BUILT ENVIRONMENT & URBAN TRANSFORMATION:

Off Site (OSM) Manufacturing Collaborative Practices to Deliver Change
Who is part of this project?

AHSCA

Council

Opportunities
Funding
Intellectual Property
Commercialisation
Engagement

Projects
Core/ co opted partners

Knowledge creation

Knowledge transfer
Who is part of this project?

Our Key Partners

Australian Government
Australian Research Council

WESTERN SYDNEY UNIVERSITY

FRASERS PROPERTY

Our Supporters

Australian National Housing Supply Chain Alliance (ANHSCA)
BORAL

University of South Australia

HIA

lean construction 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/m²
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
Informed and positioned the ARC Linkage project: Shared understanding & we could talk about:

- innovation
- off site manufacturing
- supply chains
Housing sector challenges

**CHALLENGE**
- High levels of collaboration
- Inefficiency in construction process
- Increasing construction time

**ROOT CAUSE**
- Fragmentation

**Observations**
- OSM addresses fragmentation

**Solution**
- Craft based construction
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?

- 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: VIC MNE Systems Low to medium rise

CASE 2: SA SME Modular detached Single storey, detached

CASE 3: TAS SME Components Housing and commercial, low to medium rise

CASE 4: VIC Startup Components Housing, low-rise, detached

CASE 5: VIC Startup Components 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?**

<table>
<thead>
<tr>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
<tr>
<td>...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.</td>
</tr>
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<td>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.</td>
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So from assembly teams, to the guys working at the plant, they're all going to be rotating...[they will also] assemble. Because they're...
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.

...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.

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.

...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.
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What makes OSM work?

**THEME 25**
Quality Assurance

**THEME 42**
Routine processes
Repeatable systems

**THEME 44**
Simplicity of product

**THEME 48**
User-friendly documents

**COLLABORATIVE PRACTICE ELEMENT #9:**
TECHNICAL STANDARDS
What makes OSM work/fail?

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.

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.

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.

…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.
What makes OSM fail?

...engineers will always be involved nice and early because in prefab very often everything has to be – you know – you’re producing work that’s very specific. And then if there’s anything that’s not within tolerance, then we would be in a traditional builder situation...

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THEME #4: INFORMATION-SHARING HURDLES

THEME #63: TIGHT TOLERANCES

THEME #14: LACK OF FORMAL AGREEMENTS

THEME #22: INCREASED TRANSPARENCY

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.
What makes OSM fail?

THEME 4: information sharing hurdles

THEME 14: lack of formal agreements

THEME 22: increased transparency

THEME 63: tight tolerances

COLLABORATIVE PRACTICE ELEMENT #9: TECHNICAL STANDARDS
What makes OSM work/fail?

**ORGANISING MECHANISMS**

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

**BARRIERS**
- Lack of skills in construction and project manufacturing skills needed to achieve OSM construction,
- Initial or financial hurdles, training, or specialised knowledge required.
- The need for significant groundwork to be laid by HR for long-term career planning.

**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 an initiative.

**BARRIERS**
- Actors focussing on own goals, lack of trust,
- Conflicts of interest, trade-offs (e.g., internal collaboration hampers external collaboration),
- Excessive focus on relationships at the expense of performance, and
- Perception that collaboration requires investment without guaranteed returns.
How did we develop training?

Five case studies

Nine collaborative practice elements

Training materials
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
### Collaborative Practices and Position Competency Matrix

#### 1. Leadership
- Demonstrate awareness & understanding of collaborative CSM.
- Demonstrate expertise through application in leading knowledge.

#### 2. Goals and Norms

#### 3. Expertise

#### 4. Change

### Collaborative Practice Category

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Collaborative Practice Actions</th>
<th>High Level of attainment</th>
<th>Acceptable level of attainment</th>
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<tbody>
<tr>
<td>Knowledge</td>
<td>1. Expertise in strategic planning processes.</td>
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<td>2. Expertise in technical planning processes.</td>
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<td></td>
<td>3. Technical knowledge on developing feasibility studies for CSM.</td>
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<tr>
<td>Skills</td>
<td>1. Systematically scans the external environment and identifies CSM-related opportunities and threats.</td>
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<tr>
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<td>2. Systematically scans the internal environment and identifies pertinent organizational strengths and weaknesses.</td>
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<td></td>
<td>3. Identifies a viable position (tool, leader, etc.) for the firm in the industry.</td>
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<td>4. Develops robust research to support CSM-related recommendations.</td>
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<td>5. Communicates a compelling CSM vision and translates vision into concrete feasibility studies.</td>
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<td>6. Establishes a track record for success with new CSM products or markets.</td>
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<tr>
<td>Behaviors</td>
<td>1. Presents a compelling vision for CSM to industry and to organizational leaders.</td>
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<td>2. Demonstrates prospective behaviors that support the exploration of new CSM products and markets.</td>
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<td></td>
<td>3. Balances leadership role by mobilizing empowerment strategies.</td>
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<td>4. Adapts a flexible approach to leadership.</td>
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<td></td>
<td>5. Demonstrates openness to the possibilities of connected CSM solutions.</td>
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<tbody>
<tr>
<td>Knowledge</td>
<td>1. Extensive knowledge of general construction, CSM processes, and discrete work tasks.</td>
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</tbody>
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**Back of house**

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<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>Creating a leadership environment for change</td>
</tr>
<tr>
<td>Goals and Norms</td>
<td>Envisioning a compelling OSM project that addresses clear problems</td>
</tr>
<tr>
<td>Expertise</td>
<td>Designing a well-qualified project team</td>
</tr>
<tr>
<td>Change</td>
<td>Strategising for change and for managing resistance</td>
</tr>
<tr>
<td>Resource Investment</td>
<td>Investing in people and assets</td>
</tr>
<tr>
<td>Shared Space</td>
<td>Creating and sustaining productive face-to-face and virtual interactions</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Pursuing participative, flexible and anticipatory solutions</td>
</tr>
<tr>
<td>Organising Mechanisms</td>
<td>Formalising team characteristics to sustain productive patterns of work</td>
</tr>
<tr>
<td>Technical standards</td>
<td>Documenting and disseminating clear and accurate information</td>
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</table>
## Collaborative Practices Actions and Position Competency Matrix

<table>
<thead>
<tr>
<th>Collaborative Practices</th>
<th>Collaborative Practice Actions and Competency</th>
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<tbody>
<tr>
<td><strong>1. Leadership</strong></td>
<td><strong>Knowledge</strong></td>
</tr>
<tr>
<td></td>
<td>1. Expertise in formal strategic planning processes</td>
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<tr>
<td></td>
<td>2. Expertise in informal strategic planning processes</td>
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<td></td>
<td>3. Technical knowledge on developing feasibility studies for OSM</td>
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<td></td>
<td>4. Principles of organisational and project leadership</td>
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<tr>
<td></td>
<td><strong>Skills</strong></td>
</tr>
<tr>
<td></td>
<td>1. Scans systematically external environment and identifies OSM-related opportunities and threats</td>
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<td></td>
<td>2. Scans systematically internal environment and identifies relevant organisational strengths and weaknesses</td>
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<td>3. Identifies a viable position (cost leader, niche, etc.) for the organisation in the industry</td>
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<td>4. Mobilises research to support OSM-related recommendations</td>
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<td>5. Communicates a compelling OSM vision and translates vision into concrete feasibility studies</td>
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<td><strong>Behaviours</strong></td>
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<td>1. Presents a compelling vision for OSM to industry and to organisational leaders</td>
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<td>2. Demonstrates prospecting behaviours that support the exploration of new OSM products and markets</td>
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<td>3. Facilitates empowerment strategies and mentor staff</td>
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<td>4. Adopts a flexible approach to leadership</td>
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<td>5. Demonstrates openness to the potential of untried OSM solutions</td>
</tr>
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</table>
## Collaborative Practice Action Indicators Descriptors

<table>
<thead>
<tr>
<th>Collaborative Practice Category</th>
<th>Collaborative Practice Actions</th>
<th>High Level of attainment</th>
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<tr>
<td><strong>Problem Solving</strong></td>
<td>Behaviour 7.1. Establishes a non-threatening, accepting environment where problems can be anticipated and discussed without fear of reprisal.</td>
<td>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.</td>
<td>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.</td>
<td>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.</td>
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<td></td>
<td>Skill 7.3. Develops systems of rewards and incentives for participants, assists in the removal of hurdles to problem solving.</td>
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<tr>
<td><strong>Organising Mechanisms</strong></td>
<td>Skill 8.1. Defines team membership, taking into consideration issues such as size and functional diversity required.</td>
<td>Defines a comprehensive list of roles, goals and performance indicators for key members. Organises team taking into consideration factors such as team size, hierarchy and 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).</td>
<td>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.</td>
<td>Defines general roles for key members. Clarifies team membership but does not consider other organising mechanisms like size, hierarchy and 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.</td>
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<td></td>
<td>Skill 8.3. Defines roles per team member, identifies team strengths and weaknesses and identifies gaps in skills.</td>
<td>Behaviour 8.1. Conducts efficient and effective team meetings</td>
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<td>Skill 8.4. Identifies strengths and weaknesses of team members and develops action plans to address them.</td>
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<td></td>
<td>Skill 8.5. Defines a list of roles, goals and performance indicators for key members. Organises team taking into consideration factors such as team size, hierarchy and 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).</td>
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<td><strong>Technical Standards</strong></td>
<td>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.</td>
<td>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.</td>
<td>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.</td>
<td>Notes the importance of key aspects of information management (for example information sharing), but overviews some aspects of the process (for example how best 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.</td>
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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

**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

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.
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.
# Training scenario structure and alignment

## 6b Training Scenarios Structure

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

Off Site (OSM) Manufacturing Collaborative Practices to Deliver Change
Welcome
BLSC Evolution

One of only three of its 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?

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

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

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

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

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
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