

BIM EDUCATION - GLOBAL – 2015 UPDATE REPORT**ISSUE VERSION:** V2.0**ISSUE DATE:** April 2015**COMPILER:** Kevin Rooney (NATSPEC)**EXECUTIVE SUMMARY**

In January 2014 NATSPEC issued a report summarising the status of BIM education in a number of countries across the globe at that time. This report is an update to that original report.

The countries included in the original report were given the opportunity to update their information to reflect the current status of BIM education in their respective countries. Additional countries were also invited to contribute, with Singapore and Japan both providing input to this updated report.

In the past year it would appear that BIM education and the level of BIM education being provided by higher education institutions has progressed, albeit at a slow pace.

Analysis completed in countries such as Australia and the UK has indicated that there are many challenges being faced by educators in regards to incorporating BIM into the curricula and a number of these are indicated in this report.

Challenges such as fitting additional material into an already crowded curriculum and converting lecture-based courses into smaller multidisciplinary teamwork-based courses.

However, many higher education institutions are providing BIM education on both an undergraduate and postgraduate level.

Many vocational education institutions are also providing BIM education to the industry's tradespeople and para-professionals.

It would appear that little has changed in the past year regarding the fact that the majority of BIM education that is being provided tends to

focus on training in the use of particular BIM software packages.

Training for both graduates and professionals in openBIM concepts, BIM management and working in collaborative BIM environments, appears to still be in its infancy. However, a small number of higher education institutions are now starting to include these concepts as part of their curricula.

BIM awareness and BIM uptake appear to still be on the rise, with BIM already widely adopted by practitioners in the Architecture, Engineering and Construction (AEC) industry of particular countries and with the governments of some countries, such as the UK and Singapore, actively promoting and mandating the use of BIM.

Whilst it is clear that BIM education is starting to move in the right direction, spearheaded by progressive higher education institutions and educators, it is also apparent that a current shortage of experienced BIM educators and a reluctance by some existing educators to up-skill or change their teaching habits to incorporate BIM will become a setback to higher levels of BIM education and the availability of a graduate workforce with the collaborative BIM skills required for the future AEC industry of which they will be part.

INTRODUCTION

Question

In October 2013 Richard Choy (NATSPEC) sent an email to a global group of parties with an interest in BIM, asking for a brief paragraph outlining the current status of BIM education in each of their respective countries.

This question was interpreted in two ways, with the respondents either describing the current level of BIM awareness/use in their country or the current level of training/higher education available. Some respondents also provided a much more detailed response than a brief paragraph.

Report

A report summarising the responses received was compiled by NATSPEC and issued in January 2014. The report only included countries from which a response was received and was based purely on the responses provided.

It did not attempt to fully document the status of BIM education/awareness in each country.

Update

In March 2015 NATSPEC again contacted the respondents who had contributed to that original report, offering them the opportunity to update the information to reflect the current status of BIM education in their respective countries.

Additional countries were also requested to contribute at that time, with Singapore and Japan both providing input to this updated report.

This report again summarises the responses received. As before, this report is based purely on the responses provided, it does not attempt to fully document the status of BIM education/awareness in each country.

Where no response was received from a previous contributor, it was assumed that the status of BIM education in their country has remained unchanged.

This assumption was explained to the contributors when asked if they would like to update their information.

BIM EDUCATION - BY COUNTRY

AUSTRALIA

Education/Training

There are 30 universities that are accredited to provide undergraduate programs in at least one of the Architecture, Engineering and Construction (AEC) disciplines. Of these, 10 provide programmes in all three discipline streams.

These 10 institutions have shown the greatest uptake of BIM in their undergraduate curricula. However, this has mostly been at a very basic level of information, simply covering the concepts of BIM or the basics of using a particular BIM software package.

Construction management programs appear to be showing the fastest creation/uptake of BIM education courses.

Many TAFE (technical) colleges are providing courses where BIM is incorporated into the syllabus. However, this is usually related to the use of specific BIM software packages.

The topic of BIM management or the procedures for working in a collaborative environment are not generally covered in these courses.

In Western Australia the Central Institute of Technology is developing a 3 year BIM course, anticipated to launch in 2015 and the University of Western Australia is developing a BIM Masters course.

NATSPEC has been providing an *Introduction to BIM* presentation to undergraduate students at Universities across Australia for the past 4 years.

NATSPEC also provides industry seminars on the use of the NATSPEC BIM Project Inception Guide, NATSPEC National BIM Guide, NATSPEC BIM Management Plan and their associated documents.

Initiatives/Organisations

Three universities (University of South Australia - UniSA, University of Newcastle - UoN and University of Technology, Sydney - UTS) were involved in a project supported by the Australian Government Office for Learning and Teaching (OLT) called CodeBIM (Collaborative Building Design Education using BIM).

The OLT funded project has concluded, but the project work is continuing, and is expected

to result in a PhD thesis to be published in 2015.

The project aims to examine whether collaborative design education can be improved using BIM technologies; how best to adapt these technologies to existing AEC courses; and to develop new curricula for collaborative building design courses in a variety of delivery modes (traditional face to face, distance and block/intensive mode, for example).

A framework to help academics implement BIM (the IMAC framework), has been developed and is being published on the codebim.com website. It aims to help identify existing courses that can be modified to incorporate BIM and collaborative working practices, rather than having to create entirely new courses.

Some of the identified problems faced by educators in implementing BIM include:

- How to fit new topics into an already crowded curriculum.
- Reluctance to change teaching habits established over many years.
- With those who may have developed their own niche or expertise, there may be resistance to take on a new subject, about which they are not expert, or to retrain in an area they are not familiar with.
- Technologies supporting BIM evolve at a rapid pace, they may feel overwhelmed trying to keep abreast of them.
- Class sizes of 80 students (and often over 130 students) are common place. The resources required to convert large lecture-based courses into smaller multidisciplinary teamwork-based courses may seem an insurmountable challenge.

Outcomes from the CodeBIM project have resulted in the development of new undergraduate courses. For example, an "IPD studio" class has been developed at UTS which involves multi-disciplinary students working over a semester on a project using BIM tools and processes, learning how to work in a collaborative team and the information needs of their partner disciplines. At UniSA, similar collaborative BIM courses have been developed.

The Australian Institute of Architects (AIA) and Consult Australia established a BIM education working group of industry and academia members in 2011.

This group produced a series of documents, published in August 2012, which represented

the position of the group and were to act as a foundation for further work.

The Western Australia AIA BIM Group is collaborating with Curtin University, University of Western Australia, Central TAFE and the Construction Industry Training Board (CITB) to advance BIM education.

Curtin University has also collaborated with Huazhong University of Science and Technology (HUST), Wuhan, China, to establish the Australian Joint Research Centre for BIM.

The centre focuses on developing leading research that integrates BIM with other advanced concepts and technologies and acts as an allied international platform for creating and sharing knowledge among researchers, engineers and innovators to improve the performance and productivity of building projects in the energy, mineral and construction industries across Australia and China.

buildingSMART's National BIM Initiative report to Federal Government (2012) identified 6 key areas needing attention to drive the construction industry forward. One of the key areas identified was multi-disciplinary BIM education.

A working group has been set up, and details can be found at buildingsmart.org.au.

The Australasian Procurement and Construction Council (APCC) published its Framework for the Adoption of Project Team Integration (PTI) and BIM at the end of 2014. Education and training in PTI and BIM is a key theme of this framework.

As a result, the APCC has established a BIM industry training working group to develop a framework and objectives for training providers (currently under development).

Awareness/Uptake

BIM is being widely used on projects in Australia and by Australian consultants working on overseas projects. The use of BIM for FM/Operations/Maintenance is slowly taking off with some high profile projects such as the Sydney Opera House using BIM retrospectively to create a working model for FM.

The NATSPEC National BIM Guide and BIM Management Plan have been well received and are being increasingly adopted across

industry both as a framework for building projects as well as within education programs. The NATSPEC BIM website (bim.natspec.org) is a useful resource for general information on BIM, BIM R&D projects and the numerous BIM guidelines that are available.

CANADA

Education/Training

The [Roadmap to Lifecycle Building Information Modeling in the Canadian AECOO Industry](#) was developed by buildingSMART Canada (bSC) to help industry identify the steps required to realise industry transformation. It includes an 'Educate stream' with the following goals to be achieved:

- A community of practice.
- Reference curriculum.
- Training packages for industry stakeholders.
- Accreditation for institutions.
- Certification for individuals.

A bSC Education Committee was established to coordinate and facilitate these and other activities that achieve BIM education.

An environmental scan is underway, capturing post-secondary institutions and commercial industry offerings and needs. Growth has been shown in both course and program content development and research areas at post-secondary institutions across the country.

The scan is a living capture of information, and can be viewed at the following website: buildingsmartcanada.ca/educationnetwork.

Concurrently, bSC representation at the buildingSMART International Technical Summit and International Council levels reflect the chapter's interest in delivering the content and tools needed for best value to industry in the areas of awareness, education and competency benchmarking/evaluation.

Likewise, the [Canada BIM Council](#) (CanBIM) recently identified they will be providing a [certification program](#) for individuals. CanBIM, a blend of companies and associations, have had good success delivering seminars across the country, thus raising awareness.

Initiatives/Organisations

Government funding has been secured under the [Industrial Research Assistance Program](#) (IRAP), within the National Research Council of Canada, for the [Institute for BIM in Canada](#)

(IBC) to deliver a [Canadian Practice Manual for BIM](#).

The practice manual is multi-disciplinary, multi-volume, intended to be a comprehensive guide that reflects both international best practices as well as the use of BIM in Canada.

The IBC has also delivered, and made available for a fee, Contract Language Documents, BIM PxP Toolkit Package and a Benefits of BIM for Owners document.

The practice manual builds on the Roadmap to deliver value to industry. While the Roadmap outlines a trajectory to achieving a 'comprehensive national BIM mandate', reflective of a desire for a government-led federal mandate, funding through federal programs such as IRAP coupled with provincial and municipal-level interest group collaboration is the current state of affairs.

IBC/bSC have identified a communications strategy to overcome some of the challenges in raising awareness and continue to work through the Education Committee to facilitate content delivery to those providing education at a regional and local level.

Awareness/Uptake

Awareness and uptake continue to be on the rise. Many local interest groups across the country have been drawing steady numbers including Montreal, Toronto, Calgary, Edmonton and Vancouver.

Key to industry transformation is educational institutions and industry training providers making the transition from offering only software-based content to more comprehensive and process-driven vendor-neutral courses and content.

Practice Manual discussions show there is significant ongoing interest in course and certification opportunities across the country.

CHINA

Education/Training

The China BIM Union has given many education presentations to thousands of BIM professionals, presented by Mr Huang Qiang, the vice president of the China Academy of Building Research (CABR), the chairman of the board of directors of China BIM Union.

Mr Huang also attended and presented at the Government BIM Symposium 2013 in Singapore.

Initiatives/Organisations

The China BIM Union and the development of BIM standards keep progressing.

The Chinese National Standard 'Unified Standard for BIM Application' has been completed and submitted to MOHURD for approval.

A series of CECS standards are being developed for P-BIM (Practice-based BIM) software application and data exchange for specific tasks.

The China BIM Union has been approved as the China Industry Technology Innovation Strategic Alliance by the Ministry of Science and Technology of the People's Republic of China in 2013.

Awareness/Uptake

Current BIM objectives for China include:

- Targets/Goals: Data sharing and interoperability in project life cycle.
- Motivation: Improve efficiency in industry.
- Challenges: The distribution of interests of BIM data.
- New initiatives: Promote BIM through P-BIM mode.
- Strategies: Combine BIM application with specific tasks of AEC in the project life cycle.

CZECH REPUBLIC**Education/Training**

The Czech BIM Council continually provide education through BIM seminars, workshops and presentations.

They have recently (Feb 2015) set up a working group titled 'BIM and Education' to look at trying to introduce BIM into the education system.

Initiatives/Organisations

The Czech BIM Council held a conference titled 'BIM DAY' in October 2013 and the Czech BIM Guide was released shortly after. The BIM Guide will be followed by a BIM execution planning guide, protocols, etc.

There has been a lack of impulse from government for the promotion of BIM use, this was partly due to elections taking place. The political situation was unstable and therefore a number of important approvals were delayed.

A representative of the Czech Office for Standards, Metrology and Testing attended the buildingSMART week in Munich.

The acceptance process of ISO standards is ongoing.

Awareness/Uptake

There are a few BIM projects currently running (big projects) but 2D is still used for the majority of projects.

Designers are still a bit sceptical of BIM, primarily due to the cost of software and education/training.

However, awareness of BIM in the Czech Republic is increasing due in part to the activities of the Czech BIM Council.

FINLAND**Education/Training**

Universities and polytechnics provide BIM education for their students. All current construction and architecture students study BIM to some extent.

For postgraduates there are a number of options:

- Software companies. All vendors (Autodesk, Archicad, Tekla, Magicad etc.) are providing BIM training for their own software solutions.
- Various courses provided by a variety of players.
- Large companies such as Skanska (construction) and Senaatti (state client office) arrange focussed in-house training as required.
- According to the 2013 BIM survey, asking colleagues is the most popular way of obtaining information about BIM. A 2015 BIM survey is due to take place.

Initiatives/Organisations

There are a number of initiatives taking place in Finland, including the following:

- COBIM, the national common BIM requirements, was published in March 2012 and it is now in widespread use. A Spanish translation of the requirements has also been completed.
- Guidelines similar to COBIM, but for Infrastructure, are to be finalised by May 2015.
- The Finnish XML based data format for neutral BIM data exchange for infrastructure is now a buildingSMART project - MVD for LandXML v1.2.

- buildingSMART Finland has over 110 members and user groups for public clients, building permit authorities, HEPAC design, town planning, and infrastructure are all up and running.

Awareness/Uptake

The 2013 BIM survey provided a good picture of the status of BIM in Finland. The survey results showed that 87% of respondents were aware of BIM and 65% were currently using BIM. A 2015 survey is due to take place.

The results of the 2013 survey can be found at the following link:

www.rakennustieto.fi/material/attachments/tutkimus-ja_kehittamistoimita/6JKcTDSMO/BIM_Survey_Finland_findings.pdf

BIM is now in everyday use in Finland, it is not known on exactly how many projects, however large firms such as Skanska use BIM for 100% of their own production.

Public sector clients are using BIM on some (estimated 30%) of their projects.

The size of the Finnish market is 30 billion euro.

In Finland BIM always means using open standards: IFC for buildings and LandXML for infrastructure.

HONG KONG

Education/Training

Various Universities and Colleges are providing a total of 19 BIM courses as part of their degree programmes.

The Vocational Training Council (VTC), including the Institute of Vocational Education (IVE), and HKU Space, are providing a total of 20 BIM related courses either as modules to their construction related Higher Diploma programmes or as individual training courses.

The Construction Industry Council (CIC) is collaborating with training institutes to increase BIM capability for the frontline workforce and professionals and to increase the capacity of BIM model developers.

The CIC currently provide 5 BIM courses through the Management and Safety Training Centre.

The CIC also organise BIM promotional activities in collaboration with industry

stakeholders to raise the industry's awareness and understanding of BIM.

Initiatives/Organisations

In order to address the needs and enthusiasm of the Hong Kong construction industry, in relation to BIM, a Working Group was established under the Committee on Environment and Technology of the CIC and chaired by Ms Ada FUNG, the Deputy Director of Housing (Development and Construction) of the Hong Kong Housing Authority.

The group was tasked with the job of setting out an industry-wide roadmap and implementation strategy for achieving market transformation with respect to the application of BIM in the construction industry.

In September 2014 the Working Group issued the *Roadmap for BIM Strategic Implementation in Hong Kong's Construction Industry*, in which 17 initiatives, under the following 9 areas, were suggested for the industry-wide implementation of BIM in Hong Kong:

- Collaboration.
- Incentive and Proven Benefit.
- Standards and Common Practices.
- Legal and Insurance.
- Information Sharing and Handover.
- Promotion and Education.
- Sufficient Digital Capability and Vendor Support.
- Risk Management.
- Global Competitiveness.

The Roadmap recommends the following imminent actions to be taken by the industry:

- ESTABLISHMENT OF STANDARDS - Devise a set of common standards, good practice or reference documents.
- PROMOTION - Carry out more promotional activities.
- TRAINING - Build up BIM capacity by providing training with respect to three areas: BIM model development, management of BIM and use of BIM models.

The CIC is commissioning a set of BIM standards for industry-wide adoption, as Phase One of the BIM standards development.

This phase of standards development will cover the areas of project execution plans, modelling methodology, level of detail, component presentation style and data organisation.

Awareness/Uptake

Most major developers have adopted BIM to some extent and the Real Estate Developers Association encourages their members to adopt BIM.

Some public sector clients have been using BIM and the Development Bureau is exploring the types of public construction projects to which BIM can be effectively applied.

The majority of major contractors have been using BIM for items such as site safety, construction analysis, cost control, work scheduling, etc.

Architects, engineers and surveyors are preparing themselves for the adoption of BIM with some practices already experienced in its use.

JAPAN**Education/Training**

Very few universities provide courses for BIM in Japan. Some technical colleges have BIM training courses.

There are many training programs available for specialists.

Initiatives/Organisations

The Ministry of Land, Infrastructure, Transportation and Tourism (MLIT) established BIM guidelines in 2014.

The focus is now on using BIM, starting from the schematic programming stage right up to maintenance after completion of the project. Some initiatives are underway, including the establishment of BIM construction guidelines and a study of LOD corresponding to each stage of LCC.

Awareness/Uptake

More and more design firms and construction companies are initiating BIM technology in the private sector. Use of BIM is increasing not only as a tool for simulation, presentation and modelling for drafting in design firms but also as a tool to study work sequencing in construction companies.

However, BIM collaboration between companies is hardly ever achieved.

NETHERLANDS**Education/Training**

Various initiatives are creating education training facilities. There is no collective BIM educational program yet in place.

The new organisation, BIM kiosk, is planning to play a role in this development.

Initiatives/Organisations

The Building Information Council (BIR) is very active in the development of strategic policies for BIM in the construction and civil works industry.

A new organisation is being set up where all 'open standards' used in BIM are being brought together. This 'kiosk' is going to be the one shop stop for industry when it comes to standards necessary for BIM projects.

This organisation will be in place by 1st May 2015, with most of the standards added by January 2016.

The CB-NL (Concept Library) project has been initiated and agreement has been reached with buildingSMART International on collaboration with buildingSMART Data Dictionary (bsDD). The project will run for 2 years, with funding of 5 million euro (2 million cash, 3 million in-kind).

The Netherlands construction industry as a whole is involved in the project, over 200 people. It will cover construction, civil works and geospatial environment, with new technology and new content being developed.

The result will be a concept library with semantic structure and developed, validated and usable content

Awareness/Uptake

The development of knowledge cards by the BIR is helping to create greater awareness in the industry about opportunities and possibilities created by using BIM.

At this moment 5 knowledge cards have been developed. Two of which have been translated into English and they relate to the UK BIM maturity wedge.

www.bouwinformatieraad.nl/wp-content/uploads/2014/10/kaart01-ENG.pdf
www.bouwinformatieraad.nl/wp-content/uploads/2015/03/BIR-Leaflet-no.-2-Open-BIM-Standards.pdf

NEW ZEALAND

Education/Training

BIM is taught by a few of the tertiary institutes and some software suppliers also provide training. A number of one-off industry presentations and seminars have also taken place.

Construction Information Limited (CIL) have provided a series of seminars to product manufacturers.

Initiatives/Organisations

A government – industry partnership is helping to raise awareness of BIM

Awareness/Uptake

The 2013 BIM survey provides a good picture of the status of BIM in New Zealand. The survey results show that 98% of respondents were aware of BIM and 57% are currently using BIM. The results of the survey can be found at the following link:

www.masterspec.co.nz/news/reports-1243.htm

BIM education and training was identified in the survey as the number one 'Roadblock' for broader BIM adoption.

NORWAY

Education/Training

There are at least seven faculties that are running openBIM courses and several colleges that have special BIM studies.

There is no central government requirement for BIM education at a tertiary level. A few engaged teachers are driving openBIM education in colleges and universities and buildingSMART Norway (bSN) has initiated a programme to support the teachers who are using BIM in their classes.

The collaboration will support, coordinate and raise awareness of digitalisation of the industry.

In June 2014 bSN released an educational program. The program focus on quality assurance of content and output of courses. Three teaching plans (Basic, AEC and Client) have been released by bSN, specifying the minimum requirement for BIM training at two basic levels.

Several private companies have developed courses based on these teaching plans. The teaching plans do not include specific software training but focus instead on how to behave in

a multi-discipline openBIM environment. The plans are free to use for bSN member organisations.

In addition, bSN has established a web-based multiple-choice user certification system, allowing users to get a diploma for their openBIM knowledge.

To date the program has only been developed in Norwegian, but it will be translated to English during 2015.

Initiatives/Organisations

In March 2015 bSN released the BIM Guideline database. The bSN guide allows clients to specify requirements for BIM deliveries without having specialised BIM expertise in the organisation.

The client can configure the requirements with an intuitive wizard, according to the intended BIM usage.

Several Norwegian organisations are involved in the development and revision of National and International standards for digitalisation of business processes.

bSN has 80+ member organisations, representing 25% of the total AEC industry turn-over. bSN coordinates most industry initiatives and BIM User Groups for all disciplines, in a series of arenas.

Awareness/Uptake

Government for Municipalities and Modernisation and its legislative body the Norwegian Building Authority are fully aware of the need for digitalisation.

The Building Authority runs and supports several initiatives in collaboration with the industry.

The projects using and making benefit of openBIM can be counted in the hundreds, from the large openBIM award winning project "New Østfold Hospital", to small residential refurbishments.

The next frontier is to digitalise construction product information and FM/operational documentation.

SINGAPORE**Education/Training**

A diploma in construction information technology (with a strong emphasis on BIM) is available to undergraduates together with a specialist diploma in building information modelling available to undergraduates and industry professionals.

The following programmes/workshops are available to industry professionals:

- BIM Modelling (Architecture).
- BIM Modelling (Structure).
- BIM Modelling (MEP).
- BIM Management.
- BIM Planning Course (Building Developers & Facility Managers).

Initiatives/Organisations

The Building and Construction Authority (BCA) has published a number of guides including:

- Singapore BIM Guide. Version 2.0.
- e-Submission Guidelines & Templates.
- BIM Essential Guide for Adoption in Organisation.
- BIM Essential Guide for Execution Plan.
- BIM Essential Guide for Architectural Consultants.
- BIM Essential Guide for C&S Consultants.
- BIM Essential Guide for MEP Consultants.
- BIM Essential Guide for Contractors.

Awareness/Uptake

To increase awareness and encourage the uptake of BIM there are BIM awards provided for industry and BIM competitions run for both industry and students.

SOUTH AFRICA**Awareness/Uptake**

BIM is rarely used, most projects use 2D CAD as a standard. When BIM is used, it is usually for larger or more technically complex projects, for example, a very complicated BSL3 High Containment Laboratory has been modelled in ArchiCAD, and the model was populated with project information.

UNITED KINGDOM**Education/Training**

BIM is now becoming widespread across the various levels of higher education, albeit ad hoc and without consistency. In the main, this tends to be driven by individual academics or schools/departments that have a particular interest in the area of BIM and recognise its importance in the education of professionals.

Over the last few years, a number of BIM specific programmes at Masters level have emerged. A number of BIM specific BTEC level programmes have also now begun to emerge.

Apart from architecture and construction related disciplines, there are overall low levels of interest in BIM incorporation in teaching across built environment related disciplines.

At the cutting edge where BIM is fully embedded into programmes/modules, architecture maintains a significant edge over all other built environment disciplines.

BIM software adoption in higher education institutions is dominated by the trio of Revit, Navisworks and Sketch Up, with limited choice variability.

Initiatives/Organisations

In 2011 the BIM Academic Forum (BAF) was formed, consisting of a group of representatives from a large number of UK universities, with the aim of creating a dynamic collaborative group to enhance and promote teaching and learning together with the research aspects of BIM, therefore serving as a conduit between industry demands and BIM education in higher education institutions.

The BAF have published a report in 2013 and their recent (March 2015) *Current position and associated challenges of BIM education in UK higher education* report. The text above is partially extracted from that report.

Organisations other than universities are also providing short courses on BIM, such as:

- Construction Industry Training Board (CITB).
- Institution of Civil Engineers (ICE).
- Building Services Research and Information Association (BSRIA).
- Building Design (BD).
- Building Research Establishment (BRE).

The NBS have BIM as a 'topic area' on their website, with lots of articles, videos and reports. This material is educational in a broad sense. There are also many events/conferences/shows held throughout the UK on the topic of BIM.

Awareness/Uptake

The recently published 2015 NBS National BIM Report provides a good picture of the current status of BIM in the UK.

The report shows that 95% of respondents were aware of BIM and 48% are currently using BIM. The report can be found at the following link:

www.thenbs.com/topics/bim/articles/nbs-national-bim-report-2015.asp

UNITED STATES

Awareness/Uptake

Research published by McGraw-Hill Construction in 2012 shows a rapid increase of BIM usage by architects, engineers, contractors and clients in North America. The percentage of companies using BIM was recorded at 71%, a jump from the 49% recorded in 2009 and the 17% recorded in 2007.

Users are reporting increased business benefits from BIM including better profits, more accurate documentation, less rework, reduced project duration, fewer claims and the ability to offer new services.

The full results of the research were published in the *The Business Value of BIM* in the North America SmartMarket Report published in November 2012.

CONCLUSION

As previously reported it is clear from the responses received that BIM education and BIM awareness/uptake is still at different levels of implementation across the globe.

Where some countries appear to have embraced the implementation of BIM, others are just in the process of getting themselves prepared for its arrival. However, it would appear that BIM education and the level of BIM education being provided has progressed, albeit slowly, since the original report was published.

Many higher education institutions are providing BIM education on both an undergraduate and postgraduate level. Many vocational education institutions are also providing BIM education to the industry's tradespeople and para-professionals.

It would appear that little has changed in the past year regarding the fact that the majority of BIM education that is being provided tends to focus on training in the use of particular BIM software packages.

Training for both graduates and professionals in openBIM concepts, BIM management and working in collaborative BIM environments, appears to still be in its infancy. However, a small number of higher education institutions are now starting to include these concepts as part of their curricula.

BIM awareness and BIM uptake appear to still be on the rise, with BIM already widely adopted by practitioners in the AEC industry of particular countries and with the governments of some countries, such as the UK and Singapore, actively promoting and mandating the use of BIM.

Whilst it is clear that BIM education is starting to move in the right direction, spearheaded by progressive higher education institutions and educators, it is also apparent that a current shortage of experienced BIM educators and a reluctance by some existing educators to up-skill or change their teaching habits to incorporate BIM will become a setback to higher levels of BIM education and the availability of a graduate workforce with the collaborative BIM skills required for the future AEC industry of which they will be part.