



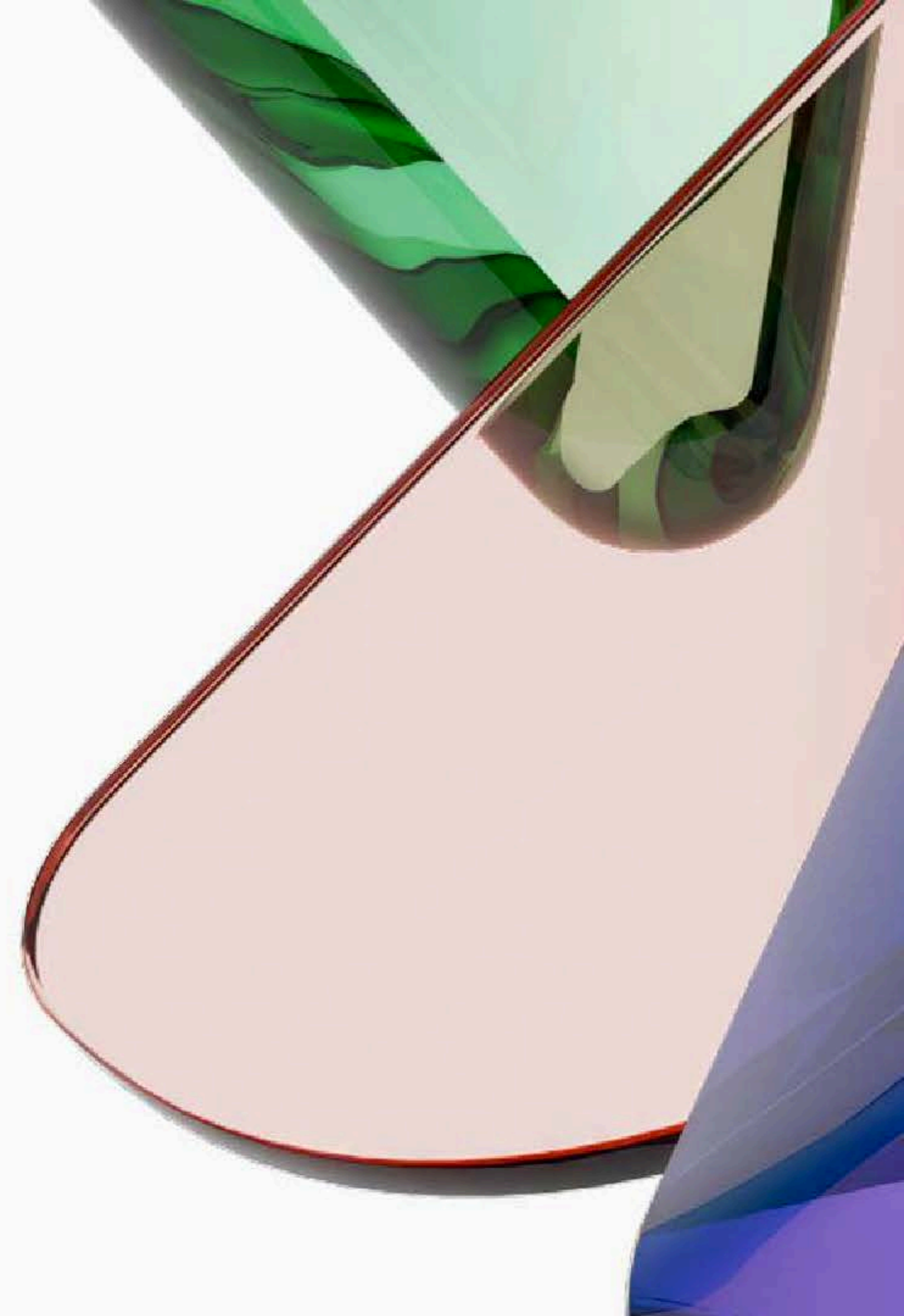
# The Bigger Book of BIM

## (Americas edition)

**Building a more connected future for the global built environment**

All of the basics from the original Little Book of BIM series, plus extra insights for advancing architecture, engineering, construction and owner (AECO) organizations and construction industry senior leaders

First edition 2024.  
Aligned with the latest ISO 19650 series of standards.



# Contents

Welcome	3
Intermediate	4
Advancing	20
Pioneer	30
Continuing your BIM journey	39
BSI BIM journey	39
Standards for your BIM journey	40
BIM courses and qualifications	44
BSI certification solutions	46
Why BSI	51



# Welcome

BIM (Building Information Modelling) is transforming the design, construction and delivery of the built environment. It represents the future of construction and its global adoption is accelerating rapidly.

BIM is a digital information management process which has collaboration and communication at its core. Those utilizing BIM competently consistently deliver greater efficiencies by strengthening alignment and facilitating more accurate decision making.

Like any methodology and process, BIM lives and evolves alongside the market it serves. With new technology emerging such as digital twins, artificial intelligence, (AI), sensors, machine learning, and scrutiny over information security increasing, best practices and standards surrounding BIM are also evolving. As your trusted partner, we're here to support you on this journey.

The Bigger Book of BIM from BSI is your quick reference to the latest in BIM thinking and certifications. To ensure you get the most from it, engage with the sections that best reflect you or your organization's current relationship with BIM.

At BSI, we've been leading pioneering progress in BIM since its inception. Our reputation as a leader in BIM certification stems from our work such as our contributions to UK BIM Framework, shaping PAS 1192, sponsored by BIM task group, contributing to ISO 19650 and our work on Digital Twin standards.



## Intermediate:

*(All of the content you'd expect from the former editions of 'The Little Book of BIM')*

You're at the early stages with BIM and looking to understand what it is, how it will benefit your organization or your career, and how to get started.

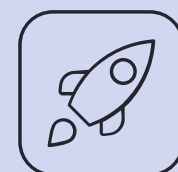
That's me >



## Advancing:

You're a seasoned BIM user in an organization where BIM is widely adopted, looking for inspiration on how to turn your BIM expertise into a differentiated competitive advantage to grow your business or enhance your career.

That's me >



## Pioneer:

You're an industry leader or policymaker looking to understand the ecosystem-level benefits of BIM as a way to unite business and societal interests, ensuring the built environment has a positive impact on the climate and the economy.

That's me >



# Intermediate

## Welcome to the BSI Bigger Book of BIM

### Contents

What is BIM?	5
BIM guiding principles	7
Unlocking global markets with BIM certification	9
Terms and abbreviations	10
Case study: Pomerleau's journey to BIM Kitemark Certification	13
Case study: KINENERGY: BIM leads to a greater competitive edge	15
Case study: Sweco UK & Ireland: BIM Training Academy	17

**Intermediate** >

[Skip to Services](#) >

[Take me back to the start](#) >



# What is BIM?

BIM is a process that manages building information throughout an asset's lifecycle. It uses a shared digital representation of an asset to strengthen collaboration and facilitate design, construction and operation processes. "BIM" is used interchangeably by the AECO industry:

- BIM - organization and digitization of information about buildings and infrastructure
- BIM - 3D models or the digital graphical representation of buildings and infrastructure

With BIM you can realize greater efficiencies due to significant pre-planning during the design and construction phases. This provides comprehensive information at the handover stage. With a common approach to information management, organizations can reduce errors as well as improvements in cost, value and carbon performance.

In terms of implementation in the AECO industry, BIM defines processes for the specification, production, sharing/exchange, and management of information generated across the lifecycle of a built asset. Process outputs are then applied proportionally by the multiple stakeholders specific to the project which BIM is utilized against.

Typical digital representations include 2D, 3D models created by authoring application tools such as Autodesk® Revit®, AutoCAD®, Bentley®, MicroStation®, SketchUp, etc. Together, the BIM process AND the digital representation/3D models form a reliable basis (single source of truth) for decisions throughout the building lifecycle by design, engineering, construction management, owner stakeholders and facilities management.

# Inspire trust across the asset lifecycle with BSI BIM certification

Differentiate your BIM projects and prove your credentials with BSI Kitemark™ certification for BIM.






Through independent certification, your organization can validate compliance and demonstrate BIM maturity with proof of resilient, secure processes (both physically and digitally), across the value chain.

You can also drive progress in a competitive global market by partnering with BSI, the global leader of BIM and the only provider of this industry-recognized standard.



# Building resilient and secure BIM processes

We've updated our BIM Kitemark certifications to include a new focus on BIM Security (ISO 19650-5). This update affects several areas, including:

-  Design and Construction
-  Asset Management
-  Project Delivery
-  Software
-  Security
-  And objects

Information security has become a critical component of business continuity, which is why it's vital that organizations adopt an appropriate and proportionate security minded approach. The BSI Kitemark for BIM can help you mitigate digital risks, build resilient and secure BIM processes, and reassure stakeholders.



# BIM guiding principles

**The core aim of BIM is to best realize an asset's value and potential. It achieves this by clearly defining your information requirements, and through collaborative information production and management.**



**Intermediate** >

Skip to Services >

Take me back to the start >

## People, processes and technology

1/5

BIM is not a single tool or software. It's a better way of designing, building and operating assets, enabled by the use of technology. More fundamentally, it's about the set of processes that should be followed (outlined within the ISO 19650 series of standards), and the change in working practices at an operations level. This is best exemplified by the need for a collaborative approach across the project building lifecycle, owner stakeholders, contractors, sub-contractors and supply chain

## Collaborative engagement

2/5

One of the key success indicators of a project using BIM is the degree to which the supply chain has worked in collaboration to meet the project/asset needs. This means working openly, as well as sharing information and experience with supply chain members in a way that encourages collective problem solving and coordination.

## Start with the end in mind

3/5

Two key problems BIM addresses are rushed decision making, and using insufficient and/or incorrect information. Starting with the end in mind, these decisions are pushed "upstream" so they are better informed and don't present themselves unexpectedly. Examples of this include; completing all principle design work and coordination before the construction commences, and ensuring that design decisions are being made across the entire delivery phase about the asset's operational performance and utilization.

## Digital assets

4/5

Having the right information available to the right people at the right time makes all the difference. When delivering a project, or managing an asset using BIM, you need to clearly specify the information requirements of the project to the entire project team. Stay focused on exactly what information is needed and when, its purpose, its format and how information will be shared. These are all key aspects of better information management that BIM enables.

## A security-minded approach

5/5

While you can't eliminate all security risks, BIM helps organizations establish a security-conscious culture and practices that can be implemented across the supply chain. One that ensures personnel are informed and are acting in a secure manner in safeguarding information related to a project/asset, as well as the organization, its stakeholders, and their people.



Intermediate >

Skip to Services >

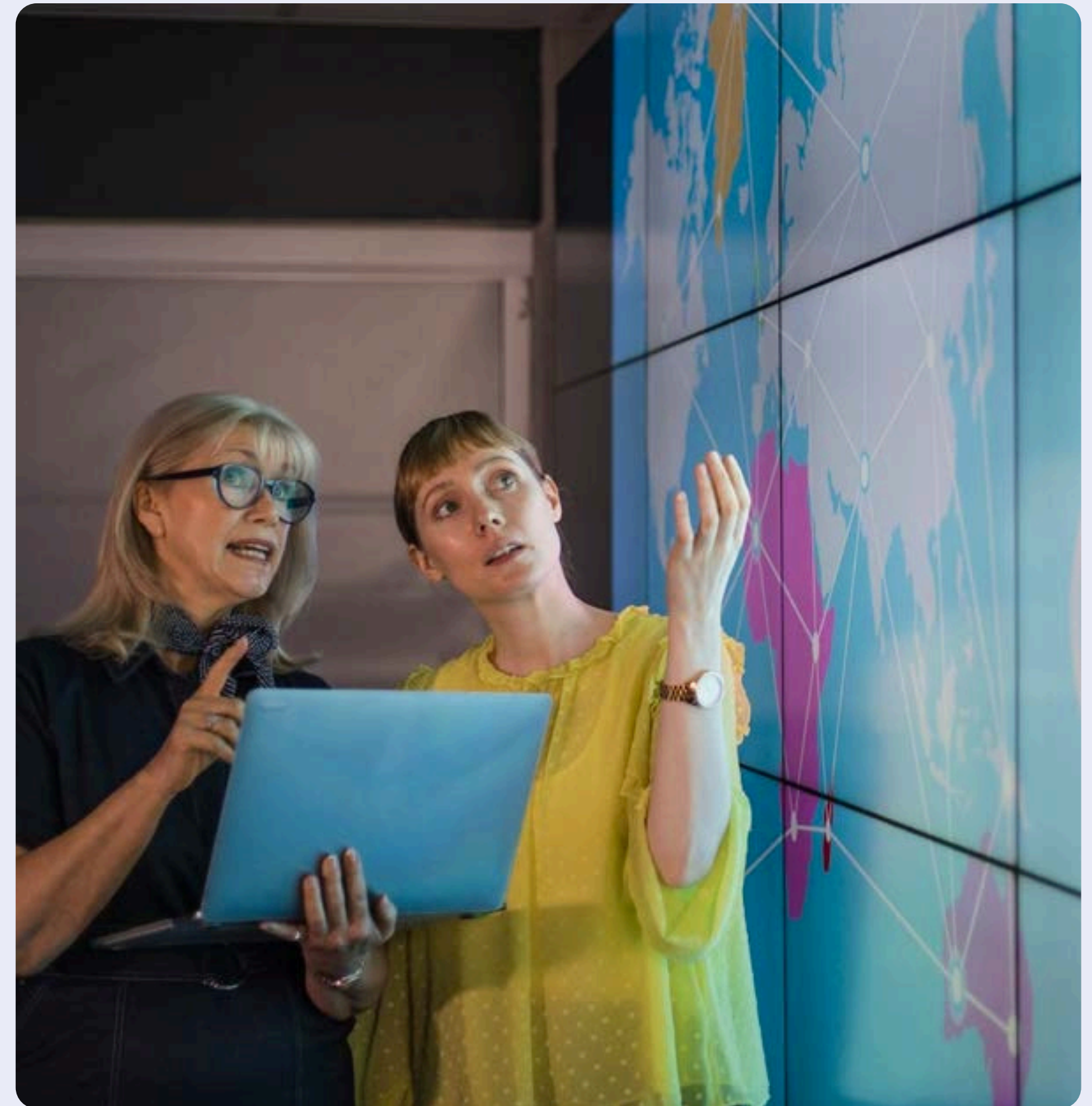
Take me back to the start >

# Unlocking global markets with BIM certification

Governments around the world are accelerating the adoption of BIM certification. Some (United Kingdom, Spain, China, Netherlands, Denmark, Finland, Norway, Singapore, South Korea, Australia and Chile) have started to introduce different legislations and mandates that require organizations to use BIM when in contracts for public works projects, infrastructure projects or projects defined by scale.

International BIM standards help support this adoption by establishing minimum requirements and recommending best practices. Use of these standards will help remove barriers to collaborative working and competitive tendering across borders. They can act as a passport for organizations, helping them gain access to international markets where BIM certification is a requirement or where it acts as a competitive advantage.

With the publication of the ISO 19650 series of standards, BIM now has an internationally agreed definition. **'BIM according to ISO 19650' defines the minimum requirements and gives further recommendations to apply best practice to BIM.**



# Terms and abbreviations

There are many terms which form part of the BIM language. Whilst not exhaustive, here are some of the common ones to look out for.

**Intermediate** >

Skip to Services >

Take me back to the start >



### **CDE – Common Data Environment**

A workflow to control the single source of information for any given project or asset. Used to manage the collection and dissemination of all relevant approved project/asset information.

Used in combination with a digital storage solution, information is shared collaboratively, in a logical and accessible way, to help all key parties readily gain access to information, use consistent naming conventions, avoid duplication and retain ownership.

### **OIR – Organizational Information Requirements**

This specifies what information is required to achieve an organization’s strategic objectives in relation to business operations, asset management, portfolio planning etc. The OIR may be developed from an ISO 55001 asset management system.

### **AIR – Asset Information Requirements**

This defines the information that is required, and the managerial and technical aspects of producing this information, for the operation of an asset to meet the OIR.

### **EIR – Exchange Information Requirements**

This specifies the information that is required related to a specific appointment (contract). It includes responsibility, timescales, format and Level of Information Need of the project information; consisting of the relevant information requirements from the OIRs, AIRs and PIRs.

### **PIR – Project Information Requirements**

This specifies the information that is required related to a specific project; consisting of the relevant information requirements from the OIRs and AIRs.

### **Level of Information Need**

This is a methodology to specify the granularity of information to support a given purpose. This should be defined as the minimum granularity to avoid over-production of information leading to waste.

### **Information standard**

This establishes requirements on the exchange of information, the structuring and classification of information, assignment of Level of Information Need, and use of information in the operational phase of the asset.

### **Information Production Methods and Procedures**

This establishes the methods and procedures required to be used when generating, reviewing, distributing or delivering information.

### **BEP – BIM Execution Plan**

This specifies the delivery plan which will be undertaken by the delivery team as a response to the received tender documentation. It includes, amongst other things, who is responsible for providing information, as well as who will be undertaking which responsibilities within the delivery team.

### **Mobilization Plan**

This details the approach, timescales and responsibilities for the delivery team to be implemented during mobilization. This includes testing information exchanges between task teams and testing the proposed information production methods and procedures.

### **MIDP – Master Information Delivery Plan**

Developed from the BIM Execution plan, this is the primary plan for when information is going to be prepared, by whom and when. Each information deliverable will be aligned to a defined project delivery milestone.

### **TIDP – Task Information Delivery Plan**

This is a plan, developed by each task team, which is incorporated into the Master Information Delivery Plan based on the agreed responsibilities outlined within the BIM Execution Plan.

### **Risk Register**

This details the delivery team’s risk associated with the timely delivery of information deliverables in accordance with the EIR. Considered risks include (amongst others), meeting the information delivery milestones and adoption of the project’s information standard.

### **PIM – Project Information Model**

This is the aggregation of information developed during the design/ construction phase of the project. Information that forms the PIM is created by the project team controlled by the CDE workflow. As the project develops so too will the PIM, which will increase in both size and accuracy; starting as a design intent progressing to a record of construction once complete.

### **AIM – Asset Information Model**

This is the aggregation of information needed to support the management and operation of the asset (infrastructure or building). The AIM is typically formed or updated using a subset of the PIM at the handover stage of a project. The AIM will continually be updated and developed as information is provided following works that affect the asset.

### **COBie – Construction Operation Building Information Exchange**

This is a structured method of exchanging information about maintainable assets. COBie is a scheme with a predefined structure that is used to share this information in both a human-readable and machine-interpretable manner.



Case study:

# Pomerleau's journey to BIM Kitemark Certification

**POMERLEAU**  
CAPITAL

[Intermediate](#) >

[Skip to Services](#) >

[Take me back to the start](#) >

# Pomerleau becomes North America's first general contractor to achieve BIM Kitemark Certification with BSI

Pomerleau, one of Canada's largest construction companies, has been at the forefront of innovation, continually striving to improve productivity in the construction industry. As part of their commitment to digital transformation, Pomerleau sought to enhance their Building Information Modeling (BIM) practices and elevate their performance to global standards.

In collaboration with BSI, Pomerleau achieved the prestigious BIM Kitemark certification, becoming the first general contractor in North America to receive this distinction. The certification is based on ISO 19650, an internationally recognized standard for managing information across the lifecycle of a built asset using BIM.

Watch the video below to learn more about Pomerleau's journey with BSI and how the BIM Kitemark has contributed to their success in the construction industry.

**Lieu Dao, Senior Innovation Manager, Pomerleau,** says BSI's BIM expertise was evident from the start:

"BSI was the first company that were able to answer all of our questions and demonstrated great knowledge in BIM processes."

[Watch now \(English\)](#)

[Watch now \(French\)](#)

[Watch now \(Spanish\)](#)

[Intermediate](#) >

[Skip to Services](#) >

[Take me back to the start](#) >





Case study:

# KINENERGY: BIM leads to a greater competitive edge



[Intermediate](#) >

[Skip to Services](#) >

[Take me back to the start](#) >

## Gaining a competitive edge with BIM certification.

KINENERGY is a specialized consulting company founded in 2010 focusing on the engineering, commissioning, power and sustainability markets. It has added value and gained the trust of its customers for more than 13 years with operations all over Mexico, Guatemala, Chile and other Latin America countries

### The challenge

The challenge for KINENERGY was structuring information to clearly understand how it would be used and implemented to enhance added value for their customers. Another key challenge was fostering a supportive employee culture to encourage full adoption of the BIM methodology and meet 100% of their customer requirements.

KINENERGY was looking for a way to ensure project quality and cost reduction with more efficient and sustainable processes and thus becoming a responsible company for the planet. The implementation of BIM allowed Kinenergy to achieve their objectives.

“With the support of BSI, we restructured the information and built an ISO 19650-based integrated management system.”

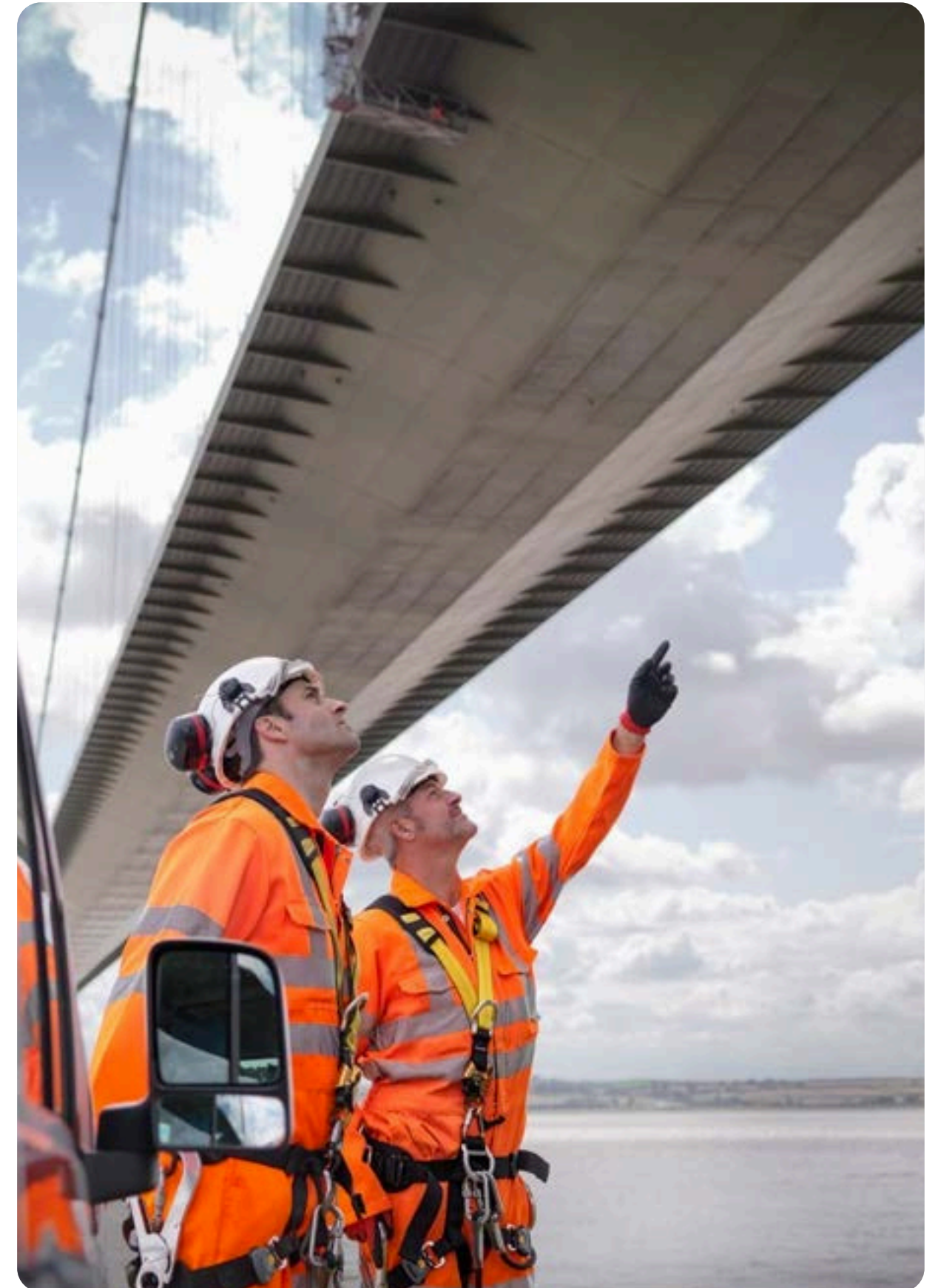
**-Hendrick Muñoz, KINENERGY**  
General Director

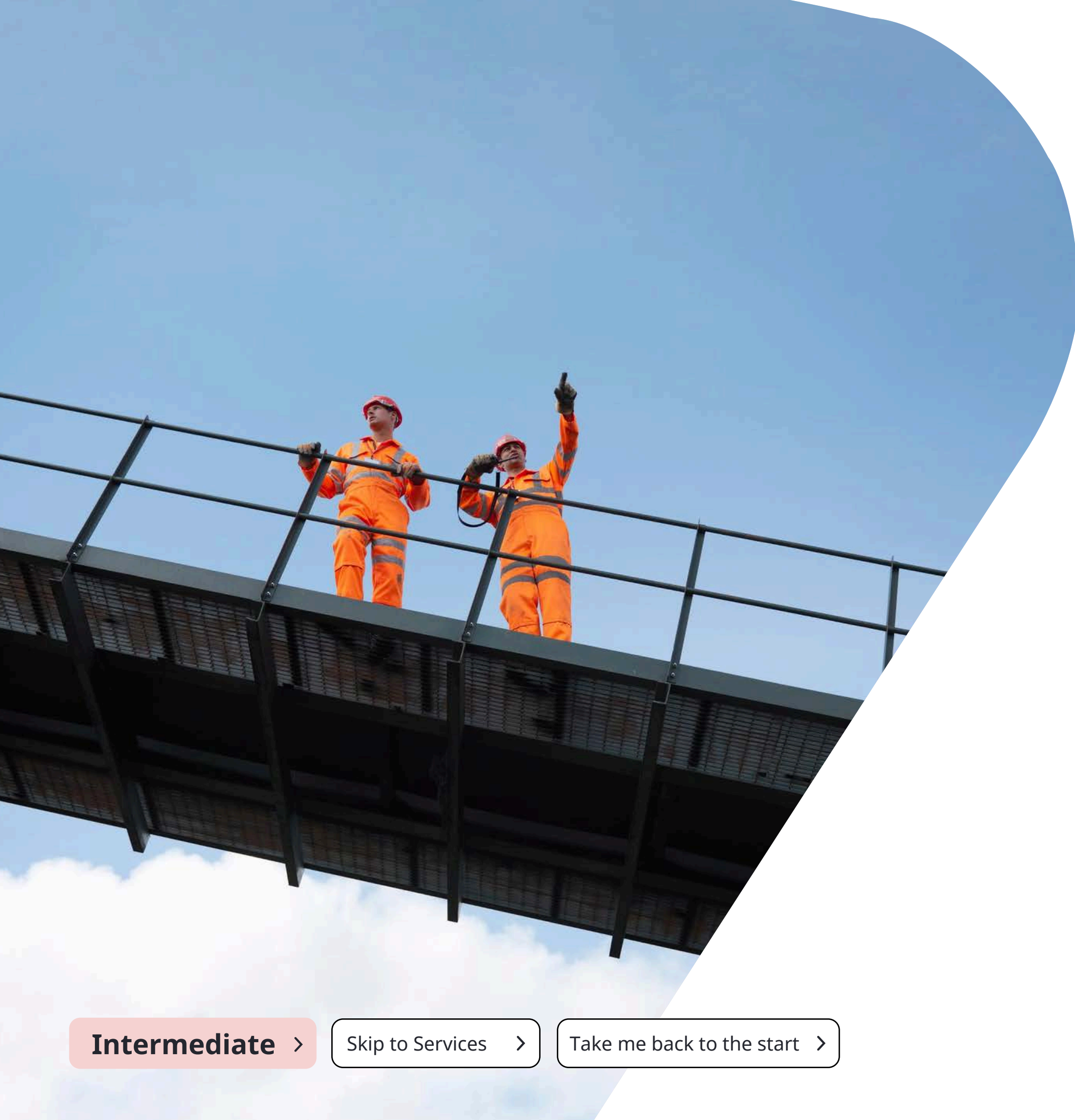
[Read more](#)

[Intermediate](#) >

[Skip to Services](#) >

[Take me back to the start](#) >





Case study:

# SWECO UK & Ireland



[Intermediate >](#)

[Skip to Services >](#)

[Take me back to the start >](#)

# How Sweco UK & Ireland improved digital project delivery with the BSI Academy

Sweco UK & Ireland expanded their employees' knowledge of information management and ISO 19650 with BIM Fundamentals eLearning from BSI.

“Having a background in design consultancy, the BSI training gave me a more holistic view of construction project management. Considering the continuous flow of information from a project’s conception through design, execution, use and demolition stages has really opened my eyes to the significant role I can play in total information management.”

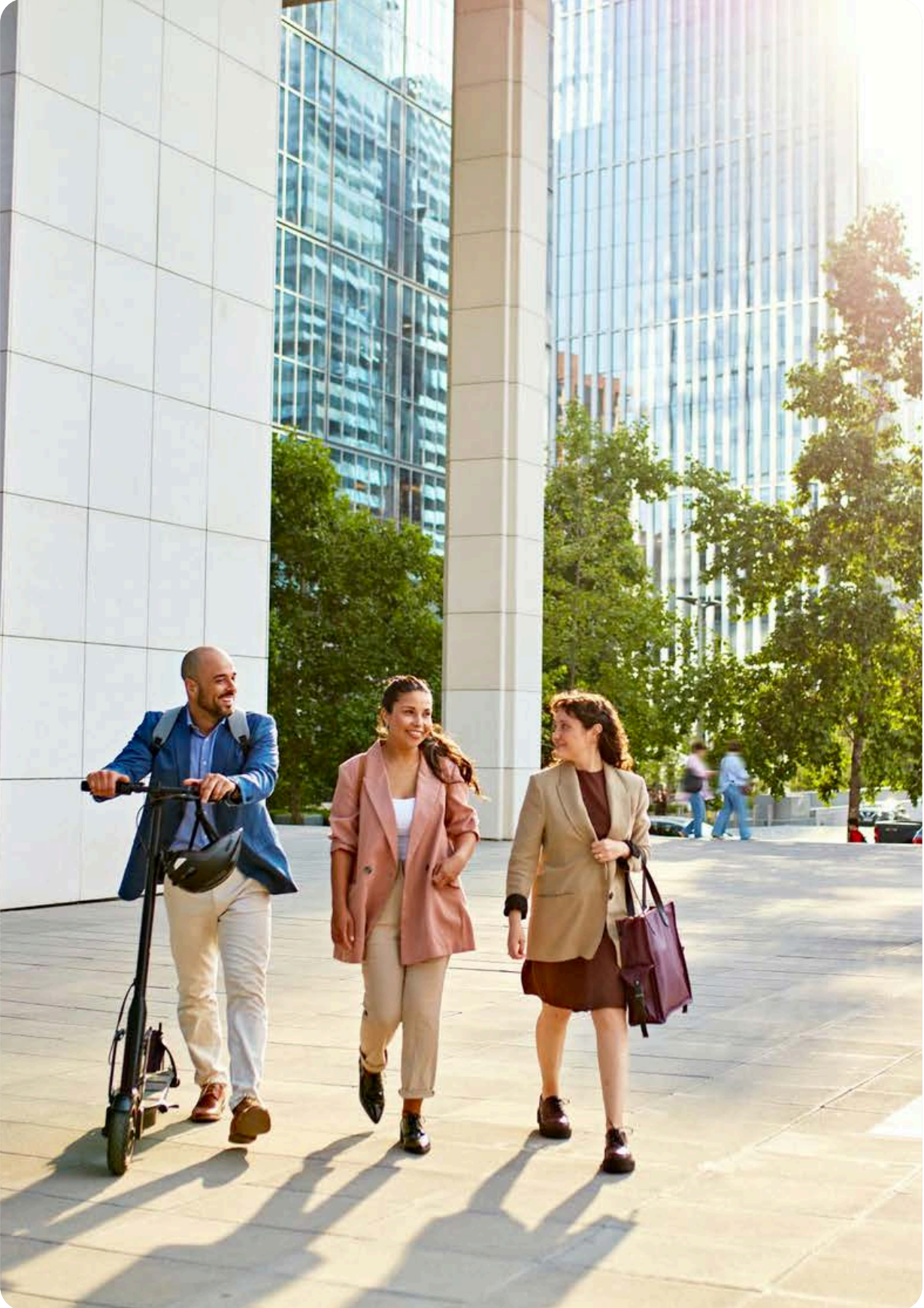
**Stephen Payne, Senior Engineer in the Development Infrastructure team.**

Sweco UK & Ireland was able to address its upskilling and competency challenges through BIM Fundamentals eLearning and BIM Certified Professional Qualifications from BSI.

Over 100 individuals have benefitted from the BIM Fundamentals programme, which the business rolled out to various divisions, including Advisory and Planning, Building Standards, Buildings, and Infrastructure. The company’s internal candidate selection process deliberately specified a range of roles from across these divisions, including directors, technical directors, project managers, engineers and technicians.

**Craig Hardingham, Digital Technical Director – Infrastructure, says**

“BSI’s BIM Certified Professional qualification validates his level of expertise in ISO 19650, information management and BIM. It has highlighted that I’m one of the ‘go to’ people in supporting others within the business on this.”



# Start your BIM journey with BSI and differentiate yourself from your competition

By embedding BIM into your organization, you can reduce inconsistencies, strengthen collaboration and resilience in your project life cycle, construction supply chain management and facilities management as well as accelerate progress towards a sustainable built environment.

Whether you aim to implement BIM throughout your organization or supply chain, improve your team's BIM knowledge, or enhance digital security, BSI has the right solution for you.

Continue your BIM journey today



Speak to our BIM experts



**Intermediate**



Skip to Services



Take me back to the start





# Advancing

## BIM has evolved: are you up to speed?

### Contents

Take your BIM experience to the next level	21
A growing focus on digital security across the lifecycle	22
Establishing a foundation for digital trust	23
Scaling BIM	24
Case study: KEO, Proving maturity	25
Case study: Driving BIM success for the Red Sea Development Company	27

[Advancing >](#)

[Skip to Services >](#)

[Take me back to the start >](#)



# Take your BIM experience to the next level

BIM may have helped you establish resilient and secure processes across your projects, reducing risk, realizing cost efficiencies and building customer confidence. It may have also enabled you and your organization to seize new opportunities, strengthen quality and supercharge business or personal performance.

To better manage risk and create long-term opportunities from BIM, teams must regularly review how it is being utilized across different projects, as well the role it plays in the future of construction.

For instance, rapid digitization in the last decade has significantly increased data in terms of volume, diversity, and speed. This is creating new opportunities for real-time collaboration, predictive analytics and advanced automation.

While this opens up new possibilities, it also raises crucial concerns about information security, governance, and digital trust throughout the building and construction lifecycle.

As BIM gains wider adoption, it's essential to demonstrate your BIM maturity. This not only differentiates your capabilities but also strengthens your market position and showcases your commitment to digital innovation and trust in the built environment. Digital and information security management is a key area through which you can demonstrate this maturity.

# A growing focus on digital security across the lifecycle

Since the advent of BIM, the pace of technology adoption and digitization in construction has surged, bringing with it an increasingly complex risk landscape.

Some important examples include:

## Security of Building Automation Systems (BAS)

BAS control heating, ventilation, lighting, and other critical systems. Security breaches can lead to discomfort, damage, or even safety hazards. Secure protocols, access control measures, and regular system updates are crucial to prevent unauthorized access and cyberattacks.

## Data Security in BIM and Digital Twins

Building Information Modelling (BIM) and digital twins hold vast amounts of sensitive data about a building's design, construction, and operation. Data breaches can expose intellectual property, reveal vulnerabilities, or disrupt building operations. Strong data encryption, access controls, and secure cloud storage are essential safeguards.

## Securing the Internet of Things (IoT) in Buildings

The increasing use of IoT devices for various functions like temperature sensors or occupancy detectors introduces new security challenges. Unsecured devices can be exploited by attackers to gain access to building networks or launch cyberattacks. Implementing segmentation, firewalls, and secure device authentication protocols is crucial.

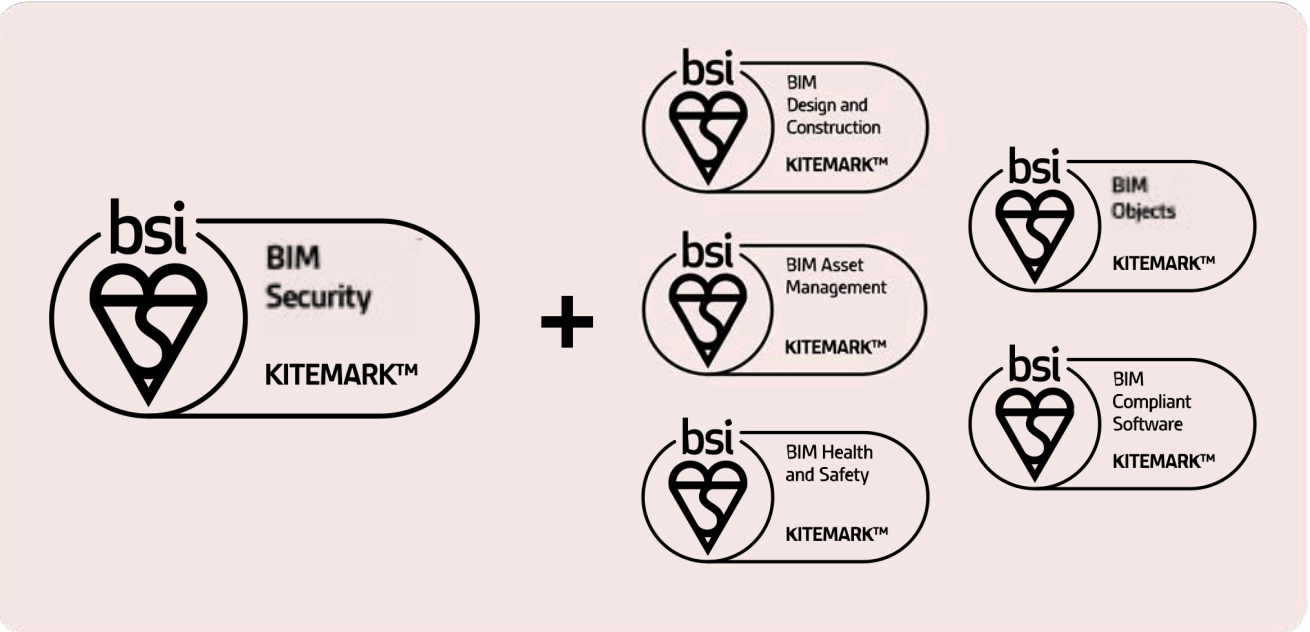
## Cybersecurity Awareness for Building Personnel

Human error is a significant factor in many cyberattacks. Educating building owners, operators, and facility managers on cybersecurity best practices like phishing awareness and password hygiene is vital.

# Establishing a foundation for digital trust

To address the growing range of digital challenges in the built environment, our updated BSI BIM Kitemark certification now includes BIM Security (ISO 19650-5), enhancing security processes in your projects. This certification assesses how well your organization integrates security principles according to the BS EN ISO 19650-5 specification, focusing on a security-minded approach to BIM.

With the updated BSI certification, you can showcase that your projects are delivered through secure, trusted processes—exceeding customer, stakeholder and partner expectations, and boosting confidence in your digital security capabilities.



## A solid framework for digital trust and BIM security helps address common industry challenges such as:

### Fragmentation:

The construction industry can often operate within silos. This creates challenges for implementing consistent data security practices and fostering a culture of digital trust across the supply chain.

### Legacy infrastructure:

Many existing buildings lack the necessary infrastructure to support advanced digital technologies, requiring upgrades or retrofits to ensure secure and reliable data collection and use.

### Data ownership confusion:

Clear agreements regarding data ownership, access rights, and usage limitations are crucial in the BE sector, where multiple stakeholders collaborate on projects.

### Outdated best practice:

The construction workforce needs to be equipped with the skills and education needed to effectively leverage digital tools and understand best practices for data security and privacy.

# Scaling BIM

## Scaling BIM and embracing Construction 4.0

The future of the built environment will be centred around three core characteristics: agility, interoperability and resilience. Smart cities development projects such as Sejong City in South Korea and The Palm in Dubai, United Arab Emirates (UAE) have shown how the creation of smart cities and buildings relies on technologies and processes that bring together experts from across borders and facilitate unrestricted collaboration. BIM has a huge part to play in projects such as these, and the evolution of BIM is accelerating.

Innovators are already integrating their BIM solutions into cloud environments through a shared model (also known as Open BIM). They are also expanding BIM applications to include dimensions like time management, cost control, and comprehensive lifecycle management of buildings.

To secure a leading position in the future of construction, organizations must adopt a digital-first approach, utilizing BIM to design without constraints and efficiently manage large-scale complex projects, safely and efficiently.

Organizations in the sector are increasingly turning to BSI to help realize these ambitious BIM and Construction 4.0 goals. Our range of training solutions and standards help professionals expand their knowledge and put in place robust processes that create secure, sustainable and efficient smart buildings.



[Advancing >](#)

[Skip to Services >](#)

[Take me back to the start >](#)



Case study:

# KEO, Demonstrating BIM maturity



[Advancing >](#)

[Skip to Services >](#)

[Take me back to the start >](#)

## KEO demonstrates expertise and leadership with BSI's BIM Design and Construction Kitemark (ISO 19650)

KEO are international consultants, offering end-to-end services in the built and natural environment sector. They are one of only a few in the Middle East in the Architecture, Engineering, and Construction (AEC) industry. For over 57 years KEO has led with vision, contributing to many of the world's most ambitious projects and iconic places in the Middle East.

KEO saw Kitemark certification to BIM (ISO 19650) as a competitive advantage. One that would demonstrate leadership through transparent and industry-wide collaboration using international standards. The BSI Kitemark demonstrates KEO's capabilities and shows clients and collaborators that it uses BIM to manage information systematically and securely over the whole lifecycle of a built asset.

Since achieving BSI's Building Information Modelling (BIM) Design and Construction Kitemark (ISO 19650) certification, KEO has received increased industry recognition. Armed with ISO 19650, the firm now demonstrates resilient and digitally secure processes across the asset lifecycle.

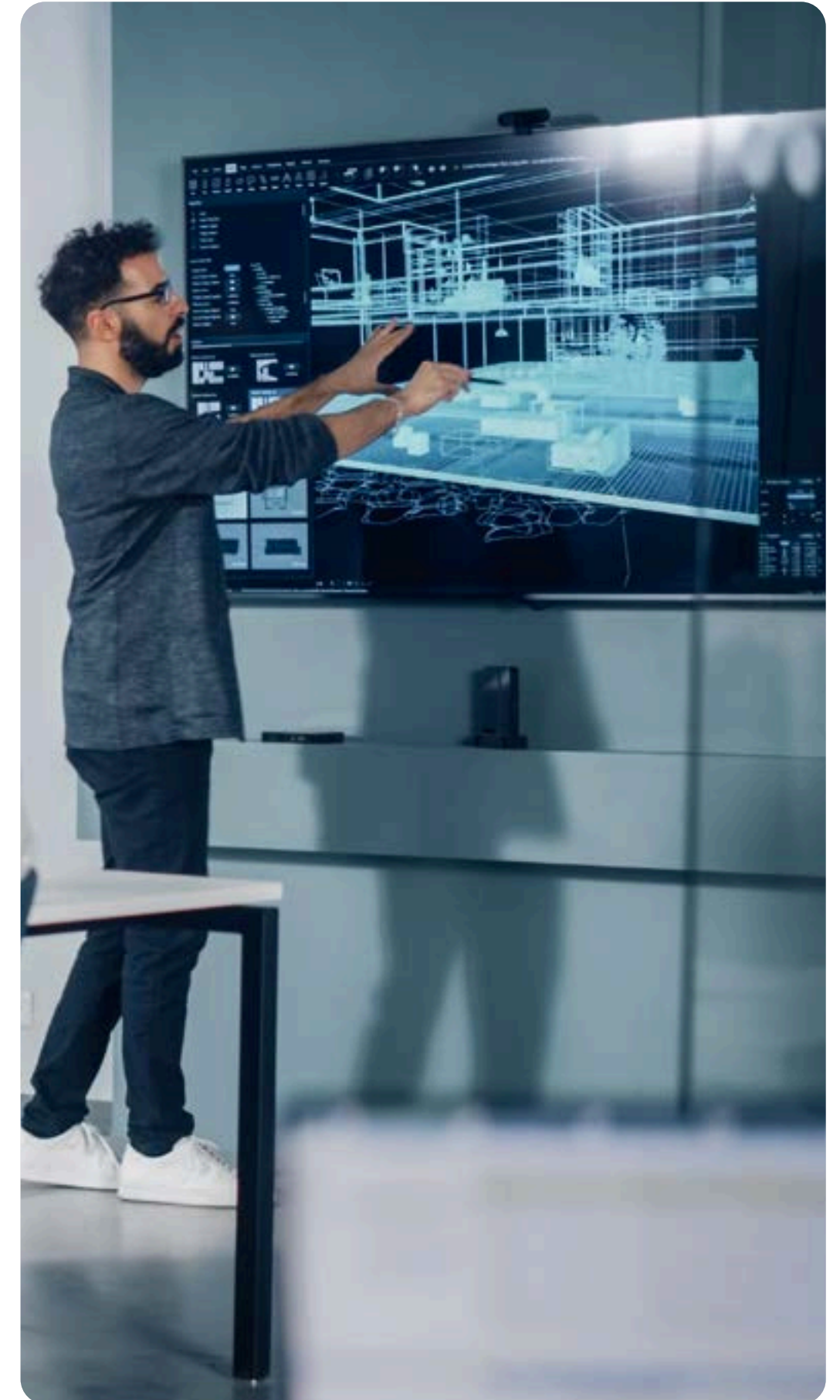
The BIM Design and Construction Kitemark now incorporates the BSI Kitemark for BIM Security (ISO 19650-5). This allows businesses like KEO to demonstrate, through independent verification, that their project delivery is managed with robust, best practice digital security. It also shows that they go above and beyond to give customers confidence and trust.

"BIM is our standard way of delivering projects and it is used for most of what we do. It plays a powerful role in unifying and aligning our processes, standards and procedures, and the BSI Kitemark for BIM Design and Construction demonstrates evidence of this."

### Why BSI?

"We chose BSI over other companies because of its global presence and relevance worldwide due to its leading expertise and experience in standards, best practices and innovation."

**Juan Tena Florez Regional Digital Design Manager, KEO.**





Case study:

# Driving BIM success for the Red Sea Development Company



[Advancing >](#)

[Skip to Services >](#)

[Take me back to the start >](#)

# Driving BIM success for the Red Sea Development Company

The Red Sea Development Company is successfully executing a grand vision to build luxury hotels and an airport by the Red Sea, to create a unique experience for visitors. They are committed to using BIM – with support, certification and training from BSI – to help with the processes of modelling, procuring, managing and exchanging asset level information, consistently and accurately, in order to have a single source of truth.

Most of the Red Sea designs are bespoke, with a significant level of complexity. Using BIM has supported the company in studying different design options and reduced the time that is associated with those studies. It has enhanced communication and clarity of expectations between the project teams.

Rather than being a ‘one-time’ implementation, BIM is empowering the organization to grow.

“BIM has allowed us to really investigate different ways of working. How can we accelerate the use of off-site manufacturing, how can we accelerate the use of design for manufacturing and assembly to help us hit timelines, but also reduce environmental impact? One of our commitments is to deliver a 30% net conservation benefit by 2040, so anything that we can do during the construction phase will make that a lot more achievable.”

**David Glennon,**  
**Senior Digital Delivery Director, Red Sea Development Company**

The Kitemark certification demonstrates that all projects delivered are compliant with ISO 19650. BSI’s work with Red Sea Development Company is an example of how we support businesses to be more resilient and innovative. The BSI Kitemark certification for BIM helps organizations to showcase that they have successfully embedded international best practices and ensure that they are set up for success to consistently deliver against these best practices.

“The backbone of any organization is their standards, processes, and procedures. BSI has a focused approach empowering the organization to continuously improve.”

**Tareq Qassraw,**  
**BIM Manager,**  
**Red Sea Development Company**



# Facilitate progress and unlock global opportunities with BIM

Facilitate progress and gain a competitive edge with BSI BIM certification, including the new and improved Kitemark certification, now including a security-minded approach to information management. Accelerate your opportunities and win new tenders by unlocking access to domestic and international markets that require conformance to the ISO 19650 suite of standards whilst creating your own BIM success story.

Continue your BIM journey today



Speak to our BIM experts



**Advancing** >

Skip to Services >

Take me back to the start >





# Pioneer

## The potential of a security-first mindset

### Contents

Accelerate progress towards a resilient and sustainable world	31
Global factors accelerating BIM adoption	32
Leveraging BIM to accelerate progress to a more sustainable world	33
BIM and the circular economy	34
BIM and lowering costs to increase resilience	35
Case study: Ballast Nedam	36

[Pioneer >](#)

[Skip to Services >](#)

[Take me back to the start >](#)

# Accelerate progress towards a resilient and sustainable world

“The buildings and construction sector is by far the largest emitter of greenhouse gases, accounting for a staggering 37% of global emissions.”

**UN Environment Program** <sup>1</sup>

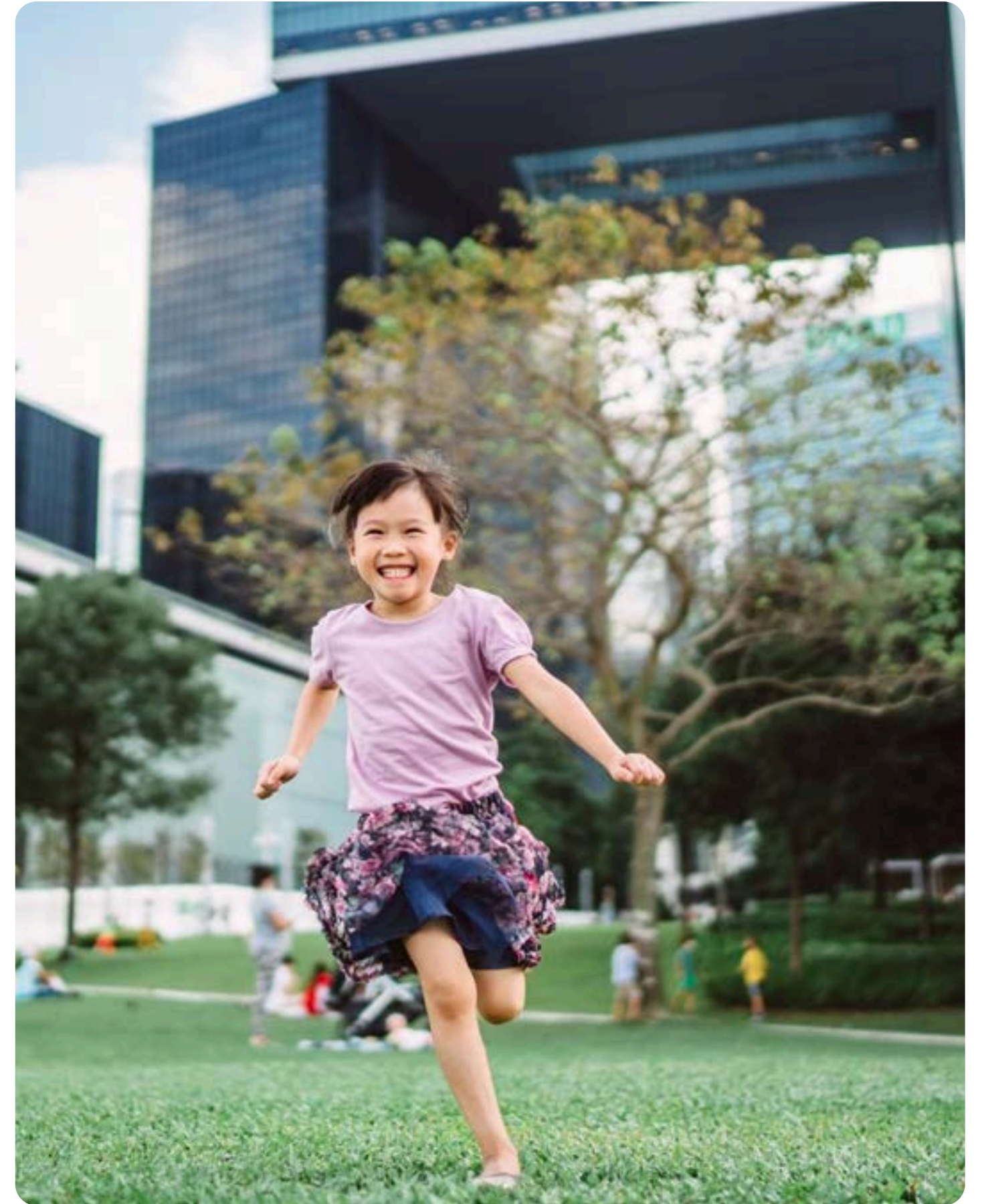
BIM is pivotal in driving Construction 4.0 and enhancing sustainability, providing a robust framework for integrating new environmental, social, and governance (ESG) initiatives. This powerful solution can be leveraged as a keystone for societal progress across the built environment on a global scale.

You play a powerful role in demonstrating how BIM can have a long-lasting positive impact on society. That’s why it’s incumbent that leaders and changemakers like yourself encourage your network and peers to attain the highest BIM standards.

The BSI Kitemark for BIM Security (ISO 19650-5) can help organizations across the globe safely seize the digital opportunities built environment data provides, whilst creating a secure, sustainable and connected future for all.

As an experienced professional with influence in the sector, you are part of the collective that is shaping the future of the built environment. Construction 4.0. Leaders in the field are already redefining expectations by designing smart, sustainable buildings which deliver something qualitatively new and differentiated for their occupants.

1 - Building materials and climate: Constructing a new future, UNEP, <https://www.unep.org/resources/report/building-materials-and-climate-constructing-new-future>, September 2023



# Global factors accelerating BIM adoption

Today, a number of interlinked global 'mega-trends' are setting the agenda for all those involved in shaping the future of the built environment.

Governments in particular, are under increasing pressure to introduce and enforce decarbonization measures through regulation, grants and incentives, alongside mandates such as the UN Sustainable Development Goals. This trickle down effect will also drive private companies, investors and customers to act sustainably and responsibly.

To navigate these trends effectively, organizations must utilize advanced technologies and processes like BIM, which offers strategic advantages in adapting to these global shifts. Effectively integrating BIM certification into their operational model helps organizations address these critical issues, offering tangible benefits not just to the industry but to society at large.

## Drivers of BIM adoption

### Rapid urbanization and population growth

Social trends and geopolitical events (including the pandemic) are increasing the move to the cities, especially in Asia. By 2050, an estimated 68% of the world's population will live in urban areas. This will put an added strain on the global environment in general and the construction industry in particular.

### The 'take-make-waste' model

Our longstanding general reliance on a model of consumption which only moves in one direction – from raw material to waste – is not sustainable. Governments and businesses must embrace the circular economy if they're to prevent future damage to the environment and reduce waste.

### The sixth great extinction

The rapid decline in global biodiversity, which is intensified by the built environment's processes and use of materials, threatens to collapse the natural ecosystems essential for our survival. This underscores the need for sustainable construction practices enabled by BIM.

### Changing public priorities

New generations are entering senior leadership positions that expect sustainability – in business and in politics. This has huge implications for organizational transparency and operational strategy.



# Leveraging BIM to accelerate progress to a more sustainable world

## So how does it work?

Making good use of BIM can help the construction industry to overcome major industry challenges. By unifying data across different stakeholders in building and infrastructure projects, new opportunities for efficiency and innovation can be utilized. BIM also provides organisations across the entire value chain with a framework through which they can report effectively on carbon emissions.

BSI BIM Kitemark certification can help the maturity of organizations in the construction value to chain as:

- It positions firms as market leaders by showcasing mature processes and standout capabilities in digital innovation and sustainability, thereby future-proofing their operations.
- It enhances resilience: At its core, BIM is all about driving value and efficiencies across the lifecycle, helping stakeholders to reduce costs and increase bidding power.
- Less waste means lower costs, thanks to a common framework for data sharing, process alignment and transparency.
- Digital trust is critical to collaborative business and planning today; being able to demonstrate best practice in digital security goes a long way to enhancing your credentials.



# BIM and the circular economy

## How can BIM help organizations leverage circular economy principles?

When it comes to helping built environment professionals meet their sustainability goals, BIM is an incredibly valuable tool.

BIM enhances collaboration and efficiency in designing, delivering, and maintaining built assets throughout their lifecycle, supported by advanced technology.

### It helps organizations:

- Create immediate gains.
- Calculate more accurately the volume of material needed.
- Choose around more eco-friendly products and services.
- Measure the energy efficiency of a building through simulation models.
- Lay the BIM foundation for projects with digital twins utilizing IoT technology, AI, sensor data, etc. for a digital circular economy

The cost savings and efficiencies from BIM can be reinvested into vital areas like eco-friendly material use and development, as well as diversity and inclusion programs, making firms more attractive to the next generation of professionals.

Attaining BSI BIM Kitemark certification is a great way to ensure you have the knowledge and processes in place to scale your BIM initiatives and take on sustainability projects.

To learn more about BIM and the circular economy, watch our webinar- [\*\*The circular economy- A pathway to net zero.\*\*](#)

# BIM and lowering costs to increase resilience

## Detect clashes, reduce rework & financial overspend.

In today's global economy, limiting expenditure is likely to be a significant ongoing consideration for the stakeholders across the built environment. This is an area where BIM can add great value, particularly in the discovery and planning phases.

Major construction projects typically come with long timelines. By leveraging BIM principles to facilitate strong collaboration between AECO stakeholders at the beginning of a project, you can forge a deeper understanding of partner companies' operations. This can inform strategic decision-making, optimize processes and minimize waste, thereby lowering costs.

BIM technology and process enables finance managers to generate more reliable cost estimates and all but eliminate human error in forecasting. Through detecting clashes early, BIM improves efficiency reduces rework and minimizes financial overspend. Overall, BIM can play a major role in injecting cost effectiveness into construction projects, and Kitemark certification can ensure that all stakeholders are adhering to BIM principles at or above a standardized level.

“

You can use an eraser on the drafting table or a sledgehammer on the construction site

**-Frank Lloyd Wright**

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Skip to Services >

Take me back to the start >



Case study:

# Ballast Nedam



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[Skip to Services >](#)

[Take me back to the >](#)

## **BIM in action: Scaling BIM with Ballast Nedam**

Ballast Nedam is a Dutch construction and engineering company employing around 2,000 employees. Committed to continual innovation and digitization of its work processes, Ballast Nedam is a recognised pioneer of BIM internationally. It decided to attain BSI Kitemark for ISO 19650 parts 1 and 2, increasing transparency, efficiency and quality in projects and processes. BIM has enabled much improved detection of building design clashes, leading to fewer problems materializing as projects develop, and potentially large time and cost savings in rectifying them.

“A conscious look at our processes, and how we can organize them more efficiently, is in our corporate DNA. We realized that BIM is more a matter of standardizing processes than modelling. For these processes to be sustainable requires procedures and standards that are accepted and embedded throughout the company.”

**Serkan Sen, Head of BIM,  
Building Design & Engineering,  
Ballast Nedam.**



[Pioneer >](#)

[Skip to Services >](#)

[Take me back to the start >](#)

# Embed BIM into your value chain and benefit from pioneering industry-leading impact

Enhance your value chain and ensure lasting impact by embedding collaboration and best practices throughout. As your trusted partners, we can help you upgrade your information management strategies with our enhanced [Kitemark certification program](#), which now incorporates a security-minded approach. By demonstrating your leadership in digital trust, you'll accelerate your opportunities to win strategic project tenders and create a compelling industry impact story.

Continue your BIM journey today >

Speak to our BIM experts >

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Skip to Services >

Take me back to the start >



# Summary of BSI's BIM services

## Standards



BSI Knowledge, our online platform, gives you access to BIM standards as well as over 9,000 standards related to the built environment, including construction and civil engineering-specific standards.

## Courses and qualifications



We provide a number of courses and qualifications related to BIM, from introductory training to advanced level certified qualifications.

## BIM Certificate of Conformity



This solution has been developed for any organization involved in using BIM. It will help you demonstrate your BIM capability through independent and impartial third-party verification.

## BIM Kitemark certification



Differentiate your BIM projects and elevate your credibility with independent BSI Kitemark certification for BIM. With certification, you can drive progress in a competitive market by proving compliance, demonstrating BIM maturity and implementing resilient, digitally-secure processes across the value chain.

Once certified, annual surveillance visits will ensure adherence to the latest standards.

## BIM Gap assessment



This optional assessment helps you to identify any gaps in documentation that are required by the standard. Gap assessments help you prepare your management team for deeper involvement and help employees grasp necessary changes, saving you time and money. Additionally, it serves as a valuable project management aid, streamlining the process and highlighting potential risks and opportunities.



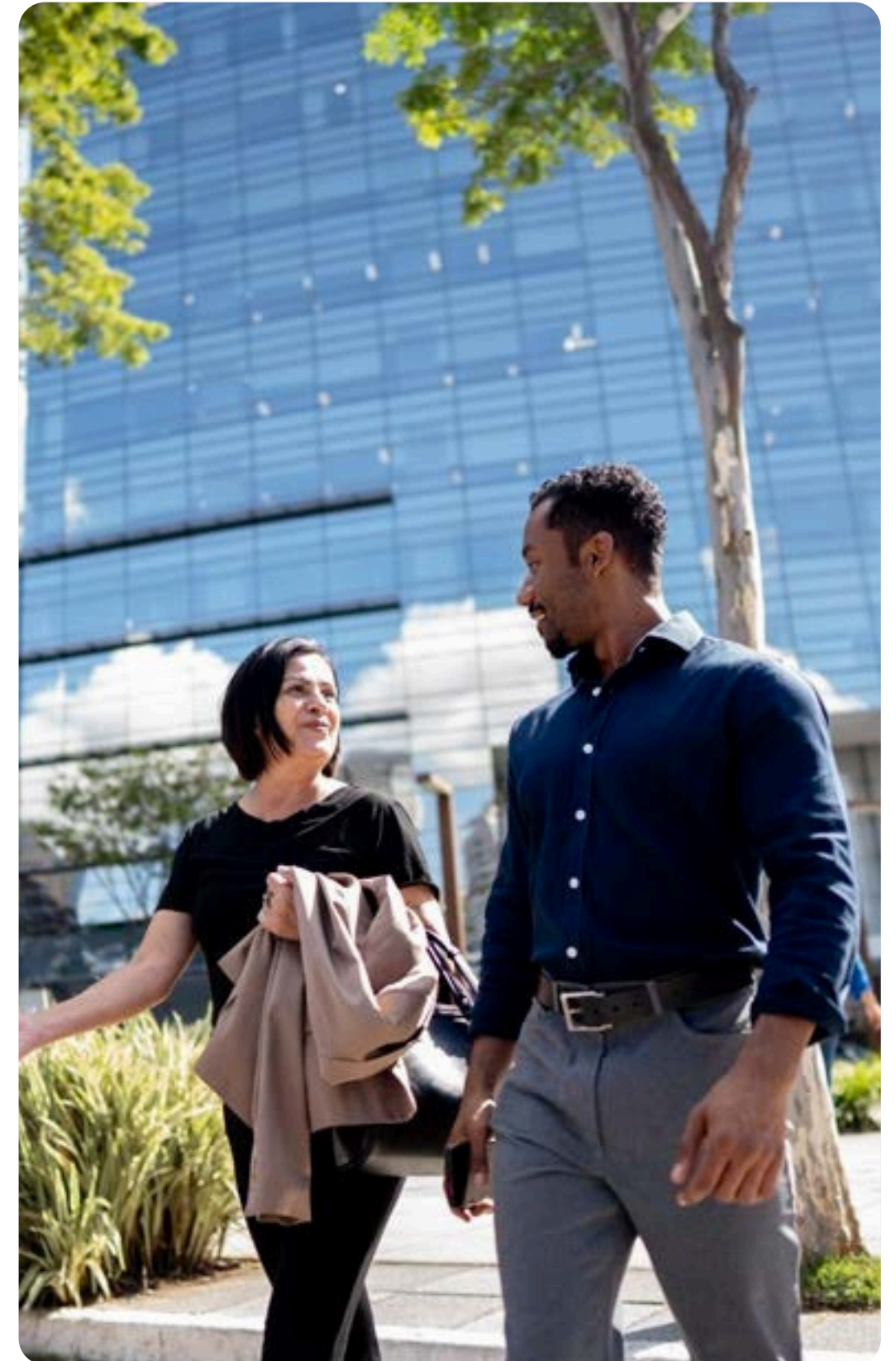
# Standards for your BIM journey

BSI Knowledge, our online platform, gives you access to BIM standards as well as over 9,000 standards related to the built environment, including construction and civil engineering-specific standards. Our standards are designed to help you establish best practice, build resilience and security, embrace new technologies and be positioned well for future growth.

With a BSI Knowledge subscription anyone in your organization that needs access to multiple standards can view and download them. All subscriptions offer access to UK and international standards publishers, including BS, EN, ISO, PAS, IEC and ASTM standards.

With **BSI Knowledge**, you can:

- Buy, access and manage your standards anywhere, from any device, in one easy-to-use platform.
- Explore a comprehensive catalogue of resources and best practice insights.
- Subscribe to pre-built modules or build a personalized standards collection, saving your organization money.
- Reduce risk by ensuring conformity with regulatory requirements.
- Instill trust with your clients by demonstrating a commitment to quality through standard use.



# BIM Training and Qualifications

Globally accepted, transferable qualifications for projects across the world

- **BIM Fundamentals- putting BIM into practice**
- **Collaborative BIM: Senior Management Briefing**
- **Collaborative BIM: Senior Management Workshop**
- **BIM ISO 19650-2: Project Delivery**
- **BIM ISO 19650-3: Information Management in the Operational Phase of the Assets**
- **BIM ISO19650-4: Information Exchange**
- **BIM ISO 19650-5: Security and BIM**
- **BIM PAS 1192-6: Health and Safety**



# BIM Training and Qualifications

**Do you have the right skills within your organization to meet current or future BIM projects?**

As BIM becomes business as usual, how can you ensure the competency of your teams and consistency on BIM projects?

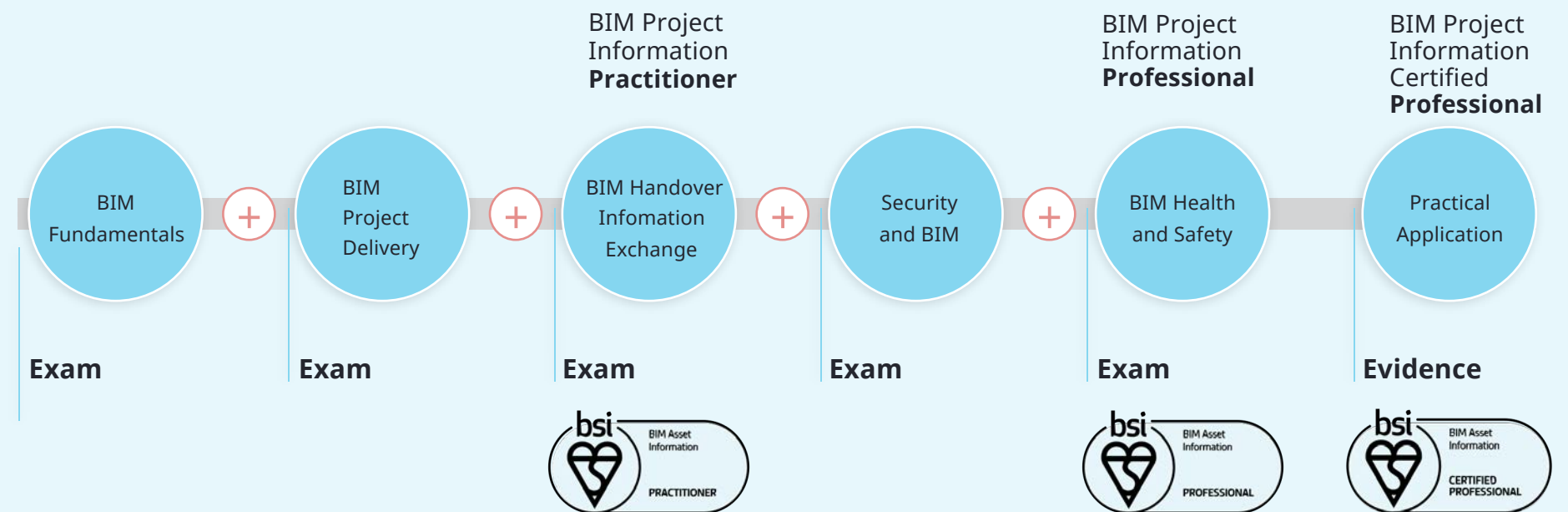
Our BIM qualifications will give you a BSI Mark of Trust, reassuring your clients, bid-writers, contractual and project teams that your skills have been validated. You can achieve Practitioner or Professional status by successfully completing courses and their associated assessment.



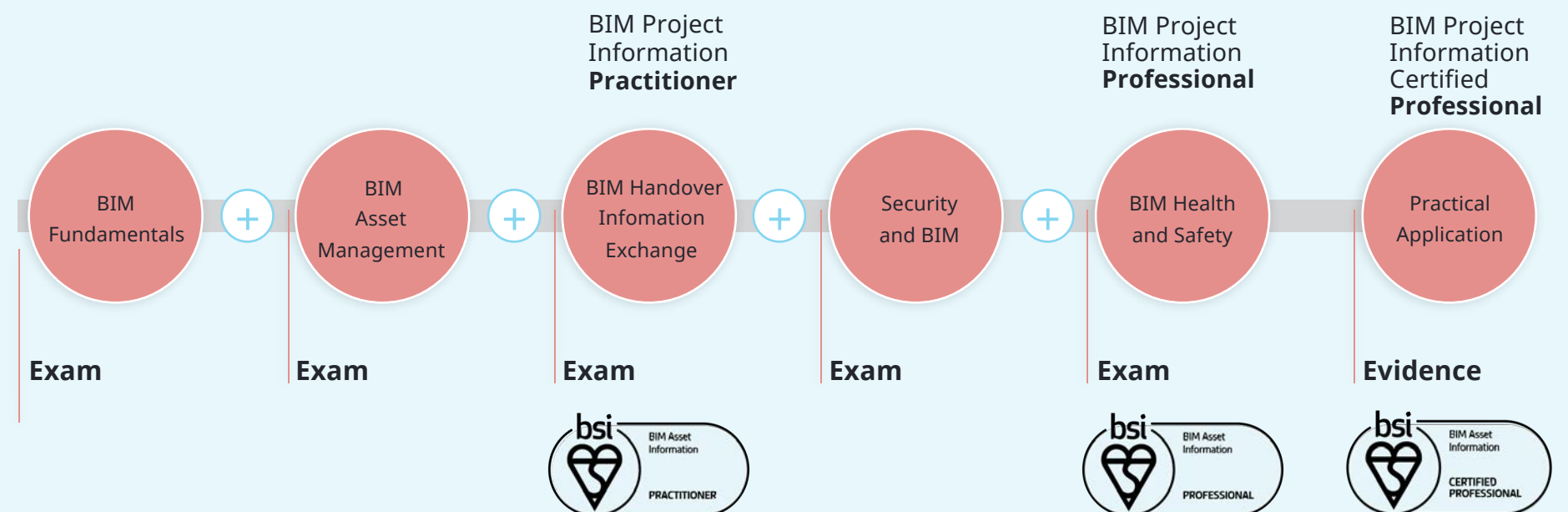
Once you've achieved your BSI Professional qualification, and with the relevant three years' experience, you can choose to have your skills certified. The rolling three year program will provide evidence that your skills are experience-based and up-to-date.

Note: courses offered and delivery methods may vary by geography and are subject to change and update over time. Visit the local version of the BSI website or contact your local BSI representative for more information on courses currently available in your area.

## BIM Project Information Pathway



## BIM Asset Information Pathway



# General BIM standards training courses

## **BIM Fundamentals – putting BIM into practice**

This course is designed to raise your awareness and introduce you to the basic principles of BIM. It will explain how they help reduce waste in construction and asset management. We'll provide you with an overview of the standards that define BIM implementation and the fundamental processes of a Common Data Environment (CDE).

This course is ideal if you're adopting BIM practices into your organization or helping your clients or supply chains to adopt it. It will be particularly useful for construction and asset management professionals including project managers, asset managers, designers, constructors, manufacturers, facilities managers, and information managers.

**Duration: two days live online or classroom training course**  
**On-demand eLearning also available**

## **Collaborative BIM: Senior Management Briefing**

This course will help you to understand the benefits of digitization, lean processes and collaborative approaches in the delivery and operation of assets (buildings and infrastructure).

It will provide an introduction to ISO 19650, the international series of standards for BIM. It will also provide an introduction to how AECO clients and construction supply chains need to work together to manage project and asset information successfully.

Finally, the course will discuss the different types of change needed to put collaborative BIM into practice, and enable you to start creating your own action plan for your organization's next steps.

Senior managers tasked with understanding and then championing collaborative BIM processes to their project delivery or asset management operations.

We strongly recommend you have experience of management engagement with project and asset portfolio activities.

**Duration: four hours in-house training course**

## **Collaborative BIM: Senior Management Workshop**

This course will help you understand the benefits of digitization, lean and collaborative approaches in the delivery and use of assets. It will also provide an introduction to ISO 19650 for BIM, and collaborative working.

You'll be able to understand the methods for setting clear purposes and priorities as part of a BIM strategy for infrastructure and buildings.

This course is ideal if you're a senior manager tasked with introducing BIM to your organization, or if you're involved in BIM processes for project delivery and asset management.

### **Duration: one day in-house training course**

“ The wider benefit of BSI's BIM Fundamentals eLearning is that it has expanded knowledge in various roles across the business. This enhances our conversations with clients about their needs, what we must do to meet them, and how this impacts different roles on projects. The BIM Certified Professional Qualification from BSI showcases our people's skillsets in new tenders and assures our clients that they are receiving the relevant expertise needed for their projects.”

**Craig Hardingham, Digital Technical Director – Infrastructure, Sweco UK & Ireland**



# BIM pathway training courses

**Duration:** All pathway training courses are delivered as a one day live online or classroom training course

## **BIM pathway training courses BIM ISO 19650-2: Project Delivery**

This course will help you understand the information management processes needed for a design and construction project to be delivered using BIM according to ISO 19650-2: Project Delivery Phase.

**This course is ideal for project clients, designers (architects, structural and civil engineers, services engineers, etc.), construction managers, general contractors and subcontractors, manufacturers of complex products or components, and asset or facilities managers.**

## **BIM ISO 19650-3: Information Management in the Operational Phase of the Assets**

This course will help you understand the asset information management process set out in ISO 19650-3 and how this links with other parts of the ISO 19650 series. It follows on from the BIM Fundamentals course, which introduces the subject of information management using collaborative BIM.

**This course is ideal for asset or facilities managers, asset contractors, asset owners or asset operators. People working on projects (client side or supply side) can understand more about operational information and the project Exchange Information Requirements.**

## **BIM ISO 19650-4: Information Exchange**

This course will help you obtain the benefits of the ISO 19650 BIM Framework digital information exchange between design/supply chain and the client/operator. The course also highlights the importance of the CDE process and of checking information deliverables in establishing trust.

**This course is ideal if you're involved in communicating the benefits of BIM within your organization.**

## **BIM ISO 19650-5: Security and BIM**

This course will help you engage with the security implications arising from BIM according to ISO 19650. The course will guide you through the contents of ISO 19650-5 and how security impacts their roles (client, asset owner, designer, contractor, facilities manager, etc.). All BIM Kitemark certification solutions are now being upgraded to incorporate BIM (ISO 19650-5).

**This course is ideal for clients, designers, facilities, construction and commissioning managers who may need to implement security policies in relation to the built environment.**

## **BIM PAS 1192-6: Health and Safety**

This course will help you understand the benefits of structured health and safety information and its digital information exchange amongst design and supply chain, and the client or operator. It emphasizes the importance of clear Asset Information Requirements (AIR) and a checkable digital Plan of Work.

**This course is ideal for clients, designers, facilities, construction and commissioning managers charged with delivering health and safety within a collaborative or BIM project.**

# BSI certification solutions

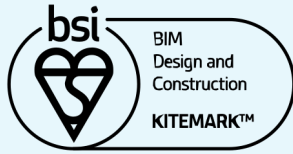
- **BSI Kitemark for Design and Construction**
- **BSI Kitemark for BIM Asset Management**
- **BSI Kitemark for BIM Objects**
- **BSI Kitemark for Health and Safety**
- **BSI Kitemark for BIM Objects**
- **BSI Kitemark for BIM Software**
- **BSI Kitemark for BIM Security**
- **BIM Certificate of Conformity**

[Learn more about BIM Kitemark](#)

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## **BSI Kitemark for Design and Construction**

Suitable for any organization within a project team, the BSI Kitemark provides a robust measurement of a company's delivery of BIM projects, certifying businesses for their diligence in design and construction, supply chain management and delivery of customer service excellence. As with other BSI Kitemarks, organizations holding the BSI Kitemark will be routinely assessed, providing clients with complete confidence in their delivery to industry standards.

**The BIM Kitemark for Design and Construction is being upgraded to incorporate BIM Security (ISO 19650-5). This will allow you to demonstrate that your project delivery is managed within security-minded processes, giving confidence and trust to your customers in your application of BIM and your overall digital and information security.**

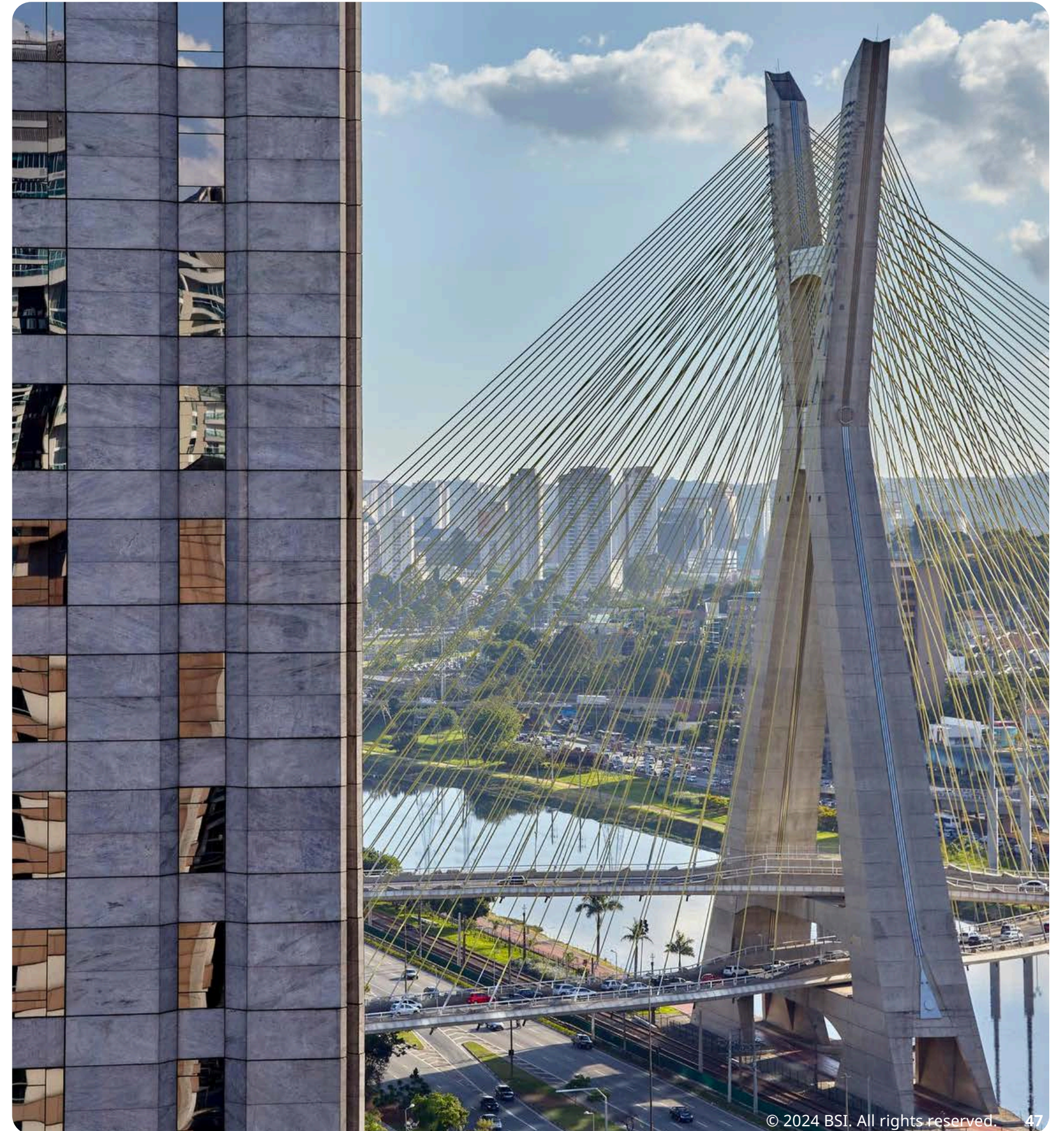
- Demonstrate compliance against ISO 19650-1 and ISO 19650-2.
- Demonstrate digital security with ISO 19650-5.

"The BSI Kitemark is a respected brand. Applied to our services it will reinforce client confidence and prove greater quality in the delivery of BIM projects."

**David Throssell,  
Head of Digital Construction,  
Skanska UK**

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Take me back to the start >





## **BSI Kitemark for BIM Asset Management**

The BSI Kitemark for BIM Asset Management provides assurance that asset and facilities managers have integrated BIM into their asset management processes. And it confirms that asset information is accurate and up to date. We assess:

- evidence of controlled documented procedures for all processes against the assessment standard BS EN ISO 19650-3;
- evidence of implementation of these processes against a managed asset;
- measurement and monitoring of customer satisfaction; and
- effective management of the supply chain and Quality Management (ISO 9001).

**The BSI Kitemark for BIM Asset Management now incorporates the BSI Kitemark for BIM Security (ISO 19650-5).**

“We are able to apply consistent standards and processes across the group for managing data and information over the lifecycle of assets. It helps build up the capability of our colleagues which will improve the quality of delivery and make the process efficient. The BSI Kitemark will ultimately improve the way we manage assets for our clients and ultimately for society.”

**Navil Shetty,**  
**Director, Fellow and Technical Chair for Asset Management,**  
**Atkins Ltd**



## **BSI Kitemark for BIM Objects**

The BSI Kitemark for BIM Objects is the benchmark in best practice for the production of digital products used in BIM models. Designed to prove manufacturers have embedded BIM within their product manufacturing processes, it covers the full range of construction products for structural, architectural and mechanical, electrical and plumbing.

The Kitemark certification process ensures that your BIM Objects are a true likeness of your physical products, to give your customers complete confidence during design, construction and asset management. The assessment standard is BS 8541 – Library objects for architecture, engineering and construction:

**Part 1** – Identification and classification      **Part 3** – Attributes for specification and assessment  
**Part 2** – Shape and measurement

We’ve also developed an additional set of requirements for the BSI Kitemark™ that build on these standards and are based on industry feedback to help ensure your BIM content is of the highest quality.

**The BSI Kitemark for BIM Objects now incorporates the BSI Kitemark for BIM Security (ISO 19650-5).**

“The BSI Kitemark for BIM Objects gives our clients confidence and peace of mind from knowing our objects are created by following the right process and standards, and that they are a true representation of the physical product.”

**Manuela Fazzan,**  
**Technical and Design Manager,**  
**Wienerberger Ltd**



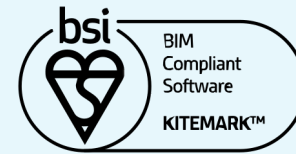
## **BSI Kitemark for Health and Safety**

The application of BIM brings greater opportunities to foresee health and safety risks earlier in the delivery and management of projects, as well as greater access to trusted, searchable information.

The BSI Kitemark for Health and Safety is based on PAS 1192-6, the specification for collaborative sharing and use of structured Health and Safety information using BIM. This Kitemark validates the adoption of processes and outputs according to PAS 1192-6. You can use it as evidence to support the effective management of the international standard Occupational health, safety and wellbeing (ISO 45001).

**The BSI Kitemark for Health and Safety now incorporates the BSI Kitemark for BIM Security (ISO 19650-5).**

Note: ISO 19650-6 is currently in development.



## **BSI Kitemark for BIM Software**

For software companies, the BSI Kitemark for BIM Software provides independent validation that your software tools support and align to the ISO 19650 series and additional BIM standards such as DIN SPEC 91391. This will give your customers confidence that your software meets internationally-recognized best practice for BIM, and that it will help streamline their working practices.

You will also be required to evidence the security of the software, how you support your software users, resilience software, and the underlying Business Management System (BMS).

**The BSI Kitemark for Software now incorporates the BSI Kitemark for BIM Security (ISO 19650-5).**





## BSI Kitemark for BIM Security

The BSI Kitemark for BIM Security assesses an organization's adherence to BS EN ISO 19650-5, which mandates a security-minded approach to Building Information Modelling (BIM). This certification evaluates physical and technological systems, personnel awareness, and organizational security processes. Recent enhancements extend this Kitemark across all BSI BIM certifications, boosting security assurance for sensitive projects. These updates integrate security more deeply into BIM processes, addressing the need for comprehensive security management in critical infrastructure projects.

Note: ISO 19650-6 is currently in development.



0003

## BIM Certificate of Conformity

This entry-level certificate of verification has been developed for any organization involved in using BIM, designed to offer a foundational level of compliance or assurance, making it accessible for those who may not yet be ready or able to meet the more rigorous standards required for the Kitemark certification. It will help you demonstrate your BIM capability through independent and impartial third-party verification with BSI. Our clients trust our UKAS accredited BIM expertise because we have been at the forefront of developing BIM certification since its inception.

”

...owners experienced projects going over budget 75 percent of the time and projects were delivered late 77 percent of the time. Things got worse for megaprojects where a staggering 92 percent of them come in over budget, over schedule, or both.”

-- Bent Flyvbjerg and Dan Gardner <sup>2</sup>



# Why BSI?

## A purpose-led organization

An agent for positive change in the built environment sector.

For more than 120 years, BSI has benefitted the world in a profound and unique way. Our independence, global reach and access to leading-edge experts sets us apart.

Due to the unique way we are incorporated, we reinvest our profits to foster progress and partnership, increasing trust between consumers, governments and organizations.

Ultimately, we help business and society thrive together, accelerating progress towards a fair society and a sustainable world.

BSI has been at the forefront of BIM since the start, developing a range of BIM standards covering all the key elements from design, information management, facilities management and security. We're continuing to work with the industry to develop and evolve the suite of standards and Kitemark certification to enable the future of a safer, more secure and sustainable built environment for all.

## Let's shape your organization's future together

Speak to our BIM experts today to see how they can help you pioneer excellence, inspire trust and accelerate global opportunities with BIM certification.

**Contact us:**  
**[www.bsigroup.com](http://www.bsigroup.com)**

General enquiry (CA)

General enquiry (US)

General enquiry (MX)

General enquiry (BR)

