



CIHT response to 'Building our Industrial Strategy'
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Chartered Institution of Highways & Transportation response to the BEIS Green Paper consultation 'Building our Industrial Strategy'

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CIHT is a charity, learned society and membership body with over 14,000 members spread across 12 UK regions and a number of international groups. We represent and qualify professionals who plan, design, build, manage and operate transport and infrastructure networks. Part of our vision is to demonstrate transport infrastructure's contribution to a prosperous economy and a healthy and inclusive society. Our values are to be Professional, Inclusive, Collaborative and Progressive.

CIHT welcomes the opportunity to respond to the consultation and the government's move to develop an Industrial Strategy. CIHT is also pleased to be part of a joint response from the Royal Academy of Engineering and its associated bodies.

This submission will focus and highlight the importance of highways and transportation to the development of an Industrial Strategy.

CIHT supports the government's commitment to a long-term ambition to improve living standards and drive economic growth across the whole country. Improving productivity and competition across the UK will be vital as we work towards exiting the European Union, however it is imperative that government co-ordinates that drive and the strategy across sectors. Too often in the past, government departments, strategies and industry have worked in silos. The addition of an Industrial Strategy remit to the Business and Energy Department is important and there is an opportunity to ensure that this strategy aligns with the Housing White Paper, education, environmental and digital policy to deliver a consistent, complete and sustainable strategy for the whole country.

CIHT has repeatedly called for a National Transport Strategy, including in its published Manifesto¹. The benefits of a national strategy - one that sets out a long-term framework over a sustained period (with a 20-30 year time horizon) – are clear when it comes to determining infrastructure priorities in the context of the national economy.

The establishment of the National Infrastructure Commission to evaluate infrastructure connectivity, investment priorities, city to city corridors and governance in the parts of England is a significant step. However, it is important to note the CIHT believe that a 'National' Transport Strategy should include the local road network and set out how the Strategic Road Network (SRN), rail, aviation and ports networks integrate with one another, taking account of key drivers that transport needs to take into account. Nearly all journeys begin and end on the local highway network and therefore this must be considered in any evaluation of connectivity. The latest AIA Survey² shows that the local road network is continuing to deteriorate and demonstrates the negative impact this potentially could be having on local economic growth.

CIHT supports the need to take a co-ordinated approach to determining investment priorities for infrastructure in all its forms. There also is recognition of the inter-dependency between infrastructure and the extent to which this can result in changes in the demand for and nature of travel demand. A National Transport Strategy must take into account the work undertaken at sub-national and local level, as well as having a strong linkage to spatial planning considerations. It is imperative that the National Planning Policy Framework and Local Plans are considered by and as part of the strategy.

¹ [CIHT Making the Journey – A Manifesto for Transport](#)

² <http://www.asphaltuk.org/alarm-survey-page/>

CIHT welcomes the £2.3bn Housing Infrastructure Fund and measures setting out to plan for the right homes in the right place. Quality of place should be a key driver when considering infrastructure for new developments. Increased housing numbers must be balanced with sustainable transport provision, consideration of the environmental impacts and effects on health and wellbeing.

It is also important for national government to adopt a visibly proactive leadership role to address and solve the current breaches in air quality legislation, and deliver on the long awaited National Air Quality Plan. The Secretary of State for Environment, Food and Rural Affairs has responsibility for meeting the limit values in England, and the Department for Environment, Food and Rural Affairs (Defra) co-ordinates assessment and air quality plans for the UK as a whole. The Industrial Strategy must coalesce with the Air Quality Plan.

Certainty and continuity of investment over a sustained period is essential if overall improvements to infrastructure is to be delivered effectively and efficiently. The UK has seen substantial levels of capital investment in transport infrastructure. This investment has been welcomed but there must be greater investment certainty if the UK is to operate maintain and construct the required transport infrastructure network. The whole life cost of transport infrastructure including on-going maintenance, needs to be recognised and resourced appropriately. To address shortfalls in maintenance spending, which tends to operate on annualised budgets, government should give consideration to all sectors adopting a total expenditure method (TOTEX).

CIHT's response is focussed on addressing seven of the pillars as set out below.

Investing in Science, research and innovation

Technology is shaping our lives – both as users of transport networks and as people involved with planning, designing, operating, managing and influencing their development. Innovative new practices are also increasingly changing the way we work.

The public sector should act as an enabler/facilitator for technological innovation as the market will respond in ways that might not be envisaged. The public sector should provide leadership and a vision on the kind of place we are looking to achieve.

The Industrial Challenge Strategy Fund is right to look at growth areas of automation and robotics. For transportation this could have profound effects on not just how we build our infrastructure but also on how we maintain it. Satellites and space technology are already helping transport networks to manage traffic flows and network resilience issues.

The UK has a strong reputation internationally for its engineering and transportation professional capabilities, from its worldwide renowned research and development (R&D), to its universities and companies. It is important that we seek to improve, highlight and promote these qualities in the light of Brexit.

Ultimately investment and certainty of funding is vital and we welcome the increased investment in R&D, however it is also important that there is regional strategy implemented to balance that investment across the country.

Under the current European Union programme, Horizon 2020 (2014-2020), the UK has to date secured 2.63 Euros billions, the second highest level of funding (page 28). Although the

Industrial Strategy outlines the continued collaboration with European partners, the uncertainty around the extent of the collaboration after 2020 is worth noting³.

Clean energy is another growth area. The government can support these areas, through its investment in infrastructure and financial mechanisms. This will not only have economic benefits to the UK automotive sector, but also in addressing issues of air quality. CIHT FUTURES⁴ looks at connectivity in the future. Digital Infrastructure has the potential to significantly affect the way we use transport, both in the UK and globally, and its development needs to be considered alongside development of our transport strategy. The roll out of 5G (and improved broadband) will further support virtual connectivity and continue to change workplace and transport networks in the future.

The highways and transportation sector can sometimes be risk adverse, driven by the need to deliver cost certainty and ongoing efficiency in delivery. Therefore there is a need to address the question of how we embrace change and manage the risk associated with technology and innovation. There is a need to support innovation, throughout the supply chain and this will involve ensuring innovation with procurement and also how we foster greater collaboration.

There are a large range of emerging technologies – from increasingly autonomous and electric vehicles to wireless power technology. Print on demand (3D) and drones are just some examples of what might have a disruptive influence on supply chains and logistics.

The Industrial Strategy should ensure that technology is tested from a security perspective and that a security-minded approach is rooted across all infrastructure delivery. The Strategy should focus on the security aspects of infrastructure provision in terms of physical and cyber security. This is important when it comes to the potential security implications of moves towards open data and BIM models. It is recommended that PAS 119-5 2015⁵ is strongly championed by the strategy to ensure such thinking is embedded within the infrastructure community.

Developing Skills

It is important that the strategy does not focus solely on productivity but also recognises the importance of sustainable delivery to achieve its ambition of long-term economic success. The recruitment, careful development and retention of the next generation is central to a vibrant, internationally competitive and diverse industry. Industry trends show that with fewer graduates entering and an ageing current workforce, action must be taken to secure the pipeline of skilled engineers and transportation professionals for the future.

This includes an understanding of who is responsible for tackling the shortage and how we are going to fill the jobs that will be required to deliver the proposed infrastructure. The development of skills is a key area of concern and one that should be carefully considered when reviewing delivery of the UK's needs. The recruitment, development and retention of the next generation is vital to deliver these ambitious plans. In a recent survey of CIHT's Corporate Partners, 96% of respondents anticipated having a skills shortage in the next few years.⁶

CIHT has a suite of career materials and guidance as part of a programme to help the industry deal with the range of technical skills shortages. This includes a diversity and inclusion toolkit

³ <http://www.ciht.org.uk/en/media-centre/news/index.cfm/transport-innovators-told-not-to-fear-brexit>

⁴ <http://www.ciht.org.uk/en/knowledge/futures/index.cfm>

⁵ <http://bim-level2.org/en/standards/>

⁶ [Routes to Diversity & Inclusion, CIHT 2015](#)

which provides practical guidance on data gathering, attracting and retaining a more diverse workforce and on changing culture and behaviour. It is the first toolkit of its kind for the highways and transportation sector and provides a route map to success through diversity and inclusion. If it does not tap into a wider talent pool, the Industry is unlikely to recruit the number of people that it needs to maintain and develop its skills base.

The National Infrastructure Plan for Skills⁷, published by Infrastructure UK, sets out concerns in major sectors like roads, rail and energy. The report found that through growth in infrastructure investment, there would be a demand for over 250,000 construction and over 150,000 engineering workers by 2020, with a shortfall of nearly 100,000 additional workers by the end of the decade. Programmes like HS2 and increased investment in roads will put further stress on the industry's capacity to deliver, the report found. It noted that demand is forecast to outstrip supply over the next five years in all English regions.

The Strategy has a key role in establishing the certainty that would help industry invest in skills and secure the pipeline of engineers and professionals for the future. CIHT welcomed the Department for Transport Skills strategy⁸. It is now crucial that the government works with industry very quickly to ensure the skills, capacity (e.g. timetabling of scheduled works to enable the necessary skilled professionals to be available) and capability to deliver these infrastructure projects are available. CIHT welcome the new Technical 'T' levels as announced in the budget. There is a major challenge to upskill the existing highways and transportation engineering workforce. Certainty and policy stability that should give employers the confidence to invest in training and upskilling.

In addition, all of the above studies into the shortage of skilled workers do not take into account the potential effect of Brexit. There has traditionally been a reliance on labour from the EU, both skilled and unskilled. It is, however, difficult to comment on the effect leaving the EU will have on the skill pool as we are still waiting to hear the type of Brexit that will be delivered and how the subsequent negotiations with former trade partners will conclude. Workers from the EU play a huge role in the construction/engineering industries and their loss would impact greatly on project delivery. The Office of National Statistics figures state that nearly 12 per cent of the 2.1 million construction workers come from abroad.

In addition to addressing current skill needs, the Industry must start to look at the skills that will be needed in the future and factor to those in to any skills development strategy going forward. Government should support a public engagement campaign to promote careers in engineering and related disciplines to young people and their influencers.

Upgrading infrastructure

CIHT believe the funding and delivery of UK infrastructure needs to change to ensure that the infrastructure necessary to compete globally is planned, in place and improved over the short, medium and longer term. CIHT has consistently called for an integrated national transport strategy that sets a clear framework of requirements over a sustained period (20-30 years) for all elements of the UK transportation networks (this call remains relevant for the Industrial Strategy).

Where infrastructure improvements are identified, CIHT believes they must be targeted to improve capacity in the most congested areas e.g. to ease pinch points on the major road network, enhance alternatives to car travel and/or provide additional capacity on the rail

⁷ [The National Infrastructure Plan for Skills 2015](#)

⁸ [Department for Transport Skills Strategy 2016](#)

network. Rural/local communities/transport must in particular merit consideration for improved transport services and increased travel options.

Existing infrastructure assets must be maintained. Inadequate revenue investment requires more capital investment as well as affecting the performance of existing networks. Preventing deterioration is a priority and will reduce longer term costs through encouraging a planned rather than reactive approach to investment.

There should be a clear strategy, set nationally, for collaboration between different policy areas, including transport, digital, health, planning (including housing), utilities, education and social care in making inclusive and accessible environments, as all of these areas contribute to congested networks.

There is limited, if any coordination between government departments with ambiguity around roles and responsibilities. CIHT welcome the Industrial Strategy Green Paper and Airport Capacity National Policy Statement and Housing White Paper, however it is essential that these relate/co-ordinate with each other and are not once again individual silo'd statements.

Improving Procurement

The UK has embraced European legislation aiming to demonstrate an open and fair approach to procurement. This approach has generated good levels of competition and provided a framework for client bodies to follow in order to deliver their desired outcomes. Whilst it is essential that clients follow the procurement rules they should do so with an understanding of what the outcomes will be – an ineffective procurement is unlikely to achieve the right outcomes for people using the service being developed. It is therefore essential that client procurement teams are made up of procurement specialists and those with responsibility for service delivery – collaboration is key.

In addition, clients must take due account of their strengths and limitations when developing procurement strategies in order to ensure that the procurement is both effective and efficient. It is well documented in numerous studies that procurements can be expensive and protracted particularly where more complex procedures like competitive dialogue are used.

Procurement should not stifle innovation and the ability to change approaches as circumstances change. Whilst efficiency of procurement and delivery is key, effectiveness of delivery of the right service and products should be the overall aim of any procurement.

Collaboration should be the first thing that is considered and it does not happen by chance. Collaboration requires time, effort and a clear purpose. Measuring behaviour should be part of the culture and to make this happen requires clear engagement, leadership, improved training and education, both at an early stage and throughout the process and sector. Institutions such as CIHT are in a position to take a lead in promoting collaboration as a tool for success, highlighting through education/events/seminars and the distribution of best practice.

Government has a strong interest in procurement and given recent events in the rail sector will continue to influence how public bodies procure in England. A wide range of procurement toolkits are in place, including those developed with CIHT involvement such as the Highways Maintenance Efficiency Programme⁹. These toolkits aim to guide clients through the procurement exercise making it as simple and straight forward as possible. The key issues in procurement are:

- Encouraging clients to take due account of quality in addition to price.

⁹ <http://www.highwaysefficiency.org.uk/>

- Helping industry to gain a better understanding of cost and price so projects can be procured on the right basis.
- Promoting the need for transparency so that prices can be allocated and compared properly and not 'distorted' internally by the use of a contrived model that the tenderer does not see.
- Helping industry to better understand how to deal with the boundaries/interfaces at lump sum vs. target cost vs. cost reimbursable.
- Promoting the use of pre-procurement engagement with suppliers where this does not contravene EU procurement rules.
- Promoting a move to fully outcome based contracts where providers are paid based upon performance.
- Helping professionals to identify appropriate procurement strategies that are most likely to result in the required client outcomes.

Cultivating world-leading sectors

Transportation in the UK is delivered by a range of organisations that are also global organisations whose projects are renowned around the world. At government levels we have the potential for strong linkages across the world, through organisations like the World Roads Association¹⁰. Our expertise is recognised across the world with our professionals in strong demand worldwide. Creating a focus for that knowledge would be a strong driver for the creation of world leading sectors.

Supporting sector deals for 'smart, clean and green transport infrastructure' would involve a collaboration between government and business to accelerate the progress of clean energy technology from EV charging points to LED street lighting. The aim would be to overcome revenue constraints that might prohibit investment and innovation and support SME's to be able to bring new ideas to markets through government procurement.

A cross sector panel could be set up to monitor and review progress to achieving the aims of the sector deal.

There should be encouragement for a sector deal on 'infrastructure materials innovation' – cross sector, government, university, industry to align the development of new ideas (such as self-healing materials, to self-monitoring and repairing structures) to create world-leading infrastructure with the vision of developing self-repairing infrastructure.

Driving growth across the whole country

The Strategy needs to recognise the national and regional opportunities and challenges thrown up by devolution. There is an opportunity to build on the emergence of sub-national groupings to encourage a more strategic focus to decision making. The emergence of statutory Sub-national Transport Bodies offers new opportunities to feed in local 'strategic' views into a national 'strategic' view. The Industrial Strategy should take advantage of this by working closely with sub-national partnership bodies, enabling an integrated/co-ordinated approach to infrastructure planning to meet local 'strategic needs'.

Devolved governments in both Scotland and Wales have already demonstrated a more joined up approach in developing a transport strategy. Scotland are currently carrying out a review of their National Transport Strategy¹¹, there is an opportunity to learn from their approach.

¹⁰ <http://www.ciht.org.uk/en/knowledge/associated-organisations/world-road-association.cfm>

¹¹ <https://www.transport.gov.scot/our-approach/strategy/national-transport-strategy/#37277>

London provides an example of how a Mayoral approach, with executive powers, can deliver positive change in terms of transport. The 1999 Greater London Act transferred responsibility for multi-year budgets to the London Mayor¹² - which has allowed for long term planning (for schemes such as Crossrail) and for focus on local networks that help improve health and wellbeing through the support given to walking and cycling.

The devolution deals currently underway present great opportunities for a greater response to local needs but we need to address challenges that may arise such as; consistency of approach, ineffective use of resources and differing governance standards.

The move to devolution of greater agglomeration of transport operations, if structured (through governance/executive powers and funded for multi-year periods) correctly could deliver real benefits.

More focus needs to be given on how we manage transport/industry in all its forms across the country. E.g. The Rees Jeffrey work on the Major Road Network¹³, combined with the developing approach of Highways England and the emergence of sub-national transport bodies such as Transport for the North, Midlands Connect and England's Economic Heartland give the opportunity to consider carefully how transport should be managed.

The availability of funding for e.g. transport, especially at a local level will continue to be a concern moving forwards.

In this time of increasing devolution to a regional and local level, understanding the relationships/interaction between Local Authorities, local business (LEPs), subnational transport bodies, new regional alliances, universities and the work of innovation catapults is important. Clarity of how these different institutions/organisation relate to and work with each other would be an important piece of work for Government to carry out.

Creating the right institutions to bring together sectors and places

For industry, places and people to flourish we need a highways and transportation system that is effective, efficient and fully funded to deliver the services everyone needs. Transport is not an end in itself but allows journeys that everyone needs to happen. It creates and enables places to work and the assets it serves are a fundamental part of our infrastructure.

The planning, design, building, management and operation of transport is fundamental to our countries success – recognising that and putting in place the right structures and institutions to deliver a coordinated way of delivering transport will pay dividends in allowing industry and society to thrive.

Government has an opportunity to engage with Professional Engineering Institutions, utilising the wide range of membership across the UK. Most Institutions have regional and international structures and strong links to academia and the wider profession. CIHT are engaged in continuing professional development and training and working with education to promote the industry, industry best practice and provide professionals for the future.

¹² ['Can Devolved Transport Overcome the Black Spots, Guardian Newspaper \(2015\)](#)

¹³ <http://www.reesjeffreys.co.uk/wp-content/uploads/2016/10/A-Major-Road-Network-for-England-Report-Summary-David-Quarmby-and-Phil-Carey-Rees-Jeffreys-Road-Fund-October-2016.pdf>