OSM COLLABORATION TRAINING

BUILT ENVIRONMENT & URBAN TRANSFORMATION:

Off Site (OSM) Manufacturing Collaborative Practices to Deliver Change

WESTERN SYDNEY UNIVERSITY

Australian Government Australian Research Council

RMIT UNIVERSITY

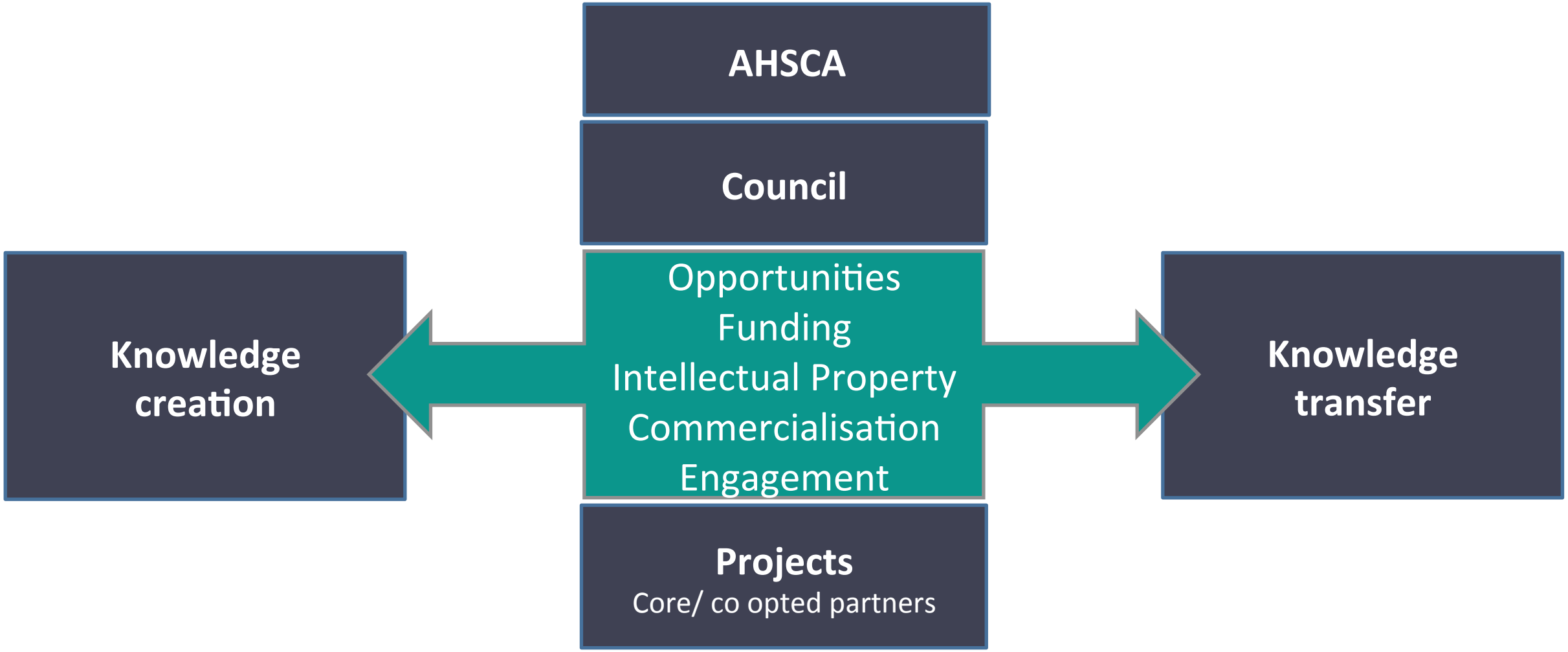
FRASERS PROPERTY

fmg ENGINEERING incorporating BURNS HAMILTON

metricon

Master Builders ASSOCIATION

Who is part of this project?



Who is part of this project?

Our Key Partners

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Australian Research Council

WESTERN SYDNEY UNIVERSITY

FRASERS PROPERTY

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metricon

RMIT UNIVERSITY

Our Supporters

AUSTRALIAN NATIONAL HOUSING SUPPLY CHAIN ALLIANCE (ANHSCA)

BORAL

CSR

University of South Australia

HIA

leanconstruction australasia institute

Past project…2014

China Australia Industrialised Building Project

Integrated International Construction Supply Chains - Knowledge Transfer for Seamless Off-site Housing Systems

Conducting joint public guest lectures and workshops in universities of China.

Visiting the relevant off site housing systems manufacturing facilities in China.

Capturing, sharing, transferring and documenting knowledge related to off site housing systems acquired before, during and after the visit.

China Challenges

Modular Housing stakeholders

- **Gaining certification** from foreign countries' government, and meeting foreign countries' regulations, standards and requirements
- **Transportation delays** impact servicing of contracts, increase lead times and affect profitability, company credibility
- Profitability is decreasing because of the **increase in competition**
- **Communication with clients on design**; changes of design and scope; lack of communication between design and construction units & drawing errors

China Challenges: High rise developer

Government role

- No support in the beginning for development of new technology
- Little policy/regulation on new technology
- Cost on generating new technology

Technical

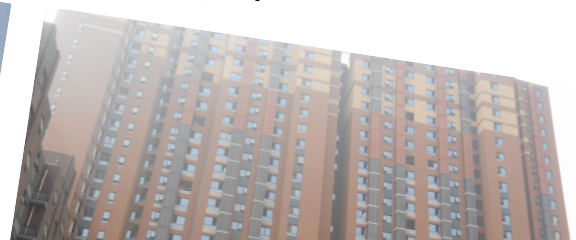
- Lack of technologies
- Size of the parts can vary and are difficult to manufacture

Skills

- Lack of skills across range of stakeholders (labours, traders, professionals);
- Lack of experience in new technologies: mfrs don't know how to make components; designers don't know how to design for etc…

Cost

- Increased cost of building. Increase by 100-500RMB/m^2



Australia Challenges

Economics and market

- **Insufficient demand** from housing contractors for profitability and ROI
- Market stability
- Fear of being innovator (first to market) only to have technology copied before ROI is achieved (ip)
- Fear of imported products/systems that are less costly
- Economic risk in **start-up capital costs** for land and factory

Technical

- New products/systems bring with it new challenges
- Lack of knowledge of technology and thus R&D investment
- Lack of onsite capability to problem solve installation
- Unexpected site constraints delay installation : IR
- Lack of compliance to current regulations and thus increased time to negotiate new approvals for compliance

Australia Challenges

Skills

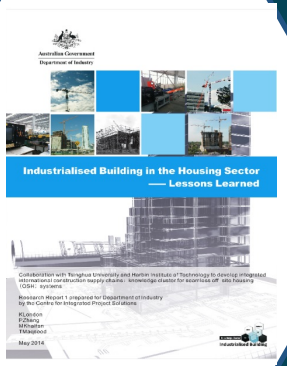
- Lack of technical knowledge for **onsite installation**
- Level of PM capabilities (reliance of subcontractor system)
- Assurance in quality
- Lack of **predictability/standardization** of construction methodology
- Lack of **input at early decision making stage**
- Lack of Building Information Modelling

Economics and market

- Nervousness of **equivalent quality** provided by **alternatives**
- **Competition:** Cost of alternative product/system does not affect the price point for a particular customer range

International Collaboration

Outputs



Lessons Learned

Industrialised Building Knowledge Cluster

Website

Industrialisedbuilding.com.au

Current Practice

Research Roadmap

So where to now?

Informed and positioned the ARC Linkage project:
Shared understanding & we could talk about:

- ❑ innovation
- ❑ off site manufacturing
- ❑ supply chains

Housing sector challenges

OBSERVATIONS

Fragmentation

Increasing construction time

SOLUTION

OSM addresses fragmentation

CHALLENGE

high levels of collaboration

ROOT CAUSE

Craft based construction

Inefficiency in construction process

What were our project goals?

OBJECTIVES

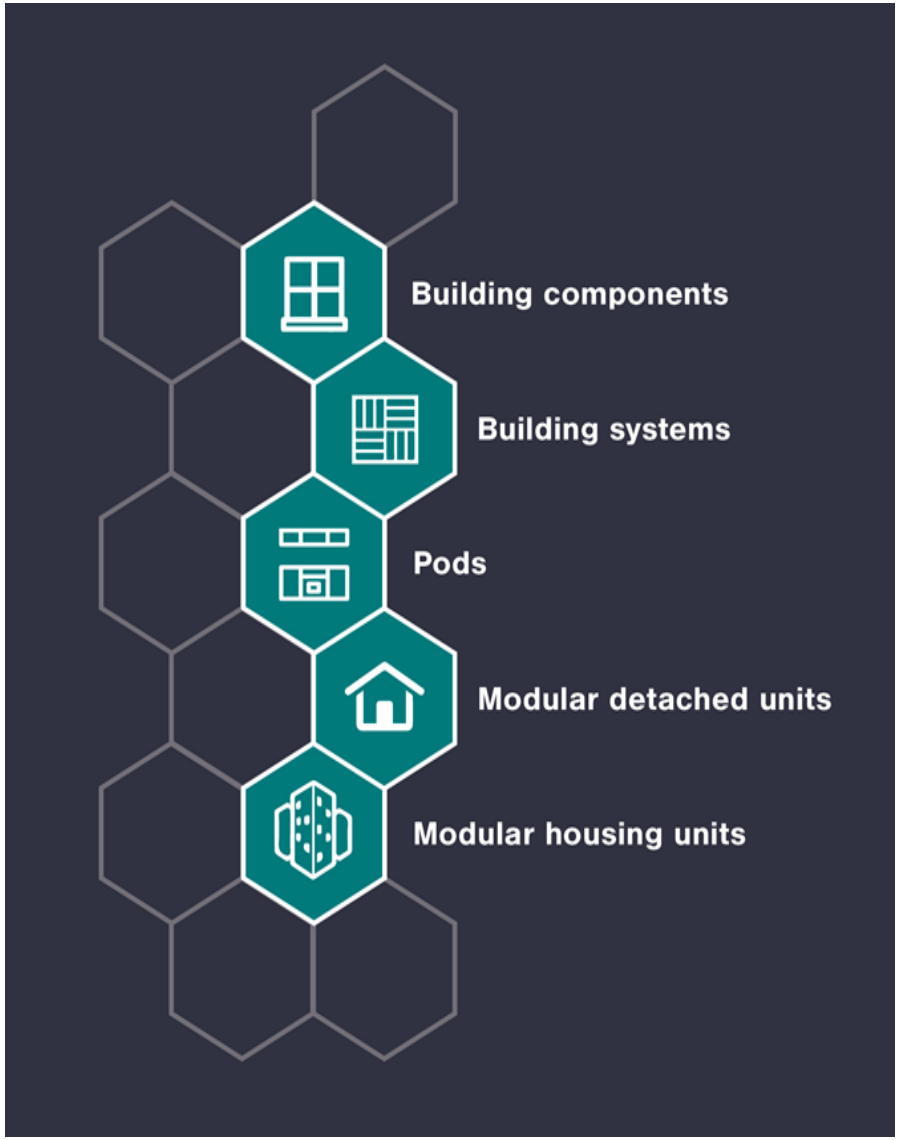
- Identify drivers & barriers to OSM
- Examine the nature of collaboration in OSM networks
- Explore collaboration and effectiveness link

OUTCOMES

- Theoretical contributions: change, innovation, collaboration, supply chains
- Collaboration models for practice
- Training materials; recommendations for housing policy

What is OSM?


F4 C-27
Smartstruct


Building components
Building systems
Pods
Modular detached units
Modular housing units

What is OSM?

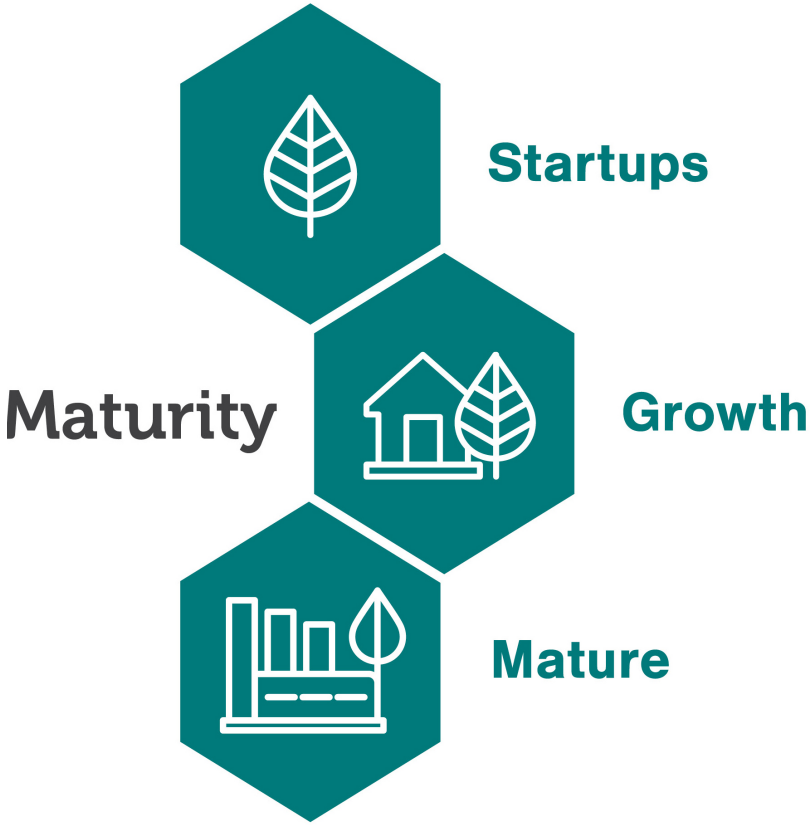
Building components	• windows, roof trusses, prefabricated concrete columns and beams, etc
Building systems	• timber cassette floors, panel wall systems
Pods	• Kitchen and bathroom pods
Modular detached units	• affordable housing, volume customised housing, disaster relief shelters, construction camp dwellings, mining camp offices
Modular housing units	• Complete units stacked into low-medium or high-rise buildings

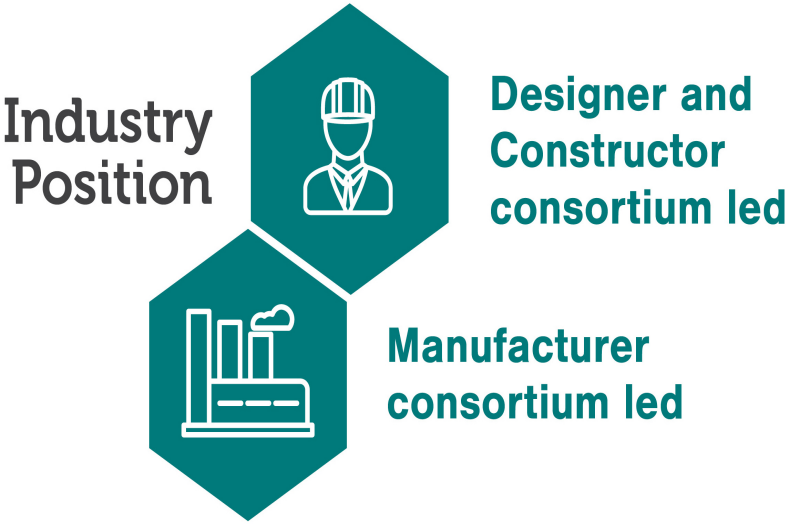
What did we investigate?

CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
VIC	SA	TAS	VIC	VIC
MNE	SME	SME	Startup	Startup
Systems	Modular detached	Components	Components	Components
Low to medium rise	Single storey, detached	Housing and commercial, low to medium rise	Housing, low-rise, detached	Housing, low-rise, detached

Who does OSM?


Size
Micro
SME
MNC


Maturity
Startups
Growth
Mature


Industry Position
Designer and Constructor consortium led
Manufacturer consortium led

How did we investigate?

2015-2017

- 5 OSM supply chains
  29 in-depth interviews
  Intensive qualitative analysis
- Project Steering Committee every 3 months
- Academic publications

2016-2017

- Identification of 102 themes from data
- Categorization into nine Collaborative Practice Elements
- Events

2017

- Development of suite of training materials based on elements

How did we investigate?

Five case studies

Nine collaborative practice elements

Training materials

Data (1200+ pages)

Themes (102) and Categories (4)

Collaborative Practice Elements (9)

What makes OSM work/fail?

…when we're doing everything, that closes the door to other collaborations, or makes people sort of, not suspicious, but wary of collaborating with us. So it's wary for architects to collaborate with us because are we their competition? It's wary for builders to collaborate with us, because are we their competition, when we're neither.

So from assembly teams, to the guys working at the plant, they're all going to be rotating…[they will also] assemble. Because they've all got the same skill levels.

So the exciting thing about it is that we can partner with other people that aren't necessarily just the prefab lab or just on a workshop build. We've got the opportunity to work with other builders. We've got the opportunity to team up with other designers for another design thing.

Working in teams definitely works better depending on what you're working on. So certain components are relatively small and minor. It depends on what you're working on. Sometimes more people is better; sometimes a smaller team's better, sometimes on your own.

SAMPLE DATA

What makes OSM work/fail?

THEME #2: CONFLICTS OF INTEREST

...when we're doing everything, that closes the door to other collaborations, or makes people sort of, not suspicious, but wary of collaborating with us. So it's wary for llaborate with us because mpetition? It's wary for orate with us, because are we their competition, when we're neither.

THEME #38: FLEXIBLE EMPLOYEE SKILL SETS

So from assembly teams, to the guys working at the plant, they're all going to be rotating...[they will also] assemble. Because they'

THEME #32: FLEXIBLE STRUCTURE

So the exciting thing about it is that we can partner with other people that aren't necessarily just the prefab lab or just on a We've got the opportunity er builders. We've got the opportunity to team up with other designers for another design thing.

THEME #37: OPTIMAL TEAM SIZE

Working in teams definitely works better depending on what you're working on. So certain components are relatively small and min you're workin people is better, sometimes a smaller team's better, sometimes on your own.

What makes OSM work/ fail?

Theme 32:

Flexible structure

Theme 38:

Flexible skillsets

Theme 37:

Optimal team size

Theme 2:

Conflicts of interest

COLLABORATIVE PRACTICE ELEMENT #8: ORGANISING MECHANISMS

What makes OSM work/fail?

that's why it's really crucial to get the factory certified, and the traceability through that, we need to have our traceability plans all the way through it. So if we get someone that's in North Queensland and says what R rating material did you put in this wall we can pull out build materials and says this is what actually went in and by the way this is the photo of what that wall construction looks like and these are all the components; here's the electrical in the walls, here's the plumbing in the walls, here's this in the walls, it's all there.

So once your systematise every aspect of the construction, you need less - it's more of a repetitive task, which is easy to achieve quality and you can also have apprentices doing it rather than carpenters with 20 years' experience or something.

…trying to take the technical terms and knowledge used by the senior staff and simplifying it so that it's easily understood by floor staff. That's my basic description of my job.

…they're quite a simple boxy product, there's not too much to it, so it's quite simple…It's pretty much the same if you're building a transportable type home onsite, but, obviously, if it's a non-transportable design there's a lot more flexibility in the design, and the size, and everything.

What makes OSM work/fail?

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THEME #25
quality assurance

So once your system
construction, you need
task, which is easy to achieve quality and you can also have apprentices doing it rather than carpenters with 20 years' experience or something.

THEME #42
repeatable systems

nd knowledge used by
so that it's easily
asic description of my job.

THEME #48
User-friendly documentation

...they're quite a simple boxy product, there's not too much to it, so it's quite sim
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onsite, but, obviously, if it
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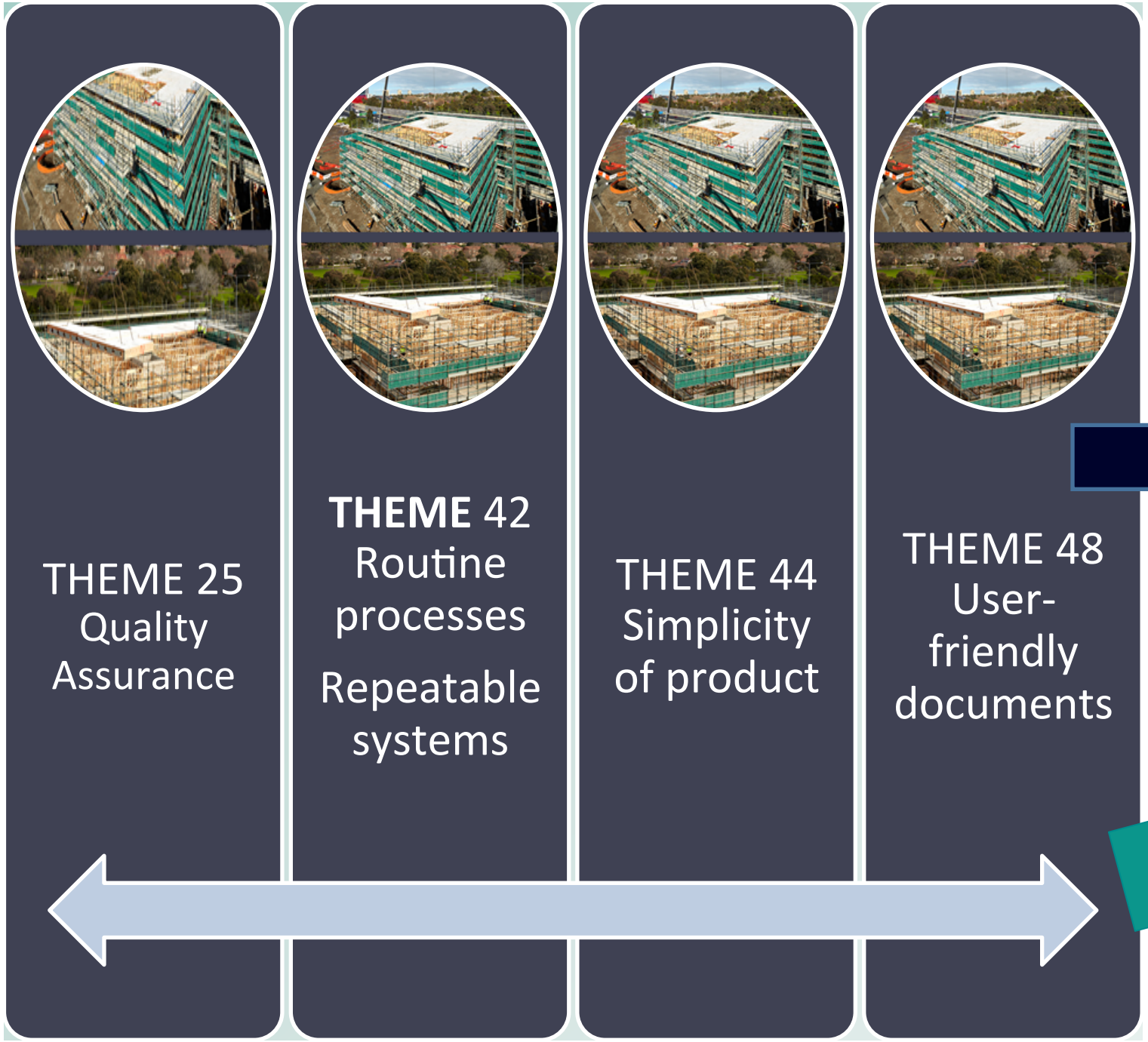
THEME #4
simplicity of product

What makes OSM work?



COLLABORATIVE PRACTICE ELEMENT #9: TECHNICAL STANDARDS

drivers

What makes OSM work/fail?

…engineers will always be involved nice and early because in prefab very often everything has to be – you can't work it out onsite. So the engineers are producing more documentation than they probably would be in a traditional build. …
The prefabrication is a lot more work. Like, documenting that, in that method, there's a lot more work than just doing a traditional house.

And again when I started, there's no agreements in place, there's no pricing grid there's no SLRs, there's no any of those things. So I'm trying to bring to that, like get some agreements in place. Because I want to understand timeframes, for me, it's about, time costs quality, and get that, and less of the handshake.

Then we checked it and we would go to them and say "This is out. This is not within tolerance." And they would reply by saying, "It's only five millimetres. It's nothing." And I said to them we need to change our mindset, we need to persist and get more accurate in this and really put the effort in.

But because we know exactly how much quantity we're going to have the builders don't know that so if we talk to a builder they'll talk to – they'll say my plumber has cost me $3500 for that job to do that house and we'll say, you know what, to buy a bit of plastic, put some pipes in and do all that stuff it's probably about $700 so tell me how you make up the labour at $3500? That's the conversations we're having with the builders.

What makes OSM fail?

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The prefabrication is a lot more work. Like, documenting that, in that method, there's a lot more work than just doing a traditional house.

THEME #4: INFORMATION-SHARING HURDLES

And again when I started, there's no agreements in place, there's no p there's no p those things agreements timeframes, for me, it's about, time costs quality, and get that, and less of the handshake.

THEME #14: LACK OF FORMAL AGREEMENTS

Then we checked it and we would go to them and say "This is out. This is not within tolerance." And they imetres. It's change our e accurate in this and really put the effort in.

THEME #63: TIGHT TOLERANCES

But because we know exactly how much quantity we're going to have the builders don't know that so if we talk to a builder they'll talk to – they'll say my plumber has cost me $3500 fo know what, do all that stuff it's probably about $700 so tell me how you make up the labour at $3500? That's the conversations we're having with the builders.

THEME #22: INCREASED TRANSPARENCY

What makes OSM fail?

THEME 4 information sharing hurdles

THEME 14 lack of formal agremenets

THEME 22: increased transparency

THEME 63 tight tolerances

COLLABORATIVE PRACTICE ELEMENT #9: TECHNICAL STANDARDS

barriers

What makes OSM work/fail?

OFF SITE MANUFACTURING

DRIVERS

- Perceived business benefits such as new markets, increased speed safety,
- Compelling evidence that worked in other settings,
- Ease of demonstrating OS compliance with existing r
- Limitations of existing construction solutions.

BARRIERS

- Lack of skills in construction and project
- acturing skills needed to OSM construction, ital or financial lls training, or specialised d
- he need for significant groundwork to be aid by HR for long-term career planning.

COLLABORATION

DRIVERS

- Collective mindset, thinking as one,
- Flexible structure that supports collaboration,
- Flexible employees with multiple skill sets and a problem solving approach, enabled through job rotation, and
- Involvement of different stakeholders at early stages of and initiative.

BARRIERS

- Actors focussing on own goals, lack of teamwork,
- Conflicts of interest, trade-offs (eg internal collaboration hampers external collaboration),
- Excessive focus on relationships at the expense of performance, and
- Perception that collaboration requires investment without guaranteed returns.

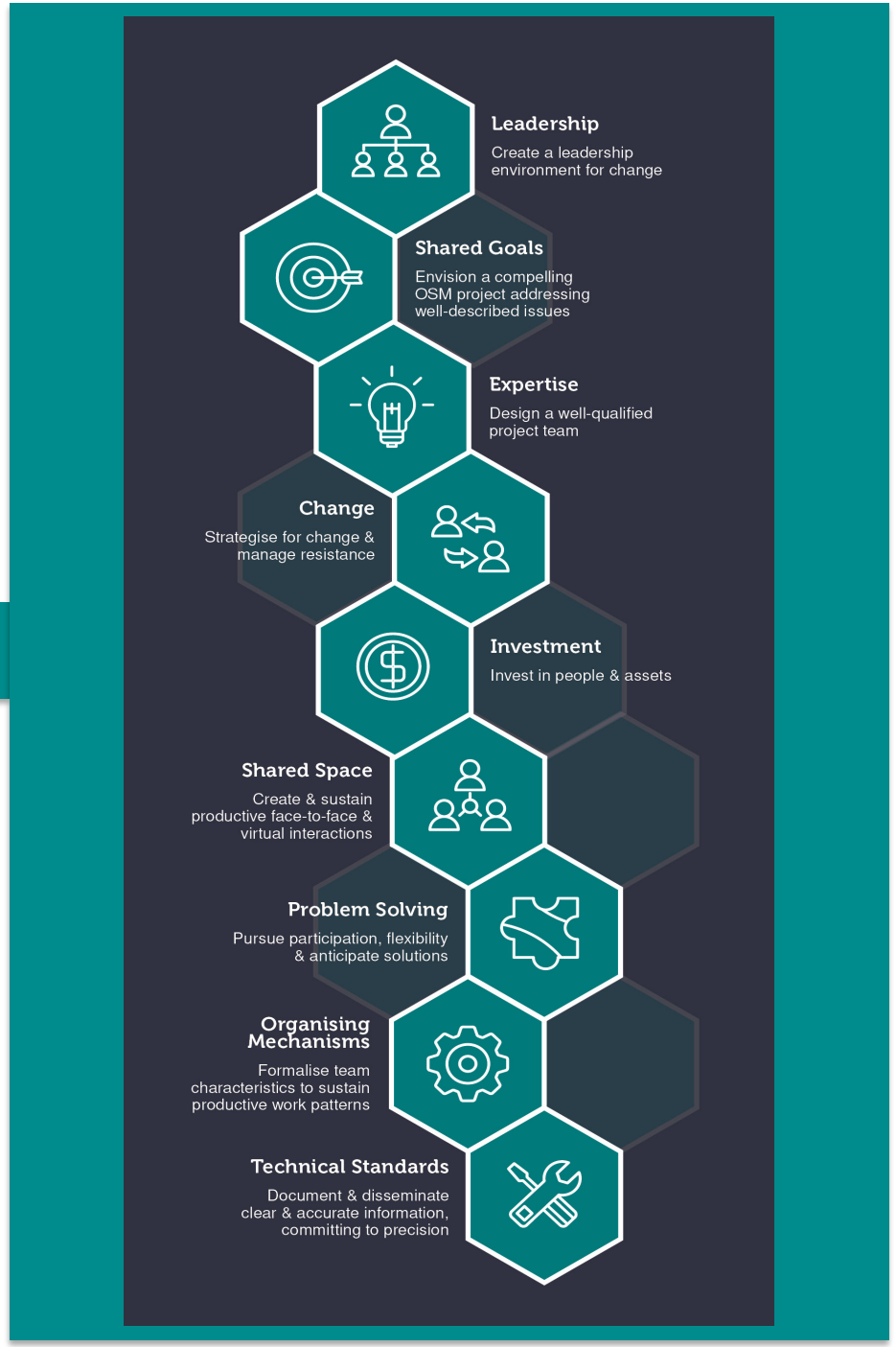
ORGANISING MECHANISMS

How did we develop training?

Five case studies

Nine collaborative practice elements

Training materials



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Highlights

- Interactive collaborative training experience at MBAV, or customised at a given location
- 2-3 participants interacting with actors
- Evaluation by organisational psychologists
- Two training scenarios, individual and group

What makes up the training package?

Five case studies

Nine collaborative practice elements

Training materials

1. Collaborative Practice Model
2. Collaborative Practices Actions (CPA) and Position Competency Matrix
3. CPA Index
4. Indicator Descriptors
5. Training Scenarios
6. Collaborative Practice Training

Collaborative practice competencies	• 130+ specific knowledge, skill, and behavioral attributes linked to collaboration
Collaborative practice index	• Allows organizations to assign weights to competencies, supporting customisation
Indicator descriptors	• Detailed training instrument for assessing high, medium, and low attainment of attributes
Training scenarios	• Carefully-scripted scenarios with hired actors to create an authentic collaborative training experience
Training scenario structure	• Grid showing how lines in the script map to competencies
Conceptual links between scenarios, structure and theory	• Grid showing how scenarios and competencies map to specific elements of our theoretical approach (Actor-Network Theory)
Conceptualization of network creation	• Concept map showing how our empirical data enriches understandings of network creation

PRACTICE

THEORY

Back of house

2

Collaborative Practices Actions and Position Competency Matrix

Demonstrate awareness and understanding ie comprehension

Demonstrate expertise through application ie working knowledge

Collaborative Practices Category	Collaborative Practice Actions and Competency	CEO/Senior Executive	Initiative Leader (s)	Project Team members	Operational Team Members
1. Leadership	Knowledge				
	1. Expertise in formal strategic planning processes				
	2. Expertise in informal strategic planning processes				
	3. Technical knowledge on developing feasibility studies for OSM				
	4. Pr				
	Skill				
	1. Sc				
	2. Sc				
	3. Id				
	4. M				
	5. Co				
	6. Es				
	Beh				
	1. Pr				
	2. De				
	3. Fa				
	4. Ac				
	5. De				
2. Goals and Norms	Know				
	1. Te				
	2. Kn				
	3. Kn				
	4. Un				
	5. Un				
	6. Un				
	7. Un				
	Skill				
	1. Pr				
	2. Cr				
	3. Ac				
	4. De				
	Beh				
	1. Cr				
	2. Ac				
	3. Fo				
	4. Co				
3. Expertise	Know				
	1. Ex				
	2. Ex				

4

Collaborative Practice Action Indicators Descriptors

Collaborative Practice Category	Collaborative Practice Actions	High Level of attainment	Acceptable level of attainment
Leadership	Skill 1.5. Communicates a compelling OSM vision and translates vision into concrete feasibility studies Skill 1.1. Scans systematically external en opportunities and threats Skill 1.3. Identifies a viable position (cost	Explains why OSM could be a successful strategy for their own organization and the organization of other members involved in this	Explains general OSM principles and presents reasons why OSM is a viable strategy for own organization and may be able to explain how
Goals and Norms	Skill 2.1. Presents project goals in a comp justification for the use of OSM.		
Expertise	Knowledge 3.1. Extensive knowledge of g work tasks Behaviour 3.5. Identifies knowledge gaps Skill 3.1 Translates project success indicat Skill 3.2. Identifies characteristics and con an innovative project with an uncertain e Skill 3.7. Commits to the short-term train long-term capacity building across partne		
Change	Behaviour 4.1 Identifies how current reso C21 Behaviour 4.2 Frames OSM-related chan Behaviour 4.4 Addresses concerns relate Skill 4.5 Manages resistance and objectio		

V4_CPModel and Index.xlsx - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

C4 | 1. Expertise in formal strategic planning processes

Demonstrate awareness & understanding

Demonstrate expertise through application

	B	C	D	E	F
2	Collaborative Practices Category	Collaborative Practice Actions	CEO/Senior Executive	Initiative Leader (s)	Project Team members
3	Leadership	Knowledge			
4		1. Expertise in formal strategic planning processes			■
5		2. Expertise in informal strategic planning processes			
6		3. Technical knowledge on developing feasibility studies for OSM			
7		4. Principles of organizational and project leadership			
8		Skills			
9		1. Systematically scans the external environment and identifies OSM-related opportunities and threats			
10		2. Systematically scans the internal environment and identifies pertinent organizational strengths and weaknesses			
11		3. Identifies a viable position (cost leader, niche, etc) for the firm in the industry			
12		4. Mobilizes robust research to support OSM-related recommendations			
13		5. Communicates a compelling OSM vision and translates vision into concrete feasibility studies			
14		6. Establishes a track record for success with new OSM products or markets.	■		
15		Behaviors			
16		1. Presents a compelling vision for OSM to industry and to organizational leaders	■		
17		2. Demonstrates prospecting behaviors that support the exploration of new OSM products and markets	■		
18		3. Balances leadership role by mobilizing empowerment strategies			
19		4. Adopts a flexible approach to leadership			
20		5. Demonsrates openness to the potentials of untried OSM solutions			
21	Goals and norms	Knowledge			
22		1. Extensive knowledge of general construction, OSM processes and discrete work tasks	■		

Collaborative Practices | CP & Position Competency Matrix | CPA Index | Indicator Descriptors (Testing) | Training and Development | Training Scenarios | CollabPracticesTraining 7a | CollaborativeTraining7b

Ready 130%

Leadership	• Creating a leadership environment for change
Goals and Norms	• Envisioning a compelling OSM project that addresses clear problems
Expertise	• Designing a well-qualified project team
Change	• Strategising for change and for managing resistance
Resource Investment	• Investing in people and assets
Shared Space	• Creating and sustaining productive face-to-face and virtual interactions
Problem Solving	• Pursuing participative, flexible and anticipatory solutions
Organising Mechanisms	• Formalising team characteristics to sustain productive patterns of work
Technical standards	• Documenting and disseminating clear and accurate information

2

Collaborative Practices Actions and Position Competency Matrix

■ Demonstrate awareness and understanding ie comprehension

□ Demonstrate expertise through application ie working knowledge

Collaborative Practices Category	Collaborative Practice Actions and Competency	CEO/Senior Executive	Initiative Leader (s)	Project Team members	Operational Team Members
1. Leadership	**Knowledge**				
	1. Expertise in formal strategic planning processes	□	□	■	
	2. Expertise in informal strategic planning processes	□	□	■	
	3. Technical knowledge on developing feasibility studies for OSM		□	□	
	4. Principles of organisational and project leadership	□	□		
	Skills				
	1. Scans systematically external environment and identifies OSM-related opportunities and threats	■	□		
	2. Scans systematically internal environment and identifies relevant organisational strengths and weaknesses	■	□		
	3. Identifies a viable position (cost leader, niche, etc.) for the organisation in the industry	□	□		
	4. Mobilises research to support OSM-related recommendations		□		
	5. Communicates a compelling OSM vision and translates vision into concrete feasibility studies		□		
	6. Establishes a track record for success with new OSM products or markets.	■	□		
	Behaviours				
	1. Presents a compelling vision for OSM to industry and to organisational leaders	■	□		
	2. Demonstrates prospecting behaviours that support the exploration of new OSM products and markets	■	□		
	3. Facilitates empowerment strategies and mentor staff	□	□		
	4. Adopts a flexible approach to leadership	□	□		
	5. Demonstrates openness to the potential of untried OSM solutions	□	□	□	

Collaborative Practice Action Indicators Descriptors

4

Collaborative Practice Action Indicators Descriptors

Collaborative Practice Category	Collaborative Practice Actions	High Level of attainment	Acceptable level of attainment	Minimal level of attainment
Problem Solving	**Behaviour 7.1.** Establishes a non-threatening, accepting environment where problems can be anticipated and discussed without fear of reprisal **Skill 7.5**. Develops systems of rewards and incentives for participants, assists in the removal of hurdles to problem solving	Encourages team members to anticipate an exhaustive range of problems, objections and issues in relation to OSM. Creates intentional and regular opportunities for problem solving, for example by allocating a part of the meeting to discuss and address problems. Encourages participatory problem solving and the proposal of creative, outside-the-box solutions to OSM issues by supporting cross-disciplinary interaction leading to innovative solutions. Positively reinforces problem and solution identification through feedback.	Encourages team members to identify important problems, objections and issues in relation to OSM. Encourages participatory problem solving by identifying appropriate specialists needed to address issues, leading to expert-driven though not necessarily novel solutions. Positively reinforces problem and solution identification through feedback.	Demonstrates openness and acceptance when problems, objections and issues are raised by team members in relation to OSM. While care is taken not to penalise the practice of raising problems, no measures are taken to actively encourage it.
Organising Mechanisms	**Skill 8.1.** Defines team membership, taking into consideration issues such as size and functional diversity required **Skill 8.3.** Defines roles per team member, identifies team strengths and weaknesses and identifies gaps in skills **Behaviour 8.1.** Conducts efficient and effective team meetings	Defines a comprehensive list of roles, goals and performance indicators for key members. Organises team taking into consideration factors such as team size, hierarchyand degree of centralisation/ decentralisation. Systematically identifies strengths and weaknesses within the team based on required skill sets and also notes "missing" partners or skill sets. Translates goals and roles into milestones. Uses meetings effectively to track accomplishments of these milestones (task element) while proactively managing interpersonal dynamics (relational element).	Defines a list of roles and goals for key members. Suggests a team structure. Identifies strengths and weaknesses within the team, pointing out obvious gaps like missing members but overlooking more nuanced gaps in skills. Translates goals and roles into milestones. Uses meetings effectively to track accomplishments of these milestones (task element). Addresses interpersonal dynamics (relational element) when the need arises.	Defines general roles for key members. Clarifies team membership but does not consider other organising mechanisms like size, hierarchyand structure. Identifies strengths and weaknesses within the team based on common sense notions of traditional project team membership. Focuses on task accomplishment during meetings; largely overlooks relational component.
Technical Standards	**Knowledge 9.5.** Understanding of the principles and strategies of sound information management and applies these in response to new knowledge created out of the new OSM processes	Presents knowledge creation as a key goal of undertaking the OSM initiative. Leads discussions on formulating strategies for all stages of information management, highlighting the precise and information-driven nature of OSM operations. Acknowledges the importance of managing tacit as well as explicit knowledge. Notes the importance of sharing knowledge beyond the supply chain to the industry.	Notes the importance of information management, particularly in light of precision-driven OSM processes, but does not connect it to a larger knowledge-sharing vision. Proposes a number of strategies for key aspects of knowledge management, including knowledge capture (for example formal documentation, standards for plans and drawings). Emphasises the importance of information-sharing within the team but does not mention the rest of the industry.	Notes the importance of key aspects of information management (for example information sharing), but overlooks some aspects of the process (for example how vast opportunities for creating information emerge from new OSM initiatives). Proposes key strategies in support of this narrow definition of information management. Does not recognise how the precise nature of OSM reshapes information-related processes.

Collaborative Practice Actions

TECHNICAL STANDARDS

KNOWLEDGE

1. Extensive knowledge of best practices information management to support general construction and OSM processes
2. Extensive knowledge on documentation requirements of standard industry building codes and regulations and their implications on OSM
3. Technical knowledge on issues where compliance with standards are critical (for example manufacture, material flow, lifting, transportation and installation of an OSM product)
4. Expertise in developing detailed programs of work clearly linked to technical standards

Collaborative Practice Actions

TECHNICAL STANDARDS

SKILLS

1. Establishes a culture that supports commitment to information-sharing on agreed upon processes and output standards, particularly those related to manufacture, material flow, transportation and installation
2. Leads team in creating new transparent process and output standards
3. Manages information systems in a reflective manner, balancing timeliness and level of detail (information overload vs. transparency)
4. Identifies points of convergence and divergence between sets of standards (for example can identify if seemingly “new” OSM engineering standards are actually equivalent to existing ones)

Collaborative Practice Actions

TECHNICAL STANDARDS

BEHAVIOURS

1. Commits to agreed-upon team standards, including tight tolerances that characterise OSM processes and outputs, particularly those related to manufacture, material flow, transportation and installation
2. Documents, formalises and disseminates standards at optimal levels of detail required by team (balancing trade-offs between level of detail and simplicity)
3. Updates existing standards to reflect existing best practices

Collaborative Practice Actions

TECHNICAL STANDARDS

HIGH

Presents knowledge creation as a key goal of undertaking the OSM initiative. Leads discussions on formulating strategies for all stages of information management, highlighting the precise and information-driven nature of OSM operations. Acknowledges the importance of managing tacit as well as explicit knowledge. Notes the importance of sharing knowledge beyond the supply chain to the industry.

Collaborative Practice Actions

TECHNICAL STANDARDS

ACCEPTABLE

Notes the importance of information management, particularly in light of precision-driven OSM processes, but does not connect it to a larger knowledge-sharing vision. Proposes a number of strategies for key aspects of knowledge management, including knowledge capture (for example formal documentation, standards for plans and drawings). Emphasises the importance of information-sharing within the team but does not mention the rest of the industry.

Collaborative Practice Actions

TECHNICAL STANDARDS

MINIMAL

Notes the importance of key aspects of information management (for example information sharing), but overlooks some aspects of the process (for example how vast opportunities for creating information emerge from new OSM initiatives). Proposes key strategies in support of this narrow definition of information management. Does not recognise how the precise nature of OSM reshapes information-related processes.

Training scenario structure and alignment

6b Training Scenarios Structure

Story line/ Scenario contents		Competency to test Link to Worksheet 2	Collaborative Practice	Creating the Network: Distribute Leadership Link to Worksheet 7c
NATURE OF "PRODDING" FROM ACTORS	TARGET INPUT FROM PARTICIPANT			
	We're launching our first new and innovative OSM project	**Skill 1.5** Communicates a compelling OSM vision and translates vision into concrete feasibility studies **Behaviour 8.1** Conducts efficient and effective team meetings	Leadership Problem-Soliving	(1a) Commitment of champion to OSM (3c) Degree of alignment
What is OSM anyway? (goal: make participant explain it)	OSM is X, Y, Z	**Knowledge 3.1** Extensive knowledge of general construction, OSM processes and	Expertise	(1a) Commitment of champion to OSM


AUZBILT
TRANSPORTABLE BUILDINGS
AUZBILT

BLSC BUILDING LEADERSHIP SIMULATION CENTRE

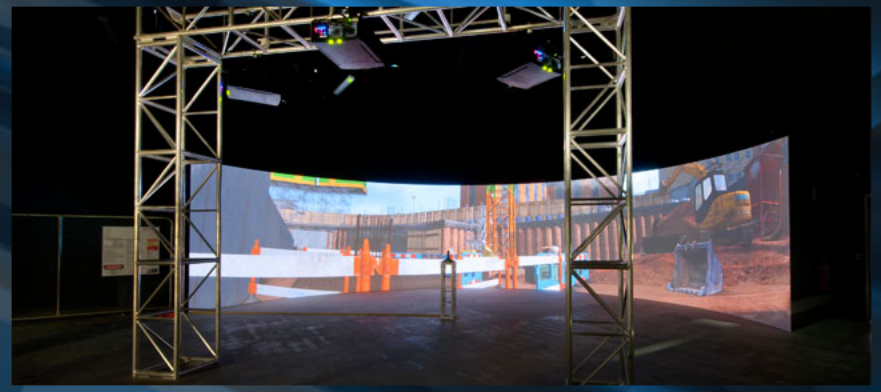
by | Master Builders

WHAT IS SIMULATED LEARNING?

By definition, simulation learning involves immersion of a participant in a realistic situation (scenario), created within a physical space (simulator), that replicates a real environment. With this in mind, the ethos at the BLSC is simple: **We learn by doing.**

The model of learning has a far greater, more immediate impact than traditional training methods.

The success of this type of training has been demonstrated over many years in the aviation and medical industries. For the first time in the Asia Pacific region, this type of technology and training is now available for the building and construction industry – only at the BLSC.




SLOW
GUARDALL
NO TOOLS LOANED

OSM COLLABORATION TRAINING

BUILT ENVIRONMENT & URBAN TRANSFORMATION:

Off Site (OSM) Manufacturing Collaborative Practices to Deliver Change

WESTERN SYDNEY UNIVERSITY

Australian Government Australian Research Council

RMIT UNIVERSITY

FRASERS PROPERTY

fmg ENGINEERING incorporating BURNS HAMILTON

metricon

Master Builders ASSOCIATION

Welcome

BLSC BUILDING LEADERSHIP SIMULATION CENTRE

BLSC Evolution

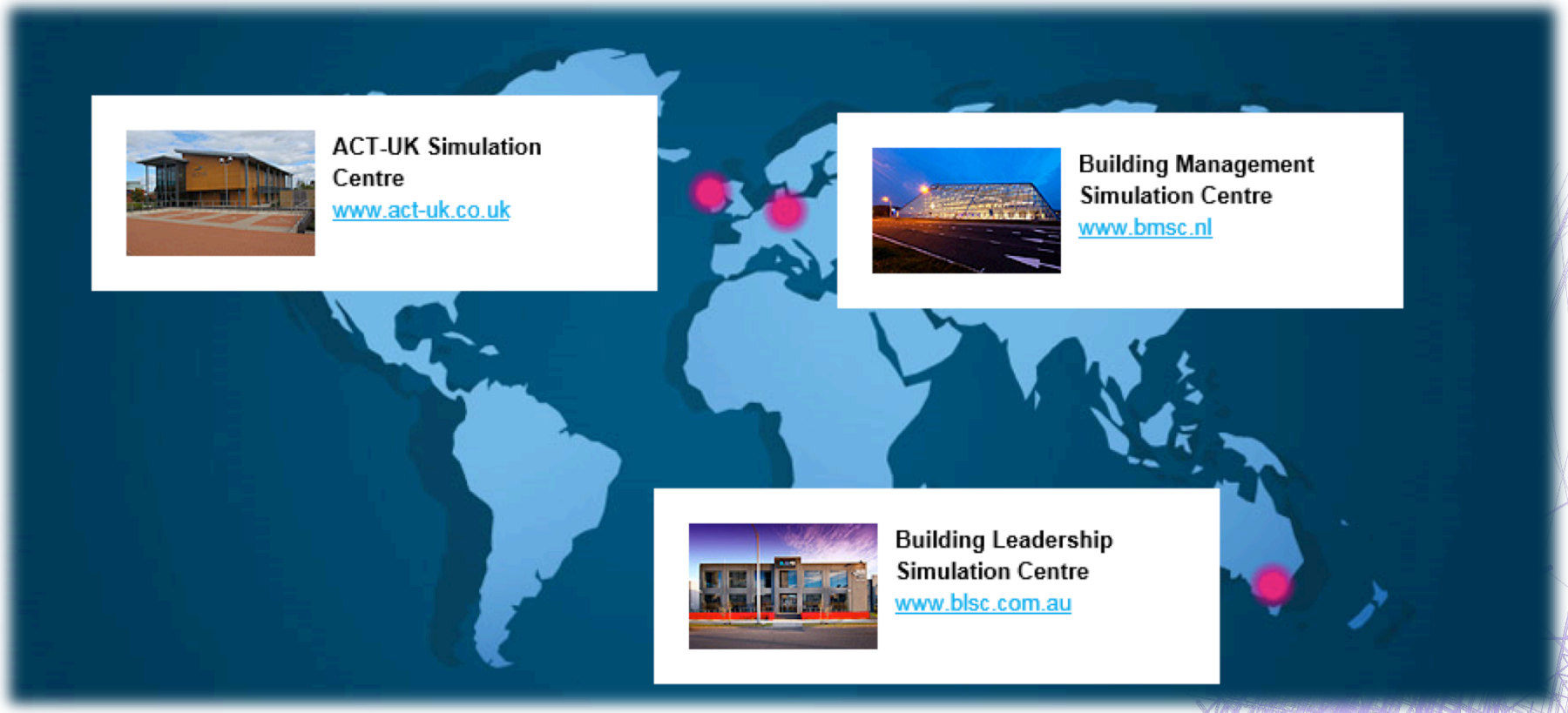
One of only three of it's kind in the world

20 years of experience in simulation learning

4000+ participants since opening in 2012

35,000+ participants internationally

Global Network



"I hear I forget, I see I remember, I do I understand." Confucius

Why simulation?

BLSC BUILDING LEADERSHIP SIMULATION CENTRE

Because fully immersive simulation provides the best opportunity for safe, controlled and powerful experiential learning . Participant practice in a realistic situation (scenario), created within a physical space that replicates a real environment (simulator).

Sustainable Behavioural Change = learning by doing (Experiential)

"For the things we have to learn before we can do them, we learn by doing them". Aristotle

Outstanding Results

BLSC BUILDING LEADERSHIP SIMULATION CENTRE

Our model of experiential learning achieves far greater and more immediate impact than traditional training methods.

MONASH University

91% Reported that the learned skills have improved performance
86% Transfer to workplace application
Improved ability to prioritise and manage workplace issues
Significant increase in self-efficacy confidence

bam utiliteitsbouw
BAM Gebouwservices

90% reported reduction in OH&S incidents
Increased productivity and profitability
Improved workplace culture
Reduced incidence of required rework

metricon

Increased staff retention
Increased in Product review rating – from 2.4 to 4.2 stars
Reduced build times
Lifted Victoria building team from worst to best performing in Australia

Building & Construction clients

BLSC BUILDING LEADERSHIP SIMULATION CENTRE

boutique make it yours

Hickory. Group.

schiavello

Qanstruct

metricon

Brookfield MULTIPLEX Built to outperform. BM

hansen yuncken BUILDING VALUE

COCKRAM

BECON CONSTRUCTIONS (AUST.) PTY. LTD.

PROBUILD

australand

Leighton Holdings

THIESS

Grocon

BAULDERSTONE

Lend Lease

John Holland Powered by People

L.U.SIMON BUILDERS

WATPAC

Other …

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Higgins
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BUILT ON INTEGRITY

RMIT UNIVERSITY

Bowens
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BUNNINGS warehouse

Australian Government
Fair Work Building and Construction

METRO

Dahlsens
SINCE 1877

SWINBURNE UNIVERSITY OF TECHNOLOGY TAFE

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