PSG#2 - P2.11.2 Building Key Digital Capabilities in the Australian Built Environment

Date: Monday 3rd August 2026

Time: 09.30am – 11am AWST

Attendance:

- Andrew Curthoys - Meeting Chair
- Peng Wu (Curtin University) – Project Lead
- Yongze Song (Curtin University)
- Karim Yngstrom (ATLAS Precast)
- Shahin Akhter (Main Roads Western Australia)
- Rolf Engel (Sunshine Coast Council)
- Alexander Taylor (Australian Department of Defence)
- Mohamad Fajajo (Australian Department of Defence)
- Ario Susanto (Public Transport Authority)
- Erezi Utiome (Arcsenti)
- Fred Fialho Teixeira (The University of Queensland)
- Jun Wang (Western Sydney University)
- Samudaya Nanayakkara (Western Sydney University)
- Will Hackney (SBEnrc)
- Grace Martini (SBEnrc)

Notes

Introduction of New Members and Roles: Peng Wu welcomed new members including Erezi Utiome from Accenti, Ario Susanto from OMTID, and Shahin Akhter from Network Management Branch, outlining their roles and contributions to the project steering group, with Will Hackney and Andrew Curthoys facilitating introductions and highlighting industry collaboration.

Review of Previous Action Items and Project Progress: Peng Wu summarised key action items from the previous PSG meeting, including updates to terms of reference, receipt and analysis of 12D models from Sunshine Coast Council, ongoing integration of digital engineering plugins, case study collaborations, communication matrix updates, and student placement opportunities, with input from Will and Andrew.

Case Study Data Receipt and Analysis: Sunshine Coast Council provided 12D model data, which Peng's team conducted preliminary analysis on, aiming to support partner objectives and test integration with the MetaBim platform.

Integration of Digital Engineering Plugins: Peng Wu described efforts to merge isolated plugins for carbon calculation and auditing into a seamless prototype, with plans for validation meetings with Trung and John Clifton once integration is complete.

Student Placement Opportunities: Peng Wu reported ongoing discussions about student placements with industry partners, noting Qindong Li's admission as a part-time PhD student at Curtin and continued collaboration to address Main Roads' practical challenges.

Case Study Updates and Technical Progress: Peng Wu provided detailed updates on five case studies: infrastructure common data model with Transport for New South Wales, 12D model integration and carbon estimation with Sunshine Coast Council, automatic carbon accounting with Development WA, LIDAR-based asset classification with Main Roads, and mobile laser scanning for quality assurance with Atlas, with technical questions and suggestions from Ario Susanto, Will Hackney, Erezi Utiome, and Karim Yngstrom.

1. **Infrastructure Common Data Model Case Study:** Jun Wang's team reviewed Transport for New South Wales standards and applied them to the Singleton Bypass project, linking asset information, cost, and carbon data to 3D design models using object libraries and AI-based matching, achieving high accuracy in classification and integration.
2. **12D Model Integration and Carbon Counting Case Study:** The team successfully imported three IFC models from Sunshine Coast Council into MetaBeam, analysed asset data, and identified gaps in material specification, planning to test smaller-scale data and purchase a 12D licence for direct integration.
3. **Automatic Carbon Accounting Case Study:** With Development WA - Peng Wu described the integration of plugins for as-designed and as-constructed carbon calculation, aiming to produce standardised reports and enable cross-comparison, with John Clifton providing validation data once integration is finalised.
4. **LIDAR-Based Asset Classification Case Study:** The team developed algorithms to identify 14 asset types from LIDAR data, achieving high precision for several classes and planning deployment with Main Roads, including cross-validation using Street View images with the UQ team.

Mobile Laser Scanning for Quality Assurance with Atlas: Peng Wu and Jun Wang visited Atlas, discussed data requirements with Karim Yngstrom, and planned a site visit to pilot mobile laser scanning for quality assurance of precast panels, with technical indicators and collaboration opportunities outlined.

Discussion on Industry Standards, Object Libraries, and Collaboration: Participants including Ario Susanto, Will Hackney, Erezi Utiome, and Rolf Engel discussed asset classification mapping, object library development, and potential collaboration with Geometry Gym and QUT, aiming to leverage existing work and standardise approaches across agencies.

Literature Review and Standards Integration: Peng Wu outlined the ongoing literature review report, synthesising international and national standards such as ISO 19650, IFC, GIS standards, and Transport for New South Wales frameworks, with plans to deliver a summary report between PSG #2 and PSG #3.

Implementation Barriers and Uptake Measures: Will Hackney and Peng Wu discussed early considerations for implementing research outputs, including potential barriers, impact measures, and standardisation of uptake indicators, inviting partners to review and provide feedback ahead of PSG3.

Communication Matrix and Dissemination Activities: Peng Wu summarised recent dissemination activities, including site visits, presentations, workshops, and publication efforts, with Will Hackney and Andrew Curthoys emphasising the importance of industry engagement and proactive sharing of project progress.

Scaling Research Funding, Student Involvement, and International Connections: Peng Wu reported ongoing discussions with Main Roads regarding internal innovation funding, student involvement through Qindong Li's PhD placement, and potential international collaborations, with Will Hackney referencing CIB and federal projects as examples of scaling impact.

Upcoming Deliverables and Meeting Schedule: Peng Wu outlined key deliverables for the next quarter, including the infrastructure common data model review report and ongoing case study discussions, with Andrew confirming the next PSG meeting date and centralised invitation process.

Actions

1. **Terms of Reference Update:** Update the terms of reference as suggested by one of the partners and circulate the revised version to the group. (Will Hackney)
2. **Sunshine Coast Council Case Study Data:** Continue working with Sunshine Coast Council to clarify material details for the 12D model elements to enable accurate carbon estimation, and test the smaller scale project data provided. Will Hackney will follow up with Ario Susanto regarding Sunshine Coast Council's 12D model data (which may not be open-source) (Peng Wu and WIll Hackney)
3. **Asset Classification Mapping Table:** Coordinate with Sunshine Coast Council to produce or obtain a table mapping asset classifications to IFC property sets, and seek approval for publication if necessary. (Rolf Engle)
4. **Geometry Gym Introduction:** Introduce Peng Wu and Jun Wang to John Merchant from Geometry Gym to explore available work that may support asset classification mapping. (Will Hackney)
5. **Object Library Previous Work Follow-Up:** Follow up with Robin Drogemuller at QUT regarding previous object library work that may be leveraged for the current project. (Will Hackney)
6. **Integration of Carbon Counting Plugins:** Complete the integration of the as-designed and as-constructed carbon counting plugins and coordinate with John Clifton to validate the system with Development WA data. (Peng Wu)
7. **Main Roads LIDAR Algorithm Deployment:** Meet with the Main Roads team to discuss potential deployment of the developed LIDAR asset detection algorithm for safety barriers and related assets. (Peng Wu)
8. **Atlas Mobile Laser Scanning Case Study:** Send an email to Karim to confirm the specific precast concrete panels and key elements for the mobile laser scanning pilot, and coordinate the late August site visit. (Peng Wu)