Women in BIM.

Careers in BIM Summary Paper

November 2021

WIB Regional Leads Australia

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Introduction.

Women in BIM (WIB) is a community group focused on ensuring we support the Construction Industry and our members in the application of Building Information Modelling (BIM) and digital methods of construction. We are committed to growing a diverse industry to support the future skill requirements we'll need to sustain growth and support the uptake of these types of processes and technologies. In Australia specifically, there are great opportunities which focus on requirements around future skills, based on our infrastructure pipeline, as well as how the digital economy will flourish in the coming years. This will ultimately impact on the skill requirements for those who work in this sector. It is very important to us as a group, and as individuals, to help to grow skills in BIM and Digital Engineering (DE) to sustain the requirements we will need for this growth. Furthermore, we also can't afford to lag behind other industries in the world as there are too many issues with sourcing the right people with the right skills to sustain our projects.

As a result of these impacts, the WIB Regional Leads in Australia have worked hard in 2021 to support building skills, sharing knowledge and supporting industry groups, specifically the Australian BIM Academic Forum (ABAF) as well as hosting careers in BIM-focused events discussing the importance of addressing the future skill requirements we'll require as an industry to support the uptake of BIM and DE.

This report is intended to discuss the work we have undertaken in Australia by summarising our discussions across the year in the context of our events, the themes made across the ABAF report and finally key recommendations from industry leaders to enable us to inform our members and the wider industry on skill requirements for our future and what we will require in order to sustain growth in this area across the Construction Industry.

The ***ABAF report*** we mention here, published earlier this year, states that the Construction Industry is the backbone of the Australian economy and a significant driver of economic activity in Australia. Despite the drivers relating to our economy, the industry is still rife with problems, specifically productivity issues, waste and resources as well as performance and safety. Other challenges we currently face include the level of adoption of digital across this region in terms of policy development. We are, however, seeing published policies and guidance in this space, but it is not consolidated as an overarching approach across the country, and the challenge is how we coordinate and standardise learning and education in these areas.

This report will give guidance around the education sector, insight from our Regional Leads in Australia as well as key industry figures, and finally, links to our future projects for 2022 where we hope to guide, develop and support the Construction industry in Australia in securing these future skills. We also aim to encourage a more diverse sector and WIB continually encourages women to enter these types of careers in order to sustain growth. As an industry we need to ensure we are keeping up to speed with the uptake of BIM and DE, as well as other digital initiatives such as the concepts of the Digital Twin and the Golden thread. Without this knowledge, we run the risk of falling even further behind other regions of the world in our uptake and the skill requirements needed to sustain growth.

It is very important to us as a group, and as individuals, to help to grow skills in Building Information Modelling (BIM) and Digital Engineering (DE) to sustain the requirements we will need for this growth.

WIB Australia - Our Regional Leads.

Women in BIM in Australia is a core community of Regional Leads across 5 of our states. We are represented by states Western Australia, South Australia, New South Wales and Queensland and have Regional Leads appointed in those regions. This report and the work of WIB in this region is supported by our Regional Leads **Belinda Thompson,** *BIM Lead Western Australia at GHD,* **Jenny Tseng,** *Principal Digital Advisory at Mott Macdonald,* **Rachel Strauss**, ***Director at BIMCO*** and **Ligia Trindade,** *previously Willow, currently Associate Technologist at WSP.*

If it were not for the support of our Regional Leads and their organisations, it wouldn't be possible to do the work we do, so we thank them for their support and insight into such important topics across our sector.

Belinda Thompson – *GHD*

BIM Lead Western Australia

Ligia Trindade – *WSP*

Associate Technologist

Jenny Tseng – *Mott MacDonald*

Principal Digital Advisory

Rachel Strauss – *bimco*

Director/BIM Manager

Rebecca De Cicco – *Aurecon*

Principal Digital Enablement

Understand the need for future skills.

Rebecca De Cicco

Global WIB Chair

The construction industry and the requirements for skills around BIM and DE are continuing to evolve more rapidly than we can keep up with. The technologies, evolving standards and applications of these methodologies will change and progress and therefore the entry requirements will need to be supported by these challenges.

As a result we have to ensure that as an industry we are educating, upskilling and providing support to those either entering the industry or already within the confines of it.

This section of our report is intended to provide some insight into the future skill requirements around dedicated themes from our industry experts and WIB regional leads in Australia with a view to guide and support new and existing entrants into our sector.

Understand the need for future skills.

Jenny Tseng – *Mott MacDonald*

Principal Digital Advisory

The future of our construction projects – whether in the building or infrastructure sector – is definitely getting more complex and digitally driven. The future skills to support organisations representing and output the DE/BIM values have become ever so critical. Besides the fundamental technical skills, the focus on soft or human skills are now a core set of abilities transferable, and allowing people in any role to go beyond a particular job or organisation. Here are a few recommendations for consideration:

- Communication skills - listening, writing and presenting, face-to-face engagements
- People skills - collaboration, empathy, agility
- Organisational skills - critical thinking and problem solving, coaching and sharing, prioritisation and delegation

Rachel Strauss – *bimco*

Director/BIM Manager

Technology is the key variable factor in a BIM and DE industry in which it can be challenging to keep up, but at the same time, technology presents exciting opportunities! In terms of skills required this is all dependant on the project type and stage, as each role requires a different skill set to perform specific tasks. As a base, it is ideal to be across the current in-house software, modelling processes and systems that your company utilises. Be open to change to embrace new ideas for improvements in deliverables, be across updates to DE government frameworks/ policies (if applicable), and keep networking and being in touch with your AEC industry peers to exchange news and knowledge.

Understand the need for future skills.

Belinda Thompson – *GHD*

BIM Lead Wester Australia

As our industry matures and the value of data and information management becomes normalised, so will our requirement for consistent processes and application of standards. Our BIM and DE professionals come with a high degree of technical knowledge, so they will apply new and emerging technology to streamline processes, find efficiencies and generally innovate for improved outcomes.

Documenting, sharing and formalising these processes in our industry is necessary to achieve consistent information management, and in addition the creation of standard methods and procedures will de-mystify BIM and DE, thus creating more opportunity for those interested in a career in this space.

Ligia Trindade – *WSP*

Associate Technologist

The proven ability of BIM and DE to deliver better project outcomes, increase productivity, and improve infrastructure and buildings performance throughout its lifecycle has urged the adoption within construction.

According to the ***2021 Australian Infrastructure Plan***, a digital-by-default approach will drive infrastructure planning, delivery and operations over the next decade. While a government-driven adoption is one of the key strategies to accelerate industry uptake, collaboration has been pointed to as the key factor of its success. It is also Industry's responsibility to push BIM and DE adoption, by working closely with and nurturing the government to put strategies and approaches to secure digital-by-default as commonplace.

2021 Webinar Summary.

Women in BIM hosted a webinar series supported by our Regional Leads in Australia. The theme for these virtual events was a focus on Careers in BIM. They discussed the impact of future roles and opportunities in BIM and DE in ANZ, and what a career journey may look like, including representation from BIM experts across their regions.

Careers in BIM Series: Episode 01

The first Episode of the Careers in BIM Series included a focus on BIM in South Australia and Western Australia. Our Global Chair Rebecca De Cicco located in South Australia moderated a panel alongside our WA Regional Lead Belinda Thompson from GHD as well as other BIM Representatives across these regions.

Kandace Bowles – *Director at Parametric, Western Australia*

John Gelder – *Senior Lecturer at University of South Australia*

Stewart Caldwell – *Director at Russell & Yelland, South Australia*

Eleni Khoury – *BIM Coordinator at MOSSOP, South Australia*

48 Attended

Careers in BIM Series: Episode 02

The second Episode of the Careers in BIM Series included a focus on BIM in New South Wales. Our Regional Lead Jenny Tseng, Principal Digital Advisory at Mott MacDonald located in Sydney moderated a panel alongside other BIM Representatives across this region.

Sophie Denford – *Director, Working Digital*

Nidhi Sharma – *Principle Digital Designer, Mott Macdonald*

Wesley Benn – *Executive Chairman, Digital Built Environment Institute (DBEI)*

Rebecca De Cicco – *Founder of Women in BIM, Principal Digital Enablement, Aurecon*

35 Attended

2021 Webinar Summary.

Careers in BIM Series: Episode 03

The third Episode of the Careers in BIM Series included a focus on BIM in Victoria. Our Regional Lead Rachel Strauss, BIM Manager at BIMCO located in Melbourne will moderate a panel alongside other BIM Representatives across this region.

Julia Allen – *BIM & Revit Lead at Hassell*

Ben Fox – *Digital Solutions Lead at AECOM*

Lama Abdel Fattah H Abu Alieh – *Master by Research Candidate at Deakin University*

Dominik Holzer – *Associate Professor in Digital Architectural Design at University of Melbourne / Owner, AEC Connect*

48 Attended

Careers in BIM Series: Episode 04

The final Episode of the Careers in BIM Series included a focus on BIM in Queensland. WIB Regional Lead Ligia Trindade, BIM Coordinator at Willow alongside Rebecca De Cicco, Global Chair of WIB and Principal of Digital Operations at Aurecon, moderated a panel alongside other BIM Representatives across this region.

Carol Hon – *Senior Lecturer & Research Fellow, QUT (Queensland University of Technology)*

Andrew Curthoys – *Digital Relationship Manager, Cross River Rail*

Melissa Wiscicki – *Digital Practice Leader, Aurecon*

34 Attended

Guidance and Industry Advice.

Andrew Curthoys – *Cross River Rail*

Digital Relationship Manager

"The Australasian BIM Advisory Board (www.abab.net.au) has prepared a paper titled 'Australian BIM and DE Education Position Paper', which outlines ABAB's position on the strategic approach required to establish a formal Digital Delivery Education Framework necessary for the upskilling of the Australian workforce. It builds on the work of ACIF's BIM Knowledge and Skills Framework and is well worth reading. As an industry we need to embrace the educational opportunities and be inquisitive about technology and all that it can offer. We need people to test, promote and encourage continuous learning and continuous improvement. Together we can move industry forward and overcome the cultural inertia in many companies where experienced project managers and project directors dictate the value of digitisation, instead of embracing the opportunities that are evident."

Ben Fox – *AECOM*

Digital Solutions Lead

"We are at such an exciting point in the history of technology and the built environment where the line between BIM, GIS and Data & Analytics are blurring. Digital Engineering is becoming the status quo with clients becoming far more engaged and involved in project delivery decisions through to asset management via digital twins. For those looking to get into this industry, it is a prime time to focus not just on their technical skills, but also their commercial acumen and communication techniques; this will help position them at the forefront of unlocking our industries future potential!"

Guidance and Industry Advice.

Eleni Khoury – *MOSSOP*

BIM Coordinator

"There is still a significant skills gap between the implementation of the technology (design and modelling), site constructability (is what is modelled/detailed achievable, can you actually install the element), Site installation (are the resolved details/models being followed on site). There needs to be huge buy-in from all users throughout all stages of construction for a BIM approach to be successful. All user groups need to understand the limitations and implications of the software, using it strategically to ensure a 'best for project' approach and to maximise the effectiveness of implementing BIM strategies on a project. Too often things are co-ordinated in an office and not carried out on site, either because the designed solution is not constructible and achievable on site or the trades people at the end of the line do not understand or appreciate the BIM efforts to ensure they are implemented at time of construction."

Stewart Caldwell – *Russell & Yelland*

Director

"The 'skills gap' experienced when BIM first rose its head isn't going away. As technology advances that skills gap remains, so called 'experts' like myself now manage staff who are working on technologies I don't understand and can't operate. I think this issue goes far beyond skills which can be transferred through training and also relies on aptitude, attitude and vision. The industry needs to shift its attitude towards the service it provides, broaden its vision to look at problems from a wider lens and begin establishing roles which reinforce peoples aptitudes. This will allow us to tackle issues from aspects we never previously considered which is needed to get the real value from BIM based technologies. If we can't do it, it won't be long before someone else does."

Guidance and Industry Advice.

Carol Hon – *QUT (Queensland University of Technology)*

Senior Lecturer & Research Fellow

"BIM will be the normal industry practice in the near future. BIM capabilities will soon to be the necessary skills of AEC professionals. While not everyone needs to be a BIM expert, it is necessary for AEC professionals to have a broad understanding of BIM and how BIM can help them complete their jobs more efficiently. BIM opens new ways of collaboration. AEC professionals can no longer work in silos. For those who want to join the AEC industry, multidisciplinary education and training, such as IT and architecture, architecture & construction engineering,will be highly valuable. For current AEC professionals, upskilling of BIM knowledge and basic operations of BIM software packages will be an advantage and may lead to new career opportunities."

Nidhi Sharma – *Mott Macdonald*

Principle Digital Designer

"I see "BIM" as a transformative process moving to the era of connectivity across the AEC Industry. It is very crucial to leverage on effective digital tools, methods, processes to create robust collaborative approaches for Project planning, execution, Design, fabrication, Completion, handover, and maintenance of Building projects. "DATA" is the key and the standard approaches towards achieving a Connected BIM will Unlock its real power by removing Collaboration Barriers, facilitating informed decisions, accessibility of project data anywhere and on any device and digitisation of AEC Industry. In a nutshell, in order to realize the full benefits of Digital Engineering and BIM, companies must invest in implementing Digital enablers and choose an integrated approach that can enable connected Design and construction processes, eliminate Data silos, digitization and Automation".

Guidance and Industry Advice.

Sophie Denford – *Director*

Working Digital

"The biggest challenge I have found in Digital Engineering is the human factor. We're implementing change and encouraging collaboration between parties who are used to having their head down and focussing on their own thing. To encourage the adoption of Digital Engineering, we need whole organisations to contribute. These factors mean that the Digital Engineering profession is not just for engineers or modellers. The industry needs collaborators, facilitators and champions for change in all areas of the business. This means there is a role in Digital Engineering for all types of people , with all types of experience and knowledge."

Melissa Wiscicki – *QLD Aurecon*

Digital Practice Leader

"Given how far we have come in the past 5 years with automation, will the career I am studying for even exist in 5 years time?" The advice is don't focus on the role and its title or remit but remain dedicated to solving problems and a life of continued learning motivated by the desire for continuous improvement. This is what will bring you success, keep you relevant in the industry and enable you to pivot appropriately as things change. The tools and tech will continue to advance, and so too will the need for your skills to move with the time. Growth of stability and confidence in these roles is supported by long term infrastructure planning, key regional events (eg climate change, tourism), and the changing appetite of roles and lifestyles between and in communities. New entry points to careers continue to emerge in disciplines removed from the traditional and demand for tech-based experience grows especially around key trends such as digital twins across persona's, continued hunger for specialist systems integration as new solutions are released along with the complementary tech that leverage the emerging tech, and broader capabilities across any new industry in the focused on security, autonomous systems, and analytics. Bring your passion into your work, chase your curiosity and play to your strengths. Never forget what is really important for a more inclusive, accessibly and activated world to drive the greater good.

The advice is don't focus on the role and its title or remit but remain dedicated to solving problems and a life of continued learning motivated by the desire for continuous improvement.

Data Extraction Insight.

BIM is in essence, all about structured data and as part of our webinar sessions we wanted to gather some insightful data to help us to influence change and inform industry. We asked those who attended these sessions a series of questions which provide insight into the requirements needed to sustain the future careers in BIM and digital required in Australia.

As a group we felt that the general questions asked very much represented realistic points that provide great insight to WIB as well as the wider industry regarding what we'll need in terms of skill and education in this space. This data will also help us to provide guidance and insight to young women entering these types of careers.

What does a career in BIM look like to you?

What skills do you believe are required and critical for a career in BIM and Digital engineering?

What challenges/barriers do you believe are faced in the BIM/DE industry?

What do you think the future of BIM/DE looks like?

WIB Next steps 2022.

Summary

Women in BIM is committed to supporting industry in the way in which we provide insight and knowledge as well as guidance to an already existing challenging field. As a group our aim in the new year is to consolidate our findings and work with industry groups such as the Australian BIM Advisory Board (ABAB) as well as the Australian BIM Academic Forum (ABAF) to facilitate discussions, act to support and grow our network, and provide links to education pathways for young women or men in entering these types of careers.

As an industry partner to these groups, we hope to see great strides in growth around education in Australia and for us this means continued support to ABAF in establishing what we are calling a BIM Education Dashboard, where our members and industry alike can allocate links to learning to either move beyond their existing roles within their organisations or have a career pathway to university in BIM, DE and any digitally-related construction industry role.

Our work with ABAF in supporting the report released in 2020 '***BIM education at Australian Universities: 2020 insights***' very much was endorsed by our group to support this great initiative, and we hope to continue this established relationship with core team at ABAF. We would like to express our thanks to Reza Hosseini (Associate Head of School at Deakin University) for providing great support and allowing us to be involved in such an important imitative.

2022 Plans

Much of the work WIB will continue to achieve in 2022 will include working closely with industry across the bounds of our Regional Leads, to grow our network and support this area of our work. We know that the global BIM Market and skills in digital construction will continue to be sought after. As a result, we'll need more people with these types of skills in the future. As you've read from our industry recommendations by leaders across the BIM landscape in Australia, there will be a need to invest in the growth of these skills and education in organisations looking to grow and support our future infrastructure pipeline.

The barriers to BIM Adoption globally will continue, but as an industry we must acknowledge that there does need to be a focus on BIM and DE across education, so that we are equipped and fuelled with the right skills and people to deliver.

The team hope to continue their hard work in this space, and the intention in Australia is to continue to grow our network in this region and support organisations and industry alike – not only in their adoption of BIM, but also the strategy towards enabling a future industry which is diverse, inclusive and innovative.

Thank you.

A big thank you to all those who contributed to the Careers in BIM webinars throughout 2021 and this Summary Paper.

Rebecca De Cicco – *Global WIB Chair, Principal Digital Enablement, Aurecon*

Belinda Thompson – *BIM Lead Western Australia, GHD*

Jenny Tseng – *Principal Digital Advisory, Mott MacDonald*

Rachel Strauss – *Director & BIM Manager, bimco*

Ligia Trindade – *Associate Technologist, WSP*

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Sophie Denford – *Director, Working Digital*

Melissa Wiscicki – *Digital Practice Leader, QLD Aurecon*

Nicole De Cicco – *Global WIB Management, Consultant Digital Communications, Aurecon*

Contact.

If you would like to be involved with Women in BIM, please contact us:
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