

Abstract

Working with BIM: are we really doing it, and who is counting?

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Problem statement.

With the vast capacity of BIM for integration in a wide range of construction-related aspects, from incorporation with GIS and urban future modelling to building management systems and building operation evaluation, an explicit understanding of BIM application seems crucial. This paper considers how the research community, including funding agencies, in Construction Management/Engineering in New Zealand has been approaching domestic studies on the professional uptake of BIM. Are assumptions about growing individual knowledge and use of BIM within the relevant sectors accurate? If not why not, and how should the research community respond?

Context.

These questions arose as a result of ongoing monitoring between 2012 and 2017 of the practical experience and knowledge of BIM amongst those entering the Master of Construction Management (MCM) programme at AUT.

The MCM programme was designed with steerage and direct support from industry and launched in 2008. It provides MBA-style mid-career development for construction professionals. Roughly half of each cohort are part-time domestic students who are also working, the balance being international students who are predominantly full time. The large majority of those from overseas take advantage of the one-year work visa offered in New Zealand when they complete the course, with a view to permanent settlement. The average age of the student group overall sits consistently in the late twenties although the domestic students are over-represented in the older section.

The country is heavily dependent on attracting construction professionals from overseas as the activity is at a high point and demand for personnel, in Auckland especially, is outstripping supply, e.g. OneStaff (2016), Catherin Harris (2017), and NZ Herald (2017). 60% of the overall workforce in Auckland were born overseas (including all four authors of this paper). The MCM cohort, therefore, provides a more representative image of early-mid career construction professionals than might be expected.

In 2012 the MCM programme surveyed the incoming students regarding their knowledge of BIM and how much experience they had. This was done in order to inform the redesign of teaching content and delivery. The findings did not support the previous assumptions at AUT, nor align with the uptake data being reported in the literature at the time. The survey has been repeated each year since then. Table 1 summarises the findings.

Table 1. Self-reported knowledge of BIM by incoming MCM cohort.

	2012	2013	2014	2015	2016	2017
Respondents n=	24	21	24	35	41	65 ¹
Experience in years (average)	2-3 ²	5	6	4	5-6	5-6
% that knows what BIM stands for	91% (22)	58% (12)	62% (15)	50% (18)	56% (23)	74% (48)
% that can demonstrate usable knowledge of the current uses and the future potential of BIM	58% (14)	58% (12)	62% (15)	50% (18)	56% (23)	54% (35)
% that have used BIM in their work	20% (5)	10% (2)	25% (6)	17% (6)	7% (3)	25% (16)

Discussion point for the workshop.

The method of administration (hardcopy survey forms filled out in class – but with discussion discouraged) quite possibly contributes to the obvious spikes and dips. Looked at over the six years the surprises for the MCM programme have been the low 2012 starting point in usable knowledge and experience of BIM, and subsequently the lack of growth over time in either of these measures.

The BIM Acceleration Committee (NZ) reports that projects using BIM in this country have doubled, according to their benchmark surveys (BAC 2017). It is a consistent story presented, but we are not seeing it reflected in the experiences of the workforce. Is the same pool of practitioners just being spread more thinly? Is the assumed embrace of BIM by the technologically-inclined young not eventuating? Even if they are not getting hands-on experience at work, would they not be teaching themselves in their own time if they were excited by it as some have predicted?

Those conducting the majority of research exercises regarding BIM in NZ have had a vested interest in reporting growth; be they promotional bodies such as BAC, BIM Software suppliers/trainers or BIM Library suppliers. This pattern has been further encouraged in the last two decades by a political agenda that makes it difficult to access Public Good research funds without industry support, which generally means finding companies that can profit from the findings.

Our question for this workshop is ‘how well are we really monitoring BIM integration from a sociotechnical perspective, and who should be controlling this if we want objectivity?’ We need more understanding not bigger megaphones.



Figure 1. The BAC (2017) strategy for demand generation. (Just shout louder apparently).

References

- BIM Acceleration Committee (2017). Strategy at January 2017. <https://static1.squarespace.com/static/57390d2c8259b53089bcf066/t/5902a1f7c534a5c798422e60/1493344775033/BIMinNZ+-+BAC+Strategy+-+2017.pdf>
- Catherin Harris. (2017, 2017.Nov.13). "NZ scours the world to fix construction industry shortage." *Stuff* Retrieved 16 November, 2017, from <https://www.stuff.co.nz/business/98755098/construction-industry-scours-the-world-to-fix-professionals-shortage>.
- NZ Herald. (2017, 2017.Oct.9). "Up to 20,000 overseas builders expected to apply for NZ jobs." *Business* Retrieved 2017.Nov.16, 2017, from http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11931184.
- OneStaff. (2016, 2016.Sep.20). "Auckland Market Overview with Steve Burrows." Retrieved 2017.Nov.17, 2017, from <https://www.onestaff.co.nz/blog/auckland-market-overview-steve-burrows/>.

¹ The cohort size has continued to grow, but not to the degree implied by the 2017 figure which includes some of the 2018 cohort too.

² The cohort for this new programme settled as a more experienced demographic by 2013-4.