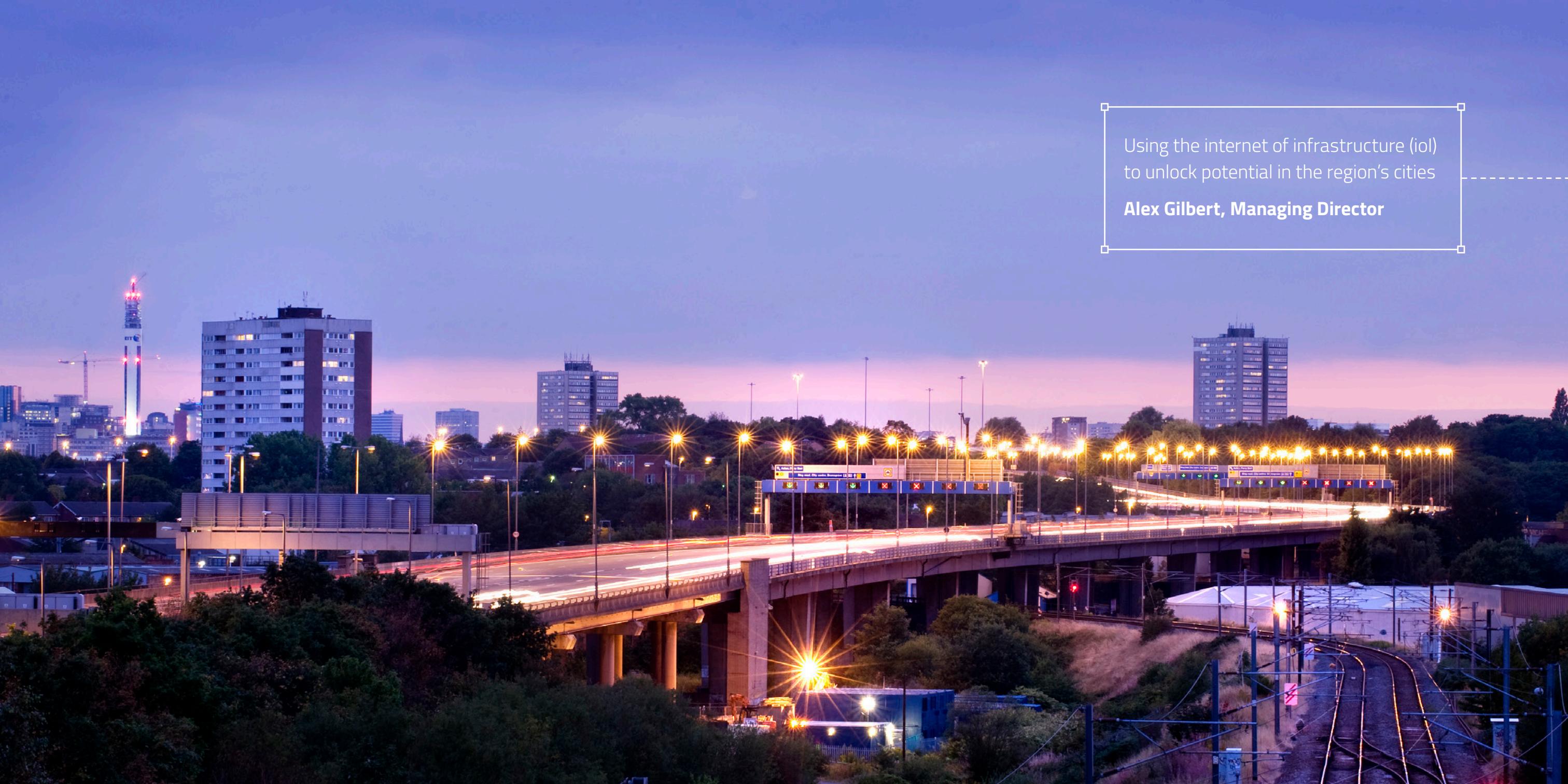


# Practical Planet Series 1.1

From smart data to smart people

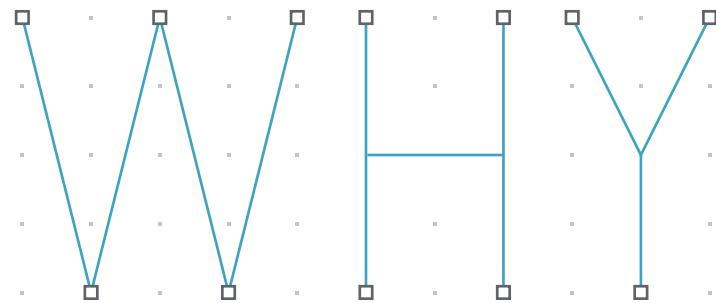
amey**consulting**





Using the internet of infrastructure (ioI)  
to unlock potential in the region's cities

**Alex Gilbert, Managing Director**



As the UK seeks to rebalance its post-Brexit economy, city regions are potentially great engines for growth. With their devolved powers and responsibilities for public assets, new urban Mayors have a pivotal role to drive regional improvements.

But how best to do this in the 'smart city' era?

A vast and growing number of connected digital technologies, tools and techniques – the new, highly connected internet of infrastructure – stands ready to transform the way assets around us are planned, delivered and operated.

New internet of infrastructure tools will not only help maximise the efficiency of existing operations, even more importantly, they can help us understand the impact infrastructure has on users and better predict what services and investment will be needed in the future.

As the increasing use of data expands the frontiers of what's possible, it's easy to forget the most fundamental question: why?

This question informs everything else we do and defines our ability to connect with customers, build the right assets and deliver the full economic and social benefit that infrastructure investment promises.

In an urban design context, asking why we are creating a city in a particular way allows us to better answer the questions that follow, such as what kind of urban environment do 21st century citizens want and how can data support or steer our plans?

## Citizen engagement as a major focus for smart cities

Connected technologies and the exploitation of data can substantially change the “terms of engagement” in the public debate about how much to invest, in what sort of infrastructure, where and for what purpose.

This puts urban Mayors in a good place to guarantee the best outcomes for the customers, passengers and citizens of their communities.

But in a smart city of constantly changing consumer behaviour and expectations, a deep understanding of data and technology must be coupled with the ability to interpret and respond in a real environment with real people. Services need to be designed to take account of the extra demand unlocked by the use of mobile devices.

## Maximising the whole life value of assets: from new to maintaining the existing

According to Digital Built Britain, a government-backed industry-led group driving forward construction’s digital transformation, the UK invested £89bn on new infrastructure in 2016 and £122bn in operating expenditure to keep those assets running.

But this is dwarfed by the £597bn (a figure also provided by Digital Built Britain) that the public sector invests in the services that utilise and benefit from UK infrastructure.

The reality is that when it comes to the UK’s established built environment, the old is the ‘new’ new. Every local authority and devolved administration must ensure they extract best value from every asset across its whole life – and that means thinking beyond simply building cheaper or maintaining faster.

Connectivity, automation, sensors and smart technologies, combined with the integration of design, construction, maintenance and operation – offer a massive opportunity to boost infrastructure performance and outcomes across the whole life of assets.



Data and technology must be coupled with the ability to interpret and respond in a real environment with real people.



## People are our smartest asset

And there's another important point. Smart cities and smart infrastructure need smart organisations and people to process data and make them work effectively. It's easy to over-estimate the extent to which organisations, public or private, can adapt to embrace the changes implied by smart technologies.

A major risk to technology-led programmes is that they overlook the critical importance of an adaptive workforce and the need for, often fundamental, change in the way the relevant organisations function. And that's a missed opportunity for society, people and innovation.

There is no shortcut to having a well-developed and formal change programme when introducing smart technology into a traditional industry or municipal body. Cutting-edge contributions to infrastructure will only play well in the real world if the delivery model is right.

## Rooting intelligent interventions in the real world

A grounded end-to-end approach, with its head in the blue skies of innovation and its feet in delivery, is the only way to power longer lasting, harder working and better performing infrastructure innovations.

Cookie cutter solutions which do not leverage client insight will never get the most from investment. Nor will those that fail to dovetail existing network and asset management capabilities with real-time-data science, asset analytics and smart planning and design.

This is a socioeconomic opportunity as much as a technological one – a chance to create and effectively maintain infrastructure that drives local economies, keeps communities moving and creates a more adaptive and productive workforce.

By asking 'why?', infrastructure planners and decision-makers can embrace this digital revolution intelligently, with our boots firmly on the ground. We can open up the opportunity for deeper strategic partnerships across regions.

The new internet of infrastructure is a powerful tool. We must be smart enough to use it.

At Amey Consulting, we love engineering and technology but believe, firmly, that smart solutions, smart cities and smart infrastructure ultimately depend on smart people. By taking a wider, holistic view we increase the likelihood that our smart solutions will deliver the planned benefits and be sustainable. Long-term relationships with clients such as Heathrow Airport, Network Rail, TFL and Staffordshire County Council indicate that our solutions have this sustainability and impact.

## The Amey Consulting Difference

We specialise in intelligent interventions rooted in practical thinking; because uniquely, our plans and designs are shaped by our expertise in delivery. We think – and act – in terms of grounded, everyday impacts. We listen to our clients and immerse ourselves in their world. It's what we are proud of, it's what sets us apart, it's part of our heritage and our future.

Our agile team of consultants, engineers and designers are united by their desire to champion the infrastructure around us, because 'better places' demand better asset innovations: longer lasting, harder working and better performing – as well as more sustainable. It's about end-to-end solutions with day-to-day impacts. Our team of 3,000 experts are hands on: dedicated to solving client-centered problems by avoiding cookie-cutter solutions. We leverage client insight; real-time data science; asset analytics; smart planning and design; as well as network and asset management capabilities to transform how our transport, utilities, property and public assets perform, day in, day out.

We challenge the 'why' as much as the 'what'. We think about how consumer behaviours – and expectations – are changing and leverage human data as much as big data. We are infrastructure technologists AND futurologists: long-term vision powering lifetime value. We have intelligent heads but our boots are firmly on the ground: challenging, anticipating, solving, inventing. Inspiring with science, not blinded by it. Passionate about seeing our cutting-edge contributions played out in the real world.





## □ Adding value

We help some of the world's biggest asset owners to understand and manage their assets better. We do this because we understand how our advice plays out in delivery. We help our clients to make smart decisions that optimise performance and manage cost and risk over the long-term.

We drive value across an array of asset portfolios including: road, railways and utilities networks, buildings, airports and other transport hubs. Our whole-life interest in asset management extends from advisory and design services, through performance monitoring to the management of asset operation and use. Our customers can choose from a variety of integrated or standalone solutions from across our full range of services.

## Core services

- Infrastructure strategy, data and analytics
- Asset management and asset engineering
- Infrastructure systems design and delivery
- Civil engineering design and delivery
- Structures design and delivery
- Planning and advisory services
- Programme management
- Property and estates
- Environmental and geotechnical services

### A bit about Amey & Ferrovial

Amey is a leading supplier of consulting and infrastructure support services both in the UK and internationally; creating safer, smarter, and sustainable places to live, work and travel. By designing, building, maintaining and investing in public services and infrastructure we make a difference across the facilities, utilities, transport, environment, defence and justice sectors.

Ferrovial, Amey's parent company, is one of the world's leading infrastructure operators and municipal services companies, committed to developing sustainable solutions.

## Amey Consulting in numbers

Spread geographically across <b>15 consulting-centric hubs</b> in the UK	<b>£9m saving</b> for Network Rail in the South East	<b>£2million per year reduction</b> in operating costs through our leakage management programme with Severn Trent water
Our <b>evidence-based, analytical techniques</b> are helping City of London Police, Network Rail and Heathrow Airport make smart decisions on asset strategy, operations and investment	Providing the consulting services for a <b>£50bn 30-year upgrade</b> and expansion programme at Heathrow Airport	
Leading the way in harnessing <b>drone technology</b> for asset inspections	Over <b>£250million revenue</b> in 2016	55,000 highway technology assets – including <b>21,300 intelligent traffic signals</b> , emergency telephones, CCTV and safety cameras managed and maintained daily
<b>100+ employees</b> dedicated to data, analytics and technology in infrastructure	<b>£9.1m savings</b> for Highways England through our application of Lean thinking	<b>26% better performance</b> (lower whole life costs) on the Jubilee, Northern and Piccadilly than other London Underground Lines

For more information please visit  
[www.amey.co.uk/AmeyConsulting](http://www.amey.co.uk/AmeyConsulting)

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