THE STATE OF BIM:
PROMISE AND PROGRESS ON THE ROAD TO BETTER CONSTRUCTION

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CONTENTS

FOREWORD FROM MURRAY FREEMAN, CEO RIB SOFTWARE INTERNATIONAL / ASIA PACIFIC

When it comes to progress and productivity, all industries should be looking how best to improve. There is no doubt that businesses within architecture, engineering and construction need to remain agile and consider new technologies to unlock their maximum potential.

Digitalisation will greatly influence the future of how we work. The World Economic Forum (2018) has stated that full-scale digitisation could help to deliver approximately a 12 to 20 per cent reduction in annual costs for our industry within a decade. As part of their comprehensive research, they produced a list of ten disruptive technologies that will shape the 'Fourth Industrial Revolution' in construction. That list included techniques and advances such as augmented reality, predictive analytics and Building Information Modelling (BIM).

In the short term, it's my view that BIM represents the most practical and safe strategy available to those hoping to establish competitive advantage, regardless of business size.

As you will read in the pages ahead, BIM has progressed far beyond the conceptual stage globally. Enterprises large and small are already reaping the rewards of BIM, thanks to concerted efforts to improve the standards and guidelines that underpin the process. While we shouldn't be viewing BIM as a fix-all solution for struggling industry growth, it now represents a realistic and practical option for delivering improvements across all project phases.

We have sought to empower early BIM adopters with our software range for many years, beginning with BIM properties support in 2006. As of 2019, this functionality has been greatly enhanced to suit complex 5D BIM workflows. However, as we explore within this document, acquiring suitable software is by no means the only consideration when making the switch to BIM. You'll require the unconditional support of all project stakeholders, access to the right tools for standardisation and a fully committed team to put the process into optimised practice.

It's not simple and it's not without cost, which is why so many have put it off for so long. This reluctance is understandable, but BIM is now a tested and fully integrated practice for businesses worldwide.

Implementing BIM is a decisive step forward for those willing to negotiate the short-term sacrifices. I hope the information that follows provides the impetus for decision-makers to move ahead.

"As you will read in the pages ahead, BIM has progressed far beyond the conceptual stage globally."

A BACKGROUND TO BIM

Building Information Modelling has long been celebrated as integral to the future of our industry. The transformative technique has many supporters across global construction, with adopters pointing to improved speed of delivery, efficient collaboration and long-term insights as key benefits.

As is the case with many advances however, the path to implementation has not been all smooth sailing. Some have characterised BIM as too difficult to implement, claimed it to be too costly, or else questioned the real-world value offered by the concept.

This report will take a deep dive into the current state of BIM worldwide, covering international standards, mandates and initiatives that are guiding the industry. A list of best practices and resources will be provided for those looking to take advantage of BIM on projects large and small. We also speak with three industry professionals who have worked with BIM long-term, to determine their view of the current industry and what needs to change as we move forward.

BIM DEFINED

For those still unclear, Building Information Modelling is a data-driven process that allows all parties to collaborate in a shared online space, also known as a common data environment (CDE). This is a real-time repository of information that all teams members contribute to on a given project, and can be based within a server, on the cloud or similar.

The actual data types within a CDE can be many and varied, depending on the project at hand. Everything from cost plans to specifications, schedules and 3D design models can be coordinated in a CDE, providing a wealth of actionable data. Once graphical 3D models of a project are created based on drawings, the data in question is linked up to create what is called an information model.

In practice, information models eliminate the communication shortfalls that can slow down projects. They also introduce greater opportunity for collaboration, with quantity surveyors able to work concurrently on a single estimate for example. Not only is this more cost-effective and efficient, but better outcomes are possible as compliance or practicality issues can be pointed out at an early stage. These advantages can cover the lifecycle of a built asset, from early design through to long-term maintenance.

Despite the aforementioned benefits and global interest in BIM, we haven't seen the method implemented as widely as many predicted. The following pages will detail the promise of BIM, as we stand poised on the precipice of a new decade and new industry challenges.

INTERNATIONAL BIM STANDARDS GUIDING THE INDUSTRY

The construction industry is governed by numerous standards that seek to protect safety, guarantee quality, guide expectations and much more. As BIM is an end-to-end process that involves numerous stakeholders, widely accepted standardisation is imperative.

All contributing parties need to follow clear and consistent processes to unlock the potential of BIM on their project; without this, the best-laid plans can turn to dust and involved parties might lose their faith in BIM.

Forward-thinking BIM practitioners have been working hard to erode the perception of BIM as being too difficult to implement. In early 2019, the International Organization for Standardization (ISO) published a set of worldwide BIM standards that could lay the foundation for a more productive future.

THE ISO STANDARDS

ISO 19650-1 refers to relevant principles and concepts that apply to the entire lifecycle of a BIM project. This can encompass everything from strategic planning and design phases through to repair practices as a built asset nears the end of its usage. The recommendations given are scalable to suit varying project sizes and complexities.

ISO 19650-2 outlines new requirements for information processes and management as they apply in the delivery phase of a BIM project. As with the first standard, this document can be adapted to suit necessary scale.

Both documents provide recommendations for an ideal BIM framework, with advice given on exchanging, recording, versioning and organisation for all involved parties. The above two standards are the first in a planned series. A standard that outlines best practice for managing the operational phase of assets is planned, as well as a standard dedicated to security in BIM and smart asset management.

ISO 19650-1 and 19650-2 were largely developed on the basis of the successful British BS 1192 standard, as well as the PAS 1192-2 specification, before being applied at an international level.

This research will go a long way toward eroding the misconceptions that still surround BIM in the construction industry. Some have questioned the value of BIM for smaller projects, lack an understanding of how to get started and even harbour false perceptions about the costs associated with BIM.

The new ISO standards will support systematic adoption by giving decision-makers the confidence to go ahead with BIM. They will be able to accurately calculate the long-term value of BIM for their specific enterprise, before adopting new processes that are accepted as best practice worldwide.

19650-1 and 19650-2 are well-researched standards that were created with significant input from industry professionals. While by no means the final piece in the puzzle for worldwide BIM implementation, they add credence to the notion that BIM is here to stay and represent a big step in the right direction. The two standards can be accessed here.

INDUSTRY COMMENT - EUROPE: RICHARD BATES FROM ALINEA

RICHARD BATES

alinea

Richard is a confident Associate & BIM Specialist and has been working with BIM and 3D modelling for over 10 years. With his team he strives to promote the use of BIM deliverables and process to drive valueand excellence in their projects.

His approach is to work 'hands-on' with the Design Team and BIM counterparts/specialists to establish alinea's interests and role as a stakeholder before and during BIM creation; focussing on data creation and methodology.

He has and continues to develop documentation and guidance to assist and promote the benefits and opportunities of Building Information Modelling for all involved.

Richard is passionate about BIM and possesses unique insight and experience in this field, is involved in many industry initiatives and regularly lectures on the subject.

1. **WHAT DOES BIM MEAN TO YOU?**
   The coordination of data and design to save the project time and money. The original 'build digitally before actually' is still what it's all about, but now the value and importance of the data and structure of it within has finally been realised. Many benefits are brought to the project – it's not all about quantities. Advantages include the identification of risk and value to tender and procurement.

2. **WHEN DID YOU FIRST LEARN ABOUT BIM, AND HOW LONG DID IT TAKE FOR YOU TO START IMPLEMENTING BIM COMMERCIALLY?**
   Incredible support from some early AEC industry founders enabled me to begin to get my head around all this over 10 years ago. We immediately began tentatively using it on those projects, developing our approach, modelling knowledge and requirements. We then moved on to hunting for opportunities and information on other projects.

3. **HOW ARE YOU PUTTING BIM INTO PRACTICE WITH ALINEA IN 2019?**
   Nearly every new project we win is being designed and coordinated in '3D'. We now have long-standing relationships with designers, engineers and clients so we often start 'running' from day one. The upfront effort required by all things BIM is a given and we know what to do in order to reap the benefits to continue gaining more from every project.

4. **WHAT WAS YOUR BIGGEST BREAKTHROUGH WITH BIM? ANY EARLY PROJECTS WHERE IT PRODUCED A MAJOR BENEFIT?**
   Moving ahead we have been able to build on this experience with every project and to develop our knowledge. We put this to excellent use on the biggest project alinea have had so far ... and really couldn't have done it without it. The value it brings for tender and procurement is literally priceless and a given requirement from all contractors.

5. **WHAT IS ONE PIECE OF ADVICE YOU HAVE FOR ANY BUSINESS STARTING THEIR BIM JOURNEY?**
   It's not easy! But you must persevere, particularly with the differences in working approach and method for quantity surveyors. Being honest about what you need and realistic about what you can get is vital. BIM is not a panacea.

6. **HOW DO YOU FEEL ABOUT THE FUTURE OF BIM, AND WHAT ROADBLOCKS STILL NEED TO BE ADDRESSED BY THE GLOBAL INDUSTRY?**
   BIM is very much the future and not just an option. It should be known as a key driver of digital construction/costing as part of the overall change to our industry, with genuine automation of design and quantification and the utilisation of other available data sources. We are rapidly moving towards the enablement of design data being used within the manufacturing process of building components.

MANDATES AND INITIATIVES: BIM PROGRESS ACROSS THE GLOBE

Government adoption and promotion is vital to the growth of BIM in our industry. Many nations across the globe have recognised this need and enacted BIM mandates for government and other projects. While the United Kingdom is rightly famous as a forerunner for national BIM mandates, they aren't the only country to boost productivity through BIM regulation. As it happens, they were not the first to implement nationwide directives either.

The following table summarises just some of the nations who have chosen to, or plan to, mandate BIM workflows in pursuit of better project outcomes.

AUSTRALIA

BIM is quickly growing in the public sector, although no nationwide BIM mandates exist at present. Several state-level mandates are being enacted, such as Queensland's requirement for all Government construction projects over AUD$50 million to use BIM from the early planning phase.

BRAZIL

A promising market, Brazil launched a National Dissemination Strategy for BIM in 2018, with an aim of promoting BIM investment and implementation across the country.

CHINA

The Ministry of Housing and Urban-Rural Development guides Chinese BIM policy, and their current Five-Year Plan offers varied guidance that is expected to boost BIM across the industry by 2020.

FRANCE

Recently announced and pledged €10 million for 'Plan BIM 2022', an initiative that intends to speed up the implementation of BIM processes, especially for SMEs.

GERMANY

BIM is used commonly on commercial and residential projects. The German government formed the 'Digital Building Platform' in 2015, a task group dedicated to honing a uniform national BIM strategy.

INDIA

Adoption is at an early stage in India, where the AEC industry is the second-largest in the nation. 5D BIM was utilised on the expansive Nagpur Metro project, while stronger government policies are predicted to boost BIM implementation in coming years.

SCANDINAVIA

A leading light for BIM at government level. Finland's state property services agency has mandated BIM since 2001, Denmark has implemented BIM on all public projects since 2007, while Sweden and Norway have actively consolidated BIM through various initiatives and mandates.

SINGAPORE

The Singapore Government are looking to drive BIM adoption through the Construction Productivity Roadmap. The Roadmap encompasses new training programs and has BIM for facilities management and smart cities as a strong focus.

SOUTH KOREA

Another early adopter. The Public Procurement Service introduced a BIM mandate in 2016, stating that all public sector projects over ₩50 million utilise BIM processes.

UNITED ARAB EMIRATES

A world leader in infrastructure, the UAE is moving increasingly toward BIM. Dubai recently updated their 2013 mandate that called for BIM on large-scale projects, while Abu Dhabi has mandated BIM for major construction projects from 2019.

UNITED KINGDOM

The worldwide BIM benchmark. Since April 2016, BIM Level 2 has been required on all centrally-procured construction projects; this government drive has had a marked impact on overall BIM adoption across the nation.

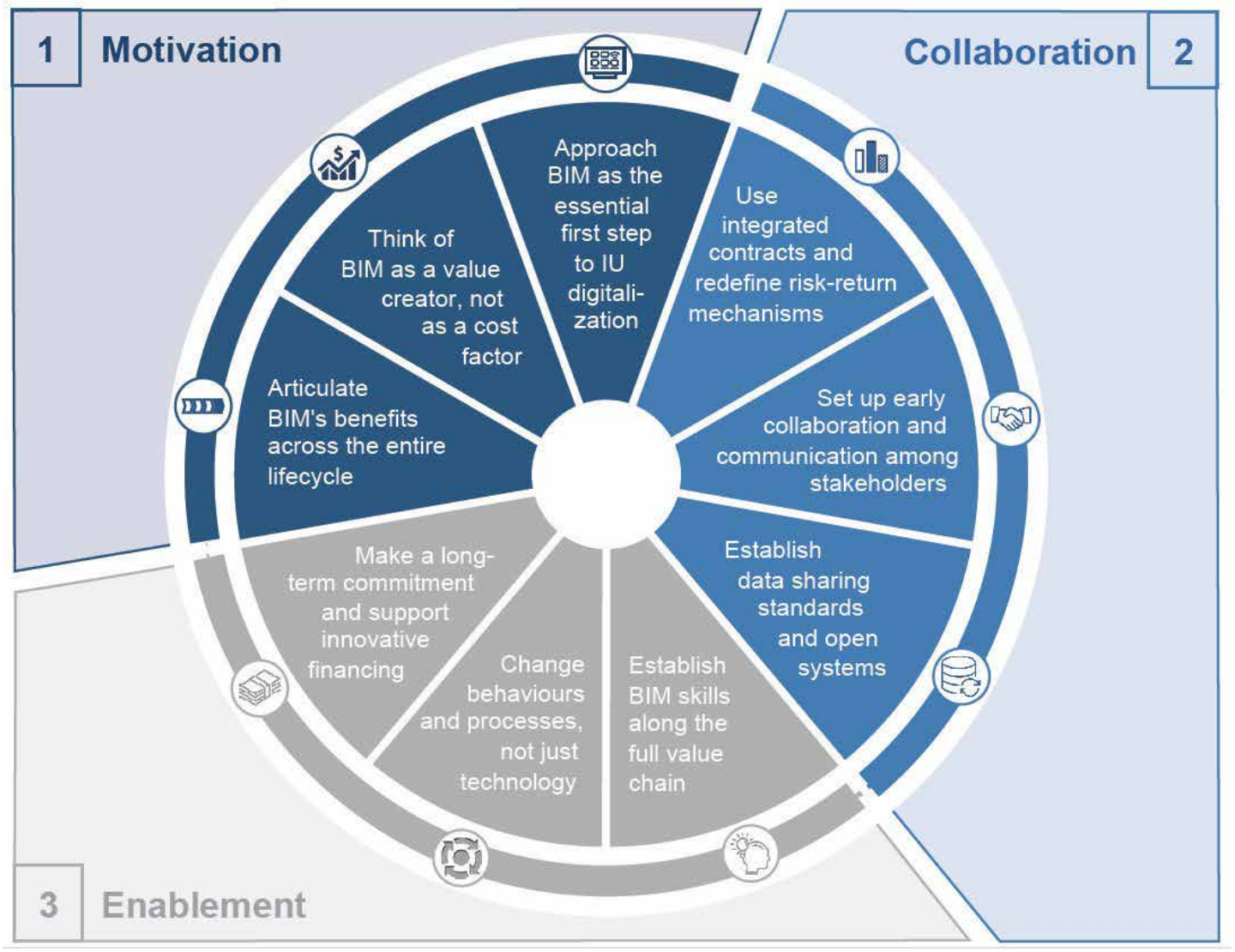
UNITED STATES

While no general nationwide BIM mandates are in place, the US formulated the National 3D-4D-BIM Program in 2003 for Public Buildings Service projects. Mandates exist at state level, with Wisconsin leading the way since 2010 by requiring BIM for public projects over USD$5 million.

A FOUNDATION FOR FUTURE GROWTH

A great deal of progress has been made in recent years to address the shortfalls that are threatening the future of construction productivity. In 2018, the World Economic Forum published 'An Action Plan to Accelerate BIM Adoption', in which they collaborated with the Boston Consulting Group and a variety of other leading BIM representatives to uncover key insights and set recommended actions.

The report stated that significant reductions in both design and construction phase durations and costs are possible with BIM. A comprehensive Action Plan was produced, exploring nine steps for adoption that are relevant at company, industry group and government level. The below graphic from the report in question, titled the 'BIM Adoption Circle', details these nine recommendations for motivation, collaboration and enablement.



These recommendations show that BIM adoption is a challenging but worthwhile endeavour, whether at major project level or for SMEs. The report concludes that governments should make a long-term commitment to BIM for public works projects, structure regulations that suit the industry and keep striving to attract professionals with BIM and other digital skills to the industry.

INDUSTRY COMMENT - OCEANIA: DAVID MITCHELL FROM QS^{X} CONSULTING

David Mitchell

David Mitchell is the Chairperson of buildingSMART Australasia, co-founder of QSx Consulting and an early adopter of 5D Quantity Surveying. With 35+ years of industry experience (in building, civil, heavy engineering and resources) and a family background in construction consulting, he is known for approaching technology integration in a strategic and innovative way. He believes in open leadership, technology and the collective ability to create positive industry change.

1. **WHAT DOES BIM MEAN TO YOU?**
   It's about all of the characters on a project (from owner to supplier) being able to access and use the most current design, construction and as-built information. At the core is information exchange, so that the whole AEC market can participate.

2. **WHEN DID YOU FIRST LEARN ABOUT BIM, AND HOW LONG DID IT TAKE FOR YOU TO START IMPLEMENTING BIM COMMERCIALLY?**
   I first became aware of BIM and its benefits early in the 2000s, and started considering how we might implement the process going forward. Around 2007, I released my first attempt at delivering 5D BIM as a commercially viable service. We have refined those services ever since to suit improved technology and better work practices.

3. **HOW ARE YOU PUTTING BIM INTO PRACTICE WITH QSx IN 2019?**
   We work with BIM in a variety of ways. I teach 5D BIM and help organisations to implement 5D & 4D BIM, so that it functions within their Project Controls environments.

4. **WHAT WAS YOUR BIGGEST BREAKTHROUGH WITH BIM? ANY EARLY PROJECTS WHERE IT PRODUCED A MAJOR BENEFIT?**
   There are heaps of projects where BIM has provided benefits but my biggest breakthrough came from documenting the detailed 5D QS Services that my company was able to offer our clients. From this, I developed a step-by-step delivery guide for my 5D QS team to follow at different project phases (a 5D BIM Execution Plan). This allowed my team to work productively and to schedule what project information was needed at each phase to achieve the best results.

5. **WHAT IS ONE PIECE OF ADVICE YOU HAVE FOR ANY BUSINESS STARTING THEIR BIM JOURNEY?**
   Take your time and start with a single team, then make sure they have the time, space and flexibility that is needed to implement new tech, structure data and develop workflows that suit the broader organisation. When you have that right, then you can look to expand.

6. **HOW DO YOU FEEL ABOUT THE FUTURE OF BIM, AND WHAT ROADBLOCKS STILL NEED TO BE ADDRESSED BY THE GLOBAL INDUSTRY?**
   The big roadblocks of 'why' and 'how' have been removed. 5D BIM is in big demand from government and the release of standards like ISO 19650 are creating the systems and common language. Now it's about education, easy information exchange and development of intuitive software.

BIM BEST PRACTICE AND RESOURCES

Globally, it's fair to say that BIM awareness and interest has followed a positive trajectory in recent years. Using the United Kingdom as an example, the comprehensive NBS National BIM Report 2019 found that 69 per cent of 988 construction industry professionals surveyed were aware of and utilising BIM within their business. This is a noted increase on 2011, when only 13 per cent of respondents were part of an enterprise that worked with BIM.

While the UK is clearly a BIM leader, it's a similar story elsewhere in the world industry. Professionals are intrigued by the BIM concept, but may have lingering doubts about cost, resources and best practice for getting started on the BIM path. Those researching the suitability of BIM for their own needs would be wise to consider the following four steps.

ADDRESS BIM MYTHS AND MISCONCEPTIONS

Certain negative perceptions of BIM have prevailed since the term first became common in construction. Some have claimed that the quantity surveying profession will be made obsolete, as a complete Bill of Quantities will be able to be produced with a single click of a button. If all relevant quantities are available within a BIM file, won't architects and engineers be able to cut out the middle man and extract quantities themselves? Not so.

In truth, deep surveying expertise is not made redundant by BIM. Surveyors and estimators utilising BIM follow the same processes, but they have more time to add their value due to the takeoff speed advantages that are fundamental to BIM. Surveyors will still be required to benchmark cost rates, simulate the impact that material changes might cause and apply their earned knowledge in search of the best project outcomes.

Mistrust of new technologies or techniques is understandable, but often these fears are unfounded. The strength of well-executed BIM lies in collaboration, and successful projects will always be guided by experienced minds from many disciplines.

BIM BEST PRACTICE AND RESOURCES

RESEARCH BEST PRACTICE

A strong set of guidelines is integral to unlocking the collaborative potential of BIM and avoiding inconsistencies or shortfalls among project teams. Forward-thinking industry bodies around the world have produced a variety of comprehensive resources to serve this need, many of which are tailored to specific professions.

An ideal example of this is the Australia and New Zealand BIM Best Practice Guidelines, a joint offering between the Australian and New Zealand Institutes of Quantity Surveyors. The free 56-page document sets the tone for QS involvement in BIM projects, covering what to expect, provided information, model integration/validation and much more. A multidisciplinary set of guidelines for Oceania is available free in the NATSPEC National BIM Guide, which is a set of documents designed to make clear what is required of all clients, consultants and stakeholders involved with a BIM project. Numerous companion documents and resources are also available from NATSPEC; these include a useful properties generator for standardising data sharing, as well as industry standards for the creation of BIM objects.

Similar detailed resources pertaining to multidisciplinary BIM teams have been produced around the world, and those looking to get started with BIM should research guides like these as a point of reference.

ATTAIN KEY BIM COMPETENCIES

In all construction disciplines, there are prerequisite skill levels and competencies that should be attained before any work takes place. When it comes to BIM, surveyors and estimators should be well-versed in design modelling development, identifying quantities at specific levels and manipulating models to extract useable quantities and measures. Being able to validate the reliability of a model and its contained information is also an important competency, as is adjusting cost plans to reflect evolving project data and operating in the Common Data Environment (CDE).

Every participant involved in a BIM workflow, regardless of their discipline, must be informed on their roles and able to meet model-based deliverables. BIM training and educational opportunities are growing worldwide; industry bodies are aligning with universities to ensure the future crop of construction professionals are well-versed in BIM workflows.

OUTLINE A BIM EXECUTION PLAN

One vital component for ensuring your BIM project delivers as promised is a BIM Execution Plan (BEP). This is an agreed-upon blueprint that outlines how the collaboration will progress, and it is a joint effort between the client and project team that lays out the deliverables of the project.

A BEP may cover project information and defined goals, identify responsibilities and tasks of each project member and establish BIM exchange protocols and data requirements. Infrastructure and technology considerations may even be identified.

The document serves to clearly measure progress and is integral to ensuring that all stakeholders understand collective goals and expectations across a project lifecycle. A comprehensive example of a BIM Execution Plan is available within the BIM Best Practice Guidelines for Australia and New Zealand, but BEP templates and considerations for other countries are freely available online.

INDUSTRY COMMENT - ASIA: CALLUM AGNEW FROM TURNER & TOWNSEND SINGAPORE

CALLUM AGNEW

Turner & Townsend

As Director at Turner & Townsend, Callum has regional experience of construction knowledge in various sectors; high-tech, manufacturing, hotel & leisure, residential, education, health, commercial, civil infrastructure, natural resources and energy. He also possesses extensive program-level exposure as a member of Turner & Townsend's South East Asia management team.

Callum manages BIM implementation across Asia through leading working groups, business generation and training. He is a super-user of QuanTTum, an in-house proprietary BIM management tool that also supports estimation, measurement and contract administration, which has been used in the delivery of a variety of projects globally.

1. WHAT DOES BIM MEAN TO YOU?

Turner & Townsend is a market-leading capital programs professional services company, trusted to drive better business outcomes for our clients across all sectors. With a heritage rooted in cost and commercial management we have a deep and tacit understanding of capital programs, and apply this expertise to drive industry best practice and innovation.

We recognise the vast benefits Building Information Modelling (BIM) brings to clients, project teams, stakeholders and end users throughout an asset lifecycle. BIM has become more than just a passing trend, it has proved itself as a powerful tool and is increasingly used to support sustainable design, construction, and operation. It not only enables architects and designers to achieve lean and sustainable design, but also allows for a smoother and better planned construction process that save time and money and reduces the potential for errors and conflicts.

2. WHEN DID YOU FIRST LEARN ABOUT BIM, AND HOW LONG DID IT TAKE FOR YOU TO START IMPLEMENTING BIM COMMERCIALLY?

Our BIM journey began in 1999 with an investment in CAD Measure tools, which led to the creation of the InTTegra created cost database. Our initial focus was to upskill for our core cost management service to a more digital approach.
In 2009 our services developed into our QuanTTum offering, harvesting quantities from 3D models in the Oil & Gas industry. By 2010 we began to apply this approach to the property sector. A year after, the UK government released its construction strategy which outlined the Level 2 BIM mandate for 2016. This prompted a full internal awareness training program across the business. We launched and began delivering strategic service to our clients with the specialist BIM team in 2012, and as the team grew, we began deploying our 5x5 BIM assurance process which validates BIM information for our clients.

This journey is ongoing as BIM is taken up in each country and region we operate in. We now have BIM Centres of Excellence in the UK as well as Singapore, UAE and the USA. Our IT infrastructure has had to improve to support this growth with better internet connections and larger data storage capacity, not to mention better computers as standard issue to staff.

3. HOW ARE YOU PUTTING BIM INTO PRACTICE WITH TURNER & TOWNSEND SINGAPORE IN 2019?

Our global construction consultancy firm specialises in BIM advisory services, supported by our dedicated BIM team who manage and coordinate the world's best implementation practices and global lessons. Through this global expertise we have been able to offer our clients an independent BIM consultancy service, which allows our clients to drive their own BIM agenda to realise the full benefits of BIM.

In addition to our BIM consultancy service, Turner & Townsend Singapore have established a core BIM team comprised of local staff with support from sector and service experts within our global centres of excellence. The members of our core delivery team have a blend of extensive and relevant BIM technical skills and BIM management experience. Further additions to the team include the support of our in-house IT specialists to ensure comprehensive and seamless IT support for all IT-related infrastructure needs.

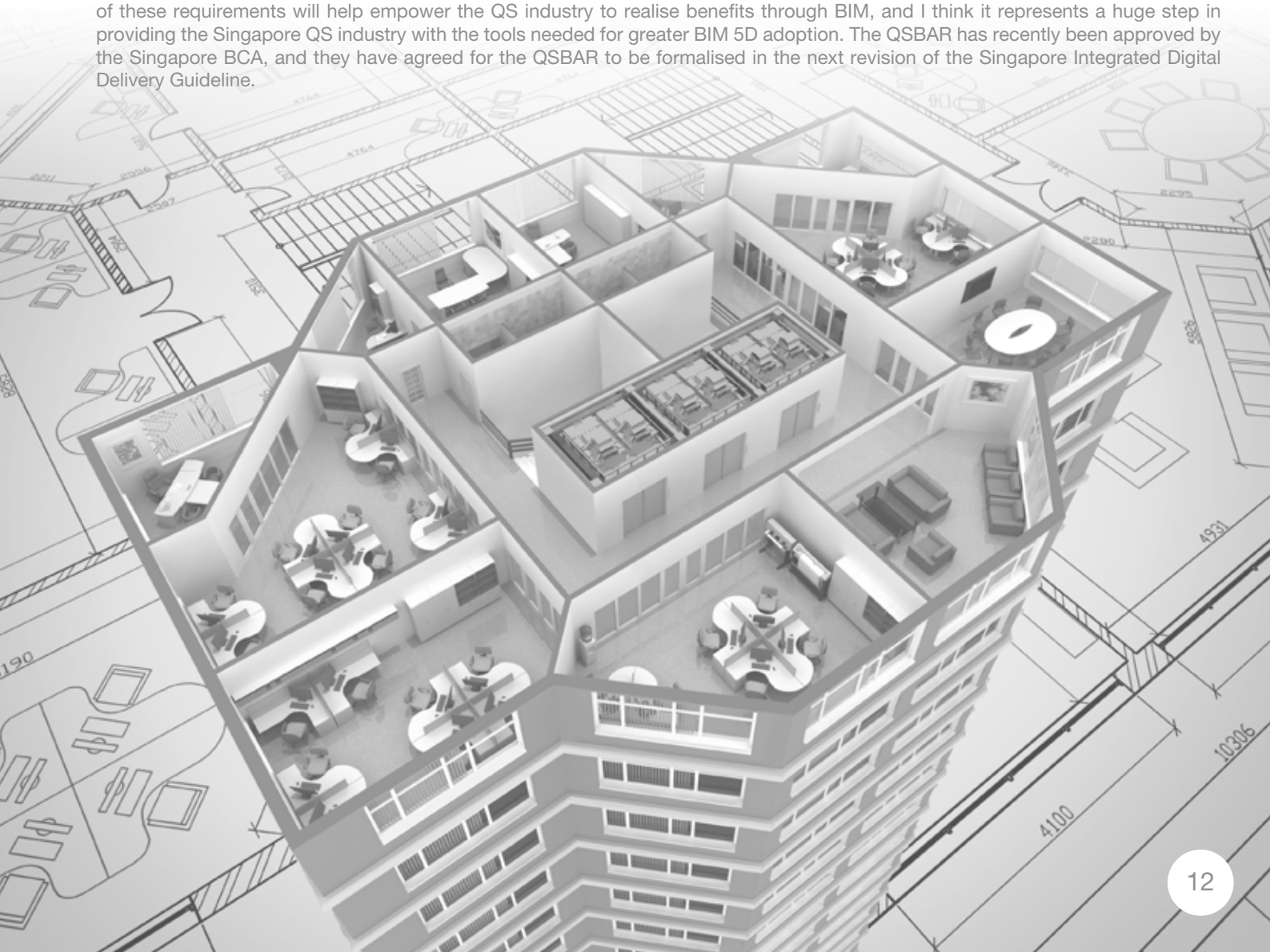
INDUSTRY COMMENT - ASIA: CALLUM AGNEW FROM TURNER & TOWNSEND SINGAPORE

4. **WHAT WAS YOUR BIGGEST BREAKTHROUGH WITH BIM? ANY EARLY PROJECTS WHERE IT PRODUCED A MAJOR BENEFIT?**
   Our biggest breakthrough was when Turner & Townsend were engaged to produce a BIM Implementation Strategy for a major infrastructure client in Singapore. Our client was seeking to develop and implement BIM by creating best practice protocols to target performance improvements throughout their development.

5. **WHAT IS ONE PIECE OF ADVICE YOU HAVE FOR ANY BUSINESS STARTING THEIR BIM JOURNEY?**
   Early efforts need to be guided by clients. Setting the Employee Information Requirements allows for the BIM agenda to be driven from the top down; it also allows for transparent and aligned BIM goals.

6. **HOW DO YOU FEEL ABOUT THE FUTURE OF BIM, AND WHAT ROADBLOCKS STILL NEED TO BE ADDRESSED BY THE GLOBAL INDUSTRY?**
   The future of the QS in BIM-enabled cost management relies on the QS establishing the baseline of requirements. This is why in Singapore I have developed and lead the 'Quantity Surveying BIM Attribute Requirements (QSBAR)' which provides a best practice guideline for the implementation of 5D BIM, in order to define QS requirements at each stage of the BIM design process.

   The purpose of the QSBAR was to help answer the question ‘what information does the QS require within BIM?’ Providing a guideline of these requirements will help empower the QS industry to realise benefits through BIM, and I think it represents a huge step in providing the Singapore QS industry with the tools needed for greater BIM 5D adoption. The QSBAR has recently been approved by the Singapore BCA, and they have agreed for the QSBAR to be formalised in the next revision of the Singapore Integrated Digital Delivery Guideline.



TAKING THE LEAP: HOW TO MAKE A SUCCESSFUL BIM INVESTMENT

As the years pass, the roadblocks for getting started with BIM are falling by the wayside. Those readying to take the BIM leap can do so with more confidence than ever before. Companies hoping for a smooth transition to BIM would be wise to make the following commitments early in the process.

CONSIDER THE LONG-TERM REWARDS

There's no getting away from it; there can be significant upfront costs when making the switch to BIM. Pricing is a very common deterrent for SMEs who have considered the concept, but a steep early outlay should not spell the end of the conversation.

Companies must invest in the right talent, training, software and hardware to make their BIM projections a reality and establish a future competitive advantage. The payoff of this investment is shortened project durations, concurrent workflows and a lessened risk of rework. A well-laid foundation can continue to pay dividends in this manner for years to come.

CLEARLY ARTICULATE THE BENEFITS & COMMUNICATE

It's no secret that BIM empowers much-improved collaboration between all team members. However, to make the most of the process, it's vital that all team members fully understand their role and the roles of their peers.

By getting all team members on board with the potential of BIM, you are increasing the likelihood that early project efforts stay on the rails. Trust and communication are perhaps the most important ingredients for success. For example, if two co-dependent project elements are being worked upon but the two parties have not coordinated their efforts, there is a risk of error that could threaten project timeframes.

MAKE TRAINING A PRIORITY

As mentioned on page 10, BIM workflows are already a focus at tertiary institutions for those preparing to enter our industry. As for seasoned professionals, there are numerous multidisciplinary courses available to help gain a deep understanding of BIM.

Quantity surveyors can look to the respected Royal Institution of Chartered Surveyors for their certification. A range of online courses are available through the RICS Online Academy, covering everything from fundamentals to full BIM Manager Certification.

Relevant and tailored BIM training options are available online, regardless of project role, world region or business size. If you're looking to bring your team up to standard, there is certainly an ideal option available to you.

CONCLUSION

It's clear that construction is entering a digital revolution that is borne of necessity. Productivity and efficiency simply must improve in line with other industries, and there is a wealth of evidence that points to the value of BIM for achieving this goal.

BIM is no longer an unrealistic or under-developed proposition for businesses looking to take the next step with their workflows. As we've explored, there are well-considered resources and standards in place that can effectively guide you on the path to better building.

In compiling this report, we spoke to three experienced BIM practitioners who have negotiated the early-stage BIM challenges to reap the rewards. They concur that BIM will play a vital role in the future of construction and attest to the value it has brought their respective businesses.

We also covered some of the more helpful and comprehensive documents, standards and guidelines that can be utilised for BIM implementation. The work featured is by no means an exhaustive list, and there is a wealth of specified information available to help BIM converts on their way.

Challenges persist with BIM, and they will for years to come. You may need to work hard to convey BIM benefits to prospective clients, many of whom would rather stick with tried-and-true methods in the face of a better alternative. You may need to make an upfront investment in advanced, BIM-enabled software solutions. You may even need to let go of certain processes that have your served you well over the years.

In our view, it's well worth negotiating these challenges in the long-term. There is a sizeable reward on the other side of the implementation process; competitive advantage, and a future-proof enterprise.

FOR MORE INFORMATION ON HOW RIB CAN HELP SUPPORT YOU IN YOUR BIM JOURNEY, PLEASE VISIT: WWW.RIB-INTERNATIONAL.COM

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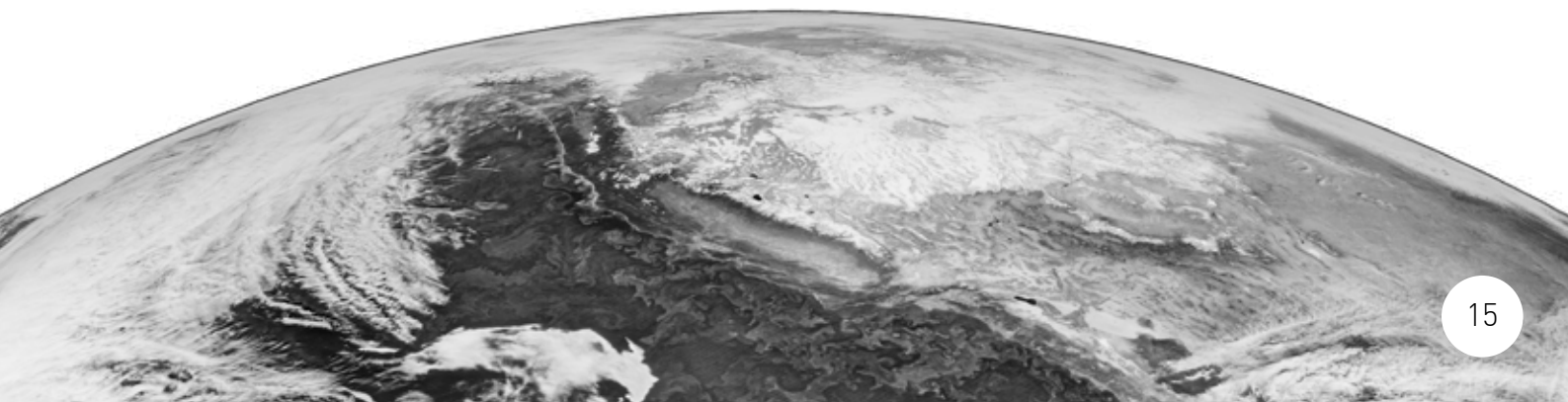

Australia
BRISBANE / SYDNEY
+61 (0) 7 3300 6222

Hong Kong
+852 5804 4622

Malaysia
KUALA LUMPUR
+60 3 4065 7060

New Zealand
AUCKLAND
+64 (0) 9 309 2026

Singapore
+65 3159 0466

United Arab Emirates
DUBAI
+971 4 550 9358

United Kingdom
LONDON
+44 203 597 7566

United States
AUSTIN
+1 (512) 768 8111