

An aerial photograph of a city skyline at sunset. The sun is low on the horizon, casting a warm orange glow over the scene. The city is densely packed with skyscrapers and buildings. In the foreground, there is a large body of water with many boats docked at a pier. The sky is filled with soft, wispy clouds. A white rectangular box is overlaid on the left side of the image, containing the text 'bimacademy' and 'Capability Statement'.

bimacademy

Capability Statement

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Meet BIM Academy

Digital visionaries fundamentally changing the built environment

"We believe in the power of connectivity, the spirit of exploration and the ability to drive innovation through collaboration."



We bring a new perspective to the world of digital, enabling our clients to achieve better results. At BIM Academy we are motivated by the desire to improve the way people and technology work together in the built environment.

At BIM Academy we are a team of visionaries, on a mission to digitally transform the built environment. We act with integrity and we always do what we say we are going to do. We believe in trust and transparency, we're authentic and agile, we work throughout every continent to bring the very best in future-thinking to client projects.

We are digital construction specialists, skilled in unlocking your digital potential to drive project success and organisational growth.

BIM Academy was co-founded in 2010 by Ryder Architecture and Northumbria University, with the intention of establishing a centre of excellence for digital construction and transformation.

Today we have achieved such status and have taken further steps to transition into one of the world's leading research and strategic consultants in the global digital built environment.

We provide valuable support for construction, real estate and infrastructure through our strategic vision and project management and software development expertise.

At BIM Academy, we help transform businesses through our intelligent application of BIM, smart processes and digital technologies, by guiding our clients along a clear pathway towards achieving their goal, whilst always mindful of adding value and reducing risk.

Celebrating 10 years of BIM Academy



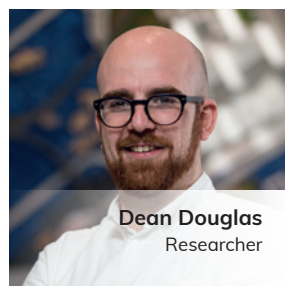
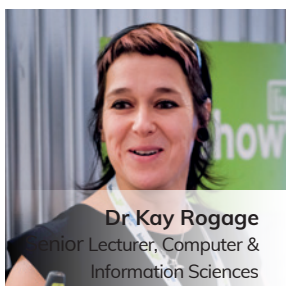
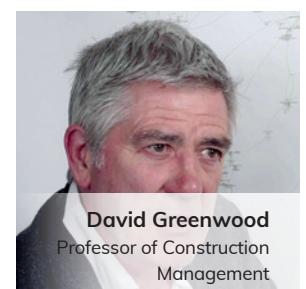
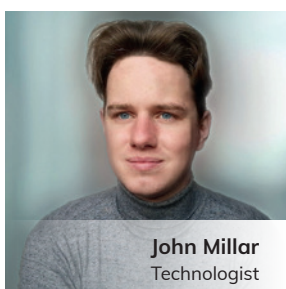
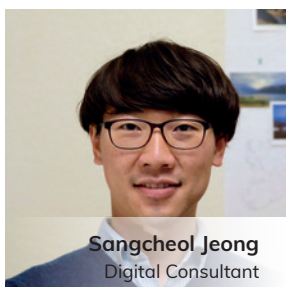
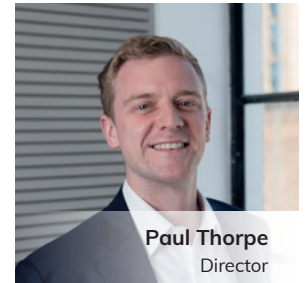
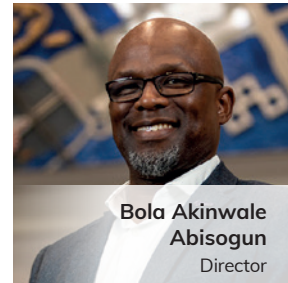
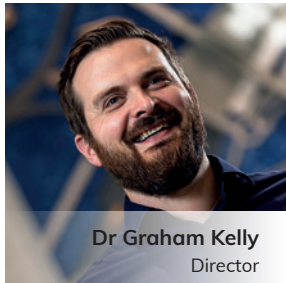
In 2020, BIM Academy celebrated its 10th anniversary. In the past decade the business has grown into a world-leading digital solutions provider for the built environment, combining expertise in research, training and digital construction consultancy to successfully deliver projects across digital engineering, construction and infrastructure in 19 different countries.

BIM Academy was born out of a partnership between Ryder Architecture and Northumbria University 10 years ago, with an idea to digitalise the way we design, build and operate in the built environment.

Fast forward to 2020 and BIM Academy is pioneering change in the global field of BIM and digital construction. We have been supporting developers, designers, contractors and asset operators in their digital transformation journeys, and have become skilled in unlocking the digital potential needed to drive client project success and their own organisational growth.

The BIM Academy Team

We operate at the highest level of technical expertise



The BIM Academy Team



Dr Graham Kelly
Director

Graham leads the BIM Academy team. BIM Academy was established in 2010 through a joint venture between Ryder Architecture and Northumbria University. Graham's role is to steer the consultancy business and ensure it brings value to its founders and the wider industry. Graham's role sees him responsible for leading strategy and implementation of digital transformation strategies specific to clients real needs. This goes beyond BIM, it is as much about the people as it is about the technology. He has over 10 years' experience in construction and academia, also completing a PhD in early 2015.

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"At BIM Academy we address current challenges around how to utilise technology effectively to improve productivity and certainty."



Peter Barker
Director

Peter is a Director at BIM Academy and a Partner at Ryder Architecture. Peter's roots lie in design and construction and his 35+ years of his technical and commercial experience is key to ensuring BIM Academy thrives as a digitally-driven and commercially robust global business. BIM Academy acts as a conduit through which academic research and pragmatic best practice are combined to provide digital transformation strategies for its clients.

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"Our goal is to drive practical value for our clients and improve the built environment and those who use and enjoy it."

The BIM Academy Team



Bola Akinwale Abisogun
Director

As Digital Director at BIM Academy, Bola is passionate about delivery a digital first approach. Bola is an industry thought leader with specialist knowledge in Digital Construction, Smart Legal Contracts, Blockchain, Built Asset Assurance, BIM, Technical Compliance and Asset Lifecycle Management. He is a Chartered Construction Manager, Chartered Quantity Surveyor and Fellow of the Royal Institution of Chartered Surveyors (RICS), and in Bola 2019 was awarded an OBE for Services to Diversity and to Young People in the Construction Industry.

"A digital first ethos is just as much about the people as the technology. The team at BIM Academy consists of exceptionally talented and future thinking people, leading the way in digital construction thinking."



Paul Thorpe
Director

Paul is experienced in managing the digital delivery of large scale construction and infrastructure projects across the globe. Paul joined the BIM Academy team on his return to the UK after living and working in Hong Kong for several years.

"My focus is to ensure that both our existing and new clients are aware of the wide experience and skill we have and help tailor our services to best fit their needs."

The BIM Academy Team



Mark Crowe
Associate

Mark is responsible for technical delivery on projects across BIM Academy's global operations, as well as continuing to ensure the organisation is at the forefront of practical capability. Graduating from Northumbria University, Mark puts a significant emphasis on practical, socially sustainable design, as well as having a natural in-depth understanding of design technology and information systems.

"Working with people who genuinely want to create better processes, that deliver better products in more efficient ways is highly inspirational for me."



Andrew Johnson
Associate

Andrew is responsible for delivering BIM implementation projects alongside designing and developing digital transformation programmes for industry clients. Andrew specialises in digital strategy development through information management on live projects and through research. In 2019 Andrew left the Corps of Royal Engineers after a full 24 years' service, leaving as a senior soldier. Prior to leaving the military Andrew completed his postgraduate MSc in engineering management, with a thesis that investigated the cultural impact of implementing BIM in the UK construction industry.

"People are the biggest asset on a project, we nurture them and understand each person's strengths and motivators as this helps to build a great team."

The BIM Academy Team



Dr Melanie Robinson
Senior Digital Consultant

Melanie joined the BIM Academy team in 2019 as a Project Manager and is responsible for managing a variety of projects – ranging from digital strategy development through to information management on live projects. She is also interested in research, particularly surrounding capability assessments and upskilling practices, as well as keeping up to date with developments in industry policy. In 2015 Melanie completed her undergraduate degree in architectural technology at Edinburgh Napier University and she is now on track to complete her PhD from Napier in 2020, with a thesis that has investigated competency related barriers to effective BIM adoption in the UK.

“Although a lot of amazing technology is emerging, it is superficial unless it can be used to yield useful information and apply it in a value-adding capacity.”

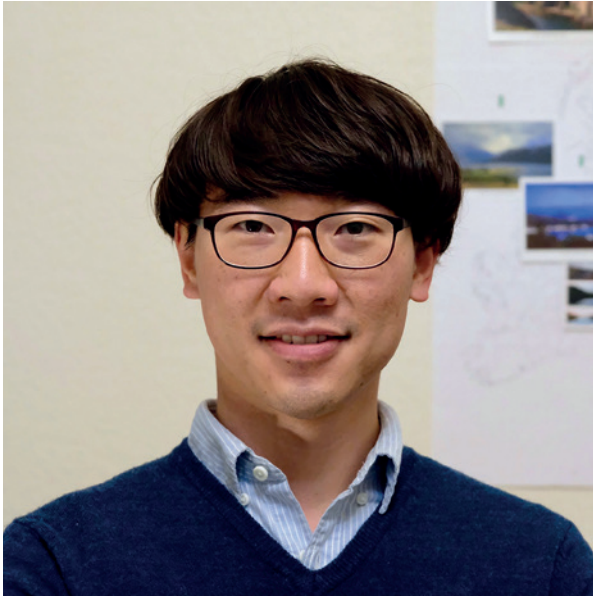


Miles Walker
Senior Digital Consultant

Miles is a Senior Digital Consultant and has a wealth of technical architectural, construction and BIM experience for the delivery of large complex projects, supporting clients, multi discipline design teams and contractors in the building industry. He is also skilled in leading BIM strategies for projects and organisations, as well as BIM modelling, data coordination, auditing and the creation of standards.

“Effective collaboration processes are at the very heart of BIM. To make a project successful, collaboration is essential across the whole supply chain from the very beginning.”

The BIM Academy Team



Sangcheol Jeong
Digital Consultant

As an experienced BIM manager, Sangcheol has introduced BIM to many organisations in South Korea, encouraging them to adopt new digital practices and presented new digital strategies to implement on their projects. Currently studying a Masters in BIM and Construction Management at Northumbria University, Sangcheol intends to technically and strategically inspire people to transform the AEC ecosystem through realistic steps.

“Digital technology plays a major role in the development and application of good communication and BIM is the epitome of this, in that it is about everyone working together in a collaborative way.”



Murillo Piazza
Digital Consultant

Murillo is a trained architect with a specialism in BIM and joined the BIM Academy team in July 2021 as a Technologist, responsible for managing and maintaining all of the data, functions, components, procedures and maintenance protocols in a digital format for each of his projects.

“In my opinion, adversarial behaviour is the biggest challenge we face in our industry today. Fortunately, people are starting to realise that work is done faster and better if they work collaboratively. BIM can be also part of the solution as it provides the tools and the medium for this collaborative work to happen.”

The BIM Academy Team



Lewis Johnson
Digital Consultant

Lewis is a qualified building services engineer and in his role as Technologist for BIM Academy, he is responsible for BIM implementation on client projects through the management and maintenance of all of data, functions, components, procedures and protocols in digital formats.

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"My experience of working through different sectors of the industry as part of my PlanBEE apprenticeship has given me a fantastic overview of the working of the full industry workflow."



Lee Maguire
Software Developer

Lee has been a Software Developer with BIM Academy since March 2020. Lee is an experienced full-stack software developer who has worked in various disciplines over the last 10 years. Lee specialises in 3D software, virtual reality and games design completing a 1st class BSc in Games software development in 2017.

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"Immersive Reality is making huge positive changes to the way we interact with people and the world around us."

The BIM Academy Team



John Millar
Technologist

John is responsible for providing support to the BIM Academy team and assisting in the delivery of projects. He completed his Masters degree in Advanced Construction Technologies & BIM at University of Strathclyde in 2019, where his research work – focused on BIM evolution and asset management within NHS Scotland – was awarded a scholarship by the Construction Scotland Innovation Centre (CSIC). Outside of work, John is a multi-instrumentalist and producer, and has a keen interest in composition and music technology.

“Digital construction and BIM processes can be extremely compelling and present significant opportunities, which in turn deliver strong results for our clients.”



Marcos Gabriel Cardenas Pantoja
Technologist

Marcos studied architecture at Ricardo Palma University in Peru, graduating in 2017 and is currently completing his MSc Construction Project Management with BIM studies at Northumbria University.

“Art and technology are an infinite source of innovative ideas that can bring solutions to current issues and embrace new technology in the construction sector.”

The BIM Academy Team



Amandeep Kaur
Technologist

Amandeep is responsible for supporting the BIM Academy team in the delivery of projects, with responsibilities including the authoring of BIM documentation, model / data auditing, coordination checks and other information management functions. She has a constant appetite for new knowledge and ideas ultimately feeding into the approach that she takes towards her work.

Amandeep has a passionate devotion to continuous personal and professional improvement, with this ensuring that she is at her best and constantly delivering maximum value for BIM Academy's clients and stakeholders.

"Art and technology are an infinite source of innovative ideas that can bring solutions to current issues and embrace new technology in the construction sector."



David Greenwood
Professor of Construction Management

David is an industry-facing academic, specialising in construction industry transformation, responsible for driving the research agenda for BIM Academy. David was an original co founder of BIM Academy and part of the academic side of the joint venture, which he now serves as a director. He is a professor at Northumbria University where his main areas of research include the uptake of Building Information Modelling, construction supply chains and their organisation, management, and contractual administration.

"The biggest challenge in the industry is changing its image. That will change when we get the right people, and the right people will come when the image improves - we have to work on both."

The BIM Academy Team



Dr Kay Rogage

Senior Lecturer, Computer and Information Sciences

Kay started her career developing software for NBS, working on some of the early specification products through to the first launch of NBS Plus. She has previously worked at Newcastle University and for a number of new digital media organisations developing solutions for a range of digital formats.

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“As an industry we need to take advantage of advanced technology solutions, such as offsite manufacturing and blockchain, but it needs to be done with a collaborative and focused approach.”



Dean Douglas

Researcher

Dean has been a Researcher with BIM Academy since October 2019, in his role he is responsible for developing a guided framework and accompanying toolset that will enable Infrastructure Asset Management to adopt Construction 4.0 technologies and workflows. Doing so will enable BIM Academy to advise on the transformation of the industry into digitally-enabled asset management and the development of holistic infrastructure networks.

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“A national digital twin has the potential to revolutionise the way in which we design our urban environment, and the way in which we provide social and economic infrastructure.”

Introducing our services

Digital solutions for planning, design, construction and operation

Our services include:

Strategy

Project Management

Digital Technologies

Learning and Development

Building Performance

Research

"We command the strategies, processes and technologies which businesses need to unlock their digital potential. Everything we do is bespoke to each client, creating value for their business and their projects."

Strategy

Transforming business processes together



At BIM Academy we help our clients solve increasingly complex business challenges. We offer digital expertise and solutions to help clients adopt new technologies to overcome these challenges, reach their goals and make their business more competitive.

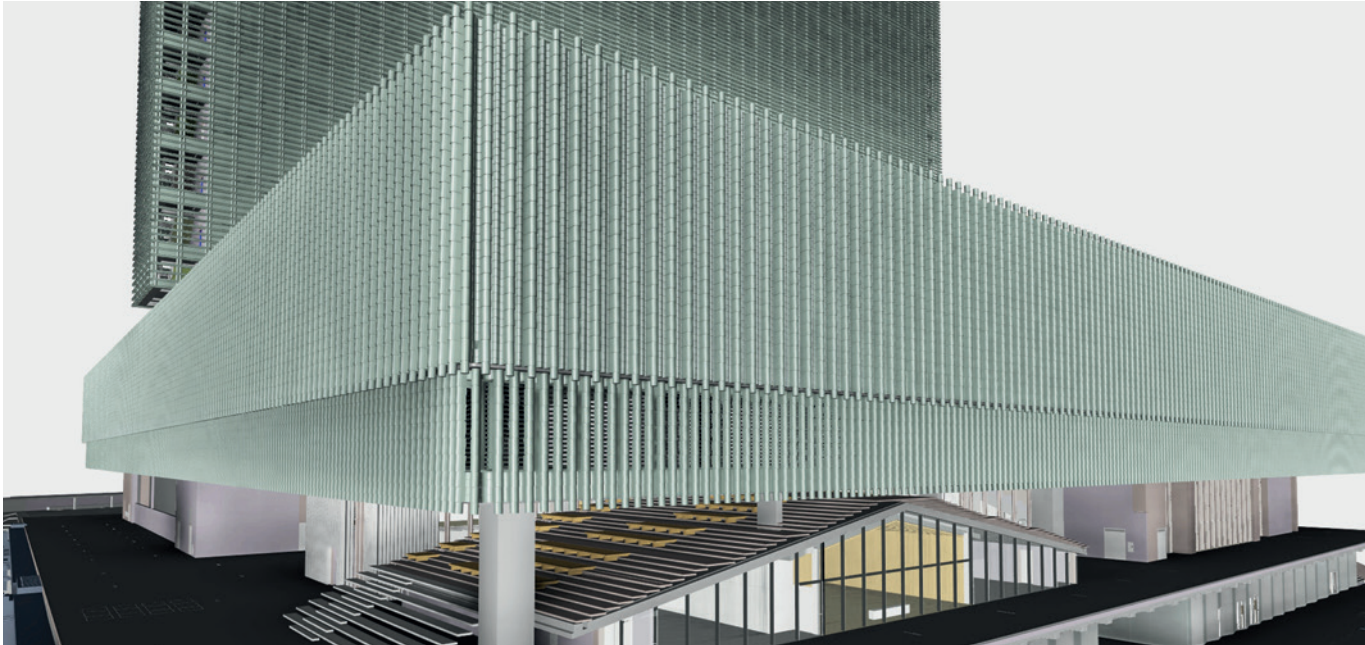
When businesses adopt new technologies for the implementation of digital workflows, they need to think differently about their processes, how they are managed and how the results can be measured. In order to fully realise the advantages of this digital transformation, businesses need to go beyond just learning to use digital tools, they often need to fundamentally change how they operate and sometimes this includes cultural change.

Our strategic approach helps our clients achieve digital, business and cultural transformations. We bring new thinking to business and project processes, allowing businesses to become more agile, innovative, digitally responsive and ultimately more successful.

- Business case development
- Feasibility studies
- BIM strategy
- BIM implementation planning
- BIM for FM strategy
- Forensic advice and peer review
- Process and systems diagnosis
- Risk analysis
- Cultural change management
- Business performance measurement and KPIs
- Bid support, capability statement development

Project Management

Optimising performance to maximise value



We run client projects from their inception to completion for the digital management of information, data and processes.

After working with clients to develop their digital information strategies, we then transition to the implementation of the strategy for the construction phase and beyond, throughout the lifecycle of the asset.

In our unique approach, we can take ownership of the full digital project, mobilise the team, define the project information requirements and manage delivery. We ensure a smooth and effective implementation by bringing people and information together, using clearly defined processes and technology.

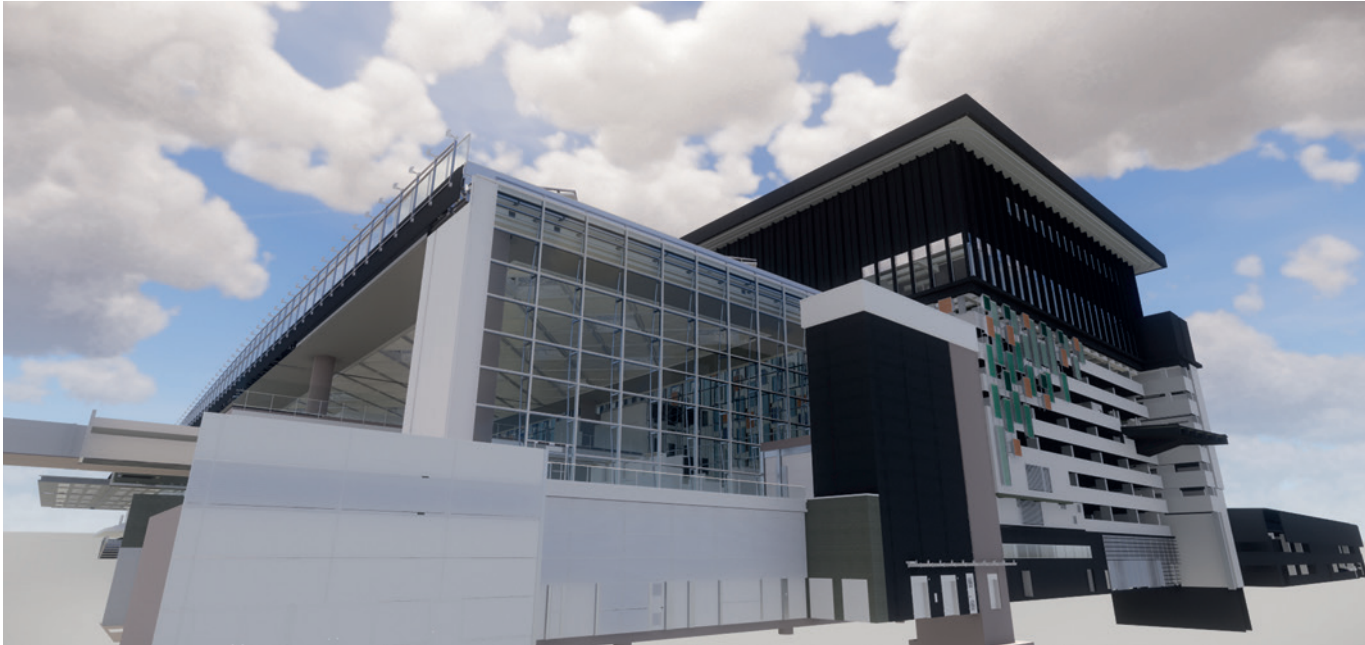
Embedding digital workflows right from inception helps to protect and prioritise an organisations development objectives. We apply digital systems (including BIM) to help the project team to better understanding project workflows, manage project data and models and reduce risk, particularly due to unreliable uncoordinated or missing data which ultimately lead to rework and reduced performance.

By fostering collaboration and innovation across the whole organisation or project team, we help clients drive efficiency and reduce risk, keeping projects on schedule and on budget.

- Client information manager and BIM auditor
- BIM project manager
- Model management planning
- Staff mentoring and secondment
- 3D model coordination and clash avoidance strategies
- Digital design modelling best practice
- Construction simulation modelling (4D)
- Cost modelling (5D)
- Digital room loading and room data sheets

Digital Technologies

We are digital revolutionaries



We transform the way businesses and their people connect through the use of advanced technology.

We are at the centre of a transformational change and support each of our clients in their understanding and implementation of technology throughout every aspect of their business.

Our digital transformation approach offers bespoke software development and intelligent IT infrastructure to increase outputs and achieve deep understanding of projects and processes.

Our technology team is made up of technical wizards working up 3D information models, interpreting and predicting building performance and generating automated tools, among many other aspects which are essential to meet the requirements of ISO 19650 on building and infrastructure projects.

- Digital Transformation
- IT infrastructure evaluation
- Software assessment and research
- Bespoke software development
- Open source (IFC) technologies
- Common Data Environments (CDE)
- Legacy IT system analysis and integration
- GIS integration
- RFID integration
- Revit Plugin development
- Technical Specification development
- Interoperability support
- Data analysis
- Dashboarding
- Machine Learning
- COBie data advice and support

Learning and Development

Achieving true understanding of digital construction



All our training is designed to meet the needs of professionals in the built environment who are seeking to develop their knowledge, skills and understanding in all areas of digital information management, software and workflows.

We draw upon our extensive knowledge and experience gained from practical application in industry since 2003 and our award winning consultancy since 2010, together with world leading academic research.

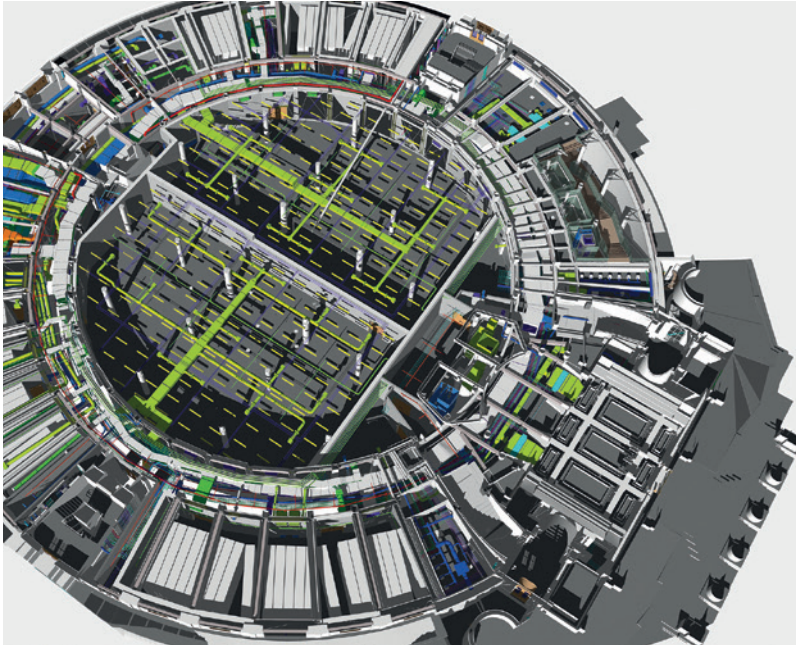
Our training includes an introduction to BIM, digital construction and operation, through to an intensive tailored multi day Virtual Project workshop that allows delegates to collectively experience the full lifecycle of a BIM project in a hands-on risk free collaborative environment.

We carry out an initial training needs assessment and work with you to build your personal training programme to support digital adoption and implementation.

- Learning and Development strategies
- Development programmes
- Skills frameworks and assessment
- Bespoke rule based model analysis (Solibri)
- Bespoke object library creation
- Digital collaboration workshops (Virtual Project)
- Training strategies and staff development programmes include:
 - Revit
 - Solibri
 - BIM Awareness
 - Digital culture
 - IOT
 - BIM and FM
 - Object creation

Building Performance

Optimising building performance through technology



We apply a systematic approach to building performance management, identifying client and asset goals, to establish strategic performance objectives, effectively collecting, analysing, reviewing and reporting on project data to use in the long-term running of the asset.

Through the application of digital construction methodologies we have witnessed a massive transformation within the construction industry where buildings are now built first virtually and then physically, where the use of machine learning applications and autonomous construction equipment are key resources throughout the construction value chain and offsite manufacturing has irreversibly changed the way we design and build.

We work with, and advise our clients on how best to use the wide variety of technologies available to us, our team at BIM Academy are skilled in the application of technologies such as augmented and virtual reality, machine learning and apply these technologies in our methods for measuring project and asset performance.

- Pedestrian modelling and people flow simulation
- Digital environmental analysis
- Computational design analysis
- Virtual and augmented reality
- Visualisation and animation
- Design for Manufacture and Assembly (DfMA)
- Off Site Manufacture (OSM)
- Digital buildability assessment

Research

We turn research into insight



At BIM Academy we conduct independent and impartial research for both government and public sector and commercial projects around the world.

Since the conception of BIM Academy we have partnered with research institutions to carry out research projects which establish feasibility and proof of concept, formulate business cases and risk assessment analysis, amongst many other areas in support of improved construction and infrastructure.

We establish teams to undertake research projects for organisations such as Innovate UK, Centre for Digital Built Britain (CDBB), CITB and many others. Through our research, we receive funding to identify and confirm areas for process improvement and efficiencies within the built environment. Many of our research commissions involve complex projects in which we establish digital solutions to overcome these complexities.

We use research to mitigate risk by developing new services and products from design through to handover in support of the full asset life cycle.

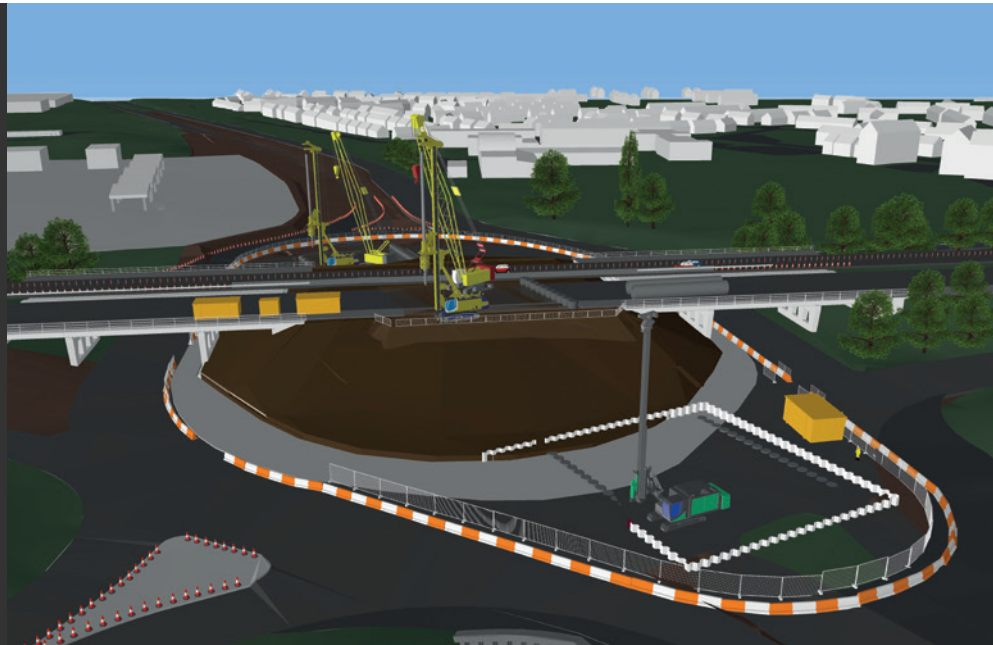
Our proficiencies in research and investigative techniques produce insight and establish market trends which are influencing the future of construction and infrastructure.

- BIM for Asset and Facilities Management
- Smart Sensors and Wellbeing
- BIM for Infrastructure
- Post Occupancy Evaluation
- Digital Maturity Evaluation

Who we work with

Leading the world in design, construction and operation technologies

"Our mission is to help our clients transform their working practices to achieve genuine value, reduce risk and introduce intelligent applications to achieve a digitally-enabled future."



**Sir Robert
McALPINE**



SCOTTISH
FUTURES
TRUST



QUINTAIN

BAE SYSTEMS



HellasGOLD



westKowloon
西九文化區



MANCHESTER
CITY COUNCIL



Gammon



Newcastle
University

Case Studies

Award winning global experience

Civic

M+ Museum

Design and Construction

Brink Groep

CEH Group

NBS National BIM Library

Sir Robert McAlpine

Virtual Project Training

Wardell Armstrong

Education

Aston University

Durham University

Leeds Beckett University

Newcastle University BIM for Estates

Newcastle University Park View

Queensferry High School

University of Melbourne

University of New South Wales

Government

Hong Kong Hospital Authority

Qatar Government Authority

Healthcare

Dumfries and Galloway Royal Infirmary

Heritage and Conservation

Digital Solutions for Sydney Opera House

Durham Cathedral

Manchester Central Library

Royal Household

Sydney Opera House

Infrastructure

Aquila

Forest City

MTR Corporation

Sisk A19/A1058 junction improvement

Manufacturing

BAE Systems

BMW Group

Mining

Hellas Gold

Oil and gas

Oil and Pipelines Agency

Residential

Legal and General Homes Modular

Smart Connected Buildings

Sport

Kai Tak Sports Park

Wembley Stadium

M+ Museum of Visual Culture

Hong Kong, China

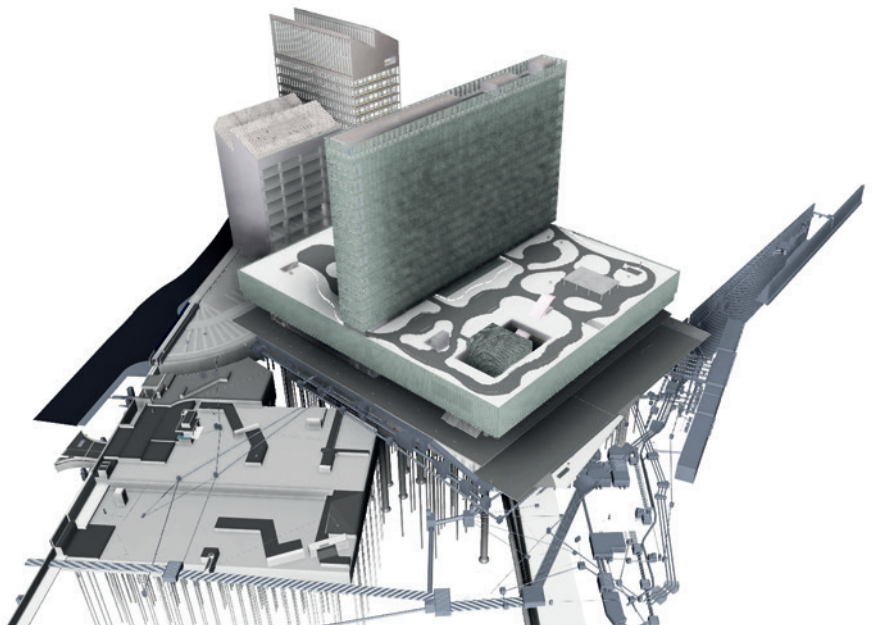
Civic Sector

Client

West Kowloon Cultural District (WKCD)

Services

Learning and Development,
Project Management



M+ is the world's largest museum of visual culture, dedicated to collecting, exhibiting and interpreting art, design and moving images.

This HK\$5.9 billion museum is the result of an international design competition won by Herzog de Meuron, TFP Farrell and Arup. It aims to be a museum rooted in and shaped by its location and the unique culture of the city of Hong Kong.

Commissioned by the West Kowloon Cultural District (WKCD) redevelopment project, WKCD showed vision in demanding the use of BIM throughout the life of the project, to improve project communication and collaboration amongst design team, stakeholders and contractors and ultimately support asset and facilities management post handover.

BIM Academy was appointed to the subconsultant role of BIM Specialist to support and advise the design team. This BIM specialist role was to plan and facilitate the production and management of BIM activities, including; the development of BIM protocols, the BIM Execution Plan and leadership of BIM workgroups.

BIM Academy led our BIM team on this highly complex and prestigious project to construct a major museum facility in the heart of West Kowloon Cultural District. Their Project Manager galvanised the team into a highly effective unit which was an essential competent of our design and construction coordination and logistics planning.

Desmond Sze,
Assistant Managing Director,
Hsin Chong Construction

Brink Groep

Amsterdam, Netherlands

Design and Construction Sector

Client
Brink Groep

Services
Strategy



Brink Groep is a Netherlands-based property and project management group with 225 employees, specialising in residential and real estate developments.

Brink Groep commissioned BIM Academy to examine how the implementation of BIM within the organisation would enhance business growth and identify opportunities to expand into digitally enabled services for the European property and construction market.

Following intensive research, we developed a strategy and implementation plan. This began with a BIM-enabled vision for Brink Groep, with an understanding of enhanced services and potential new clients.

We presented a breakdown of opportunities and the key initial services and technologies Brink Groep should explore, together with recommendations on how these could be implemented. In addition, we identified budget costs to assist the financial planning of BIM implementation.

The overriding recommendation was that Brink Groep was well placed to be market leaders in delivering BIM processes through a whole-life-cycle approach, significantly increasing turnover.

We assisted the organisation in developing a new corporate vision for BIM and an operational strategy for its delivery. We recommended a structured company-wide training plan and produced a method of assessing the competence and resources of Brink Groep's supply chain.

Our strategic plan identified pilot projects and a methodology for initiating them, as well as creating metrics to determine and measure the progress and effectiveness of the whole BIM adoption process.

CEH Group

Budapest, Hungary

Design and Construction Sector

Client
CEH Group

Services
Strategy,
Project Management



CEH Planning, Developing and Consulting Inc (CEH) is a leading Hungarian engineering and project management company founded in 1990 and based in Budapest.

The organisation provides engineering services in building design, bridge design, project management and site supervision.

In 2017, CEH initiated a corporate digital transformation process, including the adoption of BIM, based on some experience of the business value benefits, especially in building design.

The company was seeking to establish its ability to provide BIM management services and also to provide design and project management services based on a BIM process. BIM Academy was approached to act as CEH's consultant partner, supporting the company during this transformation process.

The first part of this project was to create a detailed analysis of existing business drivers and technical capabilities, which would then be used to inform the development of a strategy report and implementation roadmap to establish what CEH needed to do over a prescribed future period.

This strategic report was created through a series of consultations with CEH in its Budapest head office to establish current processes.

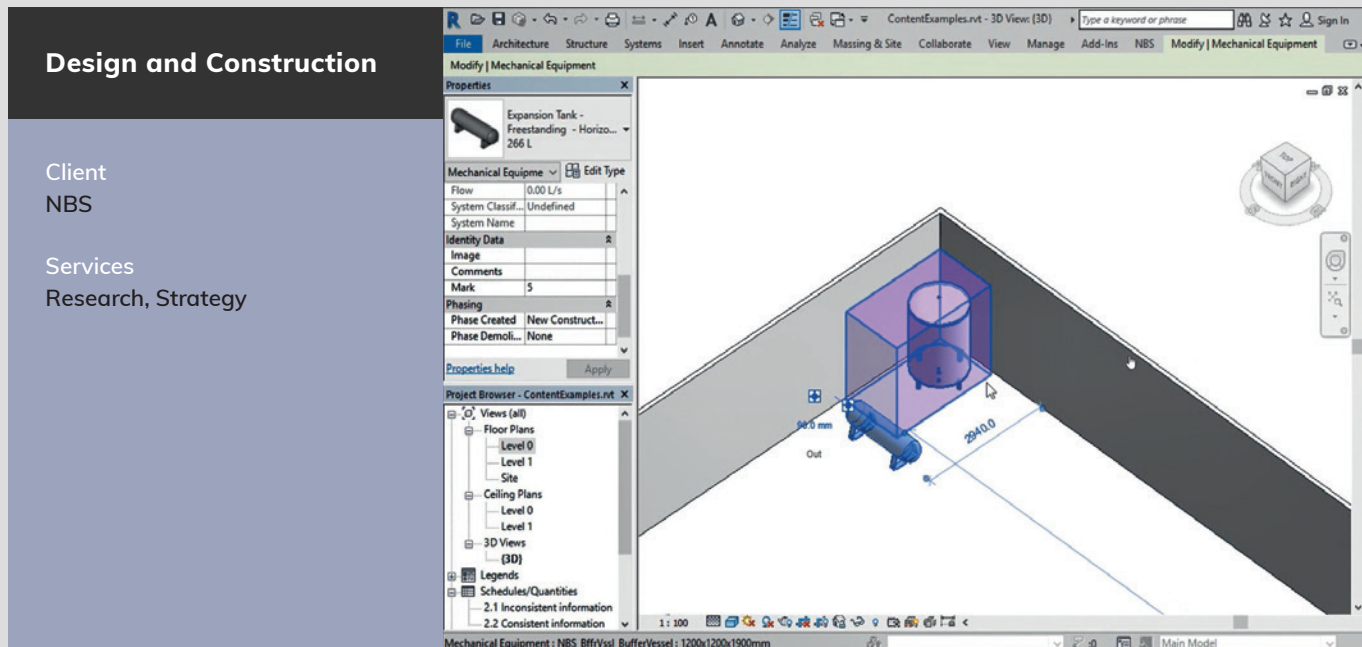
Recommendations were then made as to how best to implement BIM within the organisation.

After the strategic report was delivered, CEH wanted to understand how the UK market was applying BIM in practice – particularly on engineering and civils projects. We organised a structured study trip across the UK, visiting 12 organisations across London, Newcastle and Edinburgh, with five senior CEH personnel.

This study trip was well received as an informative and valuable experience. We are now working with CEH to achieve the capability targets we set out in the strategy plan, including ISO 19650 BIM Certification by mid-2020.

NBS National BIM Library

Newcastle upon Tyne, United Kingdom



The NBS National BIM Library launched in 2012 and became the fastest-growing building information modelling (BIM) library in the UK, with an extensive collection of both generic and manufacturer BIM objects ranging from building fabric systems to mechanical and electrical objects.

These digital data rich, generic and proprietary objects are intended for use by AEC industry professionals when specifying building products to construction and infrastructure projects. The library is available online and enables designers, contractors and other professionals to locate and download generic BIM objects for a wide range of systems and products.

Originally commissioned by NBS in 2011, BIM Academy was responsible for scoping and authoring the National BIM Library as the UK's first free-to-use library of high quality generic and proprietary BIM objects.

Played a leading role in the creation of this essential source of digital information for the supply chain to aid the construction industry in BIM adoption, we worked in partnership with NBS to create this first of its kind object library.

We developed this in both proprietary and platform-neutral software formats with industry-relevant objects and systems created in both generic and manufacturer-specific proprietary forms.

When originally considering the NBS National BIM Library, we didn't have the technical expertise to create a BIM object library in-house. Also, our aim was to create objects to defined quality level that created a standardized approach across the entire industry. The BIM Academy partnership between Ryder Architecture and UNN brought together practical experience from real-world projects and also the academic knowledge that we knew we needed.

Stephen Hamil,
Innovation Director, NBS

Sir Robert McAlpine

Hemel Hempstead, United Kingdom

Design and Construction Sector

Client
Sir Robert McAlpine

Services
Strategy,
Learning and Development



Established in 1869, Sir Robert McAlpine (SRM) remains a family-owned building and civil engineering company, designing, developing and building some of the UK's most iconic buildings.

BIM Academy was approached by SRM to create a bespoke skills development training programme for the whole organisation.

We carried out extensive consultation with employees, in varying roles and levels of expertise, in order to identify current skills levels, what the organisation needed to gain from the BIM training and, just as importantly, how this should be structured.

Four custom training programmes were then developed. A series of training days were put in place, which would span a 12-month roll-out across the organisation.

These courses covered BIM Awareness, BIM Management, BIM Commercial and BIM Planning, and contained 'virtual projects' to enhance the learning experience.

This allowed trainees to work through a project scenario collaboratively whilst visualising and understanding the application of the information and working methods they would soon be implementing on live projects.

Our series of two-day workshops also involved a combination of hands-on technical tool training, didactic teaching and workshop-based discussion.

Virtual Project Training

Worldwide

Design and Construction Sector

Client
Global Client Base

Services
Learning and Development



BIM Academy has developed an in depth Virtual Project training course for AEC professionals. This three-day course offers professionals working at SMEs or large contractors the opportunity to experience BIM in a real-life collaborative environment.

The Virtual Project was established to complement more traditional training in BIM software, such as Autodesk Revit or Navisworks. Around 70% of the three days is spent in "real life" project scenario, which involves planning a live project in a workshop setting and practising BIM software skills on a pre-prepared model.

Unlike other courses, Virtual Project is very practical and involves presentations, demonstrations, workshops and software tools training. The aim is to encourage as much engagement among participants as possible, with learning driven by the team itself and BIM Academy tutors providing guidance and support.

The course begins teaching the basics of strategic BIM implementation, explaining the UK government strategy and the requirements of the international BIM Standard, ISO 19650.

The aim of this virtual BIM environment is to expose participants to how they would work on an actual project rather than ask them to watch demonstrations and then practice it at in their place of work.

"A truly enlightening insight into the digital capabilities available across the industry and how these can be used collaboratively to maximise productivity and the quality of the end product, with great guidance from the assembled BIM Academy team."

Alan Ayre,
Associate Director, Capita

Wardell Armstrong

Stoke-on-Trent, United Kingdom

Design and Construction Sector

Client
Wardell Armstrong

Services
Strategy
Project Management



Wardell Armstrong is a multidisciplinary engineering, environmental and mining consultancy with over 480 employees in its global offices, delivering complex projects worldwide.

Wardell Armstrong enlisted the support of BIM Academy to deliver a strategy that would drive the business forward with regards the use of digital tools and processes.

In order to do this, we liaised with internal specialists across several departments to understand current processes, protocols and systems. We also consulted with stakeholders to understand their aspirations for the organisation moving forward.

This enabled us to establish key themes which influenced our strategic report. We created a corporate and operational strategy for BIM implementation across the organisation and produced a practical roadmap describing the methods in which to deliver it.

We delivered a suite of template BIM documents which included a BIM Execution Plan (BEP), Organisation Information Requirements (OIR), Asset Information Requirements (AIR) and Exchange Information Requirements (EIR). We identified potential pilot projects and laid out all the critical stages and priorities into an achievable roadmap.

Wardell Armstrong is now working through the relevant phases of our strategy. We continue to provide support and guidance.

Aston University

Birmingham, United Kingdom

Education Sector

Client
Aston University

Services
Learning and Development



Image courtesy of Aston University

Aston University is a public research university situated in Birmingham city centre.

Aston first began as the Birmingham Municipal Technical School in 1895, evolving into the UK's first College of Advanced Technology in 1956, subsequently receiving its Royal Charter from Queen Elizabeth II in 1966.

Today Aston is host to 13,000 students from over 130 countries and is known for its world-class teaching and research in business and technology.

BIM Academy was appointed by Aston University School of Engineering and Applied Science to develop and deliver a training course on digital engineering for academic staff.

This unique and innovative opportunity for collaboration between academia and industry, supported knowledge sharing and new skills development in the area of digital engineering, that will be passed on to the future generation of engineering students.

This engaging and collaborative multidisciplinary course was developed to enable Aston University to prepare professionals working in the built environment for future experiences when working with BIM, by demonstrating the real value of BIM through the application of a virtual project scenario.

For the teaching staff within this School of the University, we designed and delivered a virtual project which we shared through a series of workshops.

We carried out demonstrations for 'hands on' BIM processes and software tools for design, construction and operation phases of a built asset.

The course was specifically tailored to allow the team to experience BIM in a real-time collaborative environment, enabling them to explore the BIM process and software tools with few of the risks or costs which the uninitiated could encounter on a real project.

The virtual project also addressed BIM standards, processes and digital construction technologies. It was critical the team understand the basic concepts, links between data and technologies, and the benefits that can be seen during design, construction and operations from the application of BIM.

Durham University

County Durham, United Kingdom

Education Sector

Client
Durham University

Services
Project Management,
Strategy,
Building Performance



Durham University's Estates and Buildings Department procure, acquire, manage, maintain and operate approximately 370 University assets that host over 3,000 staff and 17,500 Students.

The University has a very clear vision for its estate. In its status as a leading international university, it asked BIM Academy to examine how it could improve the implementation of BIM to support the University's operational goals and create a BIM enabled vision and BIM implementation roadmap.

We developed an operational strategy which included a new recommended structure of asset management processes and improve current internal skills and technology. We crafted a new training plan to support the realisation of the roadmap.

We created templates for essential BIM compliant documents such as Exchange Information Requirements (EIR) and an outline budget with indicative costs for implementation including staff resource.

The overriding recommendation was for the University to adopt BIM-enabled processes to drive efficiencies in their maintained estate and capital growth programme. The proposed long-term strategy was to develop a digital representation of the campus in which the geometry of the estate is modelled with associated metadata about all maintainable assets, held in a consistently named format and linked to existing and future building management systems (CAFM, CMMS and BMS).

This digital 'single source of truth' is at the heart the effective future management of the estate.

Leeds Beckett University

Leeds, United Kingdom

Education Sector

Client
Leeds Beckett University

Services
Strategy



The Leeds Beckett University has a heritage dating back almost 200 years to 1824. Its estate comprises almost 110 assets, many of which have historical significance and all of which are managed by the Estates Services Department.

The University is home to 29,000 students and has set out a strategy to improve the condition of its estate, improving the utilisation of space and reducing carbon emissions.

BIM Academy was commissioned to examine how to improve the implementation of BIM within the University's asset management programme, and to recommend a BIM-enabled vision and BIM implementation roadmap.

The project also examined the procurement of a new Computer-aided facility management (CAFM) system and advised on how this could be integrated with BIM processes and technologies.

We developed a corporate BIM vision aligned to the University's business values and business plan. This vision formed part of an operational BIM strategy including the structure of revised management processes to be developed during the implementation phase. We also established a roadmap and outline budget detailing how the University should implement our recommendations.

A structured training plan was devised to support the realisation of the roadmap and upskill the existing team.

The overriding recommendations for delivering BIM has enabled the University to drive efficiencies in new and existing estate buildings and achieve its goal of maximising space and reducing carbon emissions – enhancing user experiences.

Newcastle University BIM for Estates

Newcastle upon Tyne, United Kingdom

Education Sector

Client

Newcastle University

Services

Strategy, Project Management,
Digital Technologies



Newcastle University is a member of the Russell Group, one of only 24 research-intensive universities recognised by the UK Government as academic leaders providing the highest quality research led higher education. The University is known for its medical, IT, law, business and engineering schools and has an intake of 27,750 students from over 130 countries worldwide.

Newcastle University Estates Support Services (ESS) commissioned BIM Academy to review the relevance and value of BIM processes and technologies to the estates department's day-to-day activities and future strategy. We were asked to prepare a high-level needs assessment, gap analysis and adoption strategy.

We began with an organisational and operational review, estate strategy review and analysis of existing information systems, software and skills. This allowed us to identify areas of improvements and generate a proposal for potential new BIM uses.

As the owner of a diverse portfolio of property types, including several heritage and complex technological facilities, the University had a strong understanding of the potential value of utilising BIM across the entire estate – both on its new capital programme and existing estate.

At the time of commission, however, the University did not know how to initiate BIM implementation in a structured way. Our research and subsequent report detailed a series of practical and pragmatic

steps to introduce BIM based on an estate wide strategy, enabling the University to increase its BIM adoption and understanding.

A coordinated 3D digital model of each building element or facility in the estate could be captured using scan to BIM or 2D to 3D conversion processes. Supported by GIS technology, these could then be linked, spatially coordinated and adopted as a placeholder model.

Combined with a single consistent data structure and transfer mechanism, this would inherently improve the efficiency of the management of data throughout the operational life of the whole estate. This project consequently led to ESS mandating BIM on all of the University's new capital projects.

Newcastle University Park View

Newcastle upon Tyne, United Kingdom

Education Sector

Client
Newcastle University

Services
Strategy,
Project Management,
Digital Technologies



The new Park View Student Village at Newcastle University was the result of the demolition of a 1970s complex and the new build of this student accommodation within the existing Richardson Road site on the University's city centre complex. The student village was set to provide almost 1,300 en suite studying and sleeping spaces for students.

The £75m student village is the University's largest capital project, with almost 800 modular pods being assembled to create this new micro-village, making it the biggest project using prefabricated off-site modular pods in the UK.

BIM Academy was appointed to act as BIM Implementation Manager for the project – which was developed to BIM Level 2 – and worked with the main contractor Galliford Try and the sub consultant team, including specialist modular manufacturer, CIMC MBS.

CIMC MBS provided factory finished modular pods which were assembled and then imported from China. These were stacked on site and then over-clad. Once complete, they measured 2,178 metres high, and end-to-end would measure 6 miles in length.

We developed the Exchange Information Requirements (EIR) and BIM Use objectives and Supplier Assessment. We carried out continuous BIM auditing, validation and coordination and offered support and guidance through all stages of the design and build.

We created the BIM Execution Plan (BEP) for the entire project which formed part of the tender documentation for the construction phase. Whilst advising the project team and developed team readiness assessments, we researched opportunities for innovative BIM uses which would be used during the facilities management stage.

During the construction stage, together with the main contractor, we were responsible for auditing the coordination of the design, specifically the interface between the modular pods and in situ elements.

The project was completed in under two years and the student village won the Most Innovative Project of the year, as well as being recognised for a Special Commendation in the Large Project Category at the Northern Counties Institution of Structural Engineers Award.

Queensferry High School

Edinburgh, United Kingdom

Education Sector

Client

Scottish Futures Trust

Services

Project Management,
Digital Technologies,
Building Performance



The Scottish Futures Trust core aim is to improve the efficiency and effectiveness of infrastructure and construction investment in Scotland. It identified that operational energy costs in existing new build schools in Scotland was up to three times higher than the energy usage predicted at design stage.

We were asked to investigate how to lower energy consumption to predicted levels and offer a solution on how to better match predicted levels with real-time levels in as-built schools.

This project involved analysing the factors that influence and impact this increased energy usage. By exploring the current legislation and design standards being implemented in new build schools, we were able to better understand the methodologies needed to create energy analysis models.

Working with data from the Queensferry High School in Edinburgh, results showed that there were many

aspects that caused the disparity between predicted and operational energy usage.

The aim of this project was to explore these and create a set of design measures and improvements to the previously adopted BIM workflows, to bridge the performance gap between design and operation on both Queensferry High School, and planned future new build schools in Scotland.

One of the key impacts from a design standard point of view was that the traditional approach to converting architectural models into energy simulation models involves taking 2D plans and elevations from the architects and then recreating geometry manually, or drastically simplifying the model before exporting.

We began by running a series of workshops, with the original design team, which analysed the existing workflows and assessed the modelling practices in use, both

from an architectural and engineering standpoint. Resulting from the workshops, an optimised work flow was explored that provided a more efficient method of obtaining an energy model that was accurately derived from the architectural model and did not involve either the recreation or oversimplification of the original geometry.

Post workshops, our in-house computer science team developed bespoke add-ins for Revit which enabled architects to issue accurate models more regularly and rapidly to support reiteration of design options.

As a result of the direct collaboration between the architects and engineers, new optimised design options were incorporated for Queensferry High School, delivering a more informed design coupled with an energy simulation model that is directly derived from the architectural model, reducing waste on the project.

University of Melbourne

Melbourne, Australia

Education Sector

Client
University of Melbourne

Services
Project Management,
Strategy



The University of Melbourne operates seven campuses across Melbourne and regional Victoria and has a presence in over eight hospitals. The University is the second largest landowner in Melbourne, with a total Estate consisting of 2,525 hectares, servicing over 50,000 students.

In response to the changing landscape and demands for services, the University set out a 10-year investment plan, consisting of a major capital works pipeline of \$2b and maintenance works of \$1b.

Part of this investment was the new Arts West building, which was completed in 2016. The Shared Services Team – the department within the University responsible for the property and resource operations – was asked to seek out the return on investment in key assets within the overall investment plan.

The University appointed BIM Academy to review how BIM was used in the Arts West building and present findings that could influence information management and future builds.

The review looked at the University's current asset maintenance and space management software and processes, with a requirement of providing analysis on where the wins and losses existed within the contexts of design and construction, as well as the critical initial planning and handover stages.

The Arts West final review report illustrated how project outcomes can be maximised by improving management processes and having greater clarity of the Shared Services Team's organisational information requirements. It also highlighted that a holistic approach to the management of BIM processes and deliverables can be adapted for smaller scale projects as well as methods for capturing existing assets.

This project has triggered a larger investment into how BIM can support all of the University's processes and set a course for digital transformation.

University of New South Wales

Sydney, Australia

Education Sector

Client

University of New South Wales

Services

Strategy



University of New South Wales (UNSW) is one of Australia's leading universities, featuring in the top 100 universities in the world. It is home to over 59,000 students and 7,000 researchers.

The main UNSW campus is located on a 38-hectare site at Kensington, seven kilometres from the centre of Sydney. Other major campuses are Art & Design in Paddington and UNSW Canberra at the Australian Defence Force Academy.

UNSW has introduced a significant capital growth programme spanning ten years, and plans to use this as a catalyst to review and improve how asset information is managed across the entire estate.

BIM Academy was asked to create a corporate and operational strategy for BIM implementation across the organisation. As a result, we produced a practical roadmap describing the methods to deliver organisation-wide implementation.

In order to do this, we interviewed up to 50 people across several departments within the organisation to understand current processes, protocols and systems. We also consulted with employees to understand their aspirations for a digitised estate.

After interviewing stakeholders, we established key themes and then created a report that explored these further. A roadmap was then

derived detailing the phases of work required to reach the established goal of delivering optimised performance through efficient and effective delivery of projects and operation, and integrated digital information systems and processes.

The report delivered a suite of template BIM documents including Organisation Information Requirements (OIR), Asset Information Model (AIR) and Exchange Information Requirements (EIR).

We further recommended pilot projects and laid out all the critical stages and priorities into an achievable roadmap whilst putting together indicative budgets.

Hong Kong Hospital Authority

Hong Kong, China

Government Sector

Client
Hong Kong Government

Services
Strategy,
Learning and Development



The primary duty of the Hong Kong Hospital Authority is to ensure the provision of high quality healthcare services to the community of Hong Kong.

The authority faces the constant challenge of an ageing population combined with an ageing building stock. Therefore in 2016 it announced a major redevelopment programme. At the start of the initiative, the authority actively sought out new and innovative processes to enable them to deliver the programme, one of which was BIM.

The authority commissioned BIM Academy to undertake feasibility study on the application of BIM and to research the specific applicability and value of BIM, identify opportunities and timescales to apply BIM to deliver improved services and care.

This project drew upon BIM Academy's experience and research in the adoption of BIM in industry, with report findings containing a thorough analysis of the business value of BIM to the authority's activities, a clear understanding of the readiness of the market and a set of prioritised recommendations to allow the authority to proceed.

BIM Academy established that BIM can deliver great value to the Hong Kong Hospital Authority and there is capability in the local and international market to support the authority's capital and maintenance programmes.

As a result the Hong Kong Hospital Authority has mandated BIM on its entire 20bnHKD programme.

Qatar Government Authority

Doha, Qatar

Government Sector

Client

Qatar Government Authority

Services

Strategy,
Learning and Development



BIM Academy was successfully awarded project management and coordination services on a multi-million-dollar digital transformation programme for the Qatar Government Authority, with a fixed project timeline of 24 months.

The authority's pioneering vision for the introduction of digital transformation came from the top down: to create unparalleled efficiency throughout the entire organisation and deliver greater value (time/cost/quality) through design, construction and operations.

We were appointed to help deliver this vision and directly seconded into the authority in supporting planning, recruitment and overall programme management on the delivery of this project.

Our key focus was to look at the existing strategy and developing standards in accordance with international practices, implementing integrated technology solutions and supporting learning and development from within.

Our approach focused on intricate planning, relationship building and comprehensive engagement with departments across the authority and supply chain.

This has allowed the authority and its supply chain to streamline working practices, enhance information management, and upskill the workforce with a key focus on infrastructure projects.

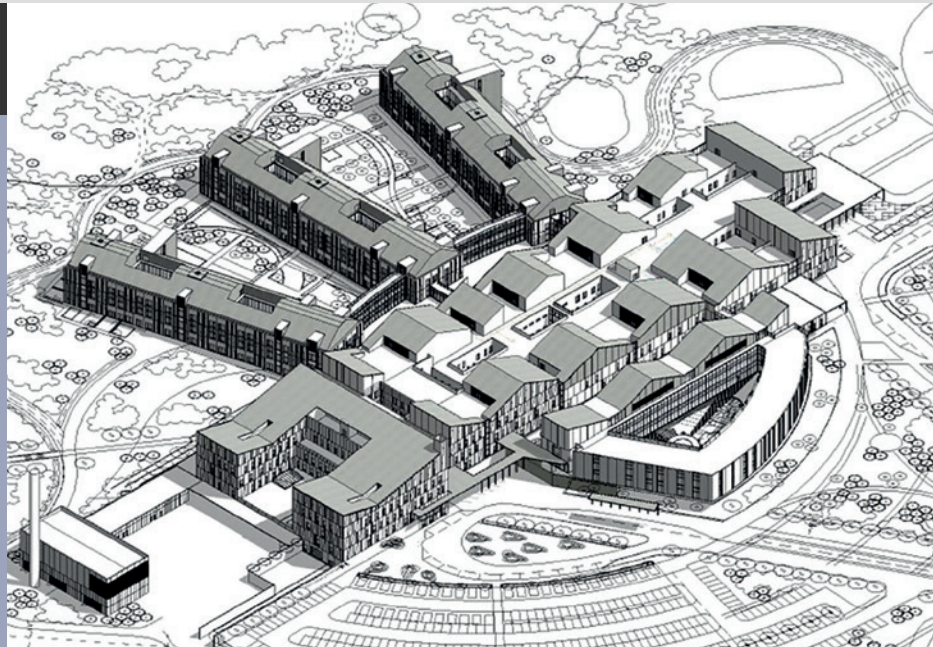
Dumfries and Galloway Royal Infirmary

Dumfries, Scotland

Healthcare Sector

Client
NHS Dumfries and Galloway

Services
Strategy,
Project Management,
Building Performance



One of the smallest health boards in Scotland, NHS Dumfries and Galloway, now has one of the most advanced hospitals in the UK.

This £212M project was designed to meet the increasing healthcare needs of the region's ageing population, and now offers 344 beds, day case surgical suites, an emergency care centre, ambulatory care centre, specialist oncology, maternity and paediatric facilities to this region of South West Scotland.

BIM Academy supported Ryder Architecture and Laing O'Rourke in the development of a comprehensive 3D digital information model that was used to analyse, optimise and coordinate the design, and accurately specify the offsite manufactured panels that make up the entire external building envelope, resulting in significant productivity gains and programme reductions.

The planned 30 month construction programme was shortened by six months as a result of the digital construction methodologies applied to the project and the use of offsite manufacturing and design for manufacture assembly (DfMA).

Manufacturing offsite allowed for components to be fabricated in controlled conditions to ensure quality prior to delivery to site, rather than constructing in potentially inclement weather conditions in this rural location.

Digital Solutions for Sydney Opera House

Sydney, Australia

Heritage and Conservation Sector

Client
Sydney, Australia

Services
Digital Technologies



Sydney Opera House is one of the world's most famous structures: a defining icon of the Sydney skyline. Construction of this stunning structure was completed in 1973 at a cost of \$102 million AUS – with an original estimated build budget of \$7 million AUS.

Many of the original data systems have now become outdated and need to be digitised. Sydney Opera House has recently gone through a process of rationalising and improving the technical documentation they hold on the Opera House and its assets. Needing to increase accessibility of this information to project and operational teams, it became apparent that the tools they used to do this were no longer effective.

Having previously worked with the Sydney Opera House team, and possessing a good knowledge of the client's requirements, BIM Academy

was approached to create a solution to improve the existing Technical Document database (TDOC) and develop a new spatial record management system as the existing BIMCD had become outdated.

The primary aim for the TDOC was to develop large feature changes to the original application to reduce wasted effort and provide usability improvements. These changes included updating the types of information that could be recorded about a document, improving the usability of forms provided for editing information, adding a functionality to edit significant numbers of documents in bulk and updating the system.

However, the original interface for the system used out-of-date technology that lacked the robustness desired. After an initial assessment of the TDOC system, BIM Academy proposed the creation of a completely

new, bespoke web-based frontend that was tailor made to suit the needs of the Opera House.

For the BIMCD system, the Opera House found that making changes to this was a costly process on top of the perpetual annual support fees.

The core aim was to create a bespoke web-based frontend, deployed locally on the Opera House's servers. We incorporated the features of BIMCD that the Opera House wanted to keep and vastly expanded its capability to make editing and accessing information significantly easier and quicker.

The Opera House received a completely tailored, modern solution to both systems, which are now iteratively aligned to suit the exact needs for the current and future operation of the Opera House with regards to technical documentation and spatial record management.

Durham Cathedral

Durham, United Kingdom

Heritage and Conservation Sector

Client
Church of England

Services
Digital Technologies,
Research,
Building Performance



Transformative thinking was on the agenda for the talented estates team responsible for the running of this 900 year old World Heritage protected Cathedral.

New digital solutions were needed to improve the curation and management of Durham Cathedral to eliminate the need to rely on traditional architectural drawings dating from the last century as a base for decision making and assessment of condition of the fabric.

We began by carrying out a laser scan of part of the building, which allowed us to turn part of this historic structure into a digital 3D model. Having a 3D visual representation enabled the team to understand the needs of the Cathedral more clearly and have an actionable planned maintenance programme.

The project demonstrated how digital building technology can improve efficiency in management and operations of historic buildings, through the transition from traditional FM procedures to the utilisation of digital information and 3D models to deliver greater value to heritage buildings.

"Not only does it give us up to date images of the building in its current state which helps plan things such as the installation and upgrade of new services, but gives us accurate information on the building we have never had before."

Tom Billington,
Property and Facilities
Manager, Durham Cathedral

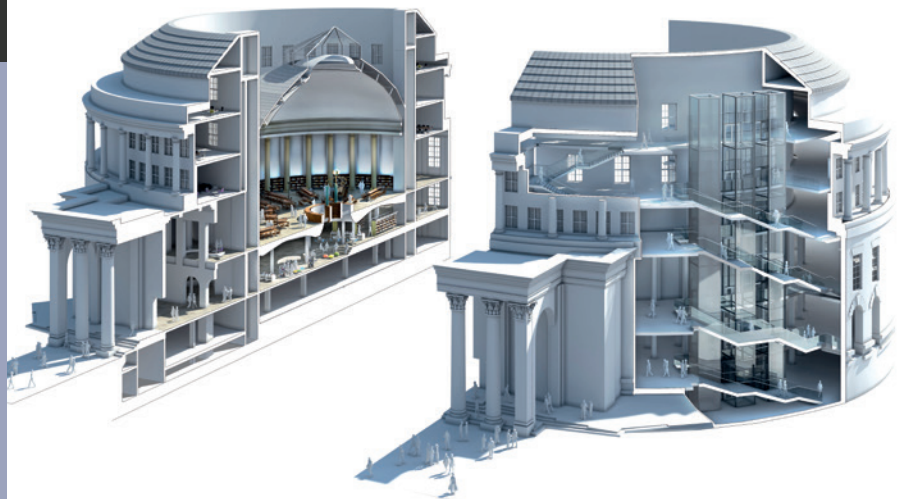
Manchester Central Library

Manchester, United Kingdom

Heritage and Conservation Sector

Client
Manchester City Council

Services
Strategy, Research,
Building Performance,
Learning and Development



The £170m refurbishment of the Grade 2 listed Manchester Central Library was as a catalyst for BIM adoption by Manchester City Council.

Built in 1934, the 172,000sqft library was in need of significant structural repair for which the BIM Academy team was enlisted to develop the BIM strategy to lead the project.

From the very outset, the local authority saw significant benefits in ultimately using the digital 3D models from the project and associated data, to manage the library once works were completed, as well as understanding the efficiency benefits during the design, approval and construction stages.

BIM Academy's role included supporting the project team in understanding relevant BIM uses and their practical application, engaging external specialists and software vendors where required and advising the client during contractor selection.

During the construction stage, we continued to facilitate the implementation of BIM uses for design coordination, logistics planning and asset management.

A key component of the project's success was that the project was managed in a truly collaborative environment with a fully integrated project office. The newly renovated library gained improved efficiencies in safety and asset management as well as restoring the building for further generations to come.

Royal Household

London, United Kingdom

Heritage and Conservation Sector

Client
The Royal Household

Services
Strategy



The Royal Household is the collective institution which support members of the British Royal Family and within this structure, the Property Services Team manage the estates of all 27 occupied Royal Palaces, which include; Buckingham Palace, Windsor Castle, St James's Palace and Sandringham House.

In 2016 Buckingham Palace began an extensive 10 year planned £369m refurbishment, the largest of its kind since before the second World War. This giant restoration project involves the replacing of 100 miles of electrical cabling, 6,500 electrical sockets, 5,000 light fittings, 20 miles of heating pipework and 2,500 radiators.

This work was deemed necessary after restoration experts warned the palace and its priceless artwork was at risk of fire and water damage if repairs were not made.

From the start, the Property Services Team were actively seeking to use this as a catalyst to review and improve how asset information is managed across the entirety of the estate and appointed BIM Academy to develop and deliver an information management strategy.

We created a corporate and operational strategy for BIM implementation across the organisation and produced a practical roadmap describing the methods to deliver organisation-wide implementation for better information management.

The roadmap detailed the incremental phases of work required to achieve the agreed vision to deliver optimised performance, efficient and effective delivery of projects and operation and integrated digital information systems and processes.

We created all the elements required for the Royal Household to progress in their BIM journey. By delivering a suite of template BIM documents, OIR, AIR and EIRs, we identified potential pilot projects and a recommended training plan for the team.

We are continuing to support The Royal Household as it works through the relevant phases of the roadmap for Buckingham Palace and other estate properties.

Sydney Opera House

Sydney, Australia

Heritage and Conservation Sector

Client
Sydney Opera House

Services
Strategy,
Digital Technologies,
Building Performance



The Sydney Opera House is a multi-venue performing arts centre located at Sydney Harbour in Sydney, New South Wales, Australia. It is one of the country's most iconic and distinctive buildings.

BIM Academy won a major project to provide specialist facilities management (FM) technical capability for Sydney Opera House. We worked with the client's Building information management team, to define and develop a detailed facilities management specification to meet the building stakeholder needs for the existing building and its future development.

Rolled out over two years the project was delivered in two stages. The first stage involved successfully retrieving and linking information from existing and new databases via the digital 3D model, while the second introduced a broader range of functional modules that can be added to the BIM interface over time.

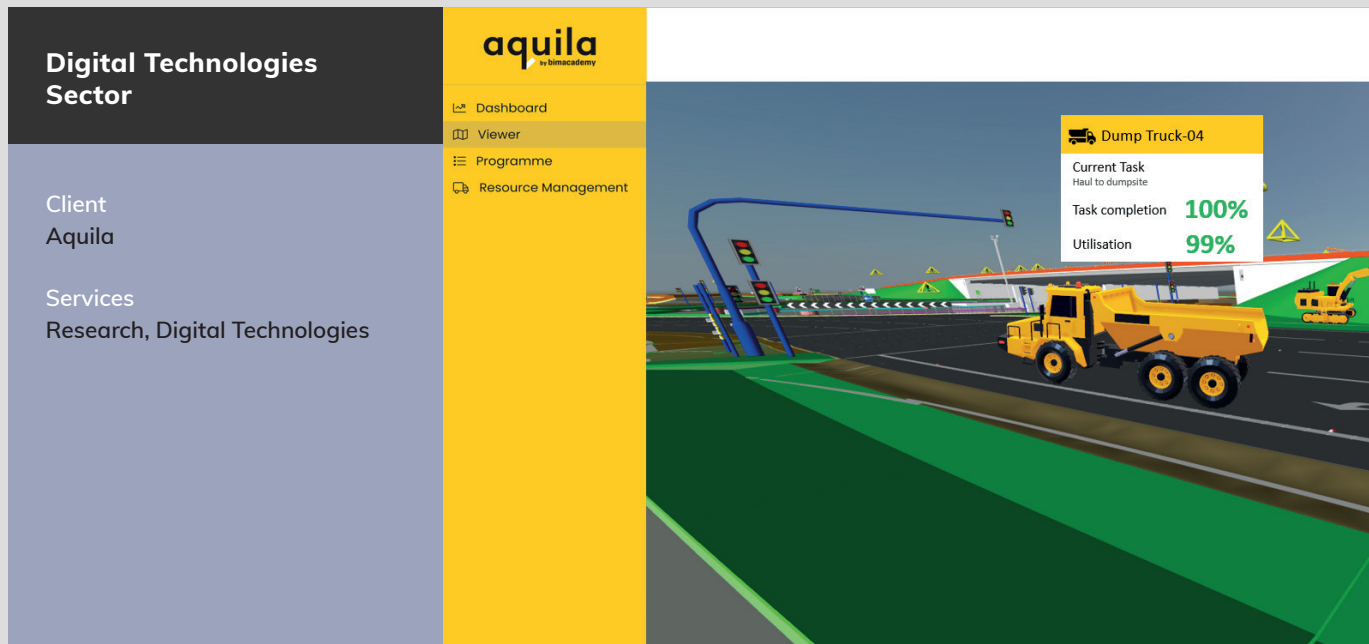
We also developed a detailed model management plug in for the Revit model of the building. This has enabled the Opera House to start the implementation of a web based BIM4FM interface that will link a constantly maintained geo spatially accurate model of the building to its engineering, maintenance and building control systems.

"BIM Academy combined technical excellence and industry experience to create a comprehensive technical specification for our bespoke BIM for FM solution"

Bob Moffat,
Business Strategy and
Planning Manager,
Sydney Opera House

Aquila

London, United Kingdom



Aquila is a new digital tool for monitoring, managing and predicting the performance of plant equipment on site. By combining BIM and 4D scheduling, Aquila will improve construction project productivity and sustainability in real-time.

Plant equipment, particularly heavy earthmoving equipment such as excavators, bulldozers and dump trucks represent a major cost element in construction projects ranging from 10% in a commercial project, and up to 50% in major infrastructure projects such as highways, railways and energy projects. This is a large part of a project budget that many contractors are getting wrong and seeing significant amounts of wastage.

Aquila links plant equipment to the project work programme using 4D BIM technology, showing real-time activity to accelerate the

understanding of onsite operations. Each vehicle on site will have its own tracking device, linked directly to a digital dashboard, so each vehicle location is known at all times.

This real-time, 4D mapping of plant equipment allows users to review, analyse and report on activity, performance, emissions and location. The built-in machine learning algorithms with Aquila will quickly become initiative to the project, extracting knowledge from the data to optimise the project model for top performance, whilst enabling seamless deployment of the plant equipment for future projects.

The impacts of climate change are being seen across the globe and the accumulation of wasted energy and carbon emissions as well as greenhouse gases are contributing to the heating of the earth's surface. By rapidly cutting emissions we can

lessen the risks of dangerous climate change for the future.

Aquila optimizes plant equipment performance for a smarter, greener future. Designed to fight climate change, Aquila identifies ways to reduce emissions of plant equipment by monitoring output and changing future workflows patterns to be more energy efficient.

Forest City

Johor Bahru, Malaysia

Infrastructure Sector

Client

Country Garden Pacific View

Services

Strategy,
Project Management,
Digital Technologies,
Learning and Development,
Building Performance



Forest City is a newly-built, smart and green city located in Johor Bahru, Malaysia, boasting hotels, golf resorts and luxury homes.

The Landmark Building is the focal point of the first phase of construction by Country Garden Pacific View for this impressive development. This intelligent and integrated city is estimated to house a population of 700,000 residents.

BIM Academy were commissioned to develop a digital strategy, then create a digital Asset Information Model (AIM), for the Landmark Building, comprising a coordinated multidisciplinary 3D geometry model of the building fabric, structure and services, combined with non-graphical data on the maintainable assets of the fabric and systems.

We worked closely with the project management, modelling and contractor teams to devise a strategy for the development of the geometric models and classification of asset data and means to combine this in a holistic digital information model for improved management of the building and infrastructure. The project was developed as a proof of concept for delivery within the greater Forest City smart city development, with the intention of replicating the approach across the entire development.

"We invited BIM Academy to help us because we know they successfully scoped and delivered the Sydney Opera House BIM4FM project successfully. This practical expertise is what we needed to facilitate our AIM project delivery at Forest City."

Dr Wei Zhou,
Head of Digital Engineering
Centre, Country Garden
Pacific View

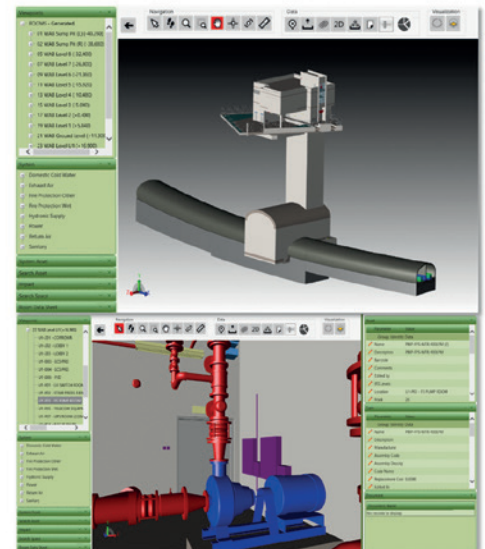
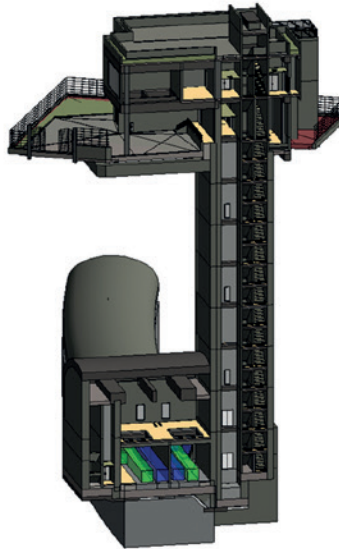
MTR Corporation

Hong Kong, China

Infrastructure Sector

Client
MTR Corporation

Services
Strategy,
Digital Technologies,
Research



Mass Transit Rail Corporation (MTR) is regarded as one of the world's leading railway operations, carrying on average 5.9 million passengers per day.

BIM Academy was asked to support the development of a project which would investigate the feasibility and business case for collating and linking asset data from various 3D digital and 2D conventional formats derived from ongoing rail infrastructure projects, and migrating this data to a new asset and facilities management systems.

The BIM Academy team took 3D geometric models, metadata and handover documentation from the construction and maintenance team, particularly those working on the Kwun Tong Line extension, then reconfigured the data to generate consistency and compatibility prior to successfully testing the migration of data to the new system.

As part of the study, BIM Academy demonstrated practical savings in time and cost in relation to the response times and efficiency of the operational teams.

This return on investment was then used internally within the corporation to support the business case for the further expansion of its BIM programme.

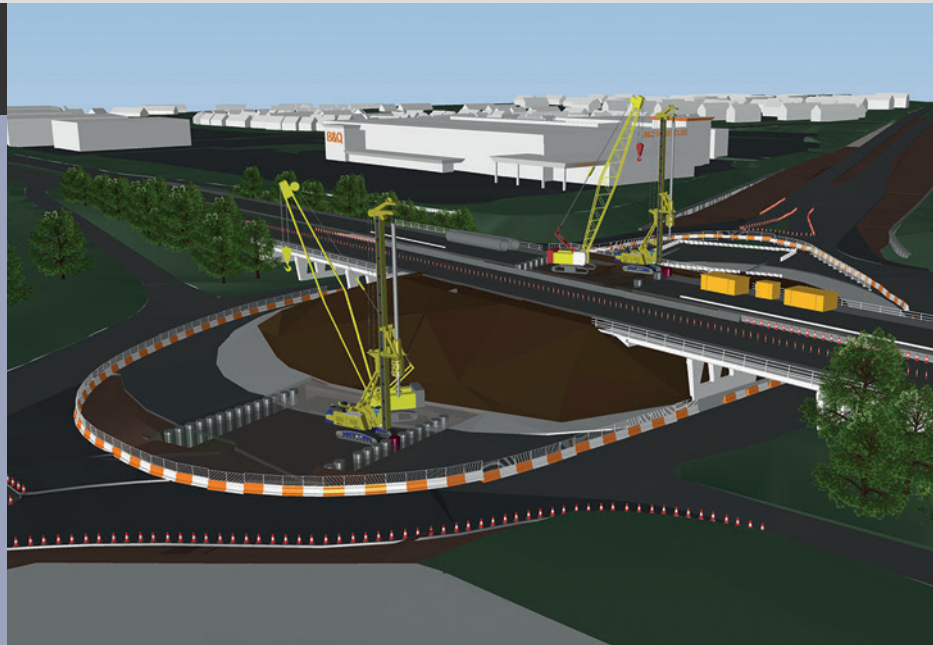
Sisk A19/A1058 junction improvement

Tyneside, United Kingdom

Infrastructure Sector

Client
Sisk

Services
Project Management,
Digital Technologies



Highways England appointed the contracting joint venture companies Sisk and Lagan to construct the highly complex A19 and A1058 Coast Road junction improvement in North Tyneside, in the North East of England.

The project, which started in August 2016 and completed in April 2019, was extremely complex due to its size and scale. It involved working in a busy, constricted and live environment within a major infrastructure route through the region.

The construction methodology posed significant challenges to ensure the project could be delivered on time, on budget, safely and efficiently, while maintaining high levels of network availability and improving road user satisfaction with minimal disruption to transport routes.

The project team sought an innovative solution with the support of BIM Academy that would enable them to meet the project requirements while delivering a high-quality structure in a safe environment for all involved.

BIM Academy became part of the project team and collaborated to introduce innovative BIM processes. We focused specifically on the benefits offered by 4D tools to aid planning coordination, buildability and temporary works design, to significantly reduce the risk on the project and optimise the proposed solution.

We reviewed and assessed the potential construction sequences in a virtual environment prior to starting on site. We used 4D BIM to make it possible to visualise how construction sequencing would work at any point in time, by creating a visual dynamic

sequence derived from linking 3D design models to planning software.

This enabled the planners to visually communicate and plan activities in the context of time and space, taking account of resources, procurement, spatial constraints and other concerns. This allowed the assessment of alternative approaches to site layout, scheduling and logistics during the construction phase.

This optioneering process allowed the contractor to assess all risks and opportunities and give valuable feedback regarding constructibility, estimated construction cost and sequencing.

The A19 and A1058 Coast Road junction project is one of the first major highways infrastructure projects in the UK to utilise 4D BIM. This approach led to the project being completed 31 weeks ahead of schedule.

BAE Systems

London, United Kingdom

Manufacturing Sector

Client
BAE Systems

Services
Project Management,
Strategy,
Learning and Development



Global solutions provider to the defence, aerospace and security sectors, BAE Systems, engaged BIM Academy to undertake a peer review and develop a strategy for the application of BIM processes and technologies in various divisions of the business.

There was particular interest in leveraging BIM to enhance asset and facilities management as well as meeting the organisation's obligations when working on projects subject to the UK Government BIM mandate and responding to emerging BIM requirements and standards in international markets.

The initial project comprised detailed research into organisational structure, technical capabilities and needs, followed by the creation of a proposed strategy. BIM Academy undertook structured research into existing processes and an information system review before making recommendations on BAE Systems BIM Strategy and staged action plan for implementation.

This then moved into a project developing a Future Operating Model for the business, which was to be rolled out over a five year period.

"The awareness gained from the hands on and interactive workshops has allowed me as an 'intelligent client' to understand what is reasonable to expect from our supply chain (designers, cost managers and contractors)"

Laura Forshaw,
Director of Mission Services,
BAE Systems

BMW Group

Debrecen, Hungary

Manufacturing Sector

Client
BMW Group

Services
Project Management,
Strategy



BMW Group is expanding its worldwide production network with a plant in Debrecen, Hungary, following its strategic principle of balanced global growth. The new 1 billion Euro, 500,000m² development will have a production capacity of 150,000 cars and both combustion and electrified BMW models will be assembled on a single production line.

BMW Group mandated BIM for the entire project and BIM Academy was approached by existing client and leading Hungarian engineering and project management consultancy, CEH, to ensure that the design team and contractors deliver to the allocated standards.

Alongside CEH as the client advisor on BIM we are overseeing the development of a comprehensive 3D digital information model that was used to analyse, optimise and coordinate the design.

We focused specifically on benefits to aid planning coordination, buildability and temporary works design, to significantly reduce the risk on the project and optimise the design of the plant.

As part of our BIM Strategy, we reviewed and advised on the suite of required BIM documents, which included BIM Execution Plan (BEP), Organisation Information Requirements (OIR), Asset Information Requirements (AIR) and Exchange Information Requirements (EIR).

"We think BIM Academy is a great set-up, as it has the academic aspect and the connection to an established design practice which has been working in this field in industry for many years, combined they have real experiences and best practice which is a great combination."

Attila Borbely,
Director CEH+

Hellas Gold

Athens, Greece

Mining Sector

Client
Hellas Gold

Services
Strategy,
Learning and Development



Hellas Gold is a gold, silver, lead and zinc mining company headquartered in Athens and is a subsidiary of Eldorado Gold Corporation.

Since it began in 2004, Hellas Gold has been developing and operating responsibly, safely and under the strictest environmental conditions. Employing over 1,600, Hellas Gold identified that transitioning to a more digitally focused way of working would increase productivity and also support its strict environmental policy.

BIM Academy invited Hellas Gold to the UK to show them how to improve information management through the use of BIM methodologies. BIM Academy began by researching the current business and technical systems adopted by Hellas Gold and understanding current and future business objectives. This research was undertaken in Athens and onsite at the companies Skouries mine in Northern Greece.

When the research was complete, BIM Academy presented the need for a new digital information management strategy. This strategy was approved and will be first applied to the Skouries mine, which has an opencast area plus 1km below surface level underground mine. This site is expected to produce \$10bn of materials in the next 10 years.

"We commissioned BIM Academy as an expert on BIM implementation and for their understanding and practical application of new technologies. We engaged BIM Academy to develop an information management strategy and a roadmap to implement this strategy to our Skouries project."

Stathis Lialios,
Projects and Engineering
Manager, Hellas Gold

Oil and Pipelines Agency

London, England

Oil and Gas Sector

Client

Oil and Pipelines Agency

Services

Strategy,
Learning and Development



The Oil and Pipeline Agency (OPA), a statutory public corporation sponsored by the Secretary of State for Defence, commissioned BIM Academy to create a BIM protocol.

OPA was formed in 1986 by virtue of the Oil and Pipelines Act 1985, to manage, operate and maintain six Naval Oil Fuel Depots and a Petroleum Storage Depot on behalf of the Ministry of Defence.

For an organisation such as OPA that serves government projects, the utilisation of BIM processes and technology will significantly improve the efficiency and quality of its projects. We began with the development of BIM protocols encapsulated in a document suite that supports the implementation of BIM for the OPA.

Our approach initially focused on creating a draft suite of BIM documents, including Organisation Information Requirements (OIR), Asset Information Requirements (AIR) and Exchange Information Requirements (EIR).

This provided a basis for workshops to take place, to facilitate reviews and discussions enabling us to produce a final iteration of the customised document suite.

We progressed the project to the next phase, where we authored and delivered a training programme for key staff to introduce the documents – explaining how they work, along with definitions and specifying the optimal method for supporting BIM implementation on any upcoming OPA projects moving forward.

Legal and General Homes Modular

Yorkshire, United Kingdom

Residential Sector

Client

Legal and General Homes
Modular Ltd

Services

Strategy,
Digital Technologies,
Research, Building
Performance,
Learning and Development



Legal and General Homes Modular Ltd (LGHM) embarked on an ambitious programme of adopting a volumetric modular approach to Design for Manufacture and Assembly (DfMA), to meet the needs of the demanding UK housing market for the provision of increased affordable, high-quality, sustainable homes.

LGHM recognised that offsite manufacturing techniques combined with the application of digital construction methods, could be used to streamline the design and build process and offer a solution to the lack of affordable housing stock across the nation by being able to build at a faster rate.

LGHM commissioned BIM Academy to undertake an objective review of its current processes and establish a strategy and implementation plan to achieve an integrated digital approach to apply to future construction projects.

Working closely with the LGHM team at their manufacturing facility in Yorkshire, BIM Academy studied the application of LGHM's existing software platforms and workflows, to identify where improvements could be made to optimise the design, procurement, manufacture and assembly process.

BIM Academy produced a BIM strategy and implementation plan – supported by a BIM protocol – to support the digitisation of the design to manufacturing process as part of an integrated holistic approach across the whole of the business.

LGHM have now increased production with the aim of creating 3,500 new homes per year.

Smart Connected Buildings

London, United Kingdom

Residential Sector

Client
Innovate UK

Services
Digital Technologies,
Research,
Building Performance



As part of an Innovate UK research initiative, we were asked to initiate a project with the aim of understanding how a software platform could be designed for use by Social Housing Providers to improve the performance of their buildings and the wellbeing of vulnerable tenants.

There are currently over 20 billion Internet of Things (IoT) devices installed in buildings globally, and this number is only going to increase. The magnitude of the data being collected is almost unimaginable; ways of exploiting this data for the benefit of the owners, operators, users and the wider supply chain is in its infancy.

Very little by way of software platforms currently exist that can collect and analyse the data on buildings – using occupant feedback, sensors and design models to

construct practical actionable advice that building owners, occupiers and the wider supply chain can use to inform the decisions they make about the design, construction, operation and use of their buildings.

As part of the research project focusing on smart connectivity for buildings, we developed a cloud-based application capable of linking BIM contextual data with operational performance data from smart devices.

The application is a web-hosted dashboard, which acts as a centralised hub where data can be received, collected and analysed. The application links data inputs to building elements such as apartments or rooms to provide context.

The same inputs are used in conjunction with customisable alerts and advice libraries to inform

stakeholders of problems and give practical actionable advice to help minimise complaints, promoting a transition to a more proactive building management approach.

This application has immense value to Social Housing Providers for both new and existing building stock. It can compare 'as design' performance against 'in use' to highlight performance gaps and their cause. Compare performance before and after building improvement work takes place, to quantify success and value for money, and enable proactive maintenance regimes based on the feedback provided by the platform.

This intelligent data platform containing building design information, sensor data and user feedback, produces meaningful actionable advice for building owners and occupiers.

Kai Tak Sports Park

Hong Kong, China

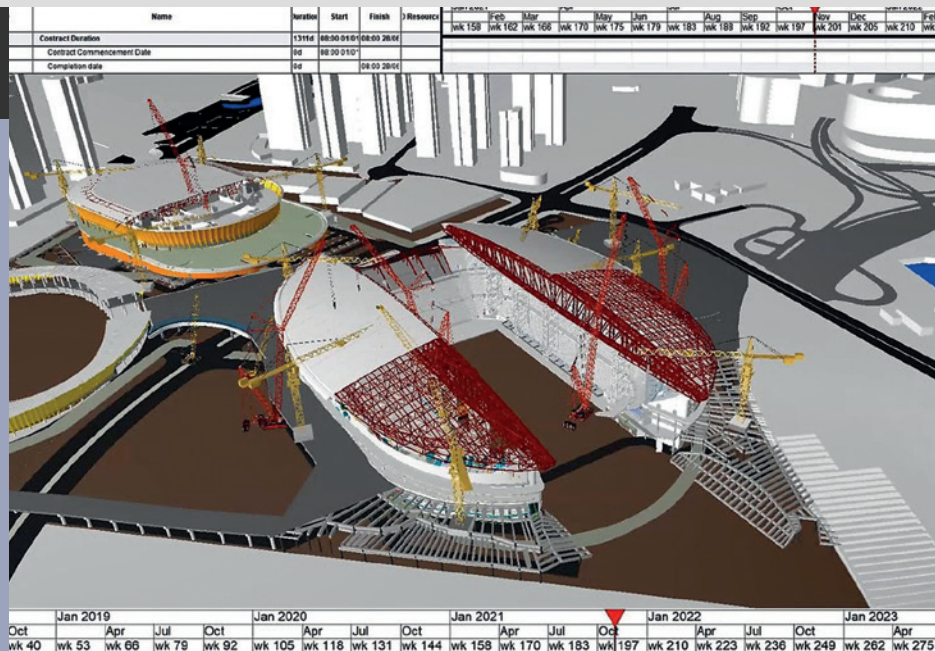
Sports and Leisure Sector

Client

Kai Tak Sports Park Ltd

Services

Strategy,
Digital Technologies,
Project Management



The new HK\$30bn sporting complex, Kai Tak Sports Park, is being constructed on the site of the former Kai Tak Airport in Kowloon, Hong Kong.

Kai Tak Sports Park will provide new high-tech facilities for major international sporting events as well as providing facilities for local community use on a daily basis. The complex will offer not only sporting venues, but green open spaces and parks, plus retails and dining outlets.

BIM Academy was appointed to support the project bid team to deliver 4D BIM on the build, together with R&F Properties, China Railway Construction Company, Leighton Construction Asia, Meinhardt Group, BuroHappold Engineering and Foster + Partners.

The bid was to cover the construction of all facilities under the contract, the rationalisation and reviewed opportunity for offsite prefabricated construction, environmental impact and respective mitigation measures.

Through the development of a 4D model by BIM Academy, this enabled the project team to ensure an achievable construction programme was submitted as part of the bid submission.

This project is currently on site, due for completion in 2023.

Wembley Stadium

London, United Kingdom

Sports and Leisure Sector

Client

Football Association (FA)

Services

Strategy,
Project Management



Wembley Stadium, which re-opened in May 2007 on the same site as the much-loved former stadium, is now one of the most modern and breath-taking arenas in the world.

The most striking and highly visible feature of the stadium is the 133-metre-tall arch that sits above the north stand, spanning 315 metres. The arch is the longest single span roof structure in the world.

The Football Association (FA) invited BIM Academy to improve the quality of its asset information and modernising asset information capture, beginning with an asset survey with the intention of then replicating the same process for all capital projects moving forward.

BIM Academy built on the work they had done previously in defining the FA's asset information requirements (AIR), this AIR supported the initial holistic asset survey of the stadium that used an application to collect and manage the data.

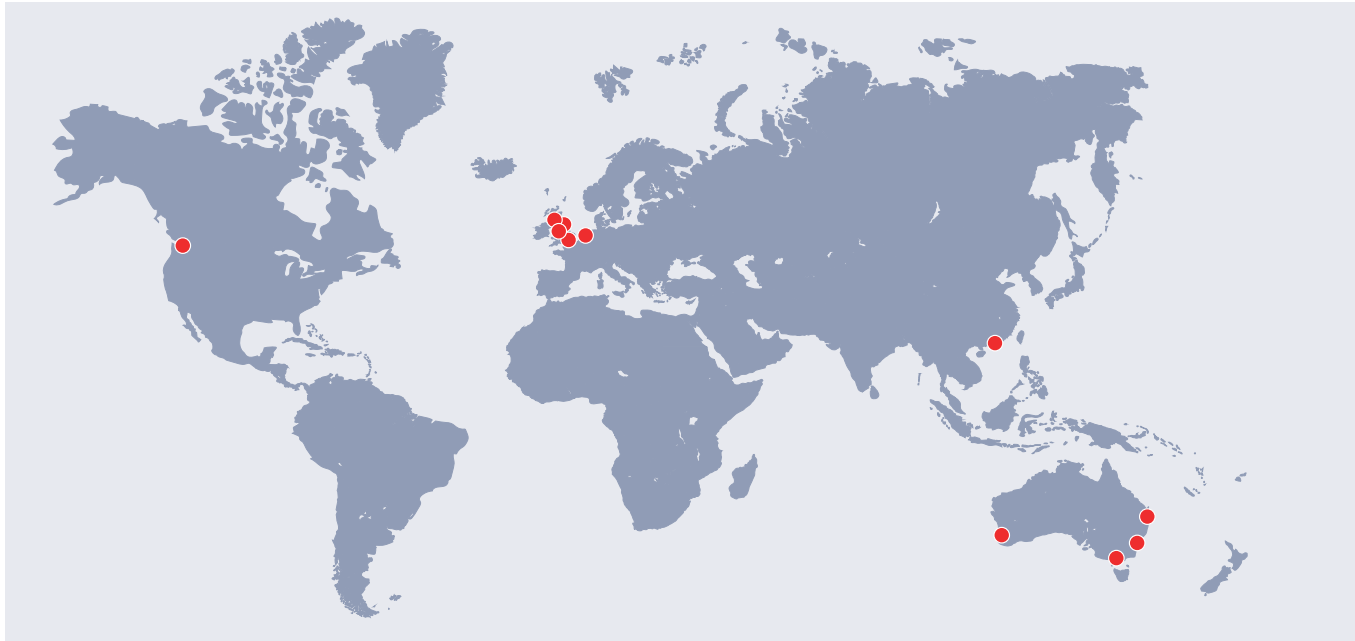
This data was then directly uploaded to the FA's CAFM system. The FA wanted to ensure that all contractors working on minor capital projects each year in the stadium could follow a simple process for gathering and uploading their information in the same format.

BIM Academy supported in the development of a technical specification for an application that would collate all of the project data in the correct format and upload it directly to the FA's CAFM system.

The FA undertakes projects of approximately £20M on the stadium each year and previously the information delivered at handover was not consistent or reliable. As a result of the asset survey – combined with the new data recording system – the FA has accurate asset data for use on future operational and maintenance projects.

How to get in touch

Taking our digital expertise global



The international positioning of our offices allows us to service projects worldwide:

Call: +44 (0)191 269 5444

Email: info@bimacademy.global

Newcastle upon Tyne

Cooper's Studios
14-18 Westgate Road
Newcastle upon Tyne
NE1 3NN
United Kingdom

London

Percy House
33 Gresse Street
London
W1T 1QU
United Kingdom

Liverpool

Innovation Centre
131 Mount Pleasant
Liverpool
L3 5TF
United Kingdom

Glasgow

221 West George Street
Glasgow
G2 2ND
United Kingdom

Amsterdam

Donkere Spaarne
26 Rood
2011 JG Haarlem
Amsterdam
Netherlands

Melbourne

Building 3
29 Cromwell Street
PO Box 1140
Collingwood, VIC 3066
Australia

Sydney

Level 1
137-141 Bridge Rd
PO Box 677
Glebe, NSW 2037
Australia

Perth

Level 8,
251 Adelaide Terrace
PO Box 3105
East Perth, WA 6004
Australia

Hong Kong

Unit 502-5, 5/F
Yu Yuet Lai Building
43-55 Wyndham Street
Central, Hong Kong
China

Vancouver

2705 Main Street
Vancouver
British Columbia
V5T 3E9
Canada

bimacademy

Our mission is to help our clients transform their working practices to achieve genuine value, reduce risk and introduce intelligent applications to achieve a digitally enabled future.

