

DEBATE SUMMARY

Building effective and efficient infrastructure for the UK

Held at The Royal Society on 27th April, 2016.

The Foundation is grateful to Costain, The Michael John Trust and Tarmac for supporting this debate.

The hash tag for this debate is #fstinfrastructure .
Audio files of the speeches are on www.foundation.org.uk .

- Chair:** **The Earl of Selborne GBE FRS**
Chairman, The Foundation for Science and Technology
- Speakers:** **The Rt Hon the Lord Adonis**
Chair, National Infrastructure Commission
Tony Meggs
Chief Executive Officer, Infrastructure and Projects Authority, Cabinet Office
Terry Morgan CBE
Chairman, Crossrail
- Panellist:** **Darren James**
Managing Director, Infrastructure, Costain
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TONY MEGGS began by outlining the role of the Infrastructure and Projects Authority (IPA), a body formed in 2016 by the Government by merging Infrastructure UK and the Major Projects Authority. Its role complemented that of the National Infrastructure Commission (NIC) – the latter was concerned with assessing long term needs and the former was concerned with assisting action effectively to implement those needs. He was increasingly confident of the UK's ability successfully to achieve world-class standards in the delivery of large projects. A cadre of leaders in project delivery had been built up.

However significant improvements in productivity were needed. Greater certainty about the future flow of work – an important contributor to improved levels of productivity – was needed. There was still a worrying gap between policy announcements and policy delivery; plans for effective delivery needed to be in place before policy decisions were announced. These were areas where action by Government, through the IPA, could help.

The Government's portfolio of major projects was large and diverse. The second National Infrastructure Delivery Plan (NIDP) was published in March this year setting out details of nearly £300bn of investments to be delivered by 2020-21. Nearly 90 per cent of the investments set out in the first NIDP, published in 2010, had now been delivered or were being delivered. Around 50 per cent of the projects in the second NIDP would be

financed and delivered by the private sector. The successful implementation of the plan would require major investment in retraining and up-skilling the existing 250,000 workforce and in recruiting and training an additional 100,000 workers.

LORD ADONIS said that his experience in Government and outside Government had convinced him not only that state involvement in infrastructure development was essential but also that it had in the past been badly handled. The main failure had not been so much in long-term planning. (Much of our present infrastructure (e.g. airports, the motorway system, electricity supply) resulted from Government foresight going back to the time of the coalition War Cabinet) but in the stop/start nature of the delivery of those plans. It had taken 30 to 40 years to put in place the surface transport needs, envisaged in the Abercrombie plans for Heathrow Airport. Implementation of subsequent plans for the expansion of airport capacity in London, following the 1971 report of the Roskill Commission on a Third London Airport, was started and then cancelled. Decisions on the more recent Davies Commission were still awaited. The first plans for Crossrail were prepared in 1974 but implementation had been aborted. Only after the third revival of the project had it progressed to its conclusion.

In his opinion the only way to avoid such costly failure and delay was to secure from the outset cross-party consensus (CPC) in the support for

major infrastructure projects so that, once decided, they could be driven forward efficiently to timely completion, regardless of possible changes at the political level. The very challenging HS2 project (stage 1 included 100 miles of new track and four new major stations) had shown what could be achieved through CPC (even though that CPC had been more the result of serendipity than coherent effort). The project had been announced six years ago. Legislation was now going through Parliament and construction should begin next year. Crossrail had shown that CPC at regional level (through the Mayor of London) as well as national level was also of great value. HS2 had also benefited from CPC at regional level.

TERRY MORGAN expressed his confidence that this £14.8bn (plus £1bn for rolling stock) project would be delivered on time and within budget. It had mercifully not been a political football once it had got under way. He stressed that, in implementing the project and exercising its purchasing power, the company had interpreted its responsibilities widely to embrace the need to support skills training and gender diversity both within the company and in its supplier companies, to extend the economic benefits as widely as possible across the whole of the UK, to be innovative and to work closely and in co-operation with the communities and environment affected by the project. He instanced the way in which the problem of disposing of seven million tons of waste, created by tunnelling through the heart of a major city, had been solved in a novel way. The waste had been used to create a large new bird reserve to the east of London, which was rapidly becoming a major tourist attraction.

He said that Crossrail currently had over 500 apprentices. He said that 95 percent of the Crossrail spend had been in the UK and 60 per cent of that had been with small and medium enterprises. The major overseas expenditure had been with the German company that provided the tunnel boring equipment. The co-operation with that company had resulted in the acquisition by British engineers of new skills in handling world-class equipment.

He agreed with the previous speakers in the importance of continuity of project work as a means of improving productivity and of maximizing the wider benefits to the UK economy of major infrastructure projects.

In the discussion periods before and after dinner, the panel of speakers was joined by DARREN JAMES Managing Director, Infrastructure, Costain. He supported the points made about continuity, adding that he saw it as fundamental to skill building throughout the supply chain. He believed that in the UK there was a growing awareness of the value of infrastructure investment.

Some contributors to the discussion expressed concern about placing too much emphasis on large engineering projects, including the risk that some

of them could turn out to be white elephants. It was argued that significant benefits to the economy and to society could flow from small projects designed to remove bottlenecks and from projects outside the field of engineering. As for white elephants, it was suggested that the backlog of essential investment was so great that the risks of useless projects was insignificant.

Questions were asked about the lessons which the UK could learn from other countries. Speakers suggested that other countries had their problems too. In Germany, for example, there had been a major and sudden discontinuity in energy policy. In France, some apparently successful infrastructure policies had produced unfortunate social consequences as a result of inadequate foresight and planning (e.g. the Paris RER train system connecting central Paris to the suburbs and the social problems that had created).

Many of the contributions sought to identify areas of infrastructure which needed more attention, such as flood prevention, higher speed and better broadband coverage.

There was some discussion about the emphasis being given to high speed rail. Was it not more important to cater more for freight than for passengers? But it was pointed out that one of the benefits from the HS2 project was the freeing up of capacity on existing rail routes, thus giving greater scope for freight traffic. And the panel speakers suggested that in fact more innovative and more appropriate ways of handling freight might be "freight trains" on roads.

Other points made in discussion were:

- It was important that other infrastructure projects should seek to match Crossrail's contribution to skills development;
- Speakers had paid surprisingly little attention to capital provision and the cost of capital. The latter varied markedly from sector to sector but much of the variability could be due to different risks which could not be eliminated;
- There was a need for more radical innovation in the processes of construction;
- Government sometimes lacked the necessary competences to be an effective customer for projects. Not only were the right professional skills absent but also too rapid staff turnover resulted in a lack of experience.

In conclusion the Chairman commented that the discussion had highlighted the wide and varied achievements of the Crossrail project of which the UK could be proud. It was important that the lessons learned from that project were built upon in future projects. It was evident from the discussion that much still needed to be done to improve productivity and skills development;

greater continuity in infrastructure investment and the avoidance of stop/go would help.

Sir John Caines KCB

Open this document with Adobe Reader outside the browser and click on the URL to go to the sites below.

Useful reports:

National Infrastructure Delivery Plan 2016 to 2021

www.gov.uk/government/news/new-national-infrastructure-delivery-plan-gets-britain-building

Useful links:

Amey
www.amey.co.uk

Anglo American
www.angloamerican.com

Arup Group
www.arup.com

Atkins
www.atkinsglobal.com/en-gb

Babcock International
www.babcockinternational.com

BAE Systems
www.baesystems.com

Balfour Beatty Civil Engineering
www.balfourbeatty.com

BAM Nuttall
www.bamnuttall.co.uk

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BuroHappold Engineers
www.burohappold.com

Cammell Laird
www.clbh.co.uk

Carillion
www.carillionplc.com

CIRIA
www.ciria.org

Costain
www.costain.com

Crossrail
www.crossrail.co.uk

Department for Business, Innovation and Skills
www.gov.uk/government/organisations/department-for-business-innovation-skills

Department of Energy and Climate Change
www.gov.uk/government/organisations/department-of-energy-climate-change

Department for Transport
www.gov.uk/government/organisations/department-for-transport
EDF Energy
www.edfenergy.com

Energy Technologies Institute
www.eti.co.uk

Future Cities Catapult
www.futurecities.catapult.org.uk

Galliford Try
www.gallifordtry.co.uk

High Value Manufacturing Catapult
www.hvm.catapult.org.uk

Highways England
www.gov.uk/highways-england

Infrastructure and Projects Authority
www.gov.uk/government/organisations/infrastructure-and-projects-authority

Innovate UK
www.gov.uk/government/organisations/innovate-uk

Institution of Civil Engineers
www.ice.org.uk

The Institution of Engineering and Technology
www.theiet.org

Institution of Mechanical Engineers
www.imeche.org

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www.kier.co.uk

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www.laingorourke.com

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www.morgansindall.com

National Grid UK
www.nationalgrid.com

National Infrastructure Commission
www.gov.uk/government/organisations/national-infrastructure-commission

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Transport for London
www.tfl.gov.uk