

## About this Document

The following sections provide a brief update on the progress towards P2.46's project goals at 10 months from commencement. This document will be used as context for a six-monthly review to be carried out on 08 August 2016.

## BIM Value Benchmark

BIM Value Benchmark is the tool being developed by the research team to monitor and benchmark benefits from BIM. It builds on crowdsourcing research and the outcomes from SBEnc P2.34 regarding metrics to measure the value of BIM. The functionalities of BIM Benchmark are currently being developed (see appendices for screenshots of progress so far). The tool is designed to have a very similar look and feel to BIM Value, with both tools linked through some of BIM Value Benchmark's functionalities. The pilot tool is expected to be available by the end of August at which time the user interface and functionalities will be tested through the case trials. The categories used to characterise projects within BIM Value Benchmarks presented in the previous PSG were also refined based on individual feedback from the PSG.

## Interviews

Two pilot interviews have been completed and transcribed. The remaining 14 interviews are planned for the last week of July and first week of August. The objective of this first set of interviews is to determine how understandable, useful and practical are the metrics chosen for the master list of the tool. This list is based on the metrics dictionary published as part of the book [Delivering Value with BIM: A Whole-of-life Approach](#) and listed in [BIM Value](#). While most of the feedback received during the pilot interviews was positive, several points were raised that may require further discussion depending on the outcomes of the rest of the interviews:

1. Level of automation: Currently BIM Value Benchmark requires users to input the data manually and there are plans to allow the import and export of data from some of the most common BIM and project management software. The question was raised whether this can be achieved due to the large swath of tools currently being used, and even so, many of the data needed may not be recorded in any software at the moment which will require new protocols to be put in place in order to start collecting the new data.
2. Consistency of metric understanding: It was raised that different stakeholders may interpret the data requirements for each metric differently, reducing the likelihood of the data being useful for an industry benchmark. On the other hand, if the metrics are made more specific, then they may become less relevant for some stakeholders.
3. Data ownership maps: Another challenge raised was the ability of users to identify and map the individuals who are already recording the required data as well as who will benefit from benchmarking the individual metrics.

In order to simplify the process of finding metrics, the research team is additionally investigating different possibilities for users to sort metrics by their role in the organisation (for example, metrics useful to a Construction Project Manager) in addition to the criteria used in BIM Value. Another option proposed is organising the metrics across the following categories: time, financial, resources, effectiveness, environment and safety and innovation. This may include an update to BIM Value.

## **Part 2 Recommendations**

During the previous PSG meeting carried out on 28 April 2016, the following technologies were discussed: Big and open data, intelligent transport systems, autonomous vehicles and density consensus clustering. PSG members were required to provide additional suggestions regarding what technologies their organisations would like to be included in Part 2 of this project. No additional suggestions have been received yet.

## **Partner Benefits Matrix**

Project and centre partners were asked to provide feedback about the importance levels of different aspects of the deliverables discussed in the project schedule. This information will be used to further develop the Partner Benefits Matrix which will be used by the Board. The following are some of the results of this survey (table found in appendices):

- The highest rated overall importance deliverables were: the final report, six-monthly review, project update report and the Part 2 Recommendations.
- The lowest rated deliverables (overall) were: conference paper, YouTube video and journal paper/chapter.
- The highest rated aspects of all the deliverables were:
  - Benchmarking tool; functional, operational and hosted by NATSPEC.
  - Part 2 Recommendations; disseminated as an industry report.
  - PSG meetings; has representation from a cross-section of industry stakeholders.
  - Project update report; equally important: formal document every 6 months, published on the website, and ongoing oral presentations to the PSG.
  - Six-monthly review; inclusion of feedback from all core and project partners.
  - Conference paper; presented at industry conference.
  - Journal paper/chapter; submitted to high-impact journal.
  - Industry dissemination seminar; carried out at end of project (informational).
  - Final report; professionally edited and designed.
  - YouTube Video; professionally produced overview.

## **Fresh Engagement**

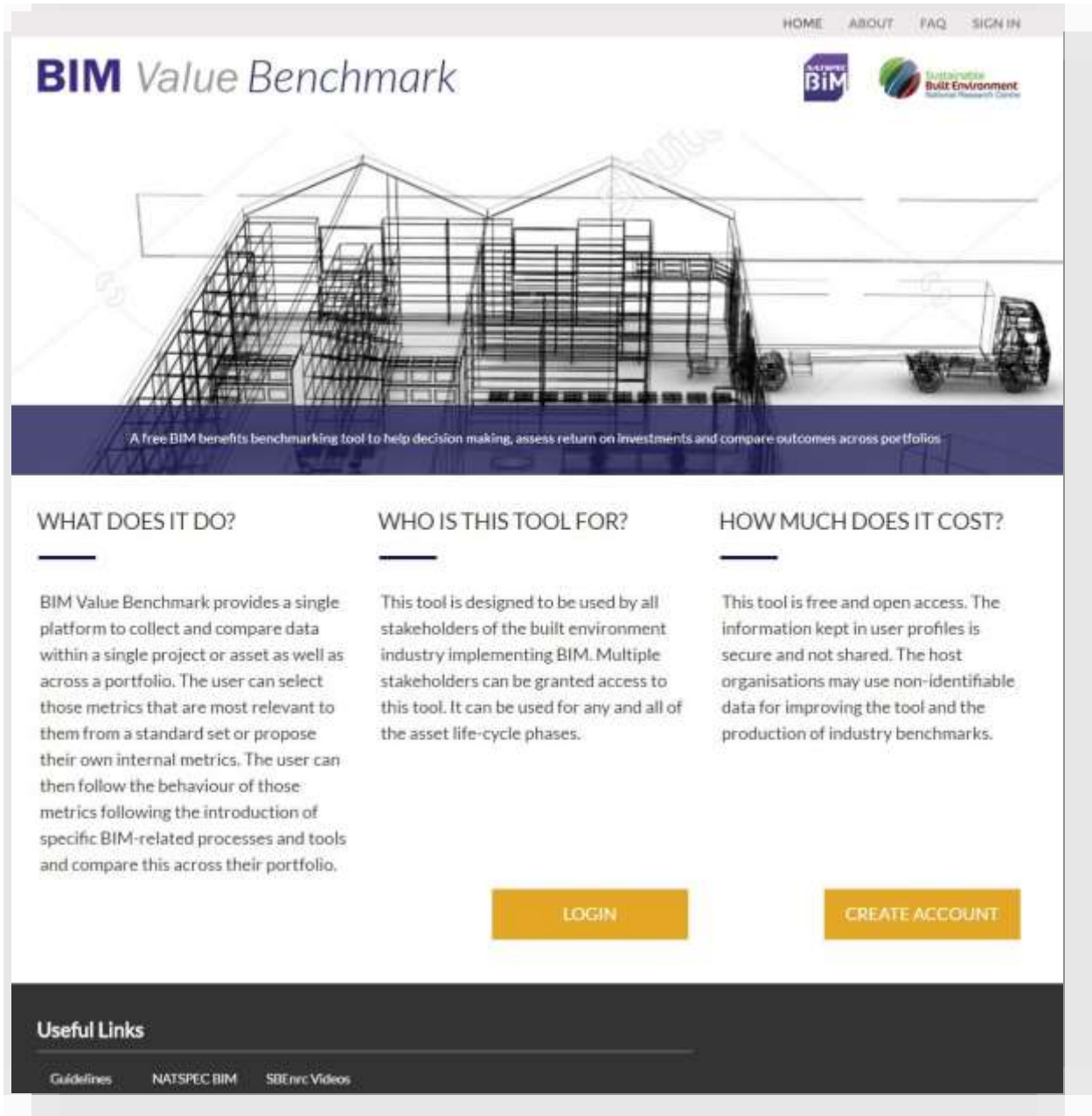
The Centre has been successful in engaging VicRoads as an additional Project Partner who will be represented at the PSG by Chris Coghlan, Intelligent Transport Systems Manager. This welcome addition to the project will extend the project timeline allowing Phases 1 and 2 to run until 30 of June 2017 to carry out two additional case trials (See Appendix 3 bar chart).

## **Research Team**

As of 01 October 2016, Adriana will be reducing her engagement in the project to one day a month as she takes up her PhD and related responsibilities at UNSW and Jessica will work on a casual basis during the handover period. They will be replaced by Paul Akhurst who will join the research team from 15 August 2016 as a full-time research associate. Paul brings to this project his extensive industry and research experience. Paul has sixteen years' experience as a facility manager during which time he has also been involved in built environment research through his association with the CRC for Construction Innovation and the Facility Management Association Australia.

## Appendix 1: Benchmarking Tool Screenshots

Home



The screenshot shows the homepage of the BIM Value Benchmark tool. At the top, there is a navigation menu with links for HOME, ABOUT, FAQ, and SIGN IN. The main header features the title "BIM Value Benchmark" and logos for "Sustainable Built Environment" and "National Research Centre". Below the header is a large image of a building's steel framework with a semi-trailer truck parked in front. A blue banner below the image contains the text: "A free BIM benefits benchmarking tool to help decision making, assess return on investments and compare outcomes across portfolios".

The main content area is divided into three columns:

- WHAT DOES IT DO?**  
BIM Value Benchmark provides a single platform to collect and compare data within a single project or asset as well as across a portfolio. The user can select those metrics that are most relevant to them from a standard set or propose their own internal metrics. The user can then follow the behaviour of those metrics following the introduction of specific BIM-related processes and tools and compare this across their portfolio.
- WHO IS THIS TOOL FOR?**  
This tool is designed to be used by all stakeholders of the built environment industry implementing BIM. Multiple stakeholders can be granted access to this tool. It can be used for any and all of the asset life-cycle phases.
- HOW MUCH DOES IT COST?**  
This tool is free and open access. The information kept in user profiles is secure and not shared. The host organisations may use non-identifiable data for improving the tool and the production of industry benchmarks.



At the bottom of the three columns are two orange buttons: "LOGIN" and "CREATE ACCOUNT".

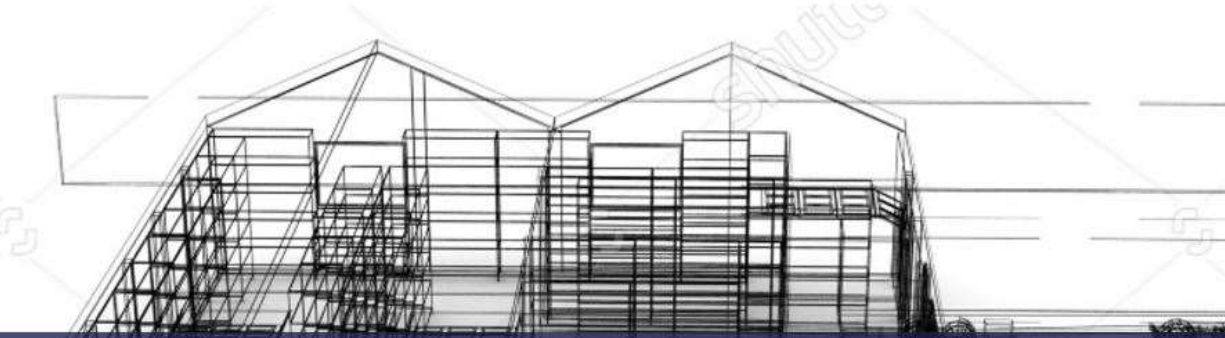
Below the main content is a dark grey footer section titled "Useful Links" with three links: "Guidelines", "NATSPEC BIM", and "SBEinc Videos".

HOME
ABOUT
FAQ
SIGN IN

BIM

*Value Benchmark*



A free BIM benefits benchmarking tool to help decision making, assess return on investments and compare outcomes across portfolios

## FAQ

**WHO IS THIS TOOL FOR?** ▼

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**HOW MUCH DOES IT COST TO USE?** ▼

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**WHAT ARE THE BENEFITS OF USING THIS TOOL?** ▼

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**DO YOU USE THE DATA I SAVE IN 3BS?** ▼

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The server does not save any identifiable data unless explicitly stated. However, statistical information, such as which metrics are most popular amongst users, is used to enhance the tool and direct research. If enough non-identifiable statistical information is collected using 3Bs, the host organisation will aim to release benchmarks that will benefit the entire industry. Research to date, has shown that there is a lack of public benchmarks in the industry. This information can help individual industry stakeholders to self-assess their own performance by comparing their performance across specific metrics to the average achieve by users in similar project categories.

**WHAT ARE BENCHMARKS?** ▼

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**IF YOU DO NOT USE MY COMPANY OR PERSONAL INFORMATION, WHY DO I HAVE TO GIVE THIS INFORMATION?** ▼

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BIM Benchmark Account Dashboard (Draft)





The screenshot shows a web dashboard for 'BIM Value Benchmark'. At the top, there is a navigation bar with links for 'BIM VALUE', 'PROJECTS', 'METRICS', and 'SIGN OUT'. The main header area features the 'BIM Value Benchmark' title and logos for 'Alliance BiM' and 'Sustainable Built Environment'. Below the header is a large wireframe image of a building structure. Underneath the image, the user's role is listed as 'BIM VALUE ADMIN' for 'DIEGO MARTINEZ' at 'SPORTBUDDHA', with an 'EDIT PROFILE' link. A central navigation bar contains three buttons: 'GRANT ACCESS', 'CREATE NEW PROJECT', and 'EXPORT REPORT'. The main content area is titled 'CURRENT PROJECTS' and lists two entries: 'PROJECT 1 - TOM UGLY'S BRIDGE UPGRADE' with a duration of '01 January 2015 - 30 December 2016' and a brief description, and 'PROJECT # 2' with a duration of '(not defined)'. At the bottom, there is a 'Useful Links' section with links for 'Guidelines', 'NATSPEC BIM', and 'SBErec Videos'. A footer contains copyright information: 'Copyright © 2014 SBErec - Terms of Service - Contact'.

BIM Benchmark Project Dashboard (Draft)

BIM VALUE
PROJECTS
METRICS
SIGN OUT

## BIM Value Benchmark





### PROJECT 1 - TOM UGLY'S BRIDGE UPGRADE

RPT | 2016

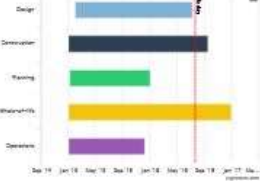
This is a project description, it very briefly describes a project that involves upgrading Tom Ugly's bridge. Not the name though - the name is great, very historic.

ACCOUNT
ABOUT
EXPORT REPORT
ACCESSIBILITY

#### PROJECT SUMMARY

Current life cycle phase	Design	01/06/2016	01/06/2016
Complexity	Construction	01/01/2016	06/16/2016
Project type	Planning	05/06/2016	01/01/2016
Project value	Whole of life	01/01/2016	12/30/2016
Number of stakeholders	Operations	01/01/2016	11/09/2016
Coordinating stakeholder	<input type="button" value="SAVE"/>		
<input type="button" value="SAVE"/>			

#### PROJECT TIMELINE



#### METRICS SUMMARY

Current metrics	Measurement option	Time period of use	Current Value
Cost of change	Cost of change-client	22 June 2016 - Present day	83.33%
Cost of change	Cost of change-supply	30 June 2016 - 05 July 2016	40.00%
Cost of change	Investment cost of change	04 July 2016 - Present day	-36000.00 AUD
Labour intensity	Planned man-hour's baseline method	30 June 2016 - 30 July 2016	-16000.00 hour
Labour intensity	Last time assessing	04 May 2016 - Present day	83.33%
Request for information	Total RFI	05 July 2016 - Present day	46.00 month
Time for change	Change-quantity	09 May 2016 - 31 June 2016	42.11%
Time for change	Time for change (N)	31 May 2016 - Present day	40.00 day
Time for change	Total project time for change	30 June 2016 - Present day	36.00 Days
Variations and change orders	Change orders-client	05 July 2016 - Present day	2.50 changes/week
Variations and change orders	Change orders-project manager	30 June 2016 - Present day	0.46 changes/week

#### TOOLS AND PROCESSES SUMMARY

Enabler	Time Period of Use	Specific Product
Design authoring (3D/visualisation)	<a href="#">21 June 2016 - 31 July 2016</a>	<input type="button" value="Add Product..."/>
Digital fabrication	<a href="#">01 July 2016 - 31 July 2016</a>	<input type="button" value="Add Product..."/>
GIS-BIM	<a href="#">22 June 2016 - Present Day</a>	<input type="button" value="Add Product..."/>
Design authoring (3D/visualisation)	<a href="#">07 June 2016 - Present Day</a>	<input type="button" value="Add Product..."/>
Disaster planning and response/disaster analysis software	<a href="#">04 June 2016 - Present Day</a>	<input type="button" value="Add Product..."/>
Information delivery manual (IDM4)	<a href="#">01 June 2016 - Present Day</a>	<input type="button" value="Add Product..."/>
BIM-based asset management system	<a href="#">Click to add...</a>	<input type="button" value="Add Product..."/>
Common data protocol and environments	<a href="#">Click to add...</a>	<input type="button" value="Add Product..."/>
Connectability strategy	<a href="#">Click to add...</a>	<input type="button" value="Add Product..."/>
Cost estimation (quantity take-off)	<a href="#">Click to add...</a>	<input type="button" value="Add Product..."/>
Cost estimation (quantity take-off)	<a href="#">Click to add...</a>	<input type="button" value="Add Product..."/>

[Useful Links](#)

## Appendix 2: PBM Survey Results

Rating is based on a three point scale: -1 for low importance, 0 for medium importance and +1 for highly important.

<b>Deliverable/Aspect</b>	<b>Rating</b>
<b>Benchmarking tool</b>	<b>0.67</b>
Functional and operational	0.83
Hosted by NATSPEC	0.83
Made known through industry newsletters and magazine articles	<b>0.33</b>
<b>Part 2 recommendations</b>	0.83
Disseminated as a report	0.50
Disseminated through magazines	0.33
Disseminated as a video	0.33
<b>Project steering group meeting</b>	<b>0.67</b>
Representation from cross-section of industry stakeholders	0.83
High levels of participation	0.50
Chaired by independent industry or government person	0.33
<b>Project update report</b>	0.83
Formal document every 6 months	<b>0.67</b>
Published on the website	0.67
Ongoing oral presentations to the PSG	0.67
<b>Six-monthly project review</b>	<b>0.83</b>
Inclusion of feedback from all core and project partners	0.50
Inclusion of feedback from project affiliates	0.17
Six-monthly document review processes	0.33
<b>Conference paper</b>	<b>0.00</b>
Produced during project	-0.40
Presented at industry conference	-0.20
Presented at academic conference	-0.60
<b>Journal paper/chapter</b>	<b>0.17</b>
Written during project	-0.20
Inclusion of project partners and affiliates as co-authors	-0.40
Submitted to high impact journal	0.20

<b>Industry dissemination seminar</b>	0.67
Carried out at the end of the project (informational)	<b>0.60</b>
Carried out at a stage when feedback can be considered for final outcomes	0.20
Carried out in several cities	0.20
<b>Final report</b>	<b>1.00</b>
Professionally edited and designed	1.00
Printed copies	0.40
Available online	0.80
<b>YouTube Video</b>	<b>0.20</b>
Professionally produced overview	0.00
Tutorials produced in-house	-0.20



### Appendix 3: Updated Project Timeline

