



# **HS2 Skills & Capability**

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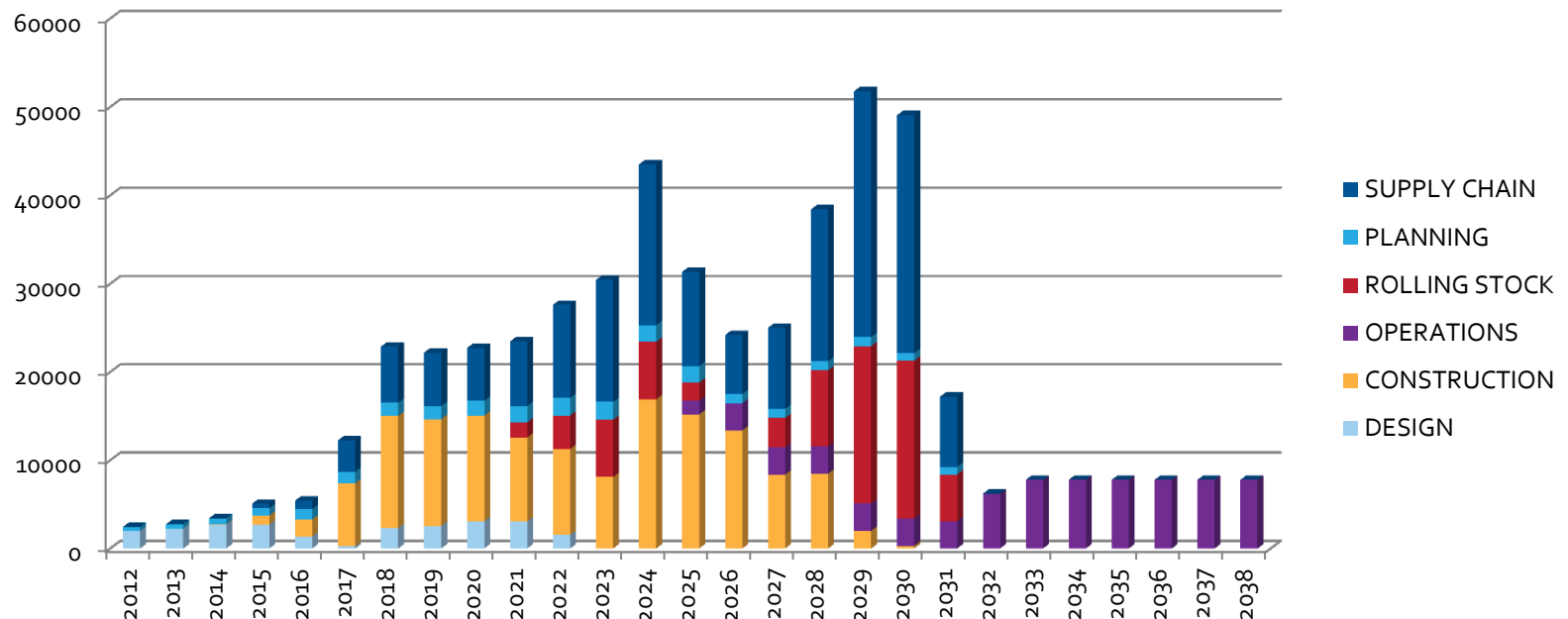
# Agenda

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1. Welcome
2. HS2 skills & capability context
3. Thought Leader: Gil Howarth, NSARE
4. Back to the Future: Year 2026 exercise
5. Close

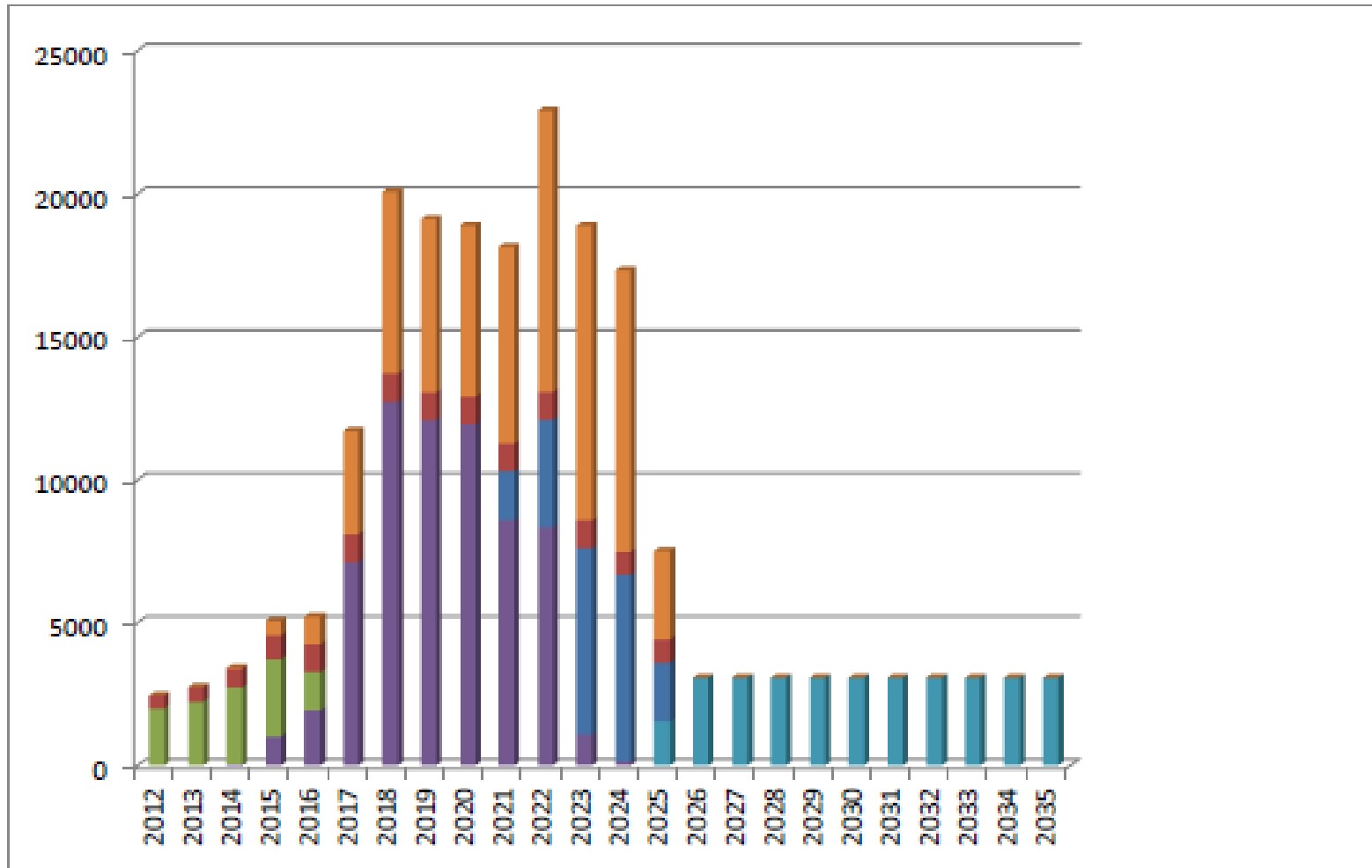
# Scale of the opportunity

- HS2 job numbers predicted to be more than 22,000 within 5 years from now
- Maximum of 50,000 concurrent jobs predicted in late 2020s



Source: Albion Economics June 2013 report for Greengauge 21

# Phase 1 – Jobs profile

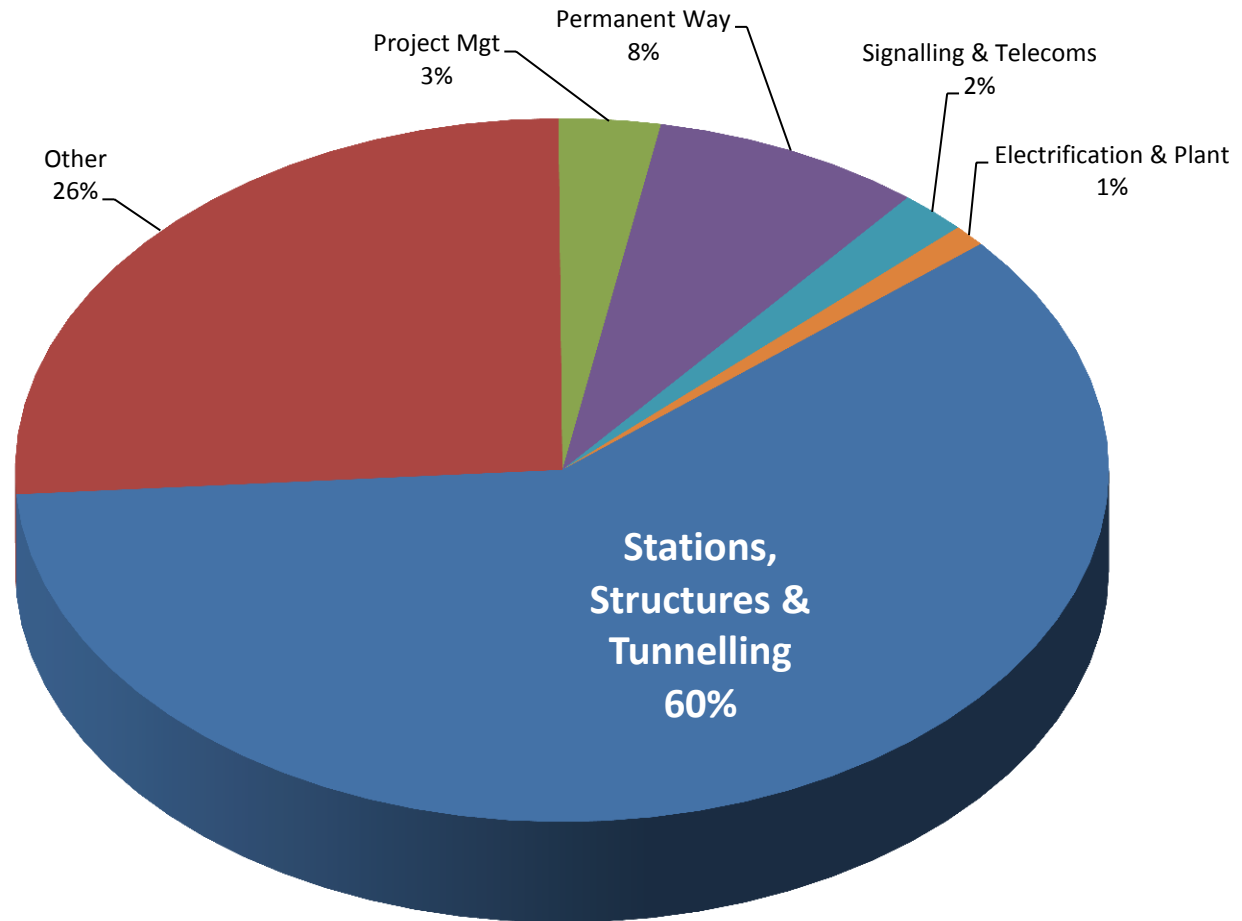


Source: Albion Economics June 2013 report for Greengauge 21

# Construction

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## Phase 1: Construction Jobs



# A national project



330 mile construction project

Multiple sites, concurrent working

Use of off site manufacture

UK wide supply chain opportunities

# Skills opportunities

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Do you believe there is a skills shortage in the construction industry?

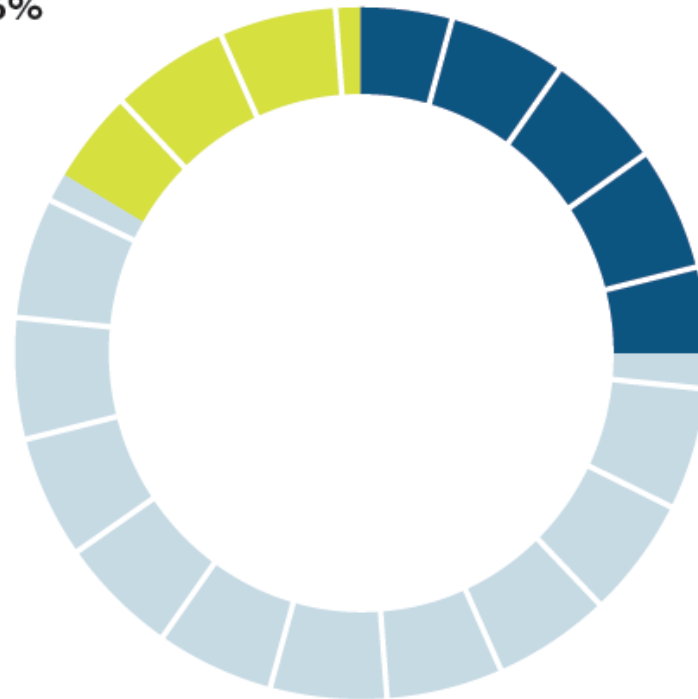


# New skills, different behaviours

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Do you believe that the construction workforce will have the required skills for BIM?

■ YES	<b>25.06%</b>
■ NO	<b>58.59%</b>
■ DON'T KNOW	<b>16.36%</b>





# Skills opportunities

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- Develop an industry that attracts and retains a diverse group of multi-talented people and which becomes a sector of choice for young people
- Government's industrial strategy for construction

# Skills & Employment - Strategic Theme

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*Working with our suppliers, we will build a skilled workforce that fuels further economic growth across the UK.*

***On time, on budget...***

Securing the appropriate workers, skills, goods and services is vital to the successful delivery of HS2

# HS2 Sustainability Policy



## Sustainability policy

HS2's purpose is to create a world class high speed rail network to support sustainable growth in the UK. It is a major opportunity to provide greater choice in the way we travel to help deliver a sustainable transport system for the UK.

Our vision is of a high speed railway network which changes the mode of choice for inter-city journeys, reinvigorates the rail network, supports the economy, creates jobs, reduces carbon emissions and provides reliable travel in a changing climate throughout the 21st century and beyond.

This policy sets out HS2 Ltd's commitment to be an exemplar project. Building this network will inevitably cause some local effects on communities, the natural and the built environment. We will strive to limit the negative impacts through design, mitigation and by challenging industry standards and we will look for environmental enhancements and benefits.

Through this policy we aim to support the following Government goals:

- Create a step change improvement in transport links between regional centres and from them to London.
- Enable more equal distribution of opportunity, connect communities and encourage regeneration.
- Stimulate sustainable economic growth through increased capacity and shorter journey times between key cities.
- Support British engineering, create job opportunities and develop skills in the UK.
- Deliver lower carbon long distance travel.
- Maximise integration of HS2 with existing UK and international transport networks.
- Encourage wellbeing and protect the environment.

### What we will do

We will promote high speed rail and balance community, environmental and economic issues. We have identified key themes as a focus for our work to:

**Growth and regeneration** • Support sustainable economic development and the localism agenda for regeneration.

**Environmental change** • Seek to avoid significant adverse effects on communities, business and the natural, historic and built environment. Minimise impacts where they occur and deliver enhancements as far as practicable to ensure there is no net loss to the natural environment.

**Skills and employment** • Improve skills, jobs, education and the economy through our investment along the length of the route. Act as a driver for improvements in the sustainability of the engineering and construction sector. Promote diversity, openness and fairness.

**Climate change** • Minimise the carbon footprint of HS2 as far as practicable and deliver low carbon long distance journeys that are supported by low carbon energy.

**Resilience** • Build a network which is resilient for the long term and seek to minimise the combined effect of the project and climate change on the environment.

**Resources and waste** • Source and make efficient use of sustainable materials, maximise the proportion of material diverted from landfill and reduce waste.

**Integrated transport** • Engage with stakeholders to create seamless transport links with other modes and ensure accessibility for all.

### How we will deliver this

To deliver our vision we will embed sustainability in our business at each phase of the project through:

**A clear plan** • Setting goals relevant to the stage of the project from design, through development, construction, operation, maintenance and renewal which stimulate innovation and ensure enhancements are protected for the long term. Our plan and this policy will be reviewed biennially.

**Robust processes** • Ensuring sustainability is integrated into our culture, procedures and processes. This will include the development of Sustainable Design and Delivery Principles as part of a process to enable us to balance the sometimes competing elements of sustainability and to understand whole life cost.

**Procurement** • Ensuring sustainability is integral in our procurement processes and is applied to our entire supply chain.

**Innovation** • Promoting sustainable construction practices, continually focussing ideas and technologies for improving sustainability.

**Engagement and reporting** • Engaging in dialogue about the project and working with local communities, key stakeholders and our supply chain. Openly reporting our progress in delivering the commitments we make on sustainability regularly and sharing what we learn.

HS2 is determined to ensure sustainability is embedded in the DNA of this project and that it is integrated into all of our work.



**Alison Munro, Chief Executive, HS2 Ltd**  
April 2013

HS2/HS2/SU/POL/000/000002

- Improve skills, jobs, education and the economy through our investment along the length of the route.
- Act as a driver for improvements in the sustainability of the engineering and construction sector.
- Promote diversity, openness and fairness.



# Strategic targets

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- Ensure the availability of the right workforce at the right time with the right skills and behaviours
- Create opportunities for local, disadvantaged and underrepresented people and companies to benefit from the investment in HS2

# Evidence base and engagement

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- Labour and skills needs forecasting and gap analysis
- Embed learning from other major projects
- Partnership and dialogue with other Govt departments, SSC's, industry bodies, employers, education sector and LA's
- Early supply chain engagement

# Next steps

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- Continuing dialogue and engagement
- Feed the output from today's session into our strategy development
- HS2 Skills & Capability event 2014
- Email us at [skills@HS2.org.uk](mailto:skills@HS2.org.uk)

# Thought leadership

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## Gil Howarth

- Chief Executive, National Skills Academy for Railway Engineering
- Chairman of the Network of the 19 National Skills Academies

# Video to be embedded

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- <http://www.youtube.com/watch?v=m7RoWVMLciQ>



# Supporting HS2!



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Developed by the industry for the industry

## About me.....

- 1974 – 1989 BNFL Project Manager/Director**
- 1989 – 1992 BR Project Director, CTRL - HS1**
- 1992 – 1993 Union Railways MD**
- 1993 – 1998 Railtrack Director, MPD**
- 1998 – 2010 The Howarth Group CEO**
  - Benaim
  - Mace
  - Franklin + Andrews
  - Alfred McAlpine
- 2010 to date NSARE CEO**

# Why NSARE?

## **Recognition of the need for a pan-industry recruitment, training & skills strategy**

- Forecasting the skills challenges in the short & medium term
- Transforming the competency of the workforce
- Improving the quality of the training provision
- Promoting the industry in Schools, Colleges & Universities

## **History**

2008	Founded by Pete Waterman & Gil Howarth with Andrew Adonis' support
2009	DfT/Industry Funded Research
2010	Government Endorsement
2011	Incorporation & 'Open for Business'
2013	279 Member organisations and growing

# 'Apprenticeship to Fellowship'

Safety competencies are important **BUT** should be a component of an individual's portfolio of competencies

↑  
**Professionalising  
 the workforce**

NQF Level	Academic Qualification	Professional Engineering Institutions	Apprenticeship Framework
8	PhD		
7	MSc, MEng	CEng	
6	BSc, BEng (Hons)	IEng	Higher
5	Found. Degree HND		
4	HNC	Eng Tech	
3	A Level Adv. Diploma		Advanced
2	GCSE Diploma		Intermediate

**Increasing recognition that behaviours, including Leadership & Management, are critical to success**

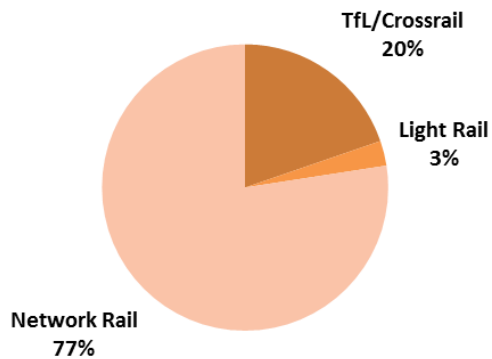
# Forecasting the Skills Challenge

## Current Workforce Numbers (Railway Engineering)

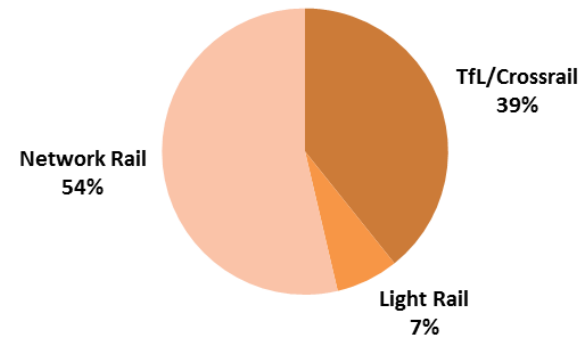
Type of Activity	Number of People
Track	55,500
Signalling & Telecommunications	12,000
Electrification & Plant	3,500
Other Non-Specific	15,500
<b>Total Infrastructure</b>	<b>86,500</b>
<b>Traction &amp; Rolling Stock</b>	<b>13,500</b>
<b>Total</b>	<b>100,000</b>
% Level 4+ (Engineers & Technicians)	18%
% Female	4%

# Future Programme – Spend by Client

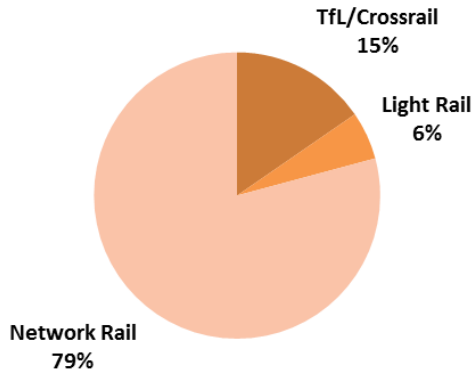
**Track Spend By Client (CP5 Only)**  
**£6.2bn**



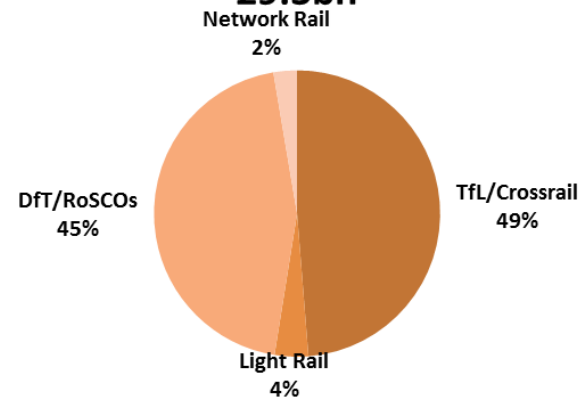
**S&T Spend by Client (CP5 Only)**  
**£4.8bn**



**E&P Spend by Client (CP5 Only)**  
**£4.3bn**

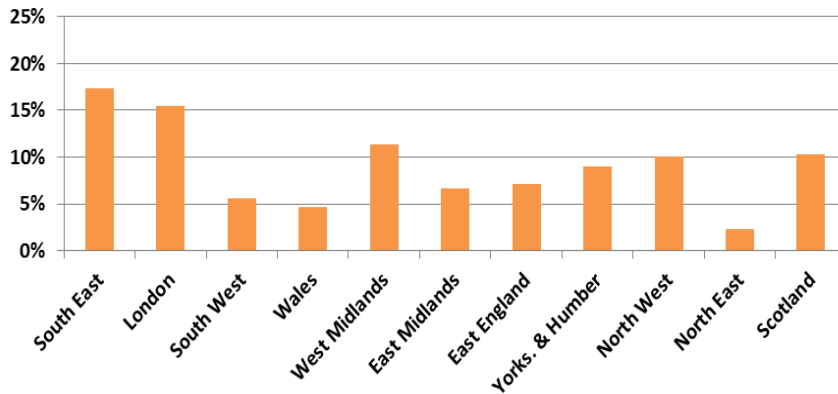


**T&RS Spend By Client (CP5 Only)**  
**£9.3bn**

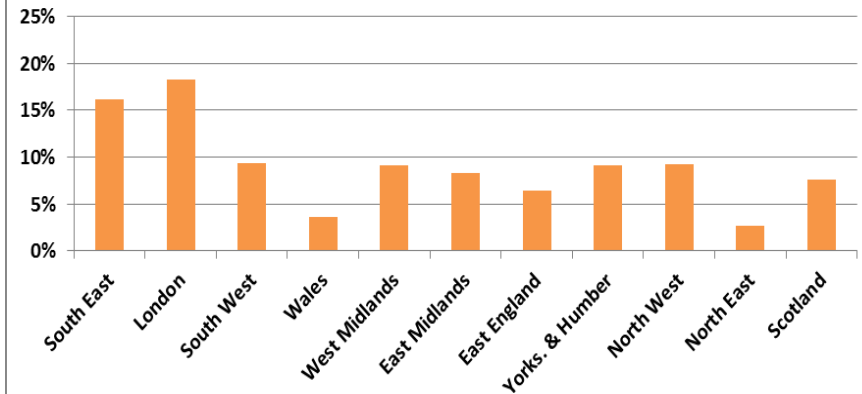


# Workforce Geography

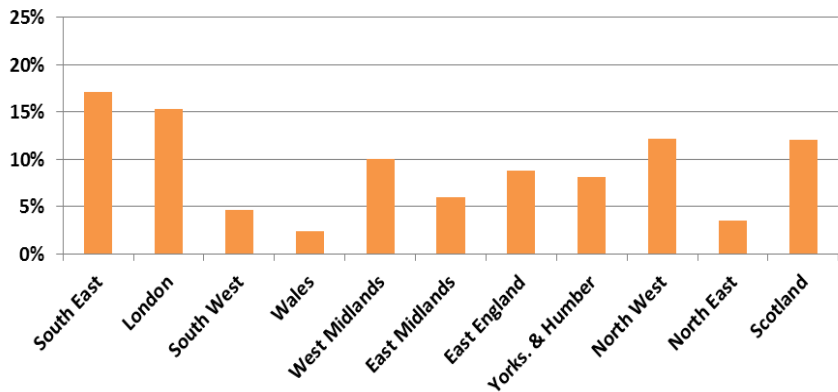
### Track Resources - Geographical Distribution



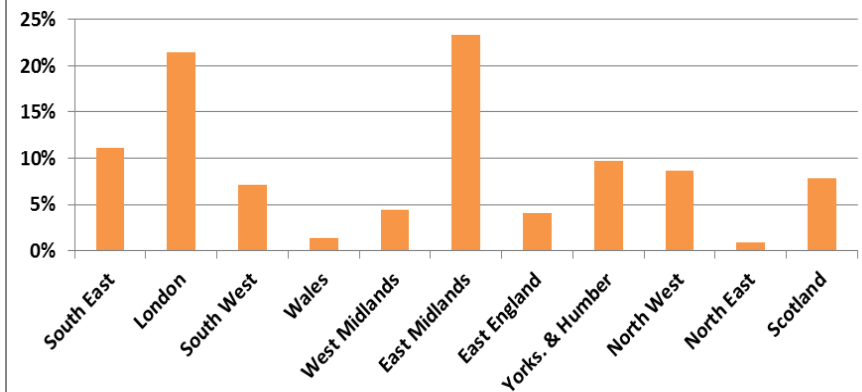
### S&T Resources - Geographical Distribution



### E&P Resources - Geographical Distribution

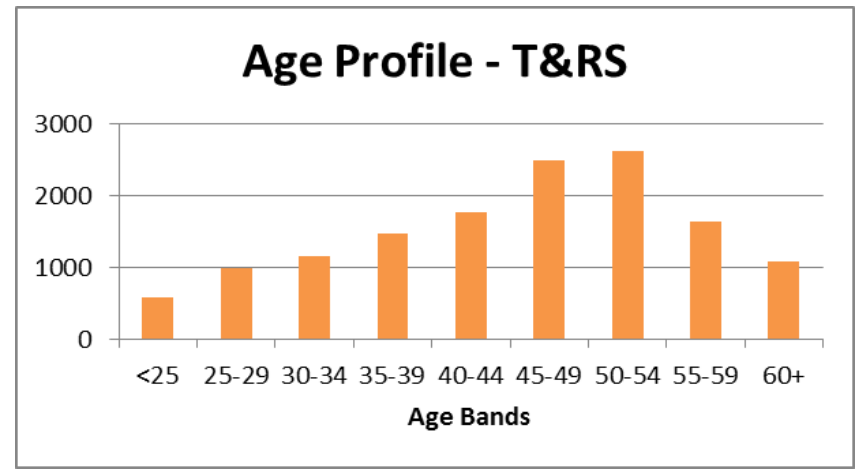
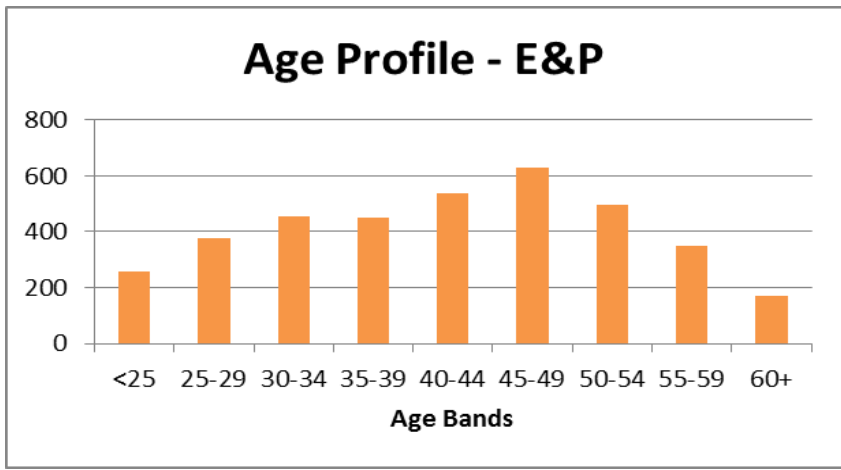
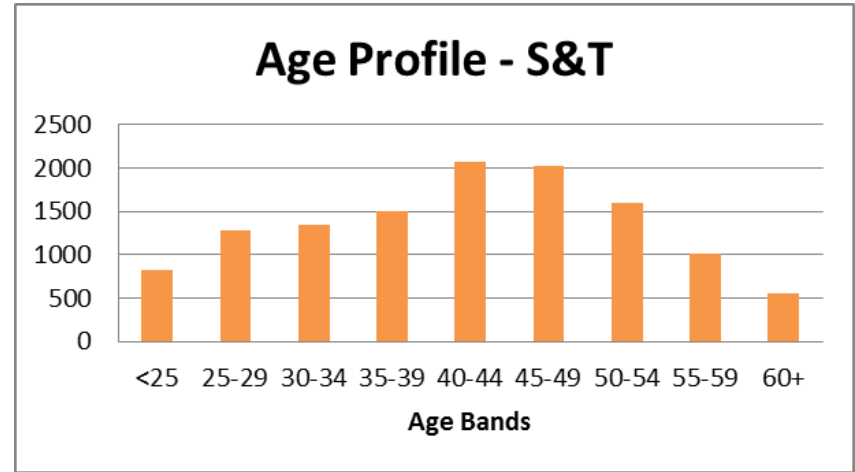
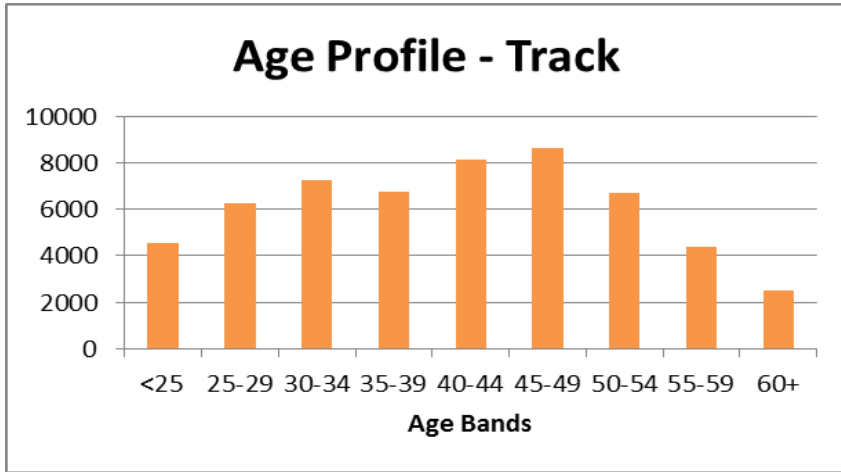


### T&RS Resources - Geographical Distribution





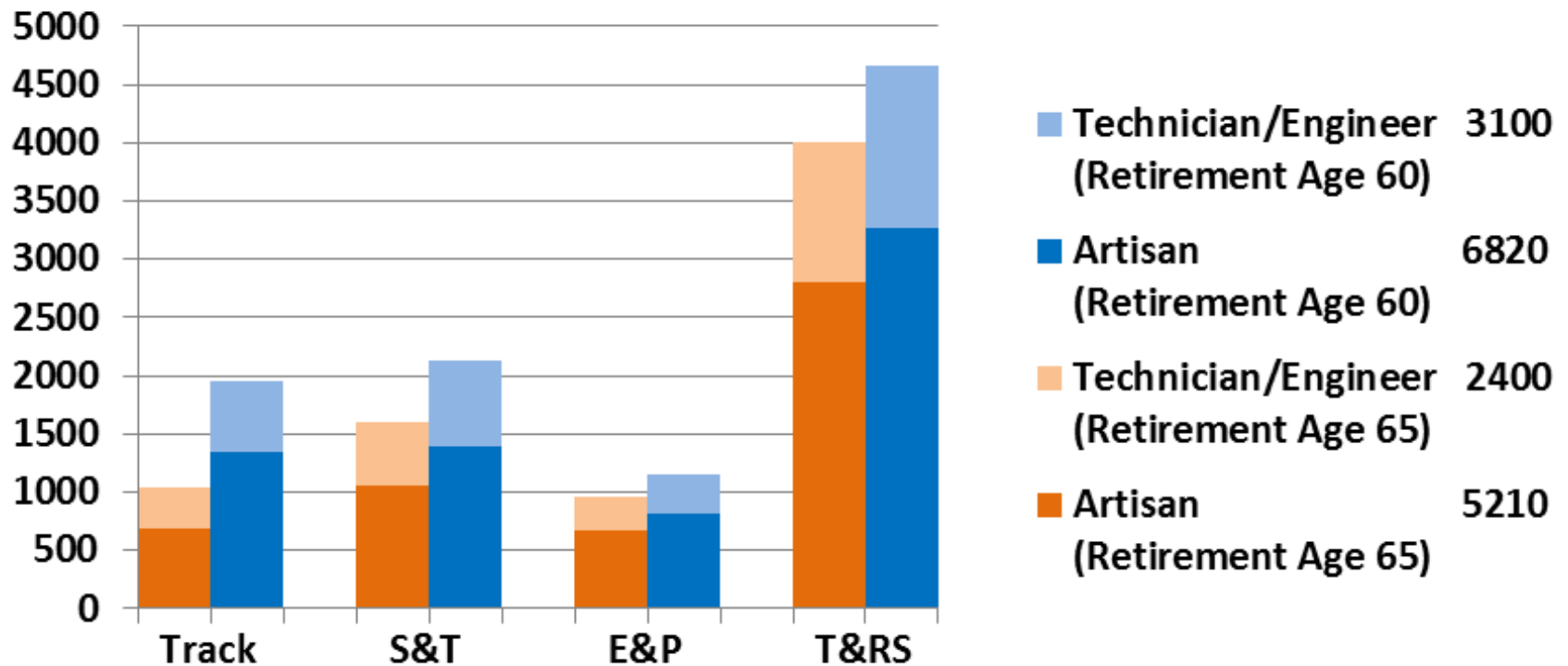
# Workforce Age Profile





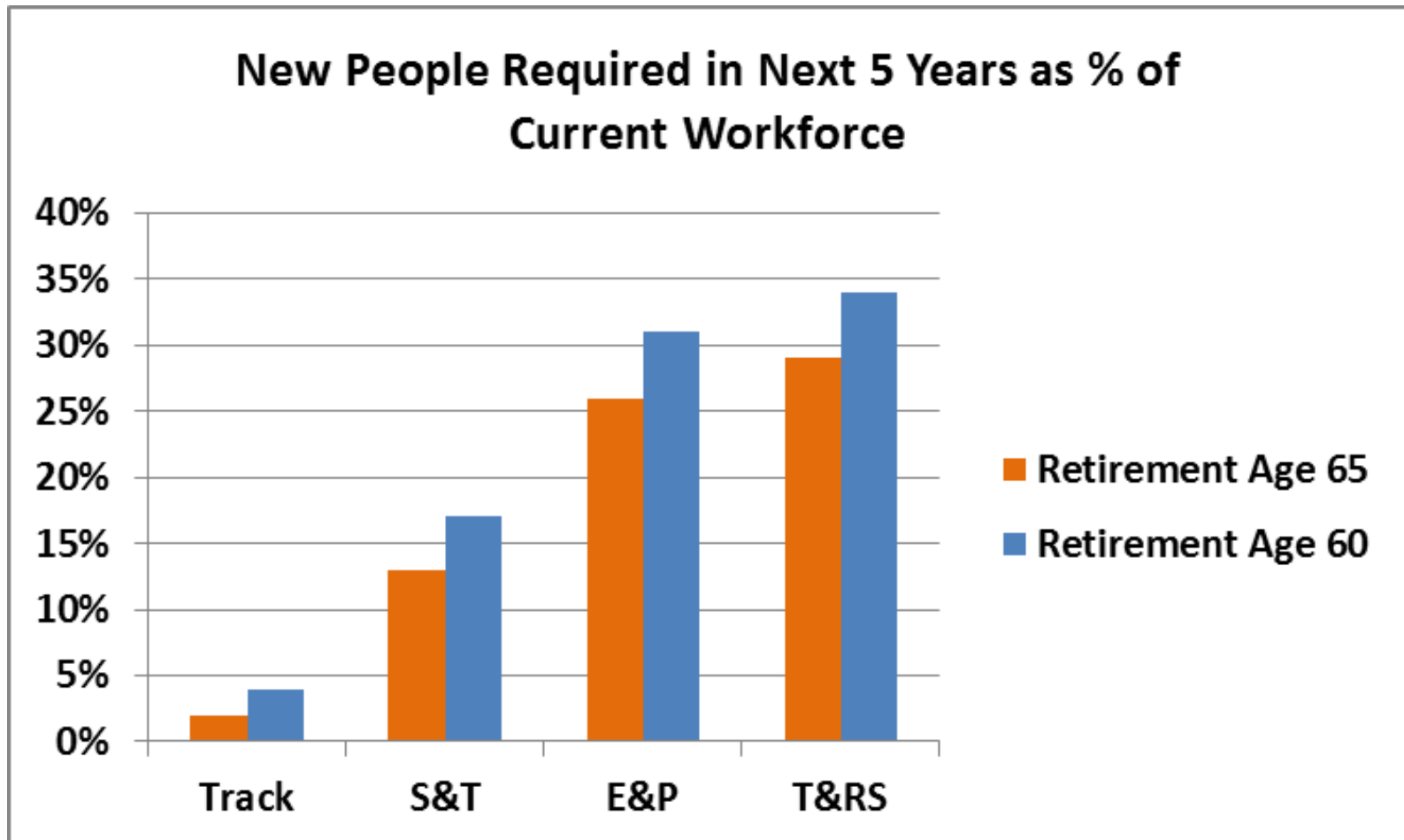
# Recruitment: Numbers by Discipline

## New People Required - Next 5 Years





# Comparison with Current Workforce



**SIEMENS**

# National Training Academy for T&RS

The National  
**Skills Academy**  
RAILWAY  
ENGINEERING

**Collaboration between Siemens Plc, NSARE Ltd and Government**

**National 'hub' at Northampton, 'spokes' around the country**



**Government invests 50% in return for 50% of training capacity to be made available to industry through NSARE**

**Cost: Up to £7m**

**Programme:**

<b>December 2013</b>	<b>Final Agreement with BIS</b>
<b>January 2014</b>	<b>Design &amp; Build Contract placed</b>
<b>March 2015</b>	<b>'Open for Business'</b>

# Rail Roundtable

**Jointly hosted by  
Vince Cable and Patrick McLoughlin**



**6<sup>th</sup> November 2012:**

**NSARE Skills Forecasting  
outputs presented**

**4<sup>th</sup> June 2013:**

**'Rail Supply Chain Forum' -  
NSARE a 'permanent member'**

**January 2014:**

**'National Training Strategy'**

## NSARE Footprint

**Railway Engineering skills are paramount**

**Increasing 'encouragement' for NSARE to expand footprint – '*Rail Technical Strategy*'**

**Extend to other job roles impacted by new technology e.g. ERTMS**

## Skills Forecasting - Strategic

### **Collaboration with RSSB to identify longer term skills needed to deliver Rail Technical Strategy:**

- Impact of ERTMS
- Electrification; strategic resources
- Support to DfT on franchising programme

**HS2 in conjunction with CITB, Experian & WLC (University of Dundee) for completion in January 2014**

# High Speed 2 Skills Forecasting

## Forecasting Study and Gap Analysis

### Key deliverable:

**To create a labour and skills forecasting model for HS2 and to undertake detailed analysis from the outputs of the model**

### Consortium

**CITB**

**Experian**

**NSARE**

**Whole Life Consulting (WLC) – University of Dundee**

### Timescales

**Interim report: November**

**Final report: end January 2014**

# High Speed 2 Skills Forecasting

## Detailed Deliverables

- **A labour forecasting model and tool, capable of regular updating by the HS2 team**
- **The sourcing of the data necessary to develop the tool**
- **An economic and labour market assessment of the local and national environment and the way in which they might impinge on HS2's strategy**
- **Guidance on potential training solutions to support new entrants and workforce development**
- **An interim and final report and reports designed for specific audiences**



# Training Accreditation

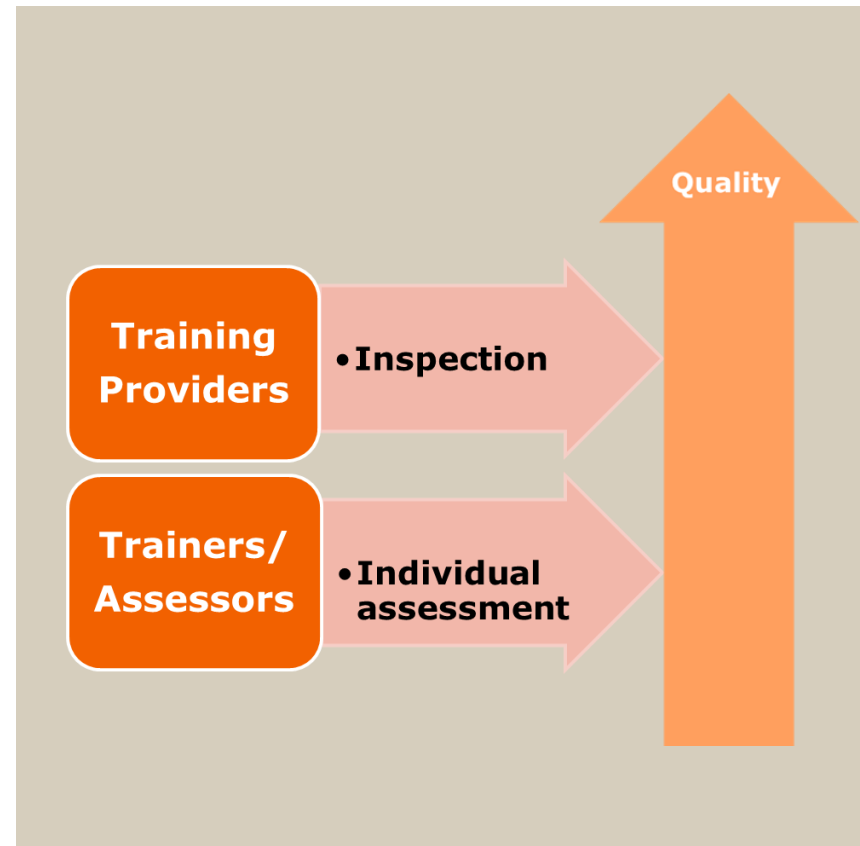
**RTAS: Contract (Concession) with Network Rail for accreditation of 'Sentinel' related training**

**All training organisations to be accredited**

**Every trainer and assessor to be accredited**

**The main objective is to drive up quality!**

**~90 companies and ~350 individuals registered with NSARE**



# Training Accreditation

The Railway Training & Assessment Accreditation Scheme (RTAS)  
Baseline Inspection Results



Undertaken as part of the Inspection of Railway Engineering Accredited Training and Assessment Providers

Developed by the industry for the industry

	Small	Medium	Large	Total
1 (O)	2	3	1	6
2 (G)	39	10	4	53
3 (S)	18	2	1	21
4 (I)	0	1	1	2
Total	59	16	7	82

## Expand scheme:

- All technical training
- FE Colleges – 30 interested

## Up-Skill Trainers:

'Train the Trainer'

## **Railway Engineering Training Academy**

### **National Network of 'Centres of Excellence'**

- Network Rail
- London Underground
- Crossrail
- Private Sector
- FE Colleges & Universities

### **Directory produced:**

**50+ 'significant facilities' and 50+ smaller**

### **Current Initiatives:**

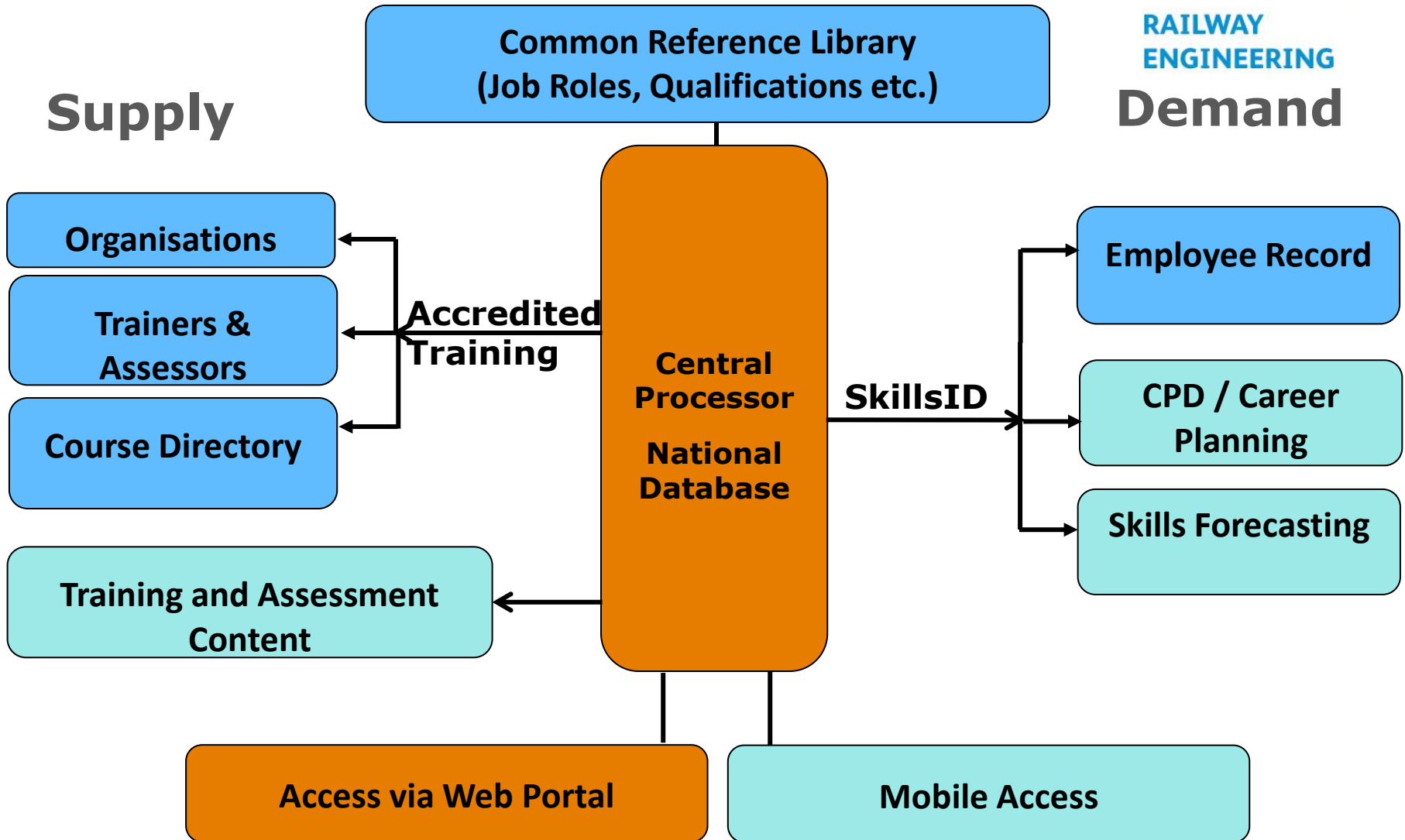
- NTA for T&RS
- ERTMS
- Newcastle College
- Electrification

**Action: Prepare Strategy Paper with NR, TfL, Crossrail, TOCs, RIA etc.**

# 'Skills Backbone' IT Platform

**Supply**

**Demand**



## **SkillsID – What is it?**



**Industry wide national competence database**

**Online record of an individual's skills, competencies, qualifications**

**Accessible by employer (sponsor) and individual  
– promotes ownership of self development**

**Updated by employer (sponsor) and NSARE accredited training providers– verified records**

## Industry Promotion

**Recent upsurge in recognition of need to promote the Rail Industry: willingness to collaborate in light of stiff competition from Nuclear, Aerospace, Utilities etc.**

### **All interested organisations consulted:**

- RDG
- NR, TfL, Crossrail & HS2
- ATOC, TOCs & FOCs
- RIA, RSSB & RRUKA
- IMechE & IRSE (and other PEIs)
- 'Women in Rail' & Young Railway Professionals

### **Opportunities include**

- 'The Skills Show' 16 to 18 November 2013
- 'Big Bang' 13 to 16 March 2014
- University Technical Colleges

### **Agreed:**

- NSARE to facilitate Steering Group & co-ordinate implementation
- Implementation by individual organisations and collective e.g. 'Big Bang'
- YRP members to be 'front-line' Ambassadors
- Industry funding & Programme Management resource required



# Schools Initiative





# Supporting HS2!



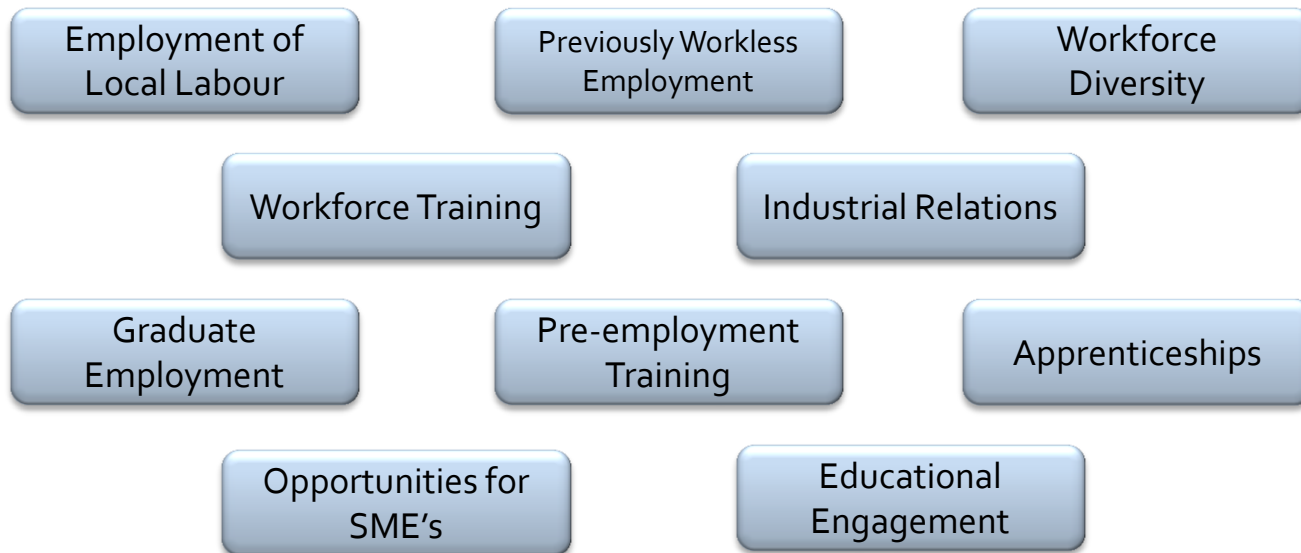
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Developed by the industry for the industry



# It's 2026

- Construction of Phase 1 is complete and the new line has recently opened to passengers.
- The project was delivered on-time, on-budget, with a safety record that outperformed the construction and rail industry's norms by a significant margin.
- From a skills & capability perspective, the project was a huge success meeting or exceeding all expectations for:



- The Government has cited HS2 as a 'game-changer;' a project which, more than any other, has responded to the Industrial Strategy and succeeded in improving the image and capability of the UK construction industry.

# How did we do we do it?

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- What were the critical success factors?
- What changes were made to enable success?
- How role did the client play in enabling success?



**Thank you**

**Please get in touch: [skills@hs2.org.uk](mailto:skills@hs2.org.uk)**

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