BIM in New Zealand an industry-wide view 2016

Baseline information on the use of BIM across the New Zealand construction industry





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BIM benchmark survey foreword

This is the third survey in a five year series that follow progress being made in accelerating the introduction of Building Information Modelling (BIM) into New Zealand.

The five year series is based on a control group of large and influential organisations in New Zealand's built environment, which allows developments in BIM's introduction to be monitored. This year we have also carried out a client survey, focussing on asset owners and managers in order to better understand what impact BIM is having in facilities and asset management. It is envisaged this client survey will be now undertaken contemporaneously with the control group survey until the end of the series.

Once again the BIM Acceleration Committee (BAC) considers itself fortunate to have the continuing support of MBIE, BRANZ and a number of large private sector organisations in its effort to accelerate BIM's introduction into New Zealand.

Our sincerest thanks go to our partner, EBOSS, for its investment in managing and sponsoring these surveys; and to those organisations who form the control and client groups. These surveys allow the forming of a very complete view of the progress being made in BIM's introduction, as well as allowing the identification of barriers to its implementation. Finally, should any reader of this report have any suggestions for improvement, please don't hesitate to e-mail BIMinNZ at <u>info@biminnz.co.nz</u>, or raise the issue at one of the regular BIM network meetings now taking place in Auckland, Wellington and Christchurch (see <u>www.biminnz.co.nz</u> for more details).

Kind Regards

Andrew Reding

ANDREW REDING Chair, BIM Acceleration Committee

Formed in 2006, EBOSS hosts a comprehensive architectural product library, with an active audience of 35,000 architects, designers, main contractors and tradespersons. At EBOSS we are interested in improving the communication of BIM information through the construction value chain and appreciate the opportunity to partner with the BIM Acceleration Committee and sponsor this research initiative.



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Executive summary

In September 2016 EBOSS reran the BIM industry control group survey; the third year of a five year programme. In conjunction with an industry control group, we initiated a second survey focussed on 'clients', made up of property/asset managers from organisations with large property portfolios.

For clarity, general comments made throughout this survey will refer to the industry control group or 'industry'. Any references specific to the client control group will refer to 'clients' or the client control group.

Among the industry control group, the proportion of projects using BIM continues to steadily increase yearon-year. In 2016 the proportion of projects using BIM has now pushed over half, to 55% of all projects using BIM in some way. This is anticipated to increase to 63% in 2017.

Results from the client control group show the use of BIM is far lower. In total 45% of clients are using BIMbased systems, and use appears to be site-specific, with BIM-based systems being used on only 8% of sites.

Survey comments from the industry group has highlighted that increasing BIM use relies on both coordination and ability to use BIM technology across the range of parties involved in each of the planning, design, construction, and operate stages. At present, among both industry and client groups, BIM use is strongest in the first three stages of the process (74% use BIM for the planning stage, 91% for design, and 79% for construction), with only 16% of the industry control group saying they use BIM for the operate stage.

The client results shows a similar pattern. Half of all clients surveyed (50%) are using BIM, but of those, only 33% use BIM-based models for the operate stage (this equated to 17% of all clients overall). By contrast, 73% of clients use BIM for design stages and 67% use BIM for construction stages. Increasing client use is not so much a case of raising awareness of BIM (91% of all clients surveyed say they're aware of BIM), rather it is about enabling BIM to fit alongside current systems and processes used in asset and facility management. Of those clients who are aware of BIM and not currently using or planning to use BIM, the main reasons for nonuse is that they are already using systems which meet their needs (70%) or that they're not in a position to change from current practices (20%).

Amongst the industry control group, 3D coordination, design review, and existing conditions modelling remain the most popular uses. However, in 2016 there has been a strong increase in the proportion who say they use BIM for asset management (40%), record modelling (47%), construction system design (44%) and building (preventative) maintenance scheduling (14%).

Barriers or obstacles to further uptake of BIM across the industry have slightly changed in tenor in 2016. Where previously the main focus was on a lack of skilled resource and a lack of client and subcontractor understanding, in 2016 there is more discussion around the accuracy of models and the issues around having these up-to-date and useful for those further down the construction process.

In 2016 the proportion of projects using BIM has now pushed over half, to 55% of all projects using BIM in some way. This is anticipated to increase to 63% in 2017. The stated benefits of BIM use across both the industry and client groups are centred on the ability to coordinate across different parties. This improved coordination means better cost and time efficiencies. However, comments from both industry and clients highlight that in order to more fully realise these benefits, wider use across the industry is required.

Two-thirds of industry participants felt that the government has an important or vital part to play as a client in the wider acceptance of BIM. When asked about what role the government could play as a client, comments suggested that the government has more resources to understand BIM and how it can ideally be used in a project. Because of this, the government is able to lead the way, effectively setting standards that others can follow, and avoiding each individual practice having to reinvent the wheel.

Who are the industry control group?

The industry control group is a sample of 46 businesses or individuals who have been identified as key users of BIM technology within the building and construction industry. This control group is made up of a wide group of industry professionals, detailed below. These businesses participated in a survey on BIM use in 2014, and were re-approached in 2015 to complete the same survey. In 2016, 43 of the original 46 organisations completed the survey. This represents a response rate of 93%.

The 2016 survey gives us a measure to compare to both the 2014 and 2015 data to see how BIM use and acceptance has changed among this core group in the last two years.

The Industry Control Group Survey was sponsored and managed by EBOSS on behalf of the BIM Acceleration Committee. It was analysed by an external researcher¹.

A little about the industry control group businesses:

where their businesses are based			
	2014	2015	2016
Auckland	23	28	31
Bay of Plenty	1	1	1
Wellington	5	2	4
Canterbury	6	5	7
Otago/Southland	1	-	-
Other	3	1	-
Unspecified	7	3	-

The size of these businesses

	2014	2015	2016
Conglomerate (30+ employees)	26	24	29
Large (10-30 employees)	8	10	10
Medium (5-9 employees)	4	-	1
Small (2-4 employees)	1	2	1
Unspecified	7	4	2

Profession of respondents

	2014	2015	2016
Design/engineer	13	12	14
BIM Professional	9	13	11
Project Manager	4	2	2
Quantity surveyor	3	4	3
Construction	5	3	5
Other (incl. Government, model creation, etc.)	4	6	4
Unspecified	8	-	4

¹The researcher is a member of the NZ Research Association, ESOMAR, and Australian Market Research Society, bound by strict codes of research ethics and requirements

Introducing the client control group

In 2016 we initiated the first in a planned series of surveys of property/asset managers of organisations with medium to large property portfolios, focusing on their use and understanding of BIM. Over two weeks in September, EBOSS contacted property/asset managers of 58 private and public organisations – corporates, government departments, local councils, developers and tertiary institutions – of which, 44 organisations (76%) agreed to participate in the survey. A total of 33 client organisations responded to the survey, giving a response rate of 75%. This survey will be repeated again in 2017 and 2018 alongside the industry control group survey.

The Client Control Group Survey was sponsored by BRANZ and managed by EBOSS on behalf of the BIM Acceleration Committee. It was analysed by an external researcher².

Two-thirds of industry participants felt that the government has an important or vital part to play as a client in the wider acceptance of BIM.

A little about the client control group businesses:

Number of sites in their portfolio

	Actual 2016	Projected 2017
1-20 sites	7	8
21-50 sites	6	5
51-100 sites	6	4
More than 100	6	7
Unspecified	8	9

Industry	
Local Government	7
Central Government	5
Property management	4
Property development	3
Infrastructure management	2
Maintenance	2
Utilities provider	2
Healthcare	1
Other	5
Not specified	2

Role of respondents Asset management 12 Portfolio management 3 Project management 3 Data management 2 Facilities management 2 Property management 2 Other 7 Not specified 2

²The researcher is a member of the NZ Research Association, ESOMAR, and Australian Market Research Society, bound by strict codes of research ethics and requirements

Is BIM currently being used?

Use of BIM – industry and client groups

Both the industry and client control groups were asked about their current use of BIM. All in the industry control group have used BIM in the last 12 months, and over half of all projects use BIM in some way. Of the client group, only 50% have used BIM for at least some sites, and among those using BIM; on average 8% of sites have used BIM in some way. A further 15% of clients are looking at using BIM on some sites in the next 12 months.

Use of BIM among industry and clients



Base: 2016 only Control group n=43, Client group n=33

BIM use in the workflow - industry

Increasing BIM use is about two things: firstly, increasing the number of businesses that utilise BIM in their projects, and secondly, increasing the proportion of projects that each business uses BIM within.

We asked the industry control group in 2014 and 2015 to estimate the proportion of their projects that use BIM

- a) in the last 12 months; and
- b) in the next 12 months.

This gives us the proportion of projects using BIM in 2014 (actual), 2015 (actual), and 2016 (actual), and 2017 (predicted). The overall percentage of projects which use some form of BIM has risen significantly from 34% in 2014 to 55% in 2016. Each year, the industry control group is asked to predict BIM use for the following year. The current forecast of 63% of projects using BIM in 2017 suggests a consistent view that the growth in the use of BIM will continue to rise.



Percentage of projects using BIM (Actual vs forecast)

The average proportion of projects within each company that use BIM has increased by 62% from 2014 to 2016, and in 2016 more than half (55%) of all projects used BIM. The industry control group now has more projects using BIM than not, and this is anticipated to increase further in 2017 (to 63% of projects).

Proportion of industry projects that use BIM



Base: Total 2014 n=46, total 2015 n=40, 2016 n=43. BIM professionals 2014 n=9, 2015 n=13, 2016 n=11. Architects and engineers 2014 n=13, 2015 n=12, 2016 n=14.

Base: 2014 n=46, 2015 n=40, 2016 n=43

Just under half (49%) of all respondents are using BIM on at least six out every ten projects. In 2014, 7% used BIM on at least 9 in every 10 projects. This increased to 16% in 2016, and is predicted to rise to 19% over the next 12 months.



Estimated proportion of industry projects that use BIM

Awareness and acceptance of BIM by clients

Respondents to the client survey were asked whether they were aware of BIM and BIM-based facility and asset management. Those who were aware of BIM were then asked whether they use BIM-based systems, and how many sites out of their total portfolio used a BIM-based system. While there is wide awareness of BIM (91%), only 46% of client respondents are using BIM-based systems, and only 8% of sites use a BIM-based system.

Client awareness and use of BIM



Clients who are aware of BIM but not currently using were asked to summarise their organisation's view on using BIMbased systems for facility and asset management. One third (33%) are planning to start using BIM in the next 12 months, and a further six in ten (60%) are considering it for the future (beyond 12 months). Only 7% say that it is something they would not consider. The main reason for not using BIM or considering a shift to BIM is that current systems are already in place and serving them well.

Understanding clients who don't use BIM

Disposition towards BIM among those not using now



Base: Client not using BIM now n=15

Q. Which of the following best describes your organisation's view on using BIM based systems for facility and asset management?

Base: Client not using BIM now, not planning to use in next 12 months n=10

Q. What are the main reasons you have not considered or moved to a BIM based system?

What is industry using BIM for?

The industry control group respondents were asked where in the project lifecycle they had used BIM in the last 12 months, or planned to use BIM in the next 12 months. The chart below shows increase in the use of BIM in each of the pre-planning, design, and construct phases. Use in all phases shows an increase in 2016, and use is very close to the predicted use for 2016 in each of planning/pre-design, design, and construct phases. While use in the operate phase has seen an increase in 2016, actual use is still far below the predicted use in each year of surveying.



Industry BIM use across project lifecycle

Base: All respondents 2014 n=46; 2015 n=40, 2016 n=43

Q. For which project life cycle stages has/will BIM be used? Please select all that apply.

Industry BIM uses in detail

Looking at the detail of industry BIM uses from 2014 to 2016, there are clear areas where use has increased strongly. In particular, while respondents say that their use in the operate stage remains relatively low (at 16%), use of asset management has increased from 16% in 2014 to 40% doing so in 2016. This anomaly will be investigated further in next year's survey. In addition, the proportion using BIM for construction system design has increased from 16% in 2014 to 44% in 2016. Design review and design authoring have both increased strongly from 2014, design review going from 60% of reference companies to 86% in 2016, and design authoring from 47% to 65%.



Industry's BIM uses (actual only) 2014-2016

Industry's most popular BIM uses

The top ten industry BIM uses remain largely similar to those ranked top ten in 2015. However, site analysis no longer sits in the top ten, and asset management and record modelling reaching the top ten this year. The top use of BIM is still 3D coordination, followed closely by design review and existing conditions modelling.



Industry's top ten most popular BIM uses

Base: All respondents 2014 n=46; 2015 n=40; 2016 n=43

Q. Which of the following BIM uses have you used in the last 12 months and how do you predict you will use in the 12 months ahead? Please select all that apply for each option.



BIM uses most likely to grow in industry

There continues to be a high degree of optimism with the use of BIM increasing overall. Looking at the predicted use for 2017, asset management is predicted to continue growing, and it is anticipated that this will push over the halfway mark to 60% of all projects. The client survey shows that only 8% of sites use BIM for asset or facility

management, and that 15% of respondents plan on starting to use BIM in the next 12 months. Comments from those planning on starting to use BIM in the next 12 months suggest this will be on the newly built sites rather than on existing sites.

BIM uses most likely to grow in industry



Base: All respondents 2014 n=46; 2015 n=40, 2016 n=43

Q. Which of the following BIM uses have you used in the last 12 months and how do you predict you will use in the 12 months ahead? Please select all that apply for each option.

What are clients using BIM for?

The client control group were asked when they use BIM. Their responses highlight design and construct stages are the strongest areas for BIM use at present. Operate is still relatively low; 33% of clients who are using BIM and responsible for asset and facility management are using the technology within the operate stage.

Clients' asset management

As a part of the new client survey, clients were asked what types of systems they currently use for facilities management and asset management (paper, computer, or cloud-based); and whether these systems were used for reactive and/or proactive maintenance. The majority of clients are using computer-based systems for both asset and facility management.

Those clients who use computer or cloud-based systems were asked which ones they use. Many businesses are using a blend of systems customised to their needs (rather than relying on just one or two). However the key systems that many were using include SAP (used by 33% of all clients surveyed), RAMM (used by 21%), and SPM (used by 21%).

Client BIM use across project life cycle



Of the n=5 who said "other" n=3 are currently piloting BIM or setting up systems to allow use in the build and maintain stages

Base: Clients using BIM now 2016 n=15

Q At what stage are you currently using BIM for?



Systems used by clients for asset and facility management

Clients can use more than one type of system (and could be using all three).

Base: All clients surveyed n=33

Q. What kinds of tools or systems do you use for asset and facility management?

Industry's barriers to BIM uptake

In 2015 the discussion on obstacles to using BIM included factors such as a lack of skilled resource within architecture practices, a lack of client uptake or understanding, and a lack of knowledge at a subcontractor level.

In 2016 the obstacles and issues mentioned by respondents include these same factors, but there is also more discussion around the accuracy of the models, the industry's ability to incorporate the needs of different parties, and the definition of (or compliance with) a BIM Execution Plan. In addition, more support and understanding is required at a sub-contractor and trade level.

One theme of comments focusses on the accuracy of BIM models. The perception is that models are either not updated, or there are so many disclaimers that they can only be regarded as a visual reference:

"Regarding incoming BIM, models are still appearing extremely inaccurate and never appear to be updated. Can really only be used as a visual reference at this stage."

"Must clearly understand costs for all parties to participate. Avoid legal positioning if desire high degree of collaboration. Need consultant BIM models to be freely available."

"Using BIM in the construction side which is not an easy task, the biggest issue is collaboration with each consultants and client. One of negative experience is that clients keep changing the design even after building structure has been designed. [Architects] don't have time to change the model, and can only issue the PDF Shop drawing. Without the ARCH model, the MEP consultants can't start their job. All the clash detection reports we have done and models we been loading to BIM 360 Glue for helping the site team with installation on site is not reflected in the latest drawing, driving people to not trust BIM anymore."

"Disclaimers that restrict the use of models."

"Intellectual property around BIM models – we receive massive disclaimers that effectively say that the models are not to be relied upon, yet everyone needs to rely on the accuracy of them."

"The major obstacles are still around the inability to rely on both graphical and nongraphical information from models from other disciplines. Particularly when federating and clash-checking, this becomes a futile exercise when the consultants have created models without much rigour and the 3D information does not bear much resemblance to the 2D documentation. These issues cause our management team to lose confidence in the BIM process, because the information is not reliable and the advantages that BIM is supposed to bring cannot be realized. This has the unfortunate consequence of bringing the focus away from BIM on projects that really should be using it fully."

In addition, another theme is that a lack of BIM Execution Plans (BEPs) or failure to comply with these means that collaboration is difficult:

"Lack of a company BIM Execution Plan as a starting point for new jobs means that each job is set up differently from the last. With multiple offices and disciplines this makes working collaboratively in house very difficult."

"A shortage of BIM literacy across the industry, including a disconnect between Project Management and the digital authoring environment. Failure of the design disciplines to comply with an 'agreed' Project BEP."

The increased coordination required by BIM use means additional cost to the project – cost that clients may not see value in:

"Increased cost due to more intense coordination with architects, contractors and clients, increases the amount of time we spend on projects." "Education around what BIM means to the client, the processes and policies required to make it successful through the project lifecycle. Defining roles within the project team at the project outset (project establishment), especially around the BIM Manager role is essential. Assuming the lead designer will automatically pick up this role is unrealistic and requires pre-planning including fee adjustment."

Coordination may also be difficult due to the different needs of various parties, and these needs are not reflected in the design of BIM models:

"Very negative feedback from designers about adapting model object parameters for efficient use in BIM estimation. They don't want to change anything and expect us to adapt." "Project managers are not involved. How many times have I been to BIM groups around NZ in a room full of so-called BIM evangelists talking to themselves about themselves and one group of people in the design chain are missing."

Client barriers to BIM uptake

The client asset management section of this report shows that current facility and asset management systems are a barrier to further uptake of BIM. Those clients who would not consider moving to BIM say that their current systems are adequate, and these systems often incorporate a number of different products to create a custom solution.

If an increase in use of BIM at the operate stage is desired, these existing systems must be considered.

At a first stage, delivering BIM as-built models for newly built assets may help. Of those clients currently using BIM, only 27% always require an as-built BIM model, and a further 53% sometimes require this.

Clients who sometimes require an as-built BIM model were asked when they would or would not require an as-built BIM model:

"Depends on who owns, builds site. Often leased space means have no control on deliverables."

"Designers – yes, contractors – no."

"The level of complexity/cost will determine the level of detail required."

"We are currently trying to determine where you draw the line of requiring BIM outputs or not. It should be used for all works, but is still a developing technology." "We are looking to insist on all major capital builds (+\$500k) to have a full BIM requirement."

"We experience difficulty for sub-contractors to provide as-built drawings and data for final records due to inexperience and costs of BIM. Therefore often only taken to detailed design."

"We intend to, but we want to first ensure that the models provided in all cases are provided to a standard to ensure they are compatible, transferrable, meet our future requirements, are cost effective and above all – are useful."

The benefits in increased use of BIM to the industry

As in 2015, co-ordination between parties is still one of the key benefits of BIM use, and comments around this make more reference to cloud-based systems that enable better co-ordination. In addition, BIM use enables better understanding of complicated design, and improved efficiency for many parties.

Better understanding of complicated design:

"BIM has allowed a greater capacity for understanding complicated aspects of design proposals. BIM also allows us to more clearly communicate the proposals to third parties (client, trades, authorities, etc.)."

"Immediate understanding of scope, and easy way to pass on design intention to other parties."

Improved efficiency – from take-off through to construction:

"Allow faster quantity take-off, is a great taking point with clients. Other colleagues in the office are keen to have more training."

"Reduces design execution time, model based costing helps control fitting inventory."

"Less major clashes, faster manufacture times (we are taking the shop drawings and converting to fabrication drawings and the sheet metal guys are using these files to manufacture 1/2 fabrication times). Better, faster programmes, guys moving forward with more certainly." BIM use also allows for better coordination between parties (both internal teams and external contractors and trades):

"Certainly helps with coordination of structure, services and construction when running smoothly. Being able to co-ordinate the various disciplines into a single model is invaluable in finding and dealing with 'conflicts' within the building and resolving these issues."

"BIM is increasingly improving our coordination processes, not only in the design stage but also the fabrication/shop drawing stage ... also there is now a selection of cloudhosted collaboration software which help to drive the coordination tracking process, and ensure the information delivered to contractors is as fully coordinated as possible."

"As a consultant the ability to coordinate with our design partners in a 3D space, and apply information to objects to enhance the coordination process makes the process a lot smoother. However, it is only as good as the least skilled user on the job. It is still just a tool used by humans – and can be riddled with a lot more errors and assumptions than the old traditional hand drawings."

Enabling increased use of BIM within a practice

Industry respondents were asked what would need to happen in the future to enable their company to use BIM more often. The main points raised include the wider adoption of BIM and creation of standards.

"Better client education/understanding (briefing) is needed at the pre-design stage to facilitate project appropriate outcomes."

"We need clients to insist that BIM processes are to be used on their projects. FM managers to become more involved so that the data collected can be used." Some of this wider adoption is about increasing use across the industry – from design through to trades, and some of this is about clients understanding the benefits of BIM – enough for them to push for BIM to be used.

"We need better uptake from clients in the first instance. We are trained and ready to use 5D BIM on projects."

"Clients understanding and acting (making decisions) at the right time to allow us to utilise the potential of BIM. Also need our senior managers to have a better understanding of the BIM process and an understanding of what they should be asking for at the beginning of the job."

In addition, some BIM uses are relatively common, but others still face hurdles:

"3D modelling is now happening as a matter of course. The challenge now is to utilise more non-graphical content. Major hurdles here include, interoperability, noncompatible contractual structures, and an unrealistic understanding of BIM by the 'decision makers' who still do not fully understand the tool."

"If all consultants followed a BIM execution plan for object "type" so that we could get consistent quantity extractions." "Make a key constraint in the programme the issue of LOD 300 Model with clash detection report. Once this is accepted then we can commence all shop drawings."

"Education of clients and whole project supply chain in alternative procurement methods – teach cost vs life cycle value is not the same thing. Greater uptake across supply chain Accessibility of software/hardware Clearer expectations from all parties – 'we want BIM' isn't clear enough – leads to poorly defined BIM brief."

Clients benefits and challenges using BIM

Client respondents were asked which BIM uses gave the most benefit, and the challenges in using BIM models. As with the industry respondents, the ability to communicate and coordinate between parties is one of the greatest benefits of BIM, and the 3D coordination leads to reduced cost and time for the build programme. However, as with the industry respondents (especially initially in 2014-2015), a lack of BIM experience presents challenges. Skilled practitioners are required - practitioners that understand the asset and facility management side of the technology.

Clients' benefits and challenges using BIM

Biggest benefits of BIM Visualisations for communications with stakeholders 3D coordination to reduce construction cost and program Modelling of existing conditions to integrate new facilities As-Built BIM model for facility planning and reuse Data input into asset and facility 27% management systems Automated cost scheduling to improve 13% accuracy of financial reporting 20% Other



Challenges in using BIM models



Base: Clients using BIM now n=15

Q. What uses of BIM do you get the most benefit from? What challenges have you experienced in using BIM models?



Collaboration between industry parties using BIM

Industry survey comments show that respondents believe collaboration between parties in the construction process is critical to increasing the acceptance and use of BIM across the industry. The inability to cater to diverse user needs can be an obstacle to wider use, and when the use of BIM is seen positively, this often comes down to enabling better coordination between parties. Industry respondents were asked to indicate the professions they collaborate or share information with on projects (not BIM specific information – collaboration in general). The chart below shows the networks of collaboration (caution: low sub-group sample size). BIM professionals have relatively high levels of collaboration across the other professions.

Industry collaboration with other parties



Boxed = professions collaborating with peers

Base: Architects n=9, Engineers n=5, BIM professional n=11, Other n=14

Q. Which professions do you collaborate with or share information with on projects?



Industry participants were also asked how often they share BIM models with other professions. Almost half (47%) are always sharing their models with other professions, and a further three in ten are sharing often. Unsurprisingly, BIM professionals are sharing BIM models most frequently, with almost three quarters always sharing their models. Two in five engineers are only occasionally sharing their BIM models. Enabling increased sharing of models comes down to being able to share across platforms or having everyone on the same platform, and enabling cloud-based centralised access to files. An open-ended question was included asking industry respondents what would make it easier to share BIM models with other professions. Within the responses to this question, a theme of comments centred on the issue of common or shareable formats and platforms, alongside agreed standards and protocols:

"Improved tools for creating the shared model i.e. improvements in IFC creation (speed, quality, assurity). Cloud hosted models in the common data environments (CDE) would enable teams to instantly access current models."

"An industry standardised exchange protocol. Mature cloud-based exchange."

"Constant approach to how the models are being exchanged (e.g. model update information). Inclusion of better meaningful information within the models for others in the team to access and make use of."

"If more consultants used the same BIM authoring software without the use of translation tools. Revit to Revit instead of Revit to IFC to ArchiCAD and then the reverse."



Industry sharing BIM Models

What would make it easier to share BIM models with other professions?





Base: Total n=43, Architects n=9, Engineers n=5, BIM professional n=11, Other n=14

Q. How often do you share BIM models with other professions?

Industry's view on Government's role in BIM

Industry respondents were asked about the importance of government's role as a client in accelerating the development and use of BIM in New Zealand. As the chart below shows, the government's role as a client remains critical – government and industry partnerships playing a strong role in BIM acceleration and development. In 2016 only 7% stated they thought the government's role was unimportant or detrimental to development.

The importance of the Government's role as a client in accelerating the development and use of BIM within New Zealand



Base: All respondents 2014 n=46; 2015 n=40

Q. Do you consider Government's role as a client to be an important factor in accelerating the development and use of BIM within New Zealand?

Respondents were asked what the government should be doing to accelerate the use of BIM. A strong theme emerged on mandating use of BIM on all government projects. Similarly, within the client survey, 47% of respondents say that the lack of government direction or mandate creates a challenge for using BIM models.

From the industry survey, the comments highlight that this mandating the use of BIM is about both leading the way, and setting a level of standards and protocols that can then be used in the wider industry.

Mandate use of BIM on all government projects:

"Immediate/short term; mandate BIM for FM on all future government funded construction. Next 5 years; mandate new works over a certain size/value. Next 20 years; mandate for all consentable construction work."

"Require BIM on all projects, this will force uptake and once we are tooled up BIM will become the norm very quickly...there is a real lack of appetite for change in the architectural sector in particular."

"Demand BIM be used so that as an industry we are forced to price for, and use it, levelling the playing field, this will drive innovation, it will open up the industry to get BIM out there."

It is also the role of government to lead the way in writing requirements for BIM – showing the industry how it should be done:

"Mandate use on government projects and be prepared to pay for the same. Write detailed requirements into tenders written by people with good understanding of BIM."

.....

"Government needs to agree on what BIM deliverables they as clients wish to see, in what format i.e. metadata output and have this as their overall 'mandate' for their projects. Not necessarily mandate all their projects, but if they define their requirements across the government departments including standards etc., these can be deployed and tested within real projects providing case studies and justification to other areas to take up the charge."

The government should also be leading the way on setting standards and protocols for BIM use:

"Provide BIM protocols, methodologies, standards, etc. expected to be used on projects."

.....

"More mandating of standards, open standards/ software. BIM in NZ still very platform dependent."

.....

"Instigate a "standard" set of rules that all need to abide by. These models could be stored for future reference by others."

BAC Response to Mandating BIM

As 12 out of 35 comments on this question suggested that Government mandate the use of BIM, we thought it worthwhile outlining the BIM Acceleration Committee's (BAC) view on this, in the hope of stimulating further debate about this topic.

To date the BAC has felt that mandating BIM is not the way forward because:

- i) If BIM truly brings the benefits we believe it does, why would its use need mandating?
- Government would require a level of consensus within its Ministries for any mandate to be effected, and in BAC's opinion achieving this consensus would require the same effort as educating those Ministries about BIM's benefits such that they voluntarily embrace the use of BIM.
- iii) The New Zealand culture does not respond well to mandating and the resistance that might be encountered during the consensus building process may actually be harmful to BIM's adoption.

Much of the effort in BAC's 'Government as a Client' project is going into the education of Ministries about:

- i) BIM's benefits such that they wish to use it voluntarily
- ii) How to better define project requirements for BIM

Finally, Government Procurement guidelines already refer to BIM and ask the question of whether BIM has been considered for a project and the reasons for not using it.

ANDREW REDING

Chair, BIM Acceleration Committee



Control Group Organisations

Industry Control Group Organisations include:

AECOM	Jensen Steel
Aquaheat New Zealand	KTA
ArcHaus Architects	MSC Consulting Group
Architectus	Nauhria Precast & Reinforcing
Assemble	Naylor Love Construction
Auckland International Airport	NDY Norman Disney & Young
bbd Barnes Beagley Doherr	NZ Strong Construction
Beca	Opus International Consultants
Brown & Thomson Engineers	Peddle Thorp
BGT Structures	RCP
Davis Langdon	Scentre Group
Dominion Constructors	Structex
Envivo	The Warehouse Group
Hawkins	Warren & Mahoney Architects
Holmes Consulting Group	Wellington City Council
Ignite Architects	Woods
Jasmax	

This year we have also carried out a client survey, focussing on asset owners and managers in order to better understand what impact BIM is having in facilities and asset management.

Organisations invited to form Client Group include:

Ara Institute of Canterbury	Ministry of Foreign Affairs & Trade
Argosy Property Limited	Ministry of Health
Auckland Airport	New Zealand Defence Force
Auckland Council	New Zealand Transport Agency
Auckland Transport	NZ Property Group
AUT	Otago University
Bay of Plenty DHB	Powerco
CBRE	Precinct Properties
Christchurch City Council	Ryman Healthcare
CityCare	South Taranaki District Council
Contact Energy	Spotless
Department of Corrections	Summerset
Digital Auckland	Tertiary Education Commission
Downer	Unitec
Foodstuffs	University of Auckland
Fulton Hogan	University of Canterbury
Genesis Energy	Vector
Goodman Property Trust	Waitemata DHB
Hastings District Council	Warehouse Group
Housing New Zealand Corporation	Watercare
Infratil	Wellington Airport
Local Government NZ	Wellington City Council
Mercury Energy	Wellington Water
Metlife Care	Willis Bond + Co
Ministry of Education	

Some organisations wished to remain anonymous and we have not published their names in this report.