

Better information, quality outcomes

Delivering real value
from your assets



BIM and beyond

Don't miss out on the added value that effective information management can bring you



Project
Nightingale Primary School, Tiger Way

Location
London, UK

Client
Mouchel Babcock Education/
Hackney Schools for the Future

Expertise
BIM facilitator

It's no secret that building information modelling (BIM) brings vast benefits to your assets. From collaboration to design optioneering, BIM can unlock countless efficiencies in the delivery process.

And BIM opens the door to much more downstream opportunity following initial handover. By properly managing asset information, you can realise further efficiencies in performance, maintenance, renewal and eventual decommissioning, reducing the whole-life costs of your assets.

However, establishing all this as 'business as usual' can be a challenge, requiring different ways of working, unfamiliar processes and new software and technology.

This is where we step in to provide the practical advice and hands-on assistance you need to make the most of BIM in your organisation. We do so by listening and engaging with you and your stakeholders to form an idea of business needs and challenges. For us, design is digital by default and we can help you embed BIM in your infrastructure – both new and existing – from the initial strategy through to effective data management once you are up and running.

Strategic BIM consultancy is about adding value to information to enable better decision-making by our clients – you. As the industry realises the value of information as a resource to drive more efficient infrastructure, government agendas around the world are also turning to digital information management to cut waste and boost capacity while maintaining robust data security. BIM will increasingly become the industry standard, making it imperative that everyone adapts to this exciting way of working.

Talk to us about how our digital delivery team can help your business.

Andrew Moulds
Head of strategic BIM consultancy

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The exponential benefits of information management

The benefits of BIM to the design process are well known. 3D models allow for supreme optioneering which streamlines the delivery process and brings efficiency savings in materials, time and costs to the construction process. However, project-centric BIM can only go so far, as the majority of an asset's costs fall within its operational life.

Asset lifecycle information management sees the physical, operational asset complemented by active management of information-rich models. This 'virtual' asset uses intelligent data to streamline maintenance and optimise performance.

The future is smart infrastructure. Assets are interconnected to each other and to all other information sources – everything from social media and ticketing data to weather forecasts and

traffic information – to optimise performance of all infrastructure for the benefit of the ultimate customers.

Whatever sector your assets serve, and whatever your starting point in terms of digital transformation, our unique combination of physical and digital infrastructure experience can help you move up the value chain towards smart infrastructure.

“Organised data facilitates a stronger social connection between the asset and its ultimate end users”

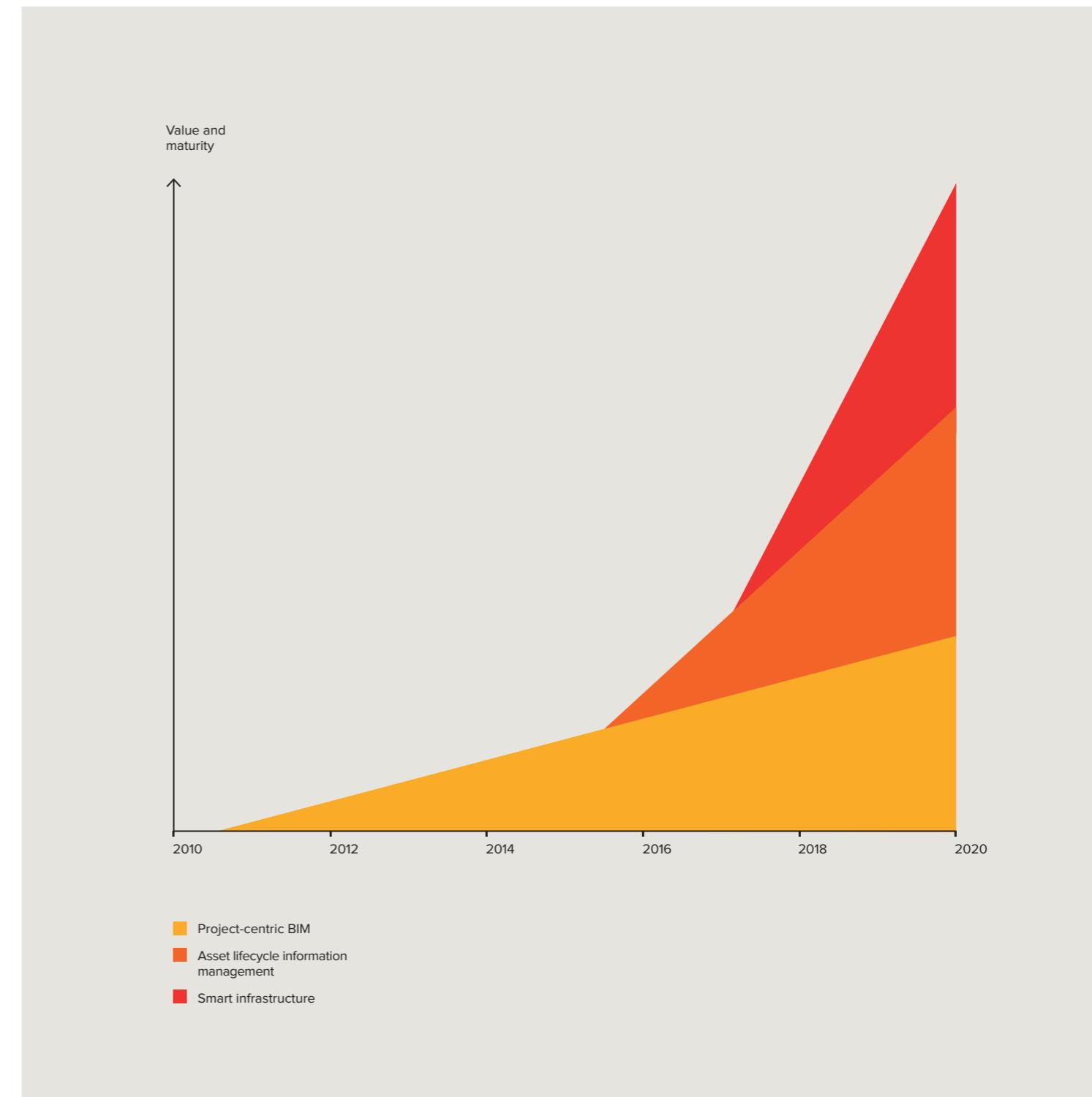
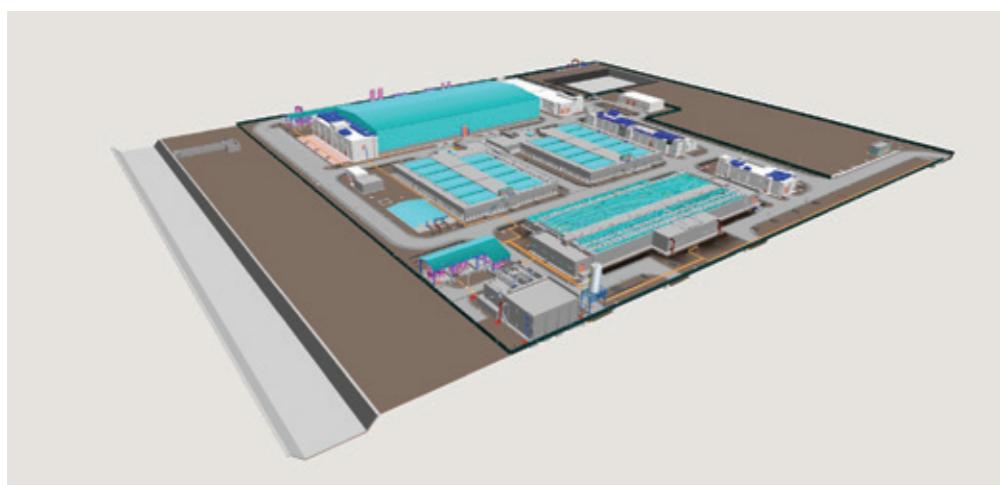
Richard Shennan
Digital business development director

Project
SOHAR Independent Water Project

Location
Oman

Client
Valoriza Agua

Expertise
Multidisciplinary detailed design



Using BIM for better public transport

Transport for New South Wales (TfNSW) identified BIM as a key tool in creating a step change in the way public transport infrastructure is procured, executed, operated and maintained. Our starting point was to look at their organisational information management and understand where they were best able to add value. We began by establishing key needs and objectives through an intensive period of workshops and interviews with internal and external stakeholders. We assessed the baseline capability and developed a bespoke roadmap to guide TfNSW towards through-life asset information management.

Alongside these services we also delivered TfNSW's first pilot project, which demonstrated the benefits of BIM to stakeholders and helped to develop cost-effective solutions to key design and construction issues. We explored over 45 different interventions to bring BIM to life. Our client is now well on its way in moving through the roadmap, and is already seeing the benefits of embedding BIM across key business functions.

"Mott MacDonald's use of BIM in the CJP pilot study sets the company apart from all other consultants... TfNSW is actively seeking ways to encourage the implementation of BIM as demonstrated by Mott MacDonald on all our programmes."

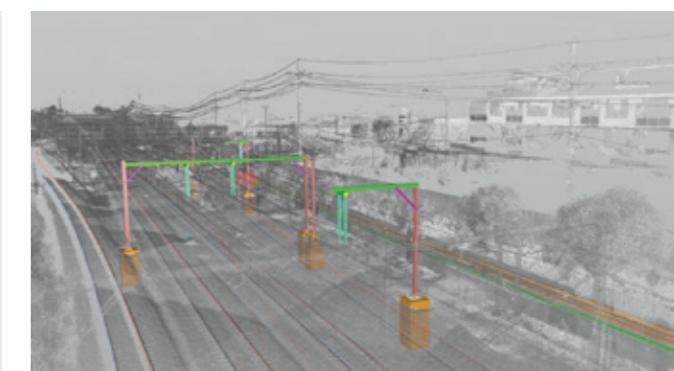
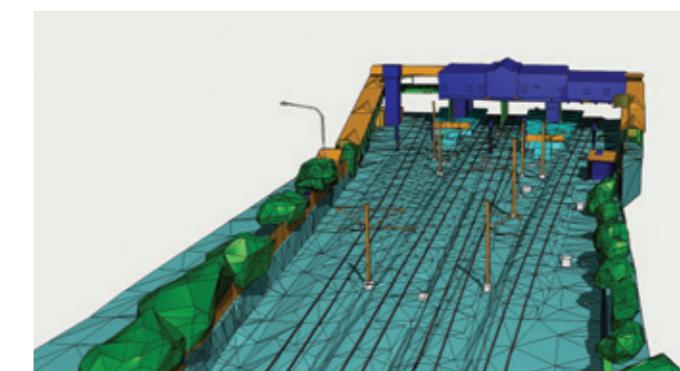
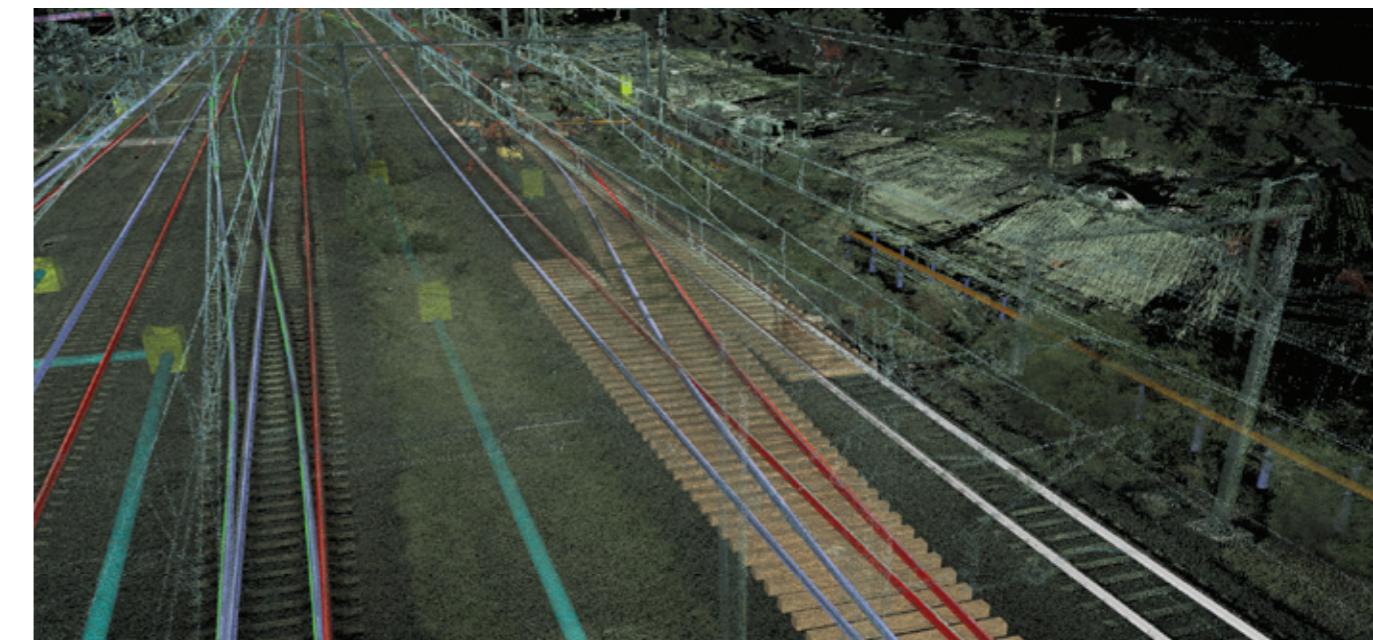
John Templeman
TfNSW program director

Project
Organisational BIM strategy and Clyde Junction pilot project

Location
New South Wales, Australia

Client
Transport for New South Wales

Expertise
BIM technical advisory

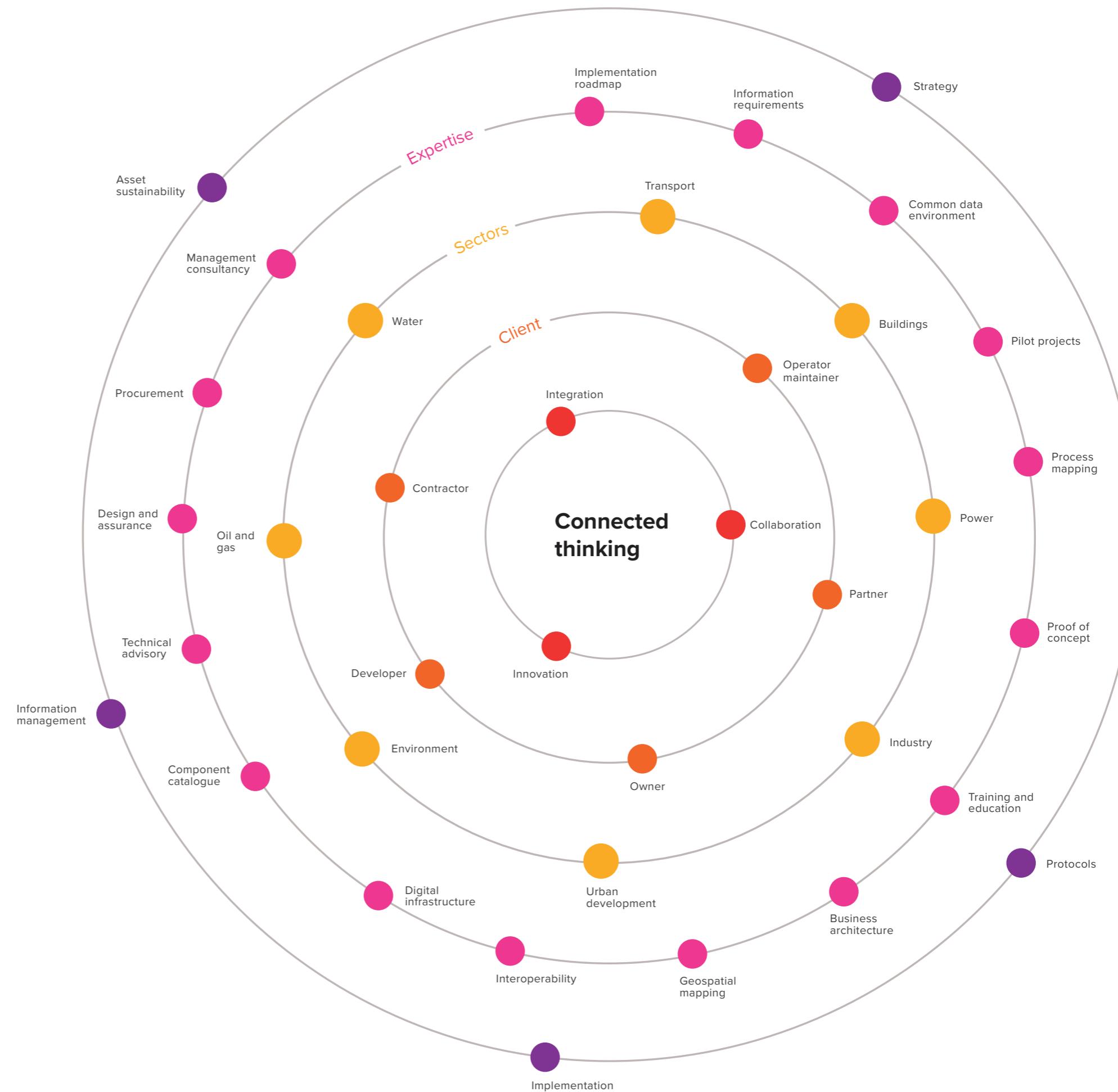


Digital leadership

Our team of creative digital thinkers is centred around our clients – you. We're joined-up across sectors and geographies, giving you access to exceptional breadth and depth of expertise and experience. Whatever your chosen procurement strategy, we will always be looking for opportunities to think across boundaries for the benefit of your asset and your customers, wherever you are located around the globe.

Applied ingenuity

You can bring us on board at any stage of the asset lifecycle and we'll find all practicable means of enhancing economic, social or environmental performance using better data. Our understanding and experience at all phases enables us to give informed advice from project shaping to whole-life optimisation.



10 reasons to choose Mott MacDonald

1.**Unrivalled delivery experience**

We have designed some of the world's biggest and most complex infrastructure projects, using BIM to realise efficiencies along the way. We know what can be achieved – and will bring that experience to your business.

2.**We're engineers, not just managers**

We have an unrivaled engineering and project delivery background and know assets inside-out, so are best placed to advise you on what can be achieved through project technology and applications.

3.**Strengthen and streamline procurement**

It's critical to assemble the strongest team to produce quality deliverables that generate the answers needed for effective decision making. We provide the know-how to bring all key components together in an open environment supported by the right commercial framework.

4.**Maximise collaboration**

Configured correctly, a common data environment enables unparalleled collaboration between all project stakeholders. Our first-hand experience in developing common data environments for ourselves and for others can help you and your project partners realise the benefits of federated information models that bring BS 1192, the British standard on asset information management, to life.

5.**Quality assurance at handover**

Ensuring the completed asset is a true reflection of design intent, that it satisfies performance criteria and standards, and that the necessary supporting documentation is provided in support is important, yet so often overlooked. We enable digital asset validation and control to ensure your requirements are met.

6.**Security is paramount**

We are ISO 27001 accredited, meaning we can be trusted to treat information securely. In the UK, we achieved Cyber Security Essentials certification and contributed to PAS 1192-5, a public specification that gives guidance on information security.

7.**Cut carbon to cut costs**

Carbon is a good proxy for cost. We are renowned in the industry for our work on carbon reduction; as well as writing the infrastructure industry standard on carbon management, PAS 2080, we developed the first BIM-enabled carbon calculator. Let us help you use BIM to cut capital and whole-life carbon emissions and the cost of your assets.

9.**Advance safety**

3D modelling can be used to design-out many hazards during the construction process, while highlighting the residual risks that require ongoing consideration during operation. Working this way engages owners with health and safety across the asset lifecycle.

10.**Future proof your assets**

Smart infrastructure will see data-driven solutions complement and even replace physical infrastructure solutions to improve service delivery. It also enables better decisions based on making sense of the increasing abundance of data.

8.**Use BIM for sustainability**

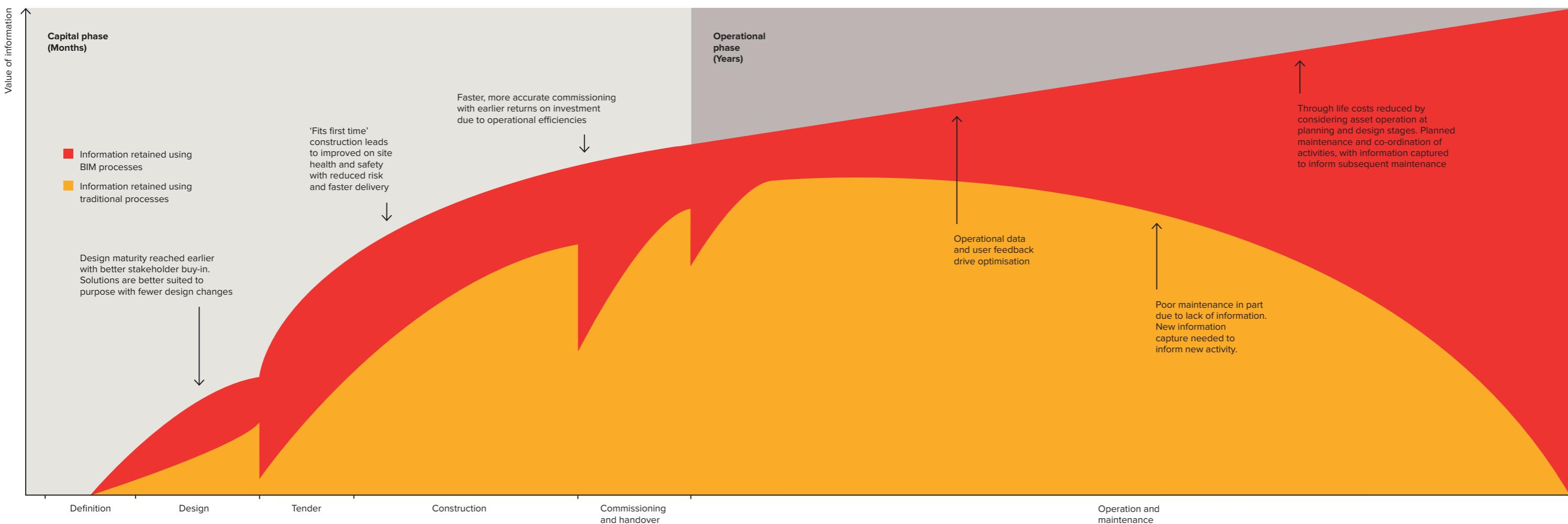
Sustainability not only benefits society and the wider environment, but brings financial and reputational business benefits too. Quality data enables you to measure performance against targets and supports continuous improvement.

Don't lose your asset information. Enhance it.

Conventional asset delivery results in loss of information at the end of each milestone stage, as one team hands over to another. This leads to wasted time and increased risk.

We provide controls and guidance so that the information you and your supply chain produce is well organised and structured, so that it can be transferred in a logical and easily accessible format

across the delivery process, improving performance and eliminating repetition. Instead of losing information at each interface, the value of information in the model environment increases as it is passed on. This 'virtual asset' accompanies your physical asset for the duration of its life, continuously increasing in value and enabling new teams to hit the ground running for all subsequent downstream works.



Five steps to success

Our consultancy ranges from delivering your corporate business goals to embedding best practice for whole-life gains, ensuring you get the most out of BIM. Some may have already taken early steps on their own, but wherever you are on your journey, we are here to help.

1.

Strategy

Your bespoke BIM strategy will respond to your business plan objectives and play a significant role in realising them. We'll work with you to understand your business strengths, operating constraints and goals to create an approach that builds on strong processes and replaces weaker ones.

2.

Protocols

You need strong protocols covering all the areas in which you want BIM to improve your enterprise. We'll help you develop and take ownership of them, supporting the adoption of new technology and preparing your people for more efficient ways of working. We'll also help you to define targeted information requirements that will enable you to monitor and measure delivery of data, and improve appointment and management of your supply chain partners.

3.

Implementation

We identify fast, early benefits that offset the investment and risks associated with early adoption, and also allow lessons learned to be applied later. We'll also help you to solve any technical challenges (such as new technology/software or data storage issues) and business culture concerns (including adapting to change, training and allocation of new roles) to reduce risk. The aim is to make your roll-out of BIM a smooth process and to demonstrate progress through pilot projects.

4.

Information management

Information is the focal point of BIM. We use it to improve how your business works and enable you to deliver assets that will achieve maximum whole-life performance. We do this by managing BIM governance and integrating it with your quality management systems, enhancing software use, creating a shared location for information, ensuring compliance with standards for producing and managing information, and making it all happen on your projects.

5.

Asset sustainability

BIM is a driving force in effective whole-life asset management by avoiding loss of data and uniting all relevant asset data to benefit long-term decision making. Integrating capital and operational systems, united through common naming conventions and classification, can lead to substantial returns on investment, particularly for large, complex asset portfolios.

1.

Strategy

It all begins with a comprehensive strategy

We guide you towards realising your BIM goals via a phased roadmap approach. This starts by analysing your existing business to review and understand organisational structure, policies, procedures and future aspirations. Goals specific to your organisation which are aligned with your overall objectives are determined, from which we formulate a strategy suitable to the unique culture of your business. There will usually be some good practices already in place – we identify these and supplement them with new ways of working where needed, to ensure progress towards your BIM goals while minimising the need for change. With the end state in mind and a step-by-step strategy in place, our roadmap will provide a single point of reference for the whole process.

Key services

- Business analysis
- Review of existing practices and behaviours
- Defining goals and timeframes
- Strategy design and implementation

Project

New store development programme

Location

UK

Client

Confidential

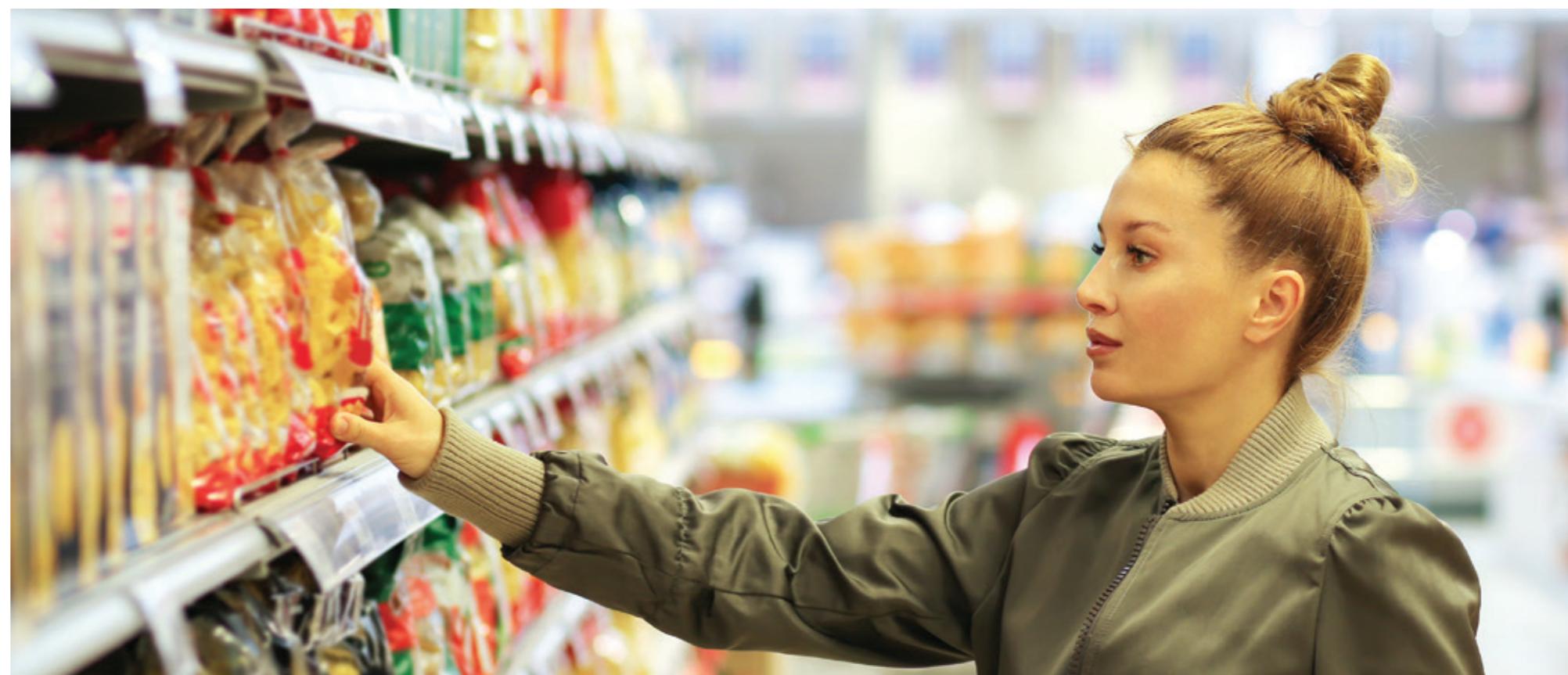
Expertise

BIM strategy and process improvement

Bringing efficiency to one of the UK's biggest supermarkets

One of the UK's major supermarkets asked us how they could use BIM to strengthen their new store development programme to better meet business objectives. We studied their critical business requirements, from procurement to operations and maintenance, and attended key internal meetings to build a picture of how the business functions. We also arranged a series of workshops with primary teams to forge consensus and understand key issues and challenges.

A priority for us was to improve information flow and to cut out duplication, with our mapping techniques helping to align micro and macro processes across the supply chain, leading to new efficiencies across our client's building estate. The project controls and metrics we developed helped to quantify the impact of changes, and allowed the supermarket to reward those in the supply chain who adapt to the new ways of working.



BIM will unleash great downstream benefits

Project information manager Gemma Birchall and asset strategy manager Robert Gray at Transport for Greater Manchester (TfGM) discuss how a comprehensive BIM strategy will support a drive towards whole-life asset management.

TfGM owns and operates a number of assets, including the Metrolink tram network for Greater Manchester; Leigh Guided Busway; a rail station; and all traffic signalling. We also own all bus stations, shelters and stops (though we don't operate the bus routes themselves) and provide travel information to the public.

The coming years will see a major expansion of our asset portfolio. The Metrolink system will stretch to Trafford Park, and we recently submitted a case to government for increased responsibility for the management and operation of 96 regional stations, currently controlled by Network Rail. Our 2040 Greater Manchester Transport Strategy guides investment on transport infrastructure, and as a public-sector body, we need to ensure we provide good value for money.

It's not about 3D design, it's about whole-life benefits
BIM is all about collaboration. It brings good governance, standards, and common ways of working that serve the asset all the way to decommissioning and renewal. We saw BIM level 2 not as an end goal, but as a starting point that would help us realise whole-life efficiencies.

Our collaboration with Mott MacDonald has led us to two distinct deliverables. A well-defined strategy will provide us with an overarching vision of how we deploy BIM, while agreed standards will enable practical implementation of our strategy within projects.

The main challenge was in specifying our requirements. From the beginning we brought our operations and maintenance teams into strategy meetings with designers so they could input their needs into the process. In many cases, this gave people a chance to get things off their chests. Having an operator in the same room as a project manager means downstream impacts have been discussed and understood, which rarely happened in the past.

This also led to different parts of the transport network collaborating for the first time, resulting in a cross-fertilisation of ideas. For example, when it came to the process of approving health and safety files at handover, representatives of Metrolink shared their ways of working, including tools and templates, with the facilities management teams, a dialogue that is not part of business as usual.



All this allowed us to step back and challenge our current ways of working. Before, we were steered by the needs of our supply chain, and this process has helped us to step up and define what our requirements are.

As our asset portfolio grows, our BIM strategy will provide direction around how, when and where to deploy and develop BIM capabilities to enable better asset information management and better value for money.

"BIM is all about the collaboration it brings to the process. It brings good governance, standards, and common ways of working."

Robert Gray
Asset strategy manager, Transport for Greater Manchester

Project
BIM strategy

Location
Manchester, UK

Client
Transport for Greater Manchester

Expertise
BIM consultancy

2.

Protocols

Getting the protocols right for successful projects

Protocols provide the framework which allows strategy to be implemented and governed. When properly laid out, they give the client the control and influence to drive the agenda rather than the other way around – meaning change is well managed and orientated towards the end user. We provide the expertise you need to develop well defined protocols and to apply national and international best practice to your BIM strategy, particularly centred around BS 1192 and the emerging ISO 19650. We also regularly assess progress and maturity, both within your organisation and across your supply chain, to ensure the BIM strategy is followed and key milestones are achieved.

Key services

- Regular maturity assessments (internal and across the supply chain)
- Guidance on standards and naming conventions
- Training plans
- Definition of information requirements
- Targeted BIM execution planning



Improved collaboration, better processes, bigger cost savings

UK Power Networks is responsible for 170,000km of power lines, bringing electricity to over a quarter of the country's population. As a regulated business, UK Power Networks is seeking ways to realise efficiencies within their capital delivery programme and BIM was identified as key to streamlining the delivery process, within an overall objective of achieving a 10% cost saving throughout the eight years of the current price control period.

We were appointed to develop a strategic roadmap in order to integrate BIM into UK Power Networks' capital delivery programme, with the objective of reducing the time and improving quality with which new assets are delivered. Our work began by examining existing BIM practice; we did this by engaging with over 20 stakeholders within the business and met with key partners to ensure our roadmap would work for the supply chain and newly emerging delivery teams.

Project
BIM consultancy services

Location
UK Power Networks

Client
London, UK

Expertise
BIM consultancy

To follow, we developed a suite of BIM protocols to enable application of BIM on live projects, to enable better information sharing and improved collaboration.

As a result of our consultancy, the development of collaborative working processes based on organised data is integrated with other aspects of UK Power Networks' business transformation plan. Internal and external processes are more efficient, and the company is well on track to achieving its aim to reduce costs, ultimately providing better value for money to bill-paying customers.

“In a context of transformation such as the one UK Power Networks is going through, the team has been able to analyse and elaborate priorities, effectively aligning strategic objectives to an actionable high-level plan for the implementation of BIM best practice.”

Allan Ponsonby
Head of engineering design, UK Power Networks



A sporting success

The 2018 Commonwealth Games will see up to 6500 athletes and officials from 71 countries compete at 18 sports venues over a period of 11 days. As part of our engagement with the client, we provided a full-time BIM co-ordinator to oversee processes and identify new efficiencies. One focus was to overhaul the way building services load schedules are produced. We devised a bespoke solution using Dynamo, a visual scripting language, to load information from an Excel spreadsheet onto an overlay design model, carry out necessary calculations and produce load schedule summaries.

With traditional load schedules, the value is lost as soon as the design changes or new engineering information is received. However, our bespoke solution provided an agile and powerful tool which keeps load data current as the model is updated. This automated process reduces the time it takes to produce load schedules by over 95% compared to traditional methods. Taking into account the 18 venues and the continuous updates to designs between planning and the end of the event, our work will cut several hundred working hours from the schedule, allowing public money to go further, while helping to deliver an efficient and successful Commonwealth Games.

Project

Gold Coast 2018
Commonwealth Games

Location

Gold Coast, Australia

Client

Gold Coast Commonwealth
Games 2018 Corporation
(GOLDOC)

Expertise

BIM co-ordination

3.

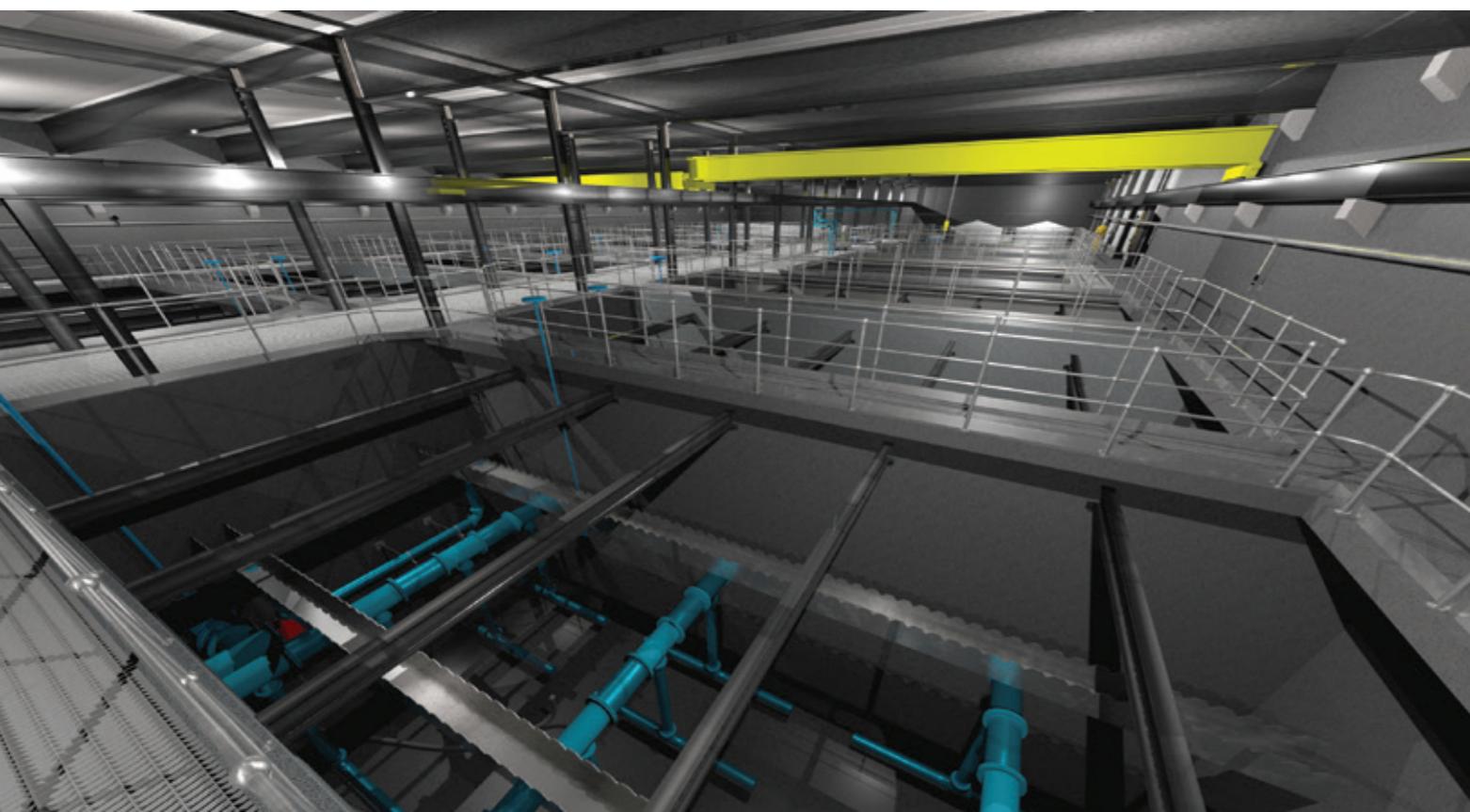
Implementation

You're in good hands when it comes to implementation

Key services

- Proof of concept schemes
- Testing pilot projects to demonstrate feasibility
- Identifying technology needs and solutions
- Modelling production, training and co-ordination
- Communication with stakeholders
- Workflow development

We have won numerous awards for our use of BIM across sectors as diverse as transport, buildings and water. We have also innovated in its use and application within our business, developing our own common data environment and a catalogue of digital components which we bring to our work with clients. Our first-hand experience means that we can provide unbiased advice on how to get the best from the technology. This includes testing new procedures through proof of concept schemes or scenario modelling, to mitigate the risks of changing established ways of working.



Bentley 'Be Inspired' Award for Innovation in Project Delivery

Initiating a change in the water sector

Yorkshire Water serves 1.7M households through an estate of 695 water and wastewater treatment works, 133 reservoirs and 28,700ha of upland catchment area. The organisation recognises the importance of information management in providing a good service to its customers, and is now considering adopting the principles and framework of BIM level 2 as specified in BS 1192 to better create, manage, and maintain asset information.

We are helping the client articulate and implement its vision for information management. Our collaborative approach involved engaging a wide range of stakeholders in the client's organisation to understand how their roles depend on asset information and the opportunities that they could realise if the management of information were improved. This work informed recommendations for the development of their new asset management system and will also be used to shape their long-term asset information strategy.

Additionally, our digital component catalogue provides a library of high-quality elements that allows our delivery teams serving Yorkshire Water to hit the ground running in creating its virtual assets, resulting in major project efficiencies. And our Carbon Portal platform – the world's first BIM-enabled carbon calculator and optioneering tool – is helping our client to drive down the carbon footprint of new developments and expansion work. Our approach was acknowledged at Bentley's 'Be Inspired' Awards, where we scooped the prize for Innovation in Project Delivery.

Our guidance is setting Yorkshire Water well on the road to managing its information systems in accordance with BS 1192. The efficiencies will be seen in a streamlined service through more efficient asset management, helping Yorkshire Water serve its growing customer base long into the future.

Project
BIM strategy

Location
Leeds, UK

Client
Yorkshire Water

Expertise
BIM consultancy

4.

Information management

Robust information management will enable whole-life benefits

To continually benefit from BIM throughout the asset lifecycle, behaviours developed earlier in the process need to become embedded as ‘business-as-usual’. Assets can be continually optimised using performance data, and maintenance is streamlined and reduced. However the datasets being used at this stage can be vast. Consistency, rigour and standardisation are crucial, as are adequate information exchange processes and resolution of interoperability issues between discrete applications. We can support you by delivering the role of information manager and BIM co-ordinator, either in support of our design commissions or as a discrete service.

Key services

- Information management
- Project reporting
- Creation of object libraries
- Data management
- Assurance workflows
- Design capture



Enabling smooth collaboration for hundreds of users

As one of Europe's biggest rail projects, HS2 depends on the collaboration of a large, multidiscipline project team spread over a vast geographical area. Large quantities of information from numerous providers using different software systems had to be brought together, while an ambitious delivery schedule meant updates had to be comprehensive and available to others in real time.

To overcome these challenges we created Apollo – a high capacity cloud-based platform to enable collaboration and provide a means of

sharing design and project information. Apollo makes high-quality geographical information available to over 500 users without the need for extensive training or additional software. Edits to information are shared across the system in real time, simplifying information transfer and ensuring all users work with the most up-to-date information.

Apollo has since been used on a number of schemes including Crossrail 2, seven Highways England projects, Thameslink, Network Rail Anglia Level Crossing Reduction

Project
Apollo project collaboration system

Location
UK

Client
High Speed Two

Expertise
Information management and data hosting



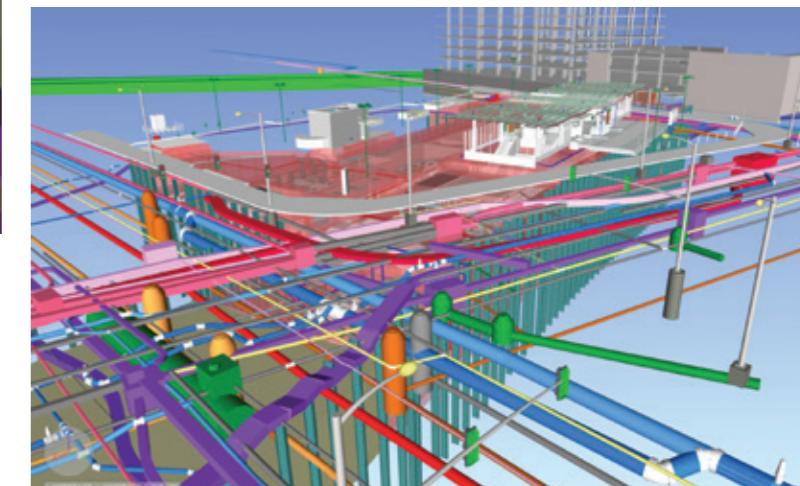
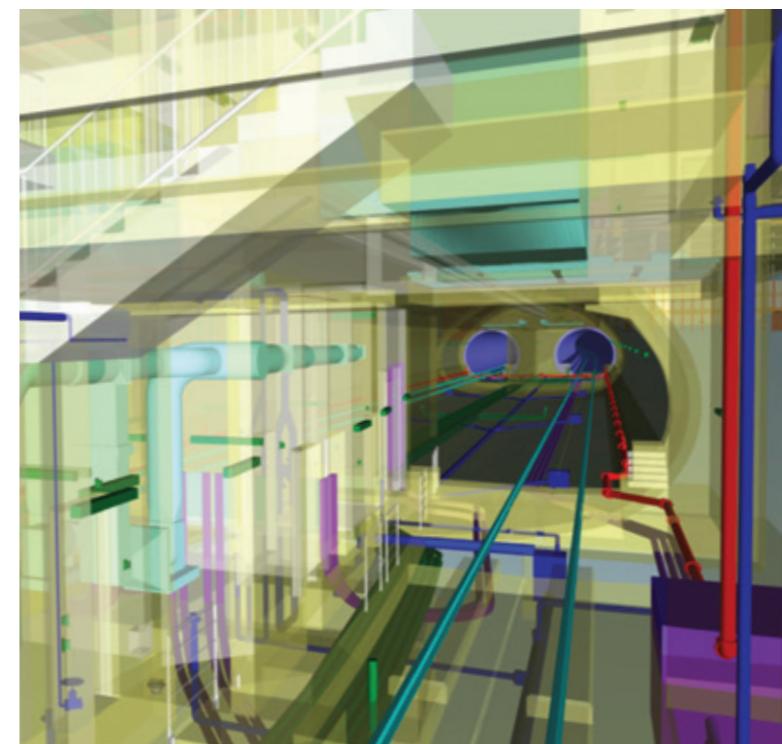
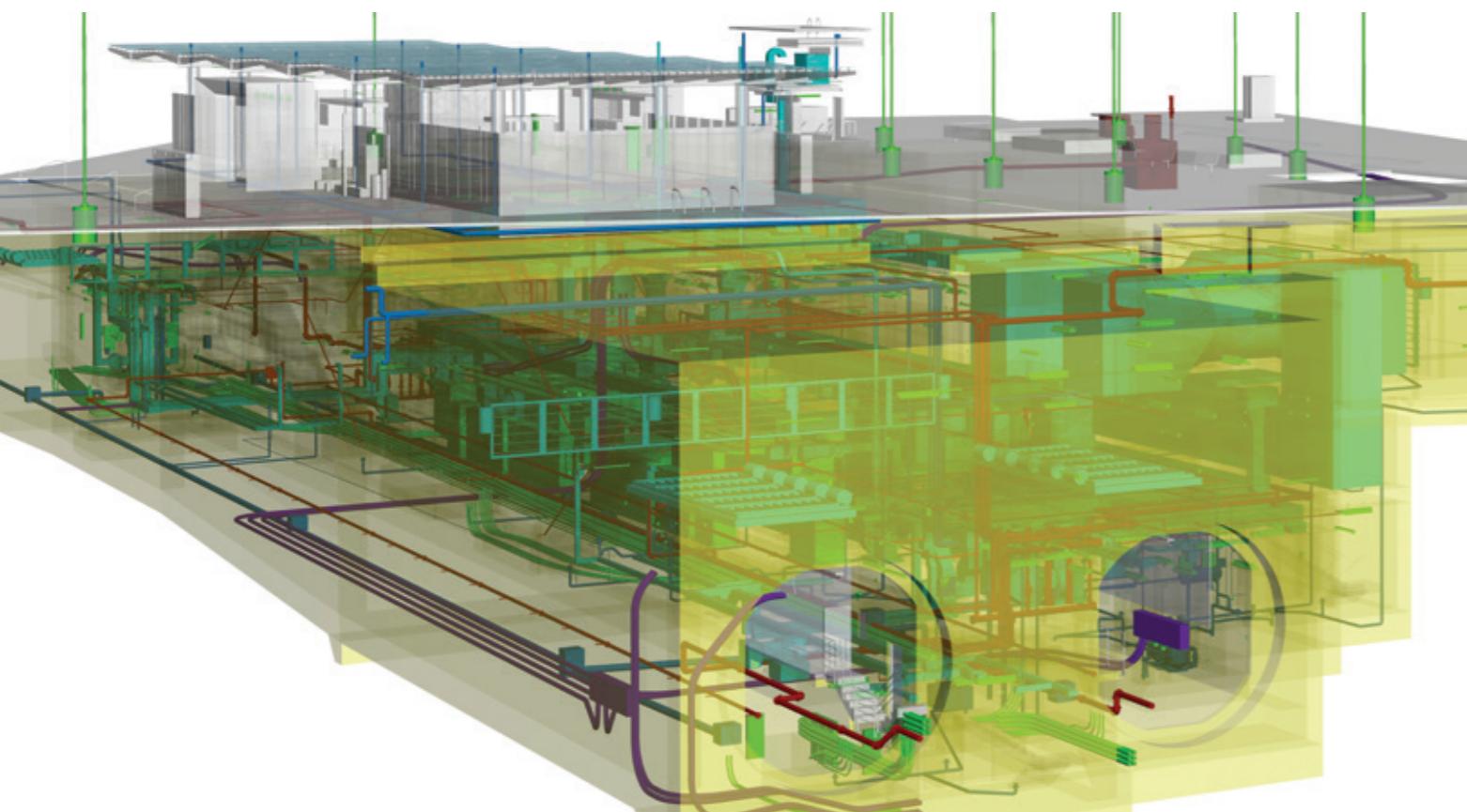
Strategy, Cumbria County Council Infrastructure Recovery Programme, National Grid North Wales Connection (Wylfa to Pentir) and Thames Water's Counters Creek project.

Altogether, our innovative platform has provided a collaborative platform for more than 2500 users from over 80 organisations, with many of those previously adverse to BIM or CAD saying they found Apollo user-friendly and rewarding to use. The efficiency of the system has helped to reduce time and costs throughout all stages of the projects.

Adding value by optimising design

Providing enhanced travel and improved connectivity for commuters on the Los Angeles Metro, the US\$927M Regional Connector Transit Corridor (RCTC) project will see over 3km of tunnels and three new stations added to the network. The rapid timescale combined with the need to co-ordinate over a dozen design disciplines made smooth collaboration a key requirement of the project.

A common data environment enabled 15 US-based Mott MacDonald offices as well as the owner, contractors, and project partners to collaborate effectively. This was supplemented with regular BIM co-ordination sessions to keep stakeholders in constant communication and share best practice. Real-time updates to model data improved efficiency and quality of the final design, while the elimination of design changes during construction, thanks to the ability to identify conflicts and optimise the model, was a major advantage.



Project

Regional Connector
Transit Corridor

Location

Los Angeles, USA

Client

Los Angeles County Metropolitan
Transportation Authority (Metro)

Expertise

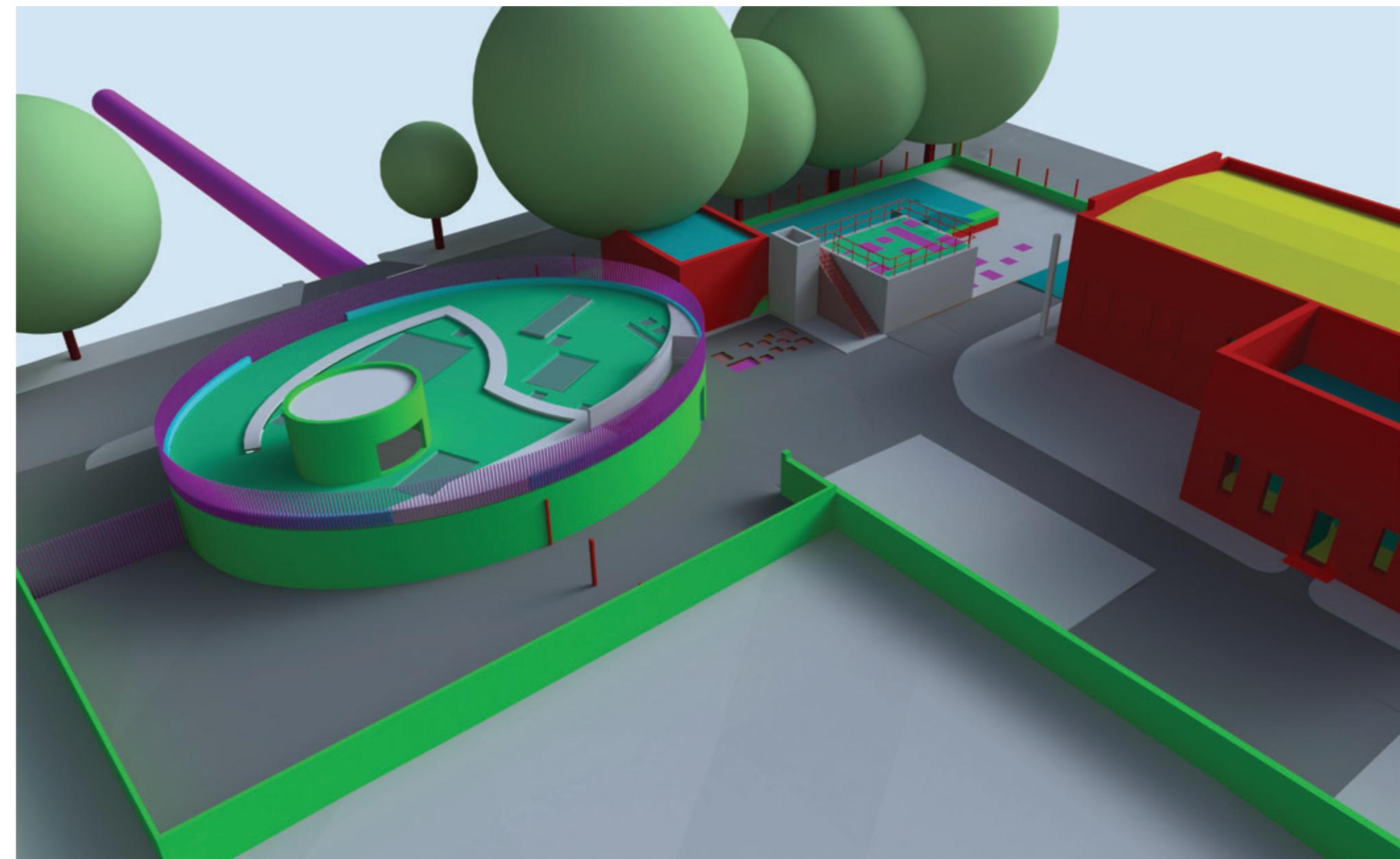
Engineering design and
project controls

Using the power of big data to cut two years off delivery

With a team of over 280 staff spread over multiple offices, this major sewer expansion project required an efficient means of sharing information.

We created an industry leading common data environment (CDE) – our first to be fully BS 1192-compliant – which combined product information, CAD, BIM and project controls on a single platform. Weekly BIM meetings meant problems were quickly resolved and best practice shared widely. The CDE brought together 12 technical disciplines, and within each one we empowered information champions to help build the culture required to effectively deliver the project.

Use of the CDE had very positive outcomes with vast cost and time savings. Altogether, 350 drawings were avoided across the project, with a six-month reduction in delivery time that enabled an overall cut of two years in the programme. The platform also enabled smart reporting, and our client was so impressed with our automated earned value analysis that it has been rolled out on other contracting joint ventures.



Project

Major urban sewer infrastructure project

Location

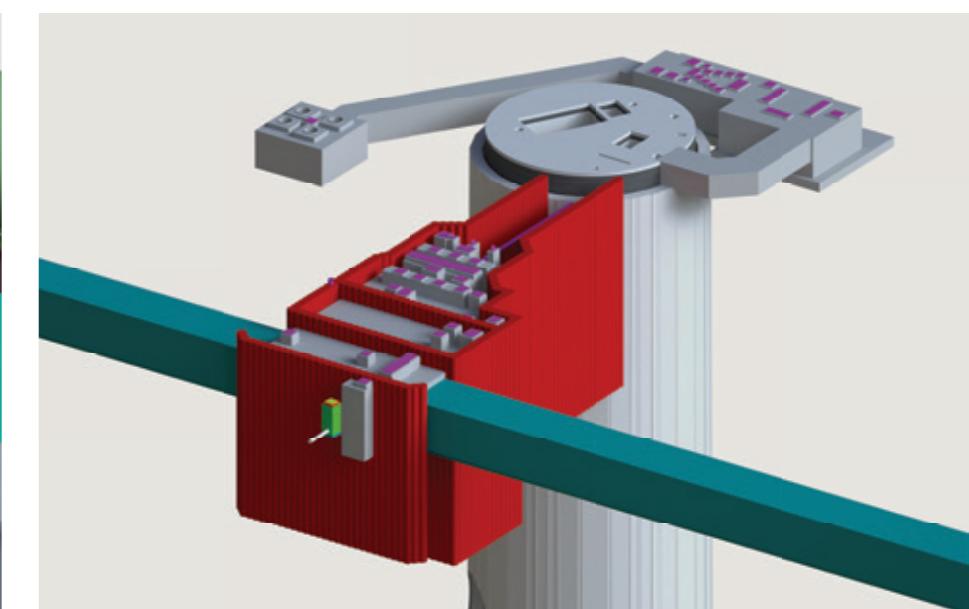
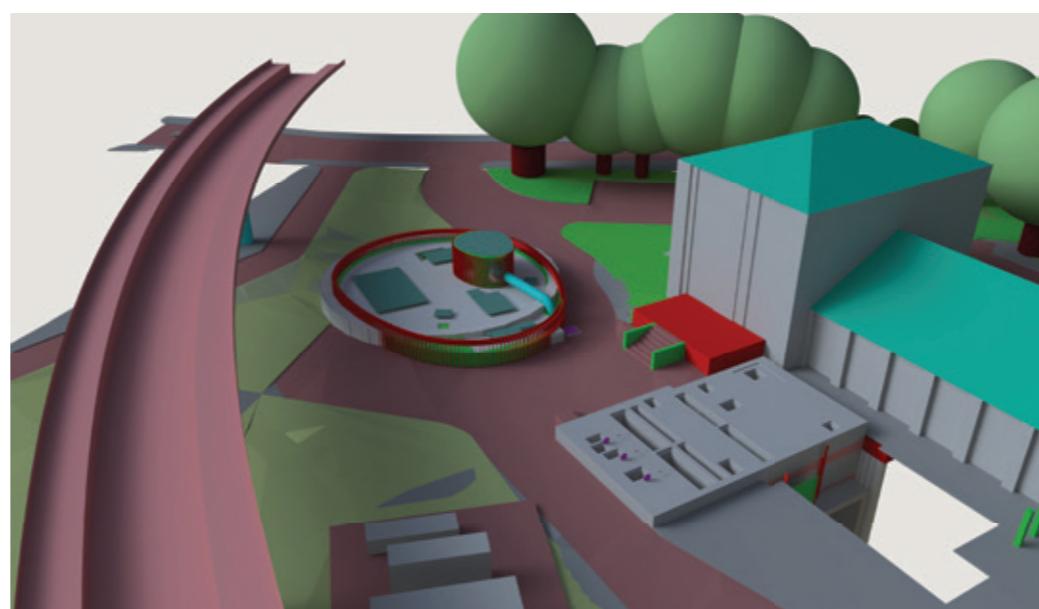
Confidential

Client

Confidential

Expertise

Engineering design and information management



5.

Asset sustainability

How to maximise BIM for asset sustainability

Although the greatest benefits are possible in long-term asset management, too few owners take advantage of BIM as an enabler. Good information management can be used to reduce costs, time, carbon and effort throughout the life of your assets. We will help you pinpoint your efforts on critical assets which will result in the greatest returns, understanding that some assets – especially those towards the end of their operational lives – will benefit less from investment in data management. Our work ranges from ascertaining the value and use of historic, legacy datasets to helping you structure your teams to ensure a joined-up approach to data management that enable quality asset-oriented decision making.

**Key services**

- Asset management and facilities management advisory
- Maximising asset handover and registration
- Alignment and application of BS 1192 and ISO 55000

Future Cities
BIM Award

Enabling a step change in efficiency for Dubai's transport authority

Dubai's Road & Transport Authority (RTA) identified BIM as key to improving the way public transport infrastructure is procured, executed, operated and maintained. We were appointed to create the framework to facilitate this change, driven by the organisation's asset management department.

Our approach looked beyond models as simply a 3D representation of an asset and instead focused on layering BIM into the RTA's existing business processes, optimising them to deliver business goals through positive behavioural change. The outcome was better information management

that meets international best practice, and greater efficiency for the long term. Delivered across three phases, our commission began with in-depth study of the organisation to establish its baseline and to assess the size and complexity of the skills gap that had to be bridged. Interviews, online surveys and focus groups painted a picture of BIM understanding within the organisation and through the supply chain.

This allowed us to develop a BIM roadmap with a phased task schedule to raise the capabilities of the team and the supply chain over the medium term. The BIM strategy

was implemented across capital delivery, with pilot projects enabling the development of cost-effective solutions that could be rolled out across all work streams.

Finally, we set in motion some of the mechanics needed to drive BIM across the business, including demonstration of two 'proof of concept' projects using as-built data from live assets.

Our training and education plan will inform future skills development, and our legal review of existing commercial documents enabled us to create an elevated legal framework for future BIM projects.

"BIM is now becoming an integral component of all construction projects throughout the region, and this award is to congratulate the consultant that has driven this agenda more than anyone else. Mott MacDonald not only represents successful BIM implementation on projects, but has also helped educate the community on the importance of BIM as a mindset, rather than a technology."

Judges at Future Cities BIM Awards in 2016

It's all about the data

Dennis O'Keeffe, infrastructure programme director at the Velindre NHS Trust in Wales, is looking to build a £200M+ specialist cancer treatment centre. He explains why he'll be writing the transfer of BIM data into the contract, using Velindre's 'Enterprise BIM' initiative that is being developed with Mott MacDonald.

Acres of words have been written about the efficiencies and advantages building information modelling (BIM) brings to design and construction. But, as a public service client, we feel there's a certain amount of asymmetry in the industry. We haven't seen the full benefit of BIM, especially in the operational phases of a project.

Public private partnership (PPP) has become a normal way of procuring new health facilities. A substantial part of a PPP service contract is taken up by the 25-year concessional period. During that stretch, the client – usually the NHS in the UK – doesn't have the full apparatus of data to really monitor the performance of the building.

The construction industry's at the point where it can create and capture data during design and construction. The capability exists to monitor operational performance, analyse data, and make decisions based on that. I want access to it all. To get it, we need to lay out the PPP contract with operation and ultimate handover back to the public sector in mind. Access to data will enable us, as client, to truly participate and collaborate in the operational phase, from a position of knowledge.

Enterprise BIM

At the moment it feels like data is owned exclusively by the PPP contractors working for us. As an analogy, we're like the kid with their nose pressed against the sweet shop window. We, the public sector clients, are looking in, but we can't touch the sweeties. We want in on it. We need to write it into the contract, because experience shows that if it's not in the contract it may not get done!

Why does this matter so much? In today's increasingly digital age, I'm told supermarkets can now tell from shopping habits when couples are going to get divorced. And there's almost no part of our lives that isn't touched by the internet. That's the power of data! The challenge to designers, builders and asset managers is to become digital natives and data scientists – far beyond 'bricks, mortar and concrete'. We want, in our own modest way, with our new cancer centre project in Cardiff, to make BIM and data work for us.

It's only when a building goes live that you know if you're actually achieving the aims you had at the outset and put into the design and construction specifications. As clients we not only want to be able to use data to drive operational efficiencies; we want to learn from our experience as procurers, so that we can make each subsequent project better than the one before. Without performance data, we're blind.

Let's be blunt: without 'Enterprise BIM', we will continue to operate at a relative disadvantage in the operational phase of the PPP concession, compared to suppliers who do use BIM effectively. It's to our advantage – or at least less to theirs – if we know

what the energy performance is, when repair and maintenance are required and what the response time to call-outs is. Enterprise BIM also has the potential to make the evaluation of the bidder's designs and the procurement process more efficient and effective.

Live data would also help us influence better behaviours. One of the big problems in hospitals is energy wastage. From a facilities management perspective, getting people to change their culture and habits is the golden goose. Real-time data would help build consciousness of what's going on.

Above all other interests, data transparency and transfer is in the interests of those for whom health facilities exist: clinics and hospitals that are designed, built and operated better ultimately benefit people suffering from illness, by enabling better care and the redirection of precious capital from heating bills to treatment.

Operational gains

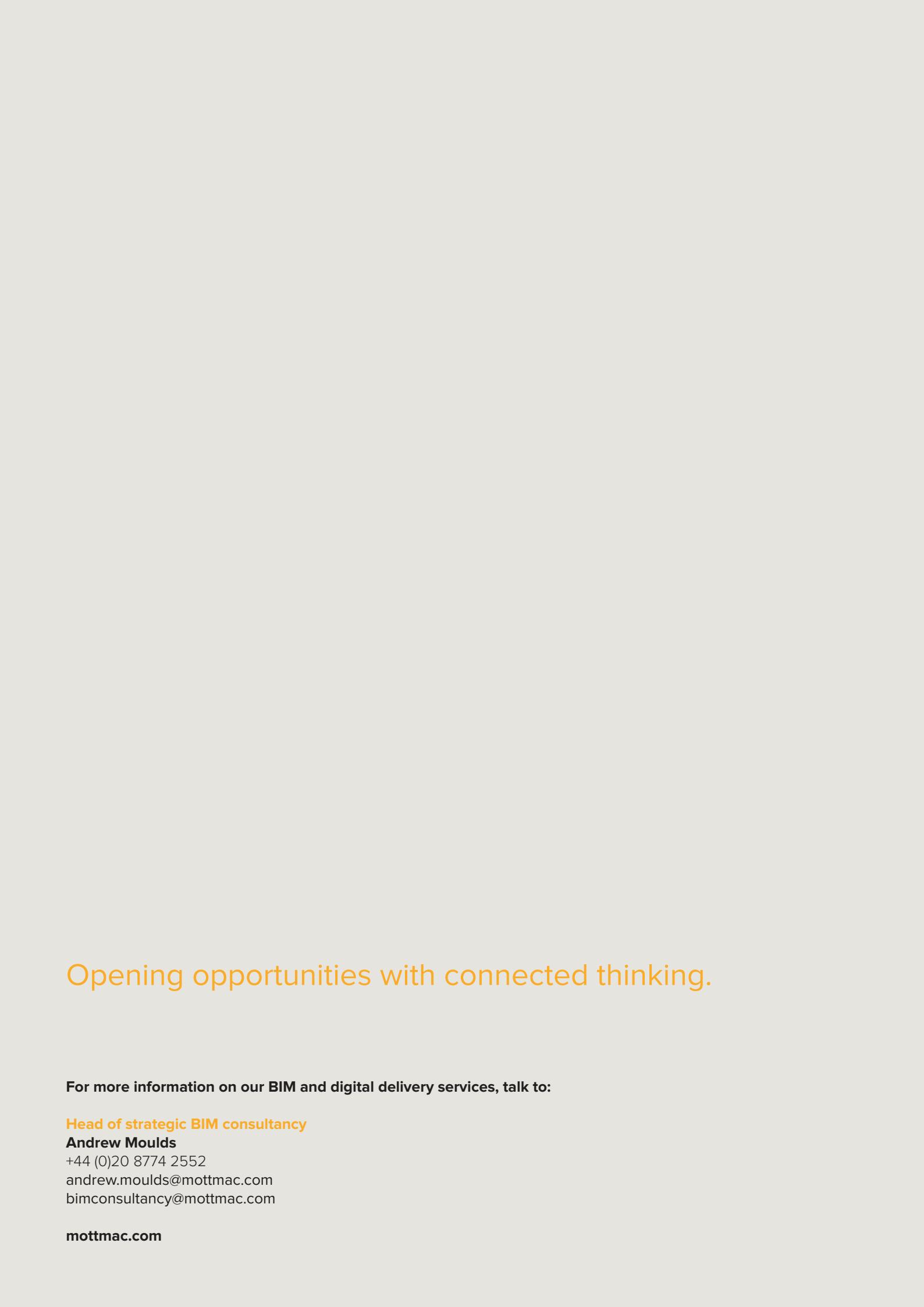
Hospitals are complicated buildings. I want the best design, and information and control during operation. There's no point having a sports car if you're going to drive it like a delivery van.

That's why I'm putting data sharing into the contract for the PPP that will deliver my new facility. If the industry responds as I hope, by 2022 we will have a fabulous new building, bringing world class cancer treatment, an exemplar not just for healthcare, but the whole public sector.

We'll have a sports car and the ability to drive it.

Project	Velindre Cancer Centre
Location	Cardiff, Wales
Client	NHS Trust
Expertise	BIM consultancy





Opening opportunities with connected thinking.

For more information on our BIM and digital delivery services, talk to:

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