

# THE CHANGING DIGITAL WORLD - HOW IS THIS GOING TO CHANGE THE WAY WE DELIVER MAJOR PROJECTS?



Highlights from the Major Projects Association event held on 8th February 2018

The introduction of disruptive technology is now the norm across every industry. The question for major project professionals is how to prepare for and take advantage of this continuously changing landscape. This question was tackled at a recent Major Projects Association seminar. As the discussion heard, the fundamental changes heralded by digital technology present massive challenges but bring with them transformational opportunities to boost the outcomes from investments.

*'We have to get ready for the shifting sands of continuous disruptive technology.'*

Andy Stanford-Clark, Chief Tech Officer UK & Ireland, IBM UK Ltd

A number of trends are emerging:

- Artificial intelligence
- Blockchain – the role of the distributed ledger
- The internet of things
- Robotics and drones
- Augmented and virtual reality

*'Most companies have a corporate strategy for what they understand. Few have a corporate strategy for emerging technologies.'*

Cliff Brown, Head of Rail, KBR

## IT IS ALL ABOUT THE DATA

Failure to digitise and utilise data is at the heart of the productivity gap that exists between UK infrastructure and other sectors such as manufacturing. Too often the value of data is not recognised. It is either given or thrown away as industry professionals fail to grasp the opportunity that it presents. This mindset has to change. When data is understood and given meaning it has more value, allowing asset owners to make better decisions – leading to better outcomes and greater public good.

Recognising the value of data is the start. The challenge then becomes one of what to do with data, and how to take it out of silos and share it as a resource across project disciplines and activities.

*'Over the last few years there has been a shift in how the industry recognises the importance of data.'*

Richard Haydock, Director, Modernisation & Transformation, Global Projects, BP

## DATA FOR THE PUBLIC GOOD – LEADERSHIP

The UK infrastructure sector is in the mature phase of development but is stuck in a growth-phase mentality. While it is important that the market is free to embrace the digital challenge, it is also important to establish rules.

The UK Government's 2017 Industrial Strategy, the Transforming Infrastructure Performance programme, and most recently the National Infrastructure Commission's Data for the Public Good guidance, have shown leadership around digital disruption. Investment in the new Centre for Digital Built Britain and support for the Infrastructure Client Group's Project 13 work to embed digitisation into public procurement underlines the UK Government's desire to provide a direction of travel.

However, private companies also need to change – a change that must be led by middle management to support a new digitally savvy workforce and underpin senior management ambition.

*'Historically, the infrastructure sector has moved very slowly in comparison to the technology sector. But, as infrastructure and technology come together and we deliver more integrated digital/physical solutions, we will need to learn to move more at the pace of the tech sector.'*

Mark Enzer, Chief Technical Officer, Mott MacDonald

## BIM AND THE DIGITAL TWIN – FROM OUTPUTS TO OUTCOMES

Poorly managed infrastructure acts as a brake on the UK economy. Thinking differently about how we deliver and maintain infrastructure is critical – to build better assets and build the right assets.

The use of BIM (building information modelling) is the fundamental start to digitalisation. The concepts pioneered by the Level 2 programme have allowed us to maximise value from the annual £89bn capex and £122bn opex invested in assets. But it is only the start. We also need to think differently to maximise outcomes from the £597bn invested each year by the Government on the services that depend on this infrastructure. Investing in data to create the UK's digital twin will drive this outcome-based decision-making.

## CASE STUDY: PLUGGING THE BBC IPLAYER LOOPHOLE

Television is changing – on-demand delivery of programming means there is now less push and more pull. The BBC's iPlayer service is the 'king of catch-up', but the BBC's licence fee-based funding model faced an annual £150m revenue shortfall as a growing number watched for free online. Research and data analysis created the business case but, importantly, also helped decide how to communicate this significant change – it was not just a technical challenge but one of persuading people. The successful project generated an additional £11–£12m in licence fee revenue in the first few months.

*'Understanding the human factors are vital. It's about the technology but it's also all about the people – don't forget the users.'*

Ian Rowe, Director, Ian Rowe Associates

## TRANSFORMING TRANSACTIONS

The use of advanced data systems and analysis have the capability to reduce major project duration and cost by around 20%, by increasing trust across the supply chain and wasting less time and money in checking and verification. The use of virtual and augmented reality in design, off-site fabrication and local 3D printing could take savings to 30%.

Blockchain technology will underpin this new smart supply chain. This shared distributed ledger system moves the industry from traditional paper and email records towards an immutable record of transactions and removes the possibility of human error or malicious intent. It is projected that there will be 20 to 30 billion objects with internet of things (IoT) capability by 2020. The ability for this live information to be uploaded securely to a blockchain means that data is always up to date, trusted and reliable.

## COMMUNICATION – IT IS ALL ABOUT THE PEOPLE

The biggest challenge for businesses working in major project delivery is communicating in a common language across different disciplines and project stakeholders. Technology and digital systems can help provide that common language.

*'If you want acceptance for new ideas then you have to convey it in a common language.'*

Nick Boyle, Technical Innovation Director, Balfour Beatty

Augmented or mixed reality tools based on 3D models boost collaboration and help explain decisions; smarter 4D planning tools bring the programme to life and engage the entire project team. Wearable devices, such as Microsoft's HoloLens, give direct and meaningful access to data. However, many wearable digital technologies also have potential impact on personal privacy – the prospect of being monitored while at work is considered by many as an infringement of liberty. Good communication around the positive health and safety and well-being advantages is critical.

## POINTS FOR FURTHER DISCUSSION

- How do we set corporate strategies to take advantage of digital opportunities?
- Does infrastructure really understand the power of blockchain?
- How do we find and retain the right skills to exploit the new data and digital landscape?
- Can we embrace design thinking – linking data to outcomes, starting with the users?
- What procurement reform is needed to enable innovation?
- What are the privacy implications of wearable devices?

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With grateful thanks to **IBM** for their help in organising and hosting this event.

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