



NIA Call for Evidence
National Infrastructure Commission
11 Philpot Lane
London
EC3M 8UD

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The Institute of Directors welcomes the opportunity to respond to the NIC's call for evidence on the National Infrastructure Assessment. With a growing national debt and a persistent budget deficit, combined with a fast growing population, The IoD is mindful of the need to prioritise carefully selected infrastructure investment with limited resources. Infrastructure investments are not all equal and necessarily a net public good. All too often, the infrastructure policy environment is dominated by a wish list of large construction, engineering and blue chip consultancy industries. The mantra is that spending on infrastructure is always good, but how do we know that?

We call our approach Frugal Infrastructure. We advocate it as a methodology to shape the National Infrastructure Assessment based around an Infrastructure Best Value Index to size up projects against one another and where necessary, say no. Below we have outlined in some more detail how this could work and have answered a number of the questions.

About the IoD:

The IoD was founded in 1903 and obtained a Royal Charter in 1906. It is an independent, non-party political organisation of approximately 35,000 individual members. Its aim is to serve, support, represent and set standards for directors to enable them to fulfil their leadership responsibilities in creating wealth for the benefit of business and society as a whole. The membership is drawn from right across the business spectrum. 71% of FTSE 100 companies and 51% of FTSE 350 companies have IoD members on their boards, but the majority of members, some 70%, comprise directors of small and medium-sized enterprises (SMEs), ranging from long-established businesses to start-up companies. IoD members' organisations are entrepreneurial and growth-orientated, and more than half (57%) export goods and services internationally.

Frugal Infrastructure – the IoD approach

Spending money is easy but generating returns is hard. We believe there is a new opportunity to match austerity with infrastructure to deliver better outcomes for the least financial input. The middling performance of UK infrastructure according to the World Economic Forum is well known as is the fast growing population, the core driver of infrastructure demand, of 70 million people by 2030.

We would suggest more attention needs to be paid however to three other infrastructure challenges;

- i) **Time delay from government stimuli on infrastructure** – we note that the time lag between government committing to spending on infrastructure to it actually happening can be anywhere between 6 and 24 months, once tendering, procurement, planning and Environmental Impact Assessments are taken into account. Therefore, spending on infrastructure during a recession to boost growth should not be held up as a useful intervention because by the time it comes through, the downturn may be over.
- ii) **Tracking opportunity costs** – when government commits to invest public funds taken from the taxpayer, we would like to see more attention paid to the silent and invisible opportunity costs of that capital, were it deployed elsewhere. The opportunity cost needs to be measured and put alongside the cost of a given infrastructure project.
- iii) **Being realistic about the multiplier effect** – we believe that the multiplier effect can be easily overplayed because the buying, hiring and producing can be greatly influenced by the time-lapsed distribution of capital expenditure which could be smooth – spread out evenly over time – or lumpy – where unsustainable jobs for example are mainly created in the construction phase.

We see great opportunity in asking more demanding questions of potential infrastructure projects like;

Is the Capital expenditure smooth or lumpy?

Does the proposed asset create additional consumer choice?

Does the proposed project crowd out existing infrastructure?

Does the project promote capital deepening?

Does the project constitute an additional asset?

What are the on-costs over the lifetime of the asset?

All this being so, we propose eight key metrics for the NIC to score projects against each other within the National Infrastructure Assessment – an Infrastructure Best Value Index.

Metric 1: Capital. How much capital is required, what price can the capital be obtained for and how much will be spent on physical objects?

Metric 2: Labour. How much is being spent on labour as a percentage of the total project cost and where is the labour coming from?

Metric 3: Uncertainty and Complexity. Is the project a First-of-a-kind, how many subsystems are there and what are the risks of execution?

Metric 4: Supply Chain Gains. What are the potential gains in technical capabilities, skills and growth in UK suppliers' turnover from the project?

Metric 5: Soft landing handover. Is there an end to end extended handover with full training, documentation and ongoing support or is it a turnkey project?

Metric 6: Whole life costs. What are the total lifetime costs of the asset and are they sustainable with resources and parties to meet them?

Metric 7: Networked value extension. What are the claimed benefits outside of the project?

Metric 8: Endogenous Revenue Potential. When will the project achieve operating profit and reach breakeven?

QUESTIONS – select responses

1. What are the highest value infrastructure investments that would support long-term sustainable growth in your city or region?

We believe that the highest value and quickest returning infrastructure investment is the laying down of symmetrical gigabit plus speed fibre optic cable to all UK premises. Broadband is now a critical fourth utility but when surveyed, our members have said not only is it the most important infrastructure to them, but with faster broadband, they would employ more people, be more profitable, productive and more likely to allow flexible working. It is quite clear that the demand for data is insatiable, far beyond what the copper network can cope with and left untouched, we will progressively start to lose out on the new markets that are coming in the next few years. 5G, virtual and enhanced reality, self-driving vehicles, drones and Artificial Intelligence are not far away, but there is a very real risk that we will simply not have the network capacity to join the future.

2. How should infrastructure most effectively contribute to the UK's international competitiveness?

From a user point of view, infrastructure can be seen to be working at its best when it is frictionless and requires no second thought. That shapes the perception of competitiveness from an international point of view when comparisons are made. From a UK government or investor point of view, competitiveness is increased by infrastructure that promotes capital deepening, has low O&M costs over a long lifetime that is greatly exceeded by the benefits and has high networked value benefits that reach beyond its immediate vicinity.

4. What is the maximum potential for demand management, recognising behavioural constraints and rebound effects?

In the case of smart meters for domestic premises, we see the maximum potential as very small – in electricity terms, perhaps a maximum of a few hundred megawatts at stupendous cost – at least £11 billion. Households really have very little control over when they go to work or school, when they can realistically cook dinner, sleep or watch TV. Worse, with the rise in homeworking, time of day pricing that spikes at peak times, like Uber taxis, may actually stop people working. Nor do we see how it is possible to easily disaggregate smart meter induced behavioural change from falling energy demand from more energy efficient products, Wi-Fi controlled LED lighting and insulation.

For the large industrial sector, demand side response (DSR) clearly is an established and growing market, perhaps equal to two gigawatts of power. Many new firms are now offering DSR solutions which seems to fit well with the shift towards a predict and provide grid with the growing penetration of intermittent renewables and quick response gas turbines.

The rebound effect from energy efficiency is real but only if the money that is saved is in excess of the cost of the energy efficiency. At that point the size of the rebound depends on what is done with the new additional resource. If it is placed in a bank account, then the rebound effect is high because banks lend out a multiple of what is on deposit leading to additional demand for energy. Equally, the rebound effect has to be understood in a global context. Energy consumption has been falling in the UK, but not if you count the cost of the energy consumption from goods and services purchased from abroad and of bringing them here, especially if they obtained from less energy efficient nations. That is why global energy consumption continues to rise and cannot yet decouple from economic growth.

12. What improvements could be made to current cost-benefit analysis techniques that are credible, tractable and transparent?

Please see our proposed Infrastructure Best Value Index above.

17. What are the highest value infrastructure investments to secure digital connectivity across the country (taking into consideration the inherent uncertainty in predicting long-term technology trends)?

We believe Symmetrical 1 gigabit plus Fibre optic cable to all premises across the UK is the highest value infrastructure investment with a long life of 50 years and very low running costs, a fraction of copper networks and with greater resilience to flooding.