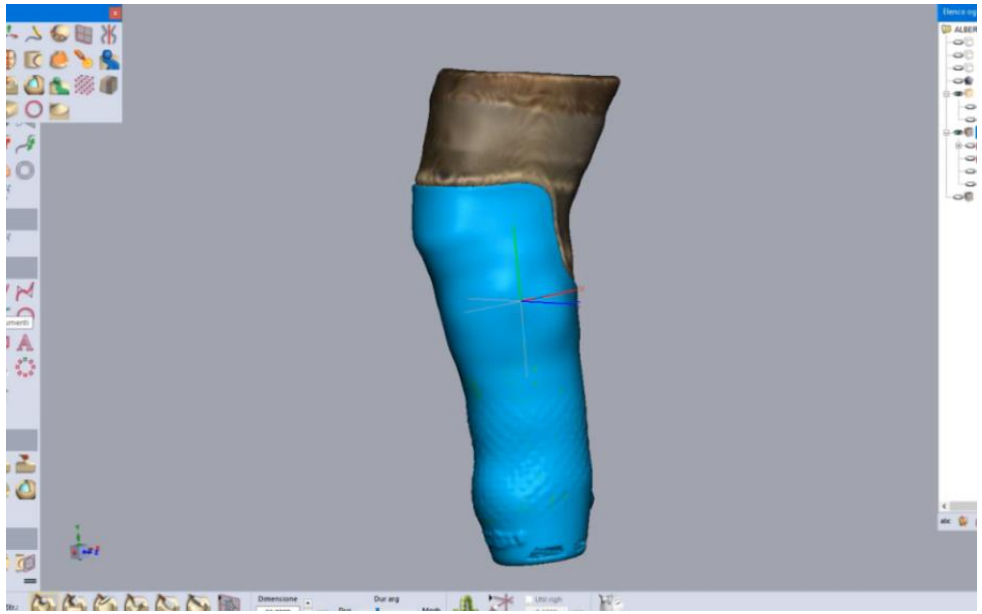
Employers

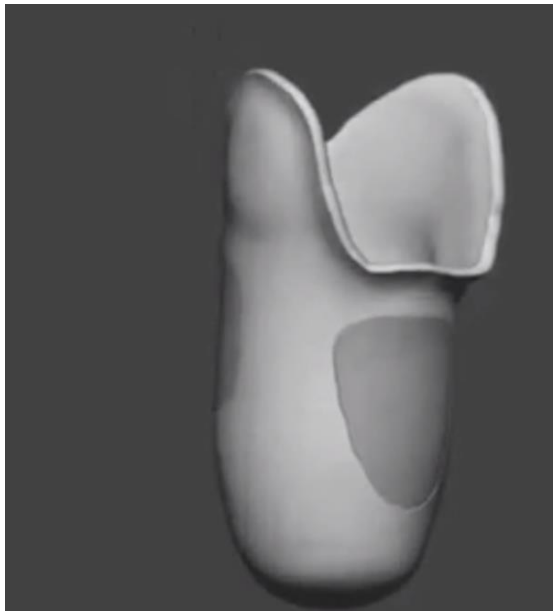
7 networking events with employers
25+ employers
NHS London engagement

£60k HEE for Level 6 Development
£50k HEE employer new apprentice fund

The Open University

Setting a Standard





Thank you - Questions

WEST OF ENGLAND
INSTITUTE OF TECHNOLOGY