CROSSRAIL
Moving London Forward

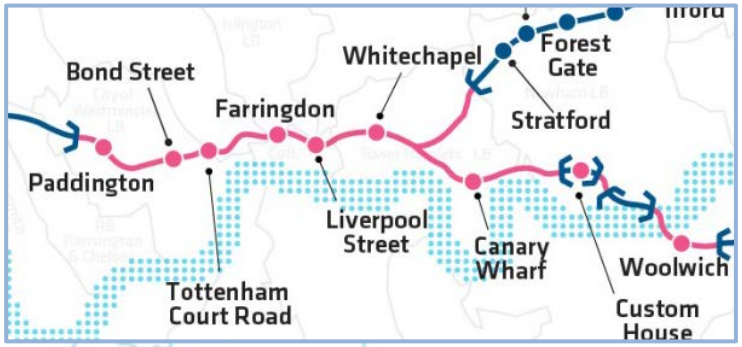
Constructing Excellence Conference

Andrew Wolstenholme

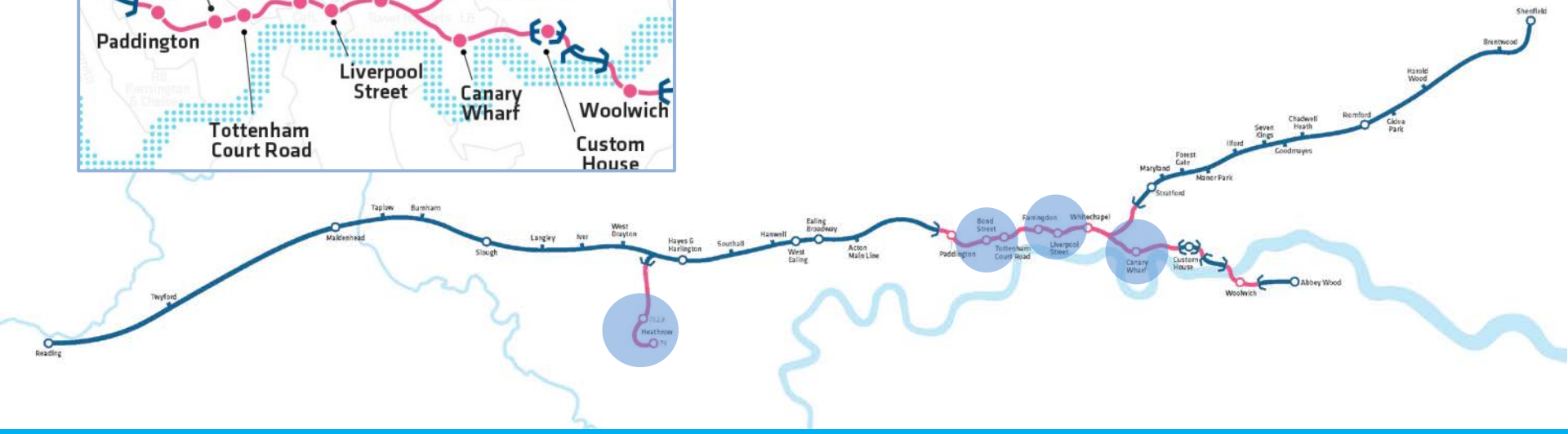
Chief Executive

Delivering major programmes

Crossrail – enabling London to grow

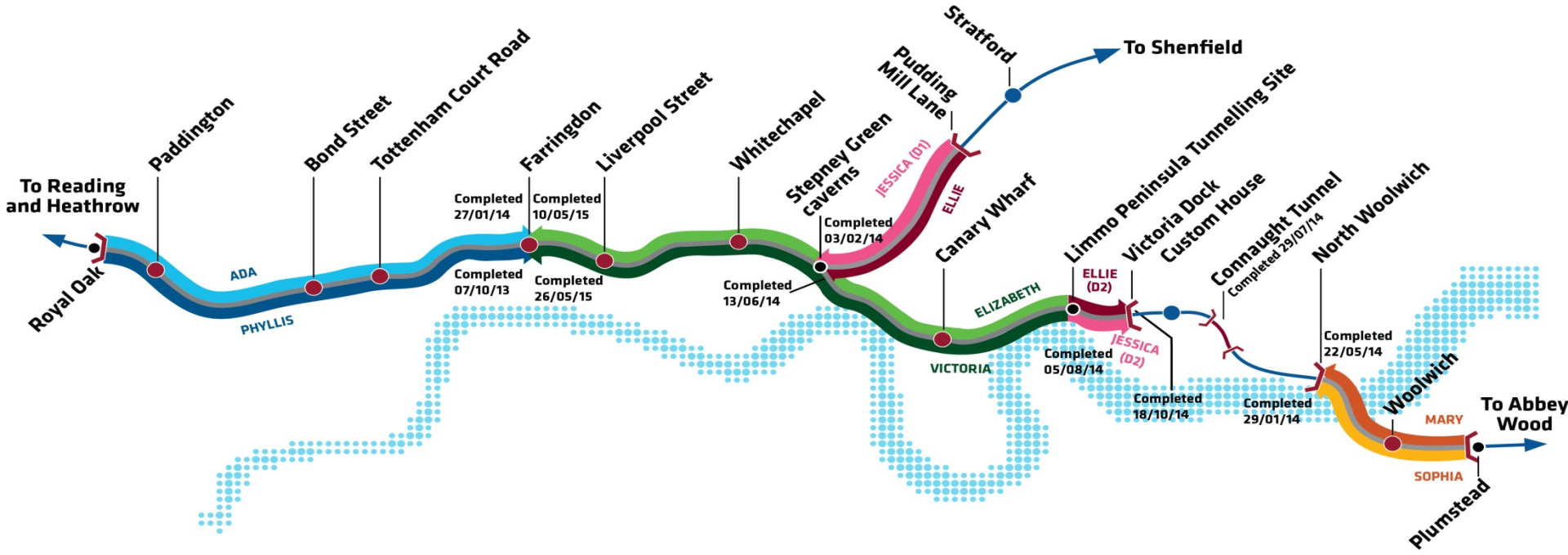


High Capacity Metro Railway



£14.8bn cost	**£42bn** net benefit	**118 km** length	**40 (10** new) stations	**24** Trains/hour	**200m** journeys pa

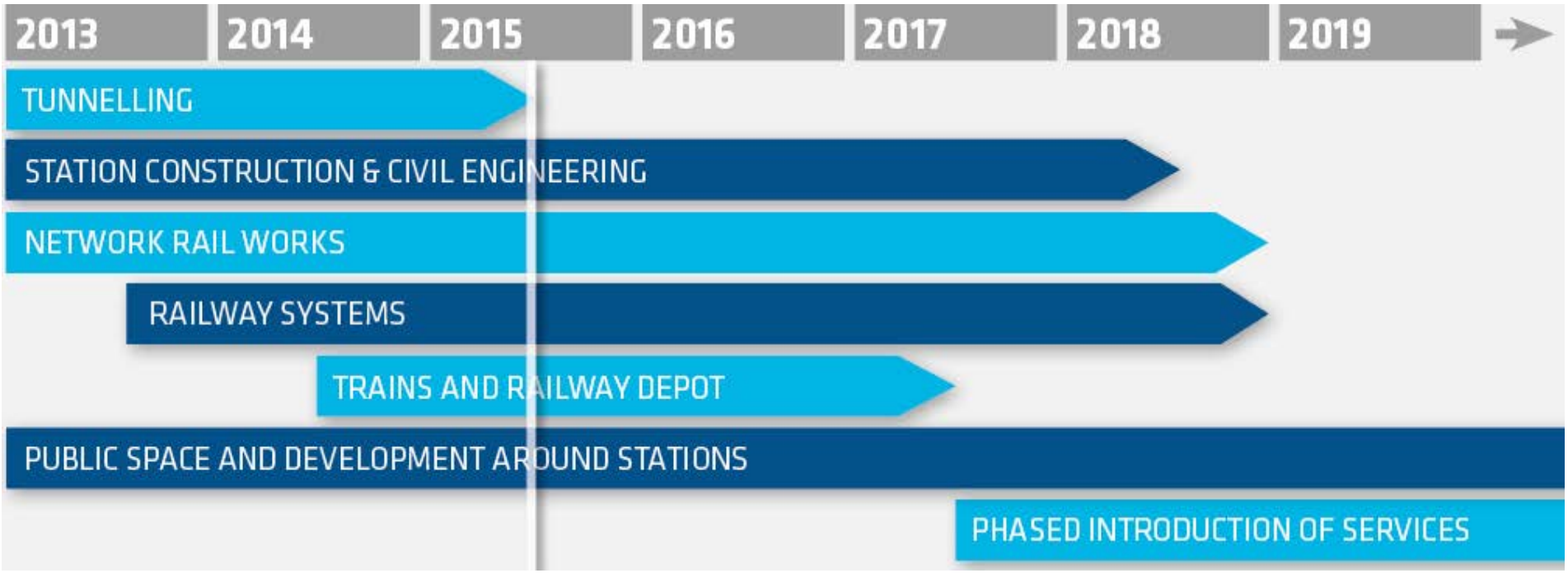
Tunnelling complete

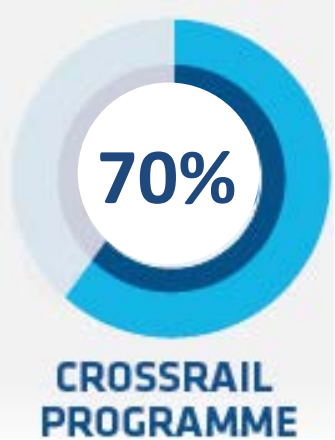


Stations

Railway

Project progress





Operations

- 1,100 staff to be employed
  - 850 new posts
  - 400 drivers
  - 50 apprenticeships
- MTR services will start running on the Greater Anglia line in 2015
- New rolling stock will be introduced in 2017

- 74% of the value of the contract will be spent in the UK
- Target of at least 25% of the value of the contract to go to SMEs.
- Support 840 UK manufacturing jobs building the trains in Derby
  - 500 safeguarded
  - 230 new job starts
  - 30 graduates
  - 80 apprentices

Skills development

Crossrail skills strategy

- Maintaining safety
- Inspiring future talent
- Supporting local labour
- Revitalising the skills base

October 2015

- 485 Apprentices
- Over 12,000 enrolled at TUCA
- c. 14,000 employed on the project
- 4,312 jobs for local people

All figures are running totals bar 'employed on project'

Business opportunities on Crossrail

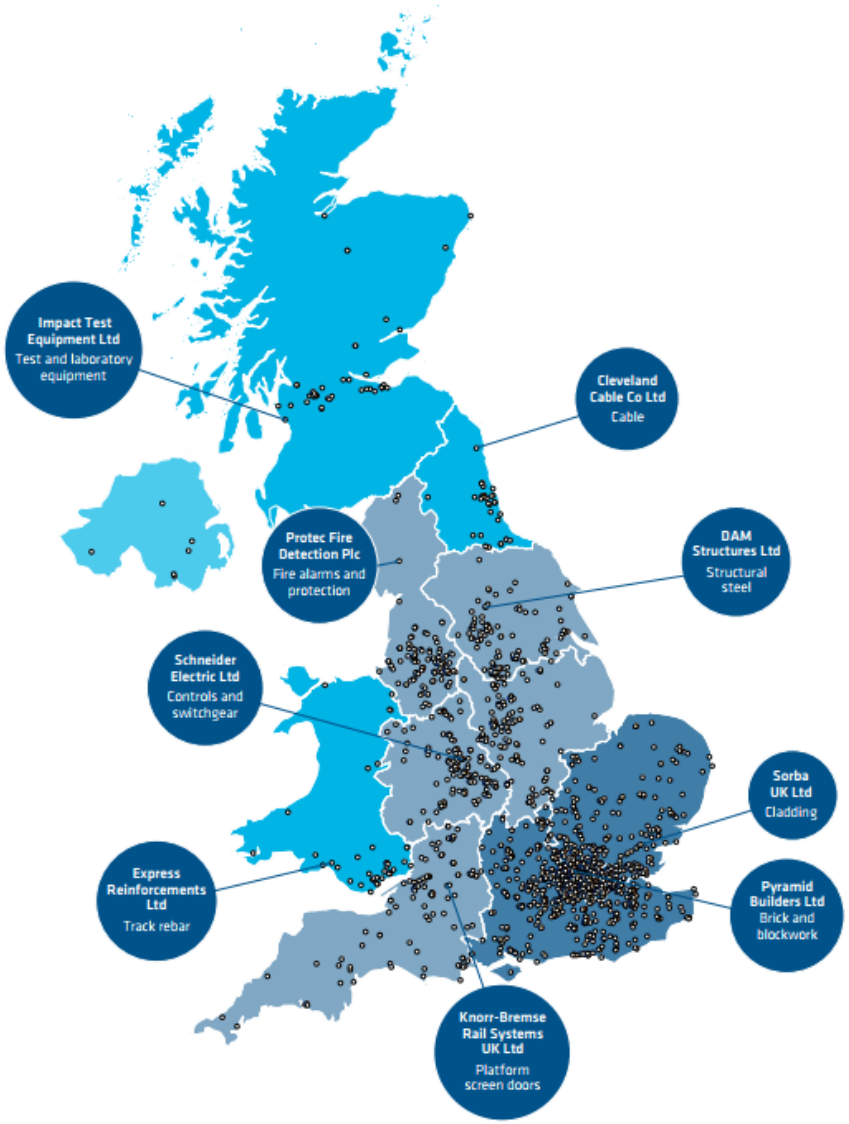
95% of the contracts awarded by Crossrail were to companies within the UK

44% of SMEs said they made new contacts because of their work on Crossrail

£1 For every £1 spent Crossrail will bring £1.97 of transport benefit

£1.97

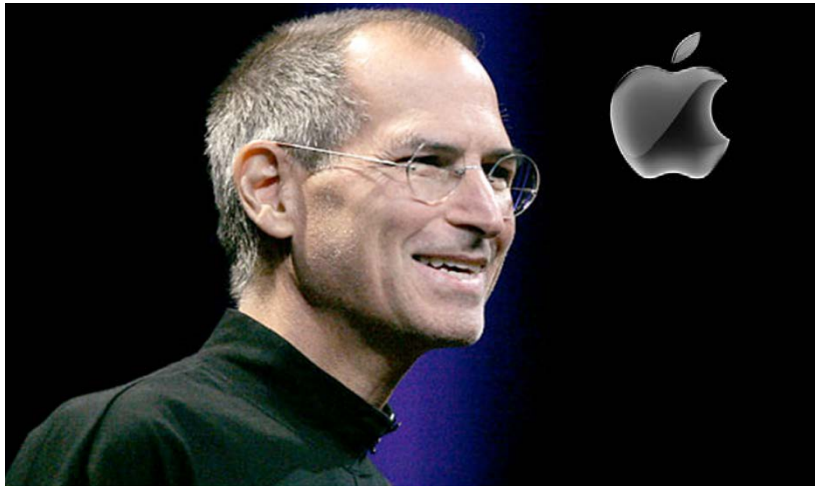
61% of suppliers based outside of London



Environmental footprint

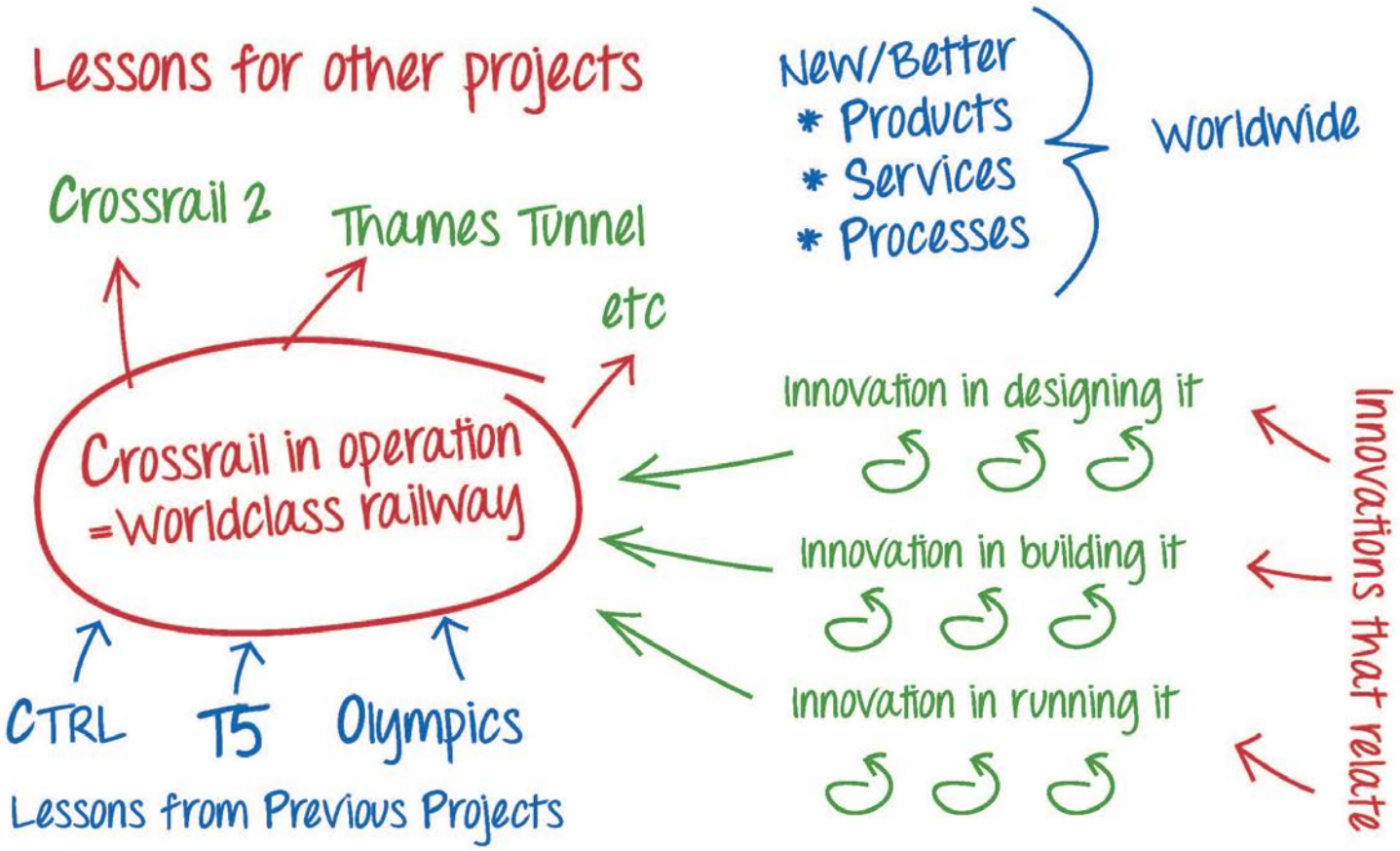
Recording the past..

Changing the way we think



CROSSRAIL

The Crossrail Innovation Vision



Innovation Strategy

Innovation on Crossrail

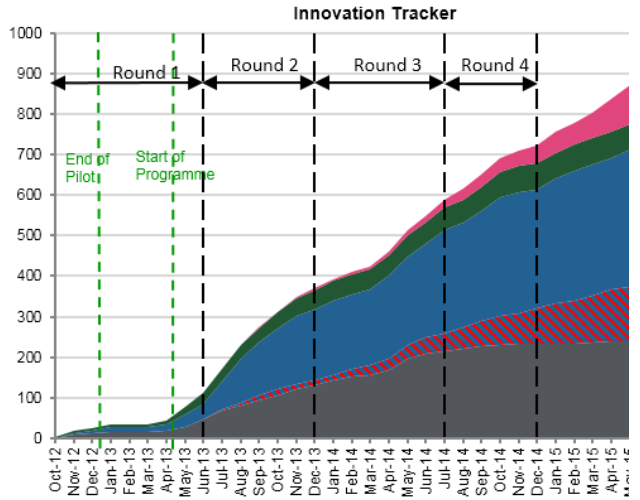
Department for Transport · Crossrail · BIS Department for Business Innovation & Skills

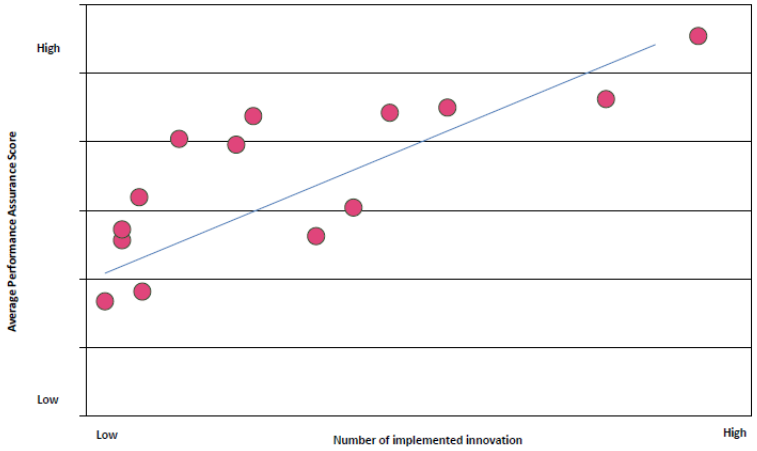
COSTAIN · LAING O'ROURKE · SKANSKA · Balfour Beatty · bam nuttall · MORGAN SINDALL

ALSTOM · ferrovial AGROMAN · HOCHTIEF · VINCI · DRAGADOS

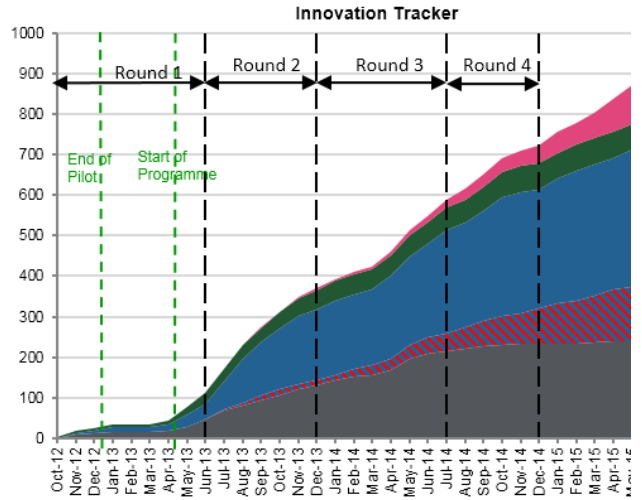
KTN the Knowledge Transfer Network · Innovate UK

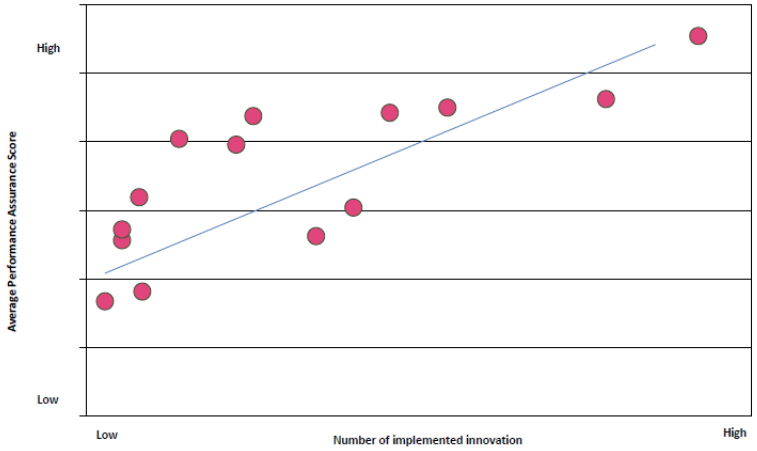
UNIVERSITY OF CAMBRIDGE · Imperial College London





Innovation on Crossrail





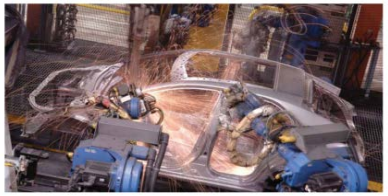
2025 Construction Strategy

AGP Aerospace Growth Partnership

Roadmap to 2025

automotive industrial partnership

Roadmap to 2025



BIS Department for Business Innovation & Skills

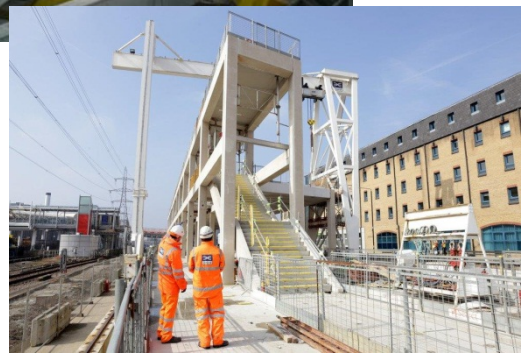
Construction Leadership Council

Roadmap to 2025

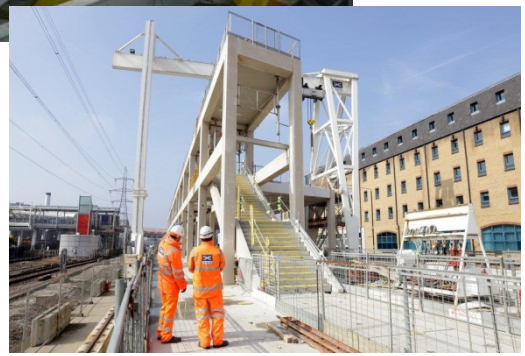
CATAPULT High Value Manufacturing
CATAPULT Transport Systems
CATAPULT Future Cities

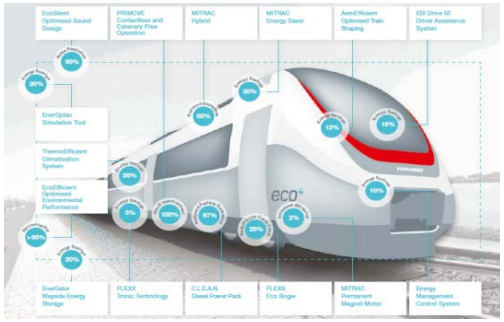
Innovation on Crossrail

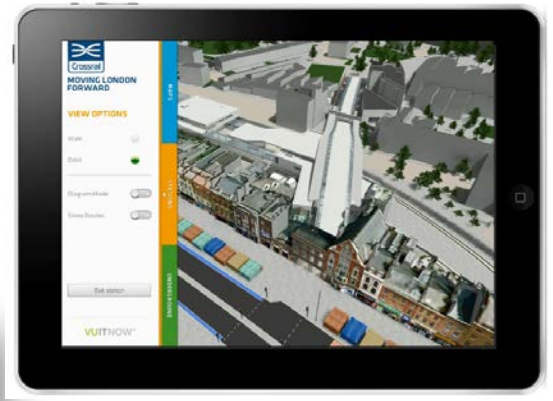
‘Smart Delivery’



Innovation on Crossrail

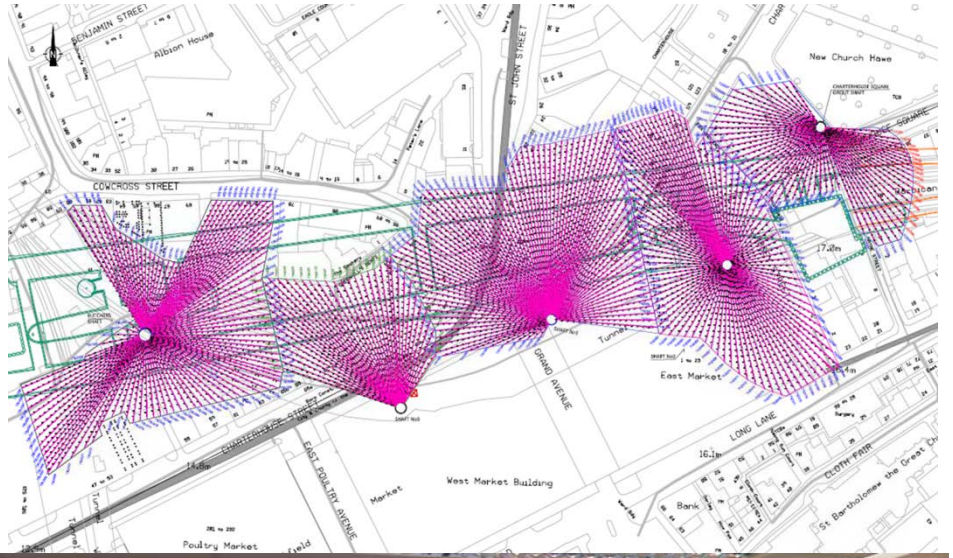




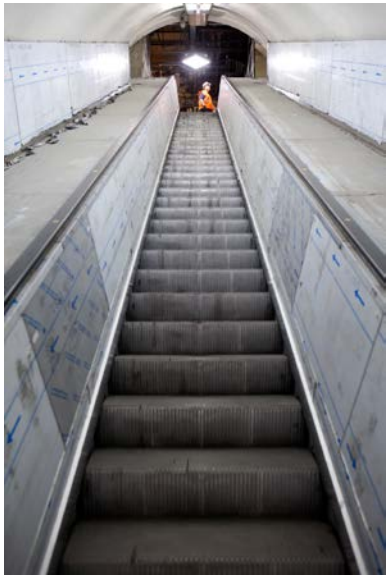


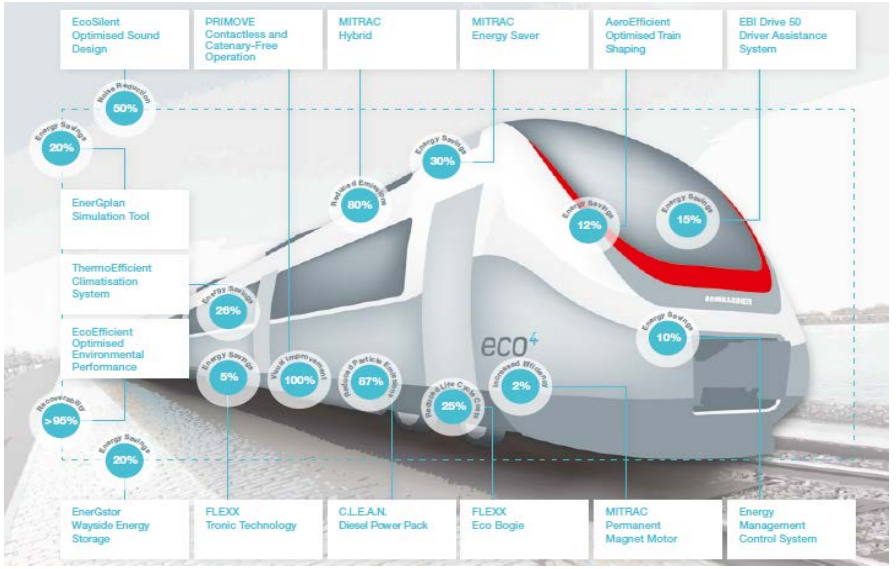
Smart ‘Life Cycle’

Smart Delivery

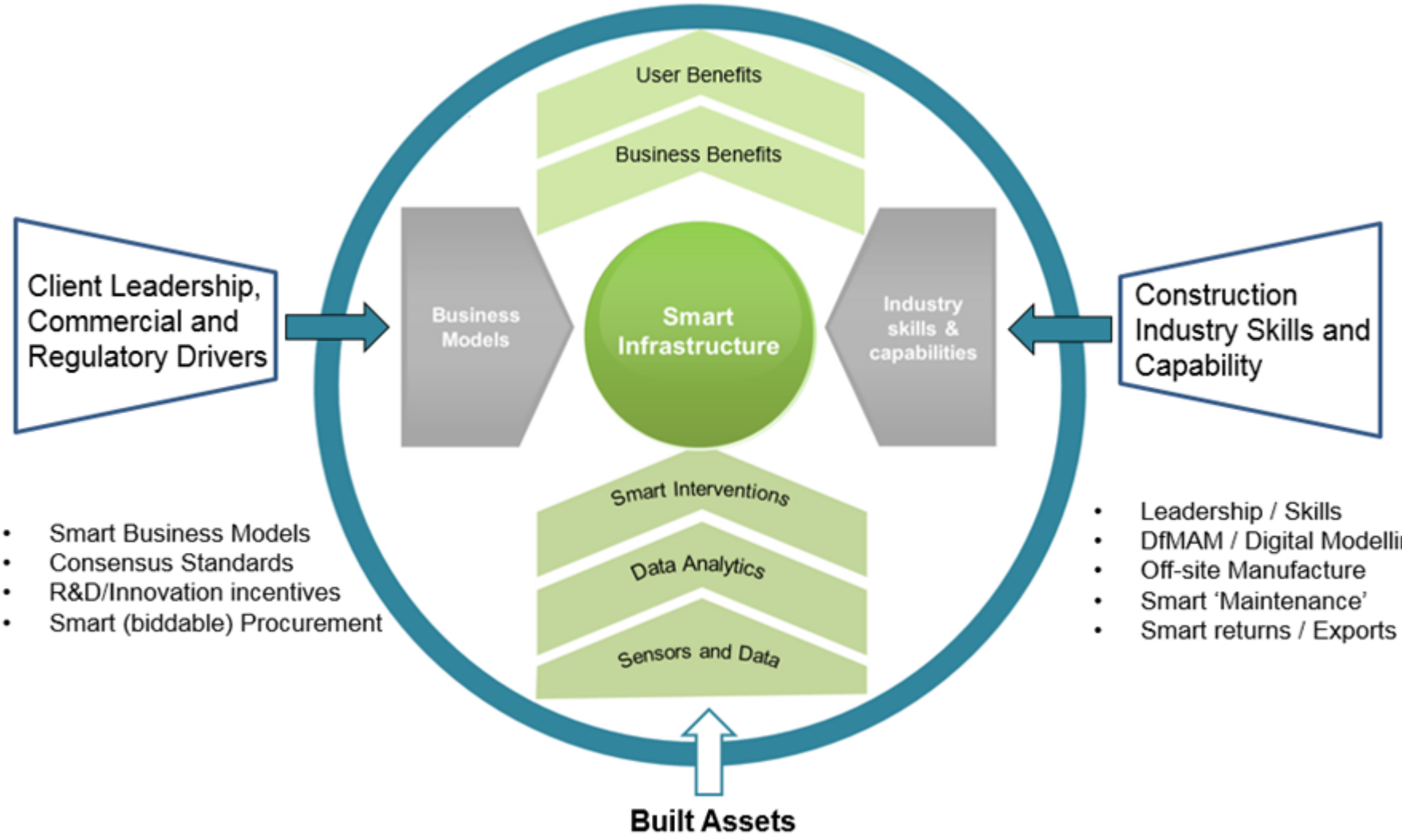


Smart Life Cycle





Smart Infrastructure



- Smart Business Models
- Consensus Standards
- R&D/Innovation incentives
- Smart (biddable) Procurement

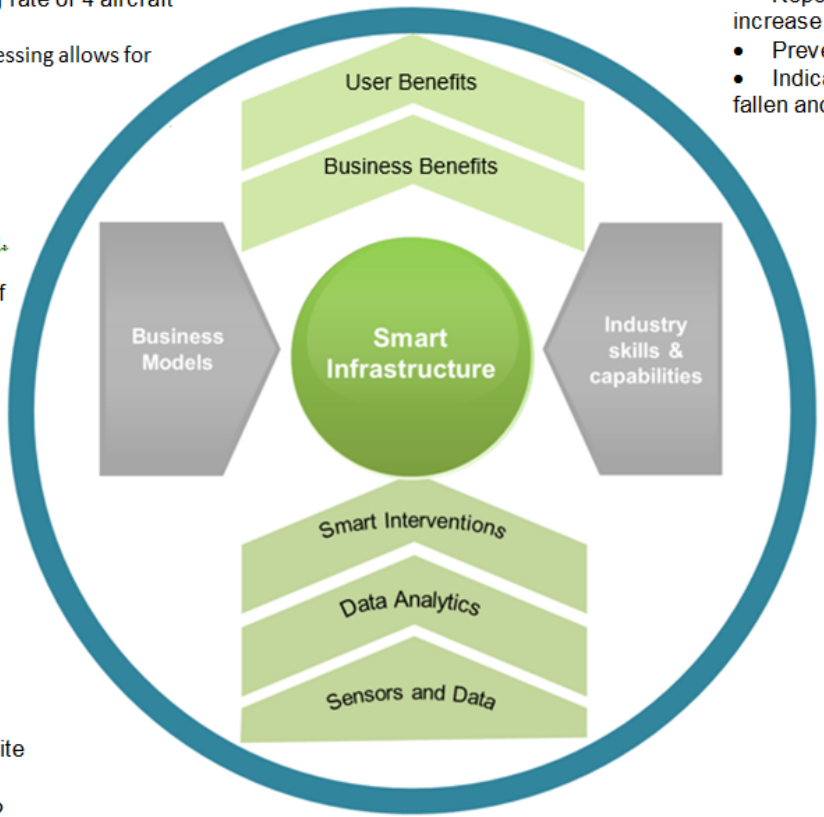
- Leadership / Skills
- DfMAM / Digital Modelling
- Off-site Manufacture
- Smart 'Maintenance'
- Smart returns / Exports

Smart Infrastructure

Heathrow Time Based Separation:
- Digitisation, business and user benefits
- Increased aircraft landing rate of 4 aircraft per hour (~12% increase).
- Live data capture and processing allows for

Highways England Smart Motorways:
- Sensors, data analytics, intervention, business & user benefit
- Reported increases in traffic volumes caused by increase in capacity.
- Prevention of severe congestion.
- Indications are that the number of incidents have fallen and casualties reduced by 50%.

EDF Smart Meters:
- Sensor based, data analytics, user focussed.
- A better understanding of energy consumption, reduced bills and improved comfort.
- Energy efficiency gains through optimisation of user energy usage.
- Consistent industry wide measure



Digital Railway:
- Maximise railway capacity.
- Integrated and open data across maintainer, operator and end-user.

Transport for London Smart Step:
- Data analytics.
- Improve understanding of root cause failure and implement genuine preventative maintenance.
- Potential escalator maintenance savings of circa £16m pa.

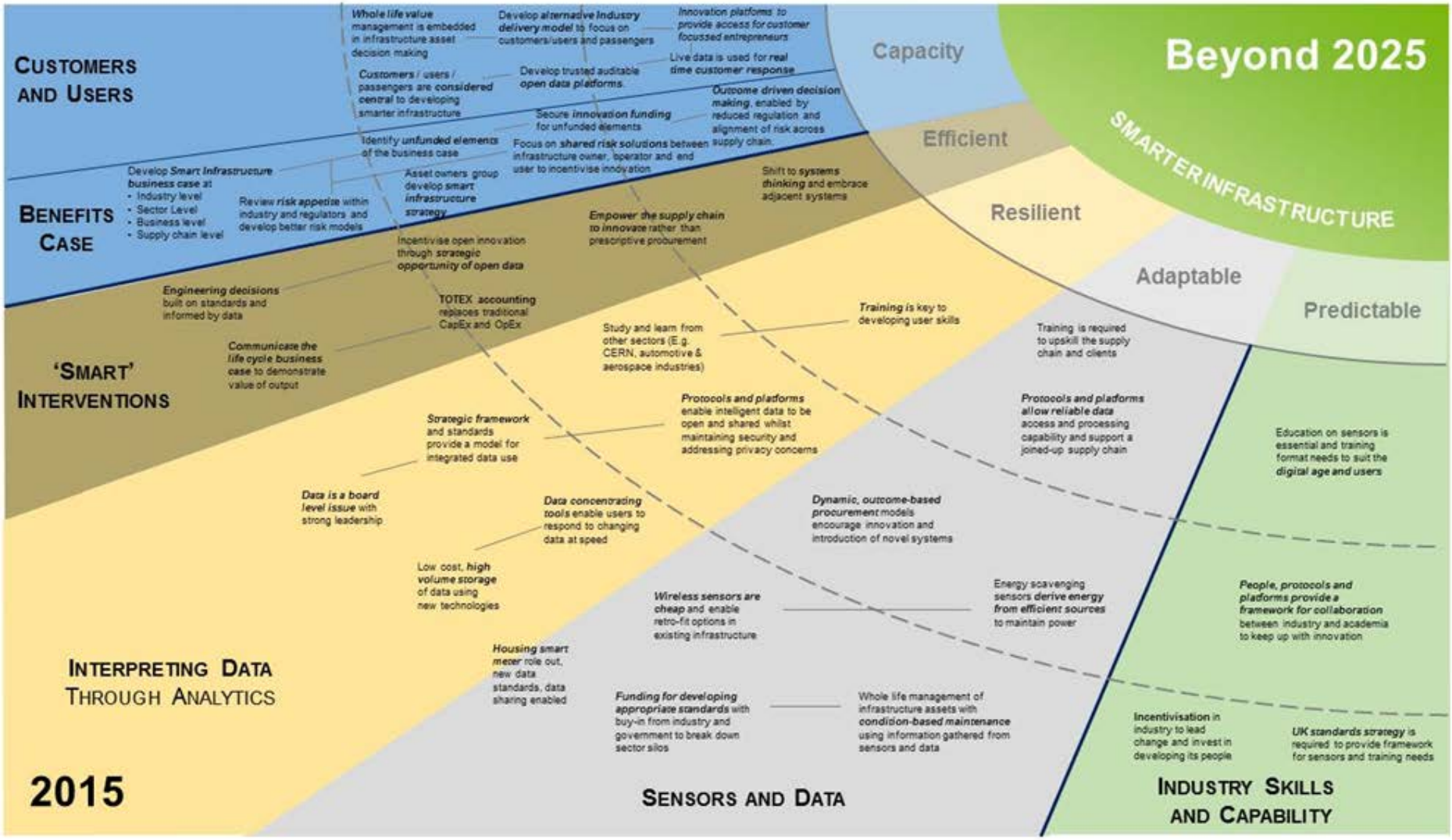
Housing Energy Efficiency:
- Sensors, standards, data sharing, efficiency.
- Smart meter role out.
- New data standards.
- Improved interoperability.
- Contract enabled data sharing.

Staffordshire Alliance:
- BIM, sensors, alliancing, DfMA, off-site manufacture.
- Reduced programme schedule by 12 months.
- Significant increase in sustainability

HS2 Skills Study:
- By forecasting skills gaps, the industry has the opportunity to implement initiatives to address this skills shortage in the areas that are most critical.
- Clarity in future resource levels will inform and advise future capital portfolio and programme risk profiles.

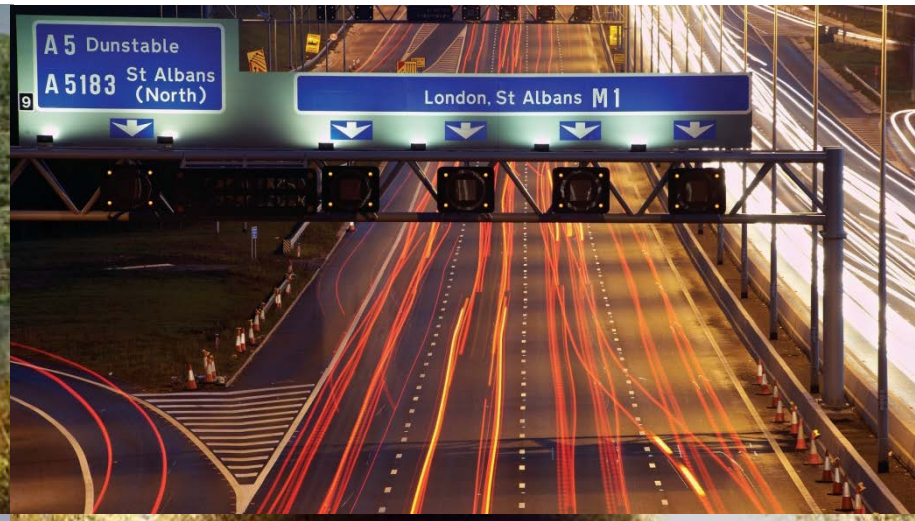
Cambridge CSIC Smart Foundations
- Sensors, business benefits
- Ability to utilise full capacity of pile strength, saving time and money.
- Assess pile capacity strength using in-situ data, allowing for future building enhancements.

Beyond Infrastructure



The £411bn opportunity

HM Treasury
National Infrastructure Commission
Infrastructure UK
Department for Transport
Department of Energy & Climate Change
defra
Department of Energy & Climate Change
Communities and Local Government
Transport for Greater Manchester
highways england
nationalgrid
Network Rail
2
EDF
hs2
Thames Tideway Tunnel



…the final Digital Dimension