



Centre for Comparative Construction Research (CCCR)

ANNUAL REPORT 2024

Contents

Introduction	3
Centre Director's Review	3
Domains of Inquiry	4
Collaboration and Outreach	4
Active Members	5
Industry Advisory Panel	5
Scholarly Output	5
Funding	6
The Way Forward	6
Appendix A: Funded Research	7
Appendix B: HDR Enrolments	10

Introduction

In 2024, the CCCR sustained another period of consolidation and organic growth: consolidation in the form of clearly defined domains of interest and formation of working groups around these; organic in the sense that individuals have expressed interest in and participated in fields of research in which they have a personal interest.

The interest groups within CCCR continued to grow as research teams in nine disciplinary groups. Each of these groups has had leaders emerging within respective domains. All groups have contributed to publications in journals, presentations at conferences, and book chapters over the past year.

Centre Director's Review

There has been a sea change in the attitude towards research. With the influx of a number of younger researchers the recognition of an opportunity to do out of the box research has emerged. The 'Junior' researchers are open minded and focus on explanation and understanding rather than Quick solution building. This can only be a positive step forward for the CCCR.

The fact that recruitment has been undertaken based on knowledge, capacity and novel approaches has ensured the vitality of the centre. Indeed, the recruitment of a renowned Japanese scholar has brought a fresh perspective brought a fresh perspective to CCCR. All in all, these initiatives are the basis for a challenging and powerful way forward.

CCCR has developed organically over the past three years. The research focus has become more rounded, inclusive and dynamic during this period. The centre has several new recruits who have been part of this uplift in terms of research and the Dean is to be congratulated on taking such steps in terms of research in real estate, planning and construction and other related areas in the faculty

CCCR is moving towards a more research-based approach to academic output. Having recruited several young and vibrant researchers we are building a capability over the next few years to be able to compete with the top universities in terms of gaining funding from the ARC.

This has always been a long-term goal, but it has been recognised that the time scale may be more extended than expected. However, the goal is within our own workplace and a collegial and focused approach to research funding is underway.

Thus, the future for the CCCR looks to be very good in the long term and our goal in the short term is to hit the criteria of ARC awards and other sources.

As Director of the centre, it has been my privilege to discuss with these young, highly talented academics who can contribute both substantially to our research output but also draw in government, regional and business funding for their research. This is the aim of the CCCR to ensure that these goals are met.

Domains of Inquiry

The CCCR discipline groupings have grown and with the impetus of freshly recruited staff bringing a new focus on research and publication. The delivery of more seed funding for projects has brought about a continuous stream of research that is being reported in journals, book chapters and conference attendance. The members of the CCCR should be congratulated on their efforts and the senior management team for their foresight and continuing support for research. (see output in Appendix A)

The discipline groupings have grown to nine discipline specific groupings:

- | | |
|---------------------------------------|--|
| 1. Construction management | 6. Sustainability |
| 2. Structural engineering | 7. Heritage buildings |
| 3. Digital construction | 8. Productivity in the built environment |
| 4. Project management | 9. Occupational health, safety and wellbeing |
| 5. Urban Design and Regional Planning | |

There are 21 PhD, and 5 MPhil students engaged in research in these areas.

Collaboration and Outreach

To further stimulate output amongst the members, a number of collaborative connections have been made. For example:

Collaboration with the John Grill Institute for Project Leadership at the University of Sydney.

The Construction Procurement and PPP group at the University of Newcastle.

Research collaboration in the field of Occupational Health, Safety and Wellbeing with the School of Property, Construction and Project Management.

Members of the CCCR have collaborated in funded research with Prof Isabelle Chan at Hong Kong University in relation to OHSW Management

Professor Tsunemi Watanabe hosted a group of Engineers from Japan interested in the development BIM (Business Information Management) in Australia.



Visiting Japanese delegation

Active Members

- Johari Amar
- Bhishna Bajracharya
- James Birt
- Ranka Camozzi
- Amir Ghanbaripour
- Alexander Lang
- Daniel O'Hare
- Jasper Mbachu
- Ashkan Memari
- Shoeb Memon
- Vanessa Menadue
- Dane Miller
- Matthew Moorhead
- Ahmed Moustafa
- Daniel O'Hare
- Daniela Ottmann
- Alan Patching
- Darmicka Rajendra
- Stephen Rowlinson
- Marja Sarvimaki
- Martin Skitmore
- Greg Skulmoski
- Nima Talebian
- Tsunemi Watanabe
- Celine Cen Ying Lee
- Ahmed Elsayed

Industry Advisory Panel

The CCCR has joined the Industry Advisory Panel in order to further enhance collaboration with real estate, construction, and planning sectors of the economy.

Scholarly Output

In terms of output in 2024, there were 65 papers published, seven book chapters and seven conference presentations. This shows a continuing increase in scholarly output over the past few years. This indicates the continuing momentum in research that is being driven by the capability of the disciplinary groups and their leaders. The self-directed enthusiasm of our academic staff reflects a strong research culture that has flourished in recent years.

It is important to note that in terms of academic productivity the average number of papers per person in 2022 was close to two, in 2023 the average output per person was almost four and this has been maintained 2024.

Funding

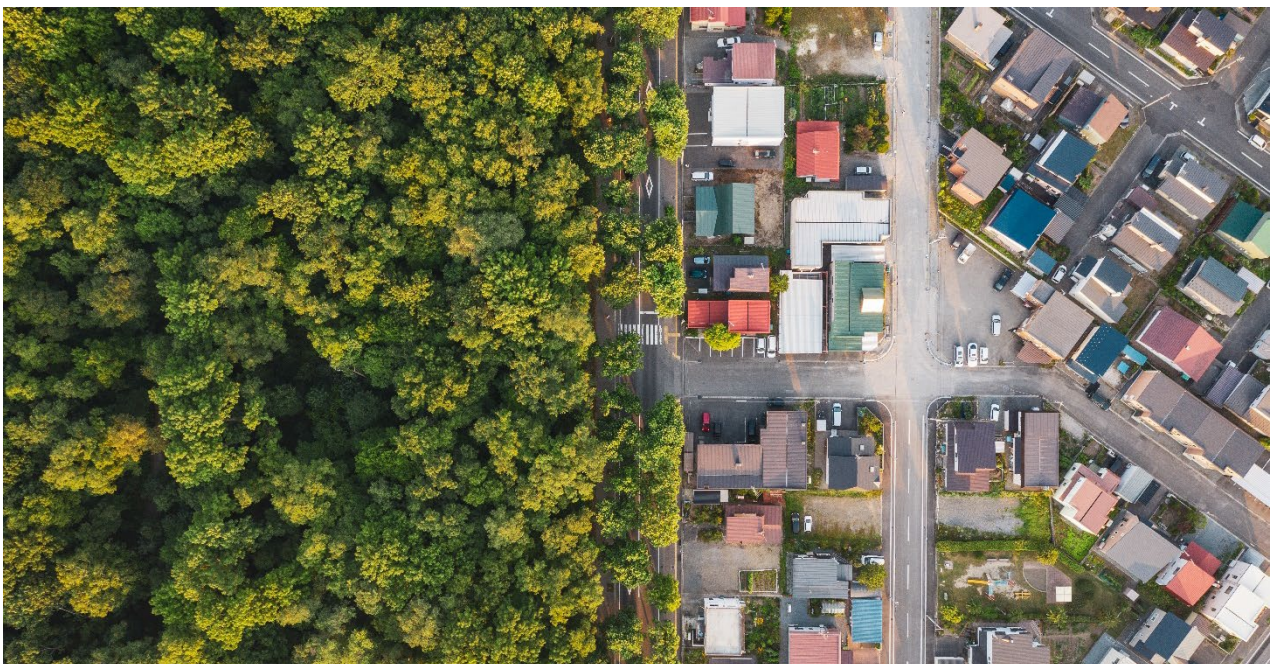
The continuous increase in minor research funding and its distribution amongst the various groups continues to add impetus to the research in the Centre. The continuing provision of conference funding is also a positive factor in encouraging high quality output. Attendance and presentations at academic conferences have provided a forum in which the profile of the Centre is recognised. This strategy continues to evolve but to create greater impact as a research-driven Centre there is a need for members to both generate external, competitive funding and to provide opportunities for more time to be spent on research.

Colleagues have been busy preparing high quality ARC applications for research funding and it is only a matter of time before these bids are accepted. The new appointees in the Centre are being encouraged and supported in submitting bids for Early Career funding.

The Way Forward

In 2024, The CCCR continued to grow and focused on raising the standard of research and publications. Through astute recruitment there is now more capability in terms of both undertaking research and reporting research in journals and conferences. The members of the CCCR are to be congratulated on their consistent effort and achievements.

Members of the CCCR have made efforts to leverage funds from ARC and other institutions and businesses to further the goals of the nine research areas. All members are encouraged to participate in grant applications. This may well be done in partnership with the institutions named above. There is significant weight of research publications and research active individuals to make this challenge a reality. Senior staff are using their experience to facilitate the new recruits in delivering this. A goal has been set to drive this process of grantsmanship in order that CCCR may become a viable national research Centre.



Appendix A: Funded Research

RESEARCH TEAM LEADER	Dr Johari Amar and A/Prof Lynne Armitage
RESEARCH TEAM MEMBERS	<p>Internal members: Assistant Prof Alexander Land (PM) and David Afrin (CM & OS)</p> <p>External University member: Dr Troy Neilson, Chief Technical Officer Kangaroo LLM and Research Fellow Centre for Applied Health Economics, Griffith University</p> <p>Industry Collaborators:</p> <ul style="list-style-type: none">• Liam Thierens - Partner and Spatial General Manager at Bennett + Bennett,• Ben Dawes - General Manager, SiteDE• Grant Kelly - Secreatary, Supported Accommodation Providers Association• Bently Education and Autodesk
TITLE OF RESEARCH PROJECT	<p>Optimising person-environment fit for inclusive and purpose-built housing: A BIM-LiDAR framework for Australia's disability and aged care ecosystems</p> <ul style="list-style-type: none">• Phase 2 Technology Concept Formulation• Phase 3 Prototype: Experimentation and Validation

COMMERCIALISATION RESEARCH PROGRESS REPORT

Problem context: Our work addresses the critical gap in existing housing for elderly Australians and those with disabilities. With 15.9% of Australians aged 65+ (projected to double by 2066), 81.4% living with chronic health conditions and 21.4% having disabilities, the current system is overwhelmed. Waitlists include 272,000 Home Care Package recipients and 55,000 on the National Priority System, with complex home modifications taking up to two years to complete.

Current status: We successfully completed the CSIRO ON Prime 16 program in November 2024 where we conducted over 90 industry conversations that validated our problem identification and solution direction. Based on stakeholder feedback, we pivoted our focus to improving transparency through real-time updates of assessment and approval processes as it aligned with our project objectives. Attendance at the CSIRO ON Core in February 2025 further reinforced our project direction and clarified next steps.

Recent achievements: We received interest from five key stakeholders including two government entities, a private-sector residential service provider, an advocacy group and a health provider search platform during our participation at the CSIRO ON Prime. Three potential C-suite collaborators will visit Queensland from February to April 2025 to review our progress.

Current focus: We are developing Phase 2 Technology Concept Formulation through interviews and storyboard development. We aim to complete Phase 2 by April 2025 as we recruited an RA before commencing Phase 3 Prototype Experimentation and Validation, which will require recruitment of an in-house RA with software engineering expertise for platform development.

Funding: We applied for both the 2025 FSD Dean's Award Research Grant and the 2025 Research Project Grant to support initial Phase 2 and Phase 3. Once we have completed the storyboard and started platform development, we will meet with SQ RQ Main Sequence for seed funding - initial contact made at the CSIRO ON Core.

Report on Research Activities Using the Faculty's Internal Grant

Team:

- | | |
|---|--|
| 1. Assistant Professor Amir Ghanbaripour (Project Management - ECR) | 5. Dr Johari Amar (Property - ECR) |
| 2. Assistant Professor Gaelle Brotto (Criminology - ECR) | 6. Weiwei Zhang (MPhil student) |
| 3. Assistant Professor Nima Talebian (Construction - ECR) | 7. Zahra Ghamarimajd (PhD student) |
| 4. Assistant Professor Matthew Moorhead (Property - ECR) | 8. Dena Mahmudnia (PhD student - Research Assistant) |
| | 9. Golnaz Rahmani (Research Assistant) |

The internal grant has been significantly helpful in advancing the **multidisciplinary** research objectives of our **Project Management** Lab, collaborating with colleagues across the **Construction**, **Criminology**, and **Property** programs. The funding supported a range of activities, assisted in research development, and facilitated notable outcomes. Also, the lab currently has **six** active PhD candidates, with two additional students set to commence next year.

1. Project Activities

- **Retention over Attraction (RoA) Project:**

- As part of phase 3 of the project, we conducted a comprehensive literature review and interviews using the results of phases 1 & 2 with construction professionals to investigate gender diversity in the Australian construction industry.
- Developed an initial framework for measuring the effectiveness of government policies and initiatives promoting gender diversity in construction.

- **Manuscript Development:** Revised and resubmitted a Q1 journal paper.

- **Systematic Literature Reviews (SLRs):**

- Completed an SLR on the role of technology in addressing gender diversity in construction.
- Completed an SLR on systems thinking and stakeholder engagement in gender diversity and sustainability within the industry.

- **Grant Applications:** Prepared and submitted two external grant applications with the assistance of Research Assistants (RAs).

2. Research Outcomes

- **Journal Submissions:**

- Submitted *two Q1 journal papers* to *Systems Research and Behavioral Science* and *Smart and Sustainable Built Environment* (both Bond-preferred journals).
- Prepared and submitted a research paper on the role of education in project organisations to the *International Journal of Project Management*.

- **Conference Contributions:**

- Two papers were accepted and presented at the most prominent Australasian Built Environment Conference in Melbourne (**AUBEA 2024**) by Amir Ghanbaripour.

- **Grant Submissions:**

- Submitted two external grants: \$2,350,000 (unsuccessful) to the Office of the Prime Minister and \$14,000 (successful) to the Project Management Symposium.

- **Mentorship:**
 - Two RAs (including one current PhD candidate) were mentored and gained significant expertise in research methods. The second RA is also interested in starting a PhD in 2025.

3. Budget Expenditure

- **Senior Research Assistant 1:** 131 hours - \$7,148
- **Senior Research Assistant 2:** 34 hours - \$2,015
- **AUBEA Conference:** \$820

The grant has significantly enhanced our capacity to produce high-quality research, strengthened our lab's multidisciplinary approach, and contributed to impactful knowledge dissemination through journals and conferences. It has also provided valuable learning opportunities for PhD candidates and research assistants, supporting future academic growth.

Title: Unveiling Blockchain-Based Smart Contract Systems in Construction Contract Management: A Systematic Literature Review

Celine Cen Ying Lee

Outcome: Numerous systematic literature reviews (SLRs) have explored blockchain-based smart contract systems in construction contract management. However, no one has examined these systems in detail or analysed how they apply to specific areas of construction contract management. This study aims to address this gap by conducting a systematic literature review to identify the types of blockchain-based smart contracts proposed for various construction contract management areas. The findings will serve as a valuable reference for industry practitioners and researchers looking to adopt blockchain smart contracts to enhance contract management in their projects.

The SLR is currently in progress. A manuscript reporting these findings is expected to be completed by the end of May 2025, in alignment with the funding deadline of 30 June 2025. The manuscript is intended for submission to a top-tier journal, such as Automation in Construction or the Journal of Construction Engineering and Management.

ICT in the Australian Construction Industry

Tsunemi Watanabe

The research team organized an International Information-Construction Workshop between Japan and Australia last November. 16 members of the endowed laboratory of Construction System Management for Innovation at the University of Tokyo visited us. They are the leading research group of ICT experts in Japan. For the Australian side, building information modelling (BIM) & AI industrial specialists and managers with experience in using ICT presented case studies of ICT-driven work. Through the workshop, the team confirmed that the level of ICT application in Australia is still low. In Queensland, many construction projects must be implemented to prepare for the Brisbane Olympics 2032 and deal with the housing crisis. Given that labour shortage is a serious problem, the role of ICT is expected to become even stronger.

Thus, the ongoing objectives of this research are to:

1. verify the alleged low level of ICT application in the Australian construction industry,
2. identify reasons for the low level of ICT application,
3. propose solutions for different stakeholders, and
4. evaluate the effectiveness of each solution.

Appendix B: HDR Enrolments

SURNAME	FIRST NAME	FOE AREA	THESIS DUE	SUPERVISORS	WORKING THESIS TITLE
Doctor of Philosophy (PhD)					
ADEYEMO	Ismail	Building Construction Management	15/05/2026	Dr Jasper Mbachu, Dr Bode Ogunmakinde	Causes and mitigations for work stress in the Australian Construction Industry
BELL	Conor	Building Construction Management	14/05/2027	Dr Steve Rowlinson, Dr Ahmed Moustafa	The Impacts of Leadership Involvement on Mental Health, Suicidality, and Productivity in Construction
BRENDOLAN (SANT ANA BRENDOLAN)	Fabiola	Project Management	1/09/2025	Dr Greg Skulmoski, Dr Amir Ghanbaripour	The case for inclusion of an adaptive approach within predictive construction project management.
CABRAL	Leanne	Building Construction Management	01/10/2024	Dr Jasper Mbachu, Dr Matthew Moorhead	Productivity-Driven Cloud-based Document Management in the Construction Industry: Benefits, Current Practice, Gaps, and Improvement Measures
CULLINANE	Daniel	Architecture and Urban environment nec	16/01/2030	Matthew Moorhead, Dr Jasper Mbachu, Dr Lynne Armitage	Australian direct property portfolio weighting following interest rate movements.
ELLIS	Mark	Urban Design and Regional Planning	17/05/2024	Dr Bhishna Bajracharya, Dr Daniel O'Hare	Utilising Open Space for Resilient Communities in a Climate Changed Future. Why Town Planning Matters when Formulating Equitable Climate Change Policy for Local Governments in Australia

SURNAME	FIRST NAME	FOE AREA	THESIS DUE	SUPERVISORS	WORKING THESIS TITLE
GHAMARIMAJD	Zahra	Building Construction Management	21/05/2027	Dr Amir Ghanbaripour, Dr Jasper Mbachu	Implementing Systems Thinking and System Dynamic Modelling in Managing Risk and Stakeholders.
GROENENDAAL	Bryan	Building	16/02/2026	Dr Dane Miller, Bhishna Bajracharya	Preserving structural health amid the increasing occurrence of major building defects in Queensland's strata residential schemes
GUO	LEI	Building Construction Management	14/05/2027	Dr Amir Ghanbaripour, Dr Darmicka Rajendra, Dr Nima Talebian	Effective communication management among culturally diverse teams in the construction industry
HUNTER	Natalie	Project Management	25/09/2026	Lang, Tim Hasso	Management of innovation projects to increase company performance in regional Queensland.
JIANG	Jon (Xingdong)	Building Construction Management	19/09/2025	Dr Johari Amar, Dr Lynne Armitage	Develop BIM Model for heritage or existing buildings.
JONES	Victoria (Tory)	Architecture	19/10/2023	Dr Magi Sarvimaki, Adrian Carter	More than Sunshine.
LAMBERT	Susan	Architecture	18/11/2022. UX	Dr Adrian Carter, Dr Daniella Ottmann	Courting Daylight: Using the courtyard paradigm to bring daylight into residential architecture on East Coast Australia
NAIDU	Scharlene	Environmental Studies	07/01/2027	Dr Lynne Armitage, Dr John Sheehan	Evolution of Native Title in Australia through an interest ("proprietary") in land perspective.
NOVAK CAMOZZI	Ranka	Building Construction Management	4/09/2025	Dr Amir Ghanbaripour, Dr Alan Patching, Dr Rosemarie Rusch	Integrated project delivery: the role of BIM and LEAN in productivity improvement for the AECOO community

SURNAME	FIRST NAME	FOE AREA	THESIS DUE	SUPERVISORS	WORKING THESIS TITLE
OGBONNA	Chioma	Building Construction Management	19/09/2025	Dr Jasper Mbachu, Dr Dane Miller	High failure rates of Australian construction SMEs: Key causes and mitigation measures
PAUL	Avishek	Urban Design and Regional Planning	1/09/2023	Dr Daniel O'Hare; Dr Bhishna Bajracharya	Walking in the 'burbs: Urban design analysis for enhancing walkability in Gold Coast suburbs
PAWAN	Metanshu	Building Construction Management	12/03/2027	Dr Greg Skulmoski, Danielle Lester	A Novel Decision Support System for Project Front End Planning.
TIAN	Kun	Building Construction Management	2027	Dr Jasper Mbachu, Dr Matthew Moorhead	Managing risks for improved productivity in construction projects
QUAN	Jianhao (Michael)	Building Construction Management	12/09/2025	Dr Craig Langston, Dr Rosemarie Rusch	From BIM towards digital twin: strategy and future development for smart facility management
ZHU	Leon (Zicheng)	Building Construction Management	12/09/2025	Prof Steve Rowlinson, Dr Rosemarie Rusch	Scan-to-BIM for storing existing building as digital data: Case study of Bond's Building 3.

SURNAME	FIRST NAME	FOE AREA	THESIS DUE	SUPERVISORS	WORKING THESIS TITLE
Master of Philosophy					
CHEN	Tony (Tianzhuo)	Building Science and Technology	15/05/2024	Dr Dane Miller, Dr Nima Talebian	Structural Health Monitoring
GIRI	Uma	Urban Design and Regional Planning	14/06/2024	Dr Daniel O'Hare, Dr Bhishna Bajracharya	An investigation of the impact of modernisation on historic towns in Nepal
DUWAL	Indu	Urban Design and Regional Planning	15/01/2025	Dr Bhishna Bajracharya, Dr Daniel O'Hare	Interferences in open spaces of old cities.
ROMAN SALAZAR	Javier	Urban Design and Regional Planning	06/10/2023	Dr Bhishna Bajracharya, Dr Daniel O'Hare	Urban Design challenges in the Southeast Queensland's growing mega urban region.
ZHONG	Meiqiong (Anna)	Building Construction Management	23/02/2022 UX	Dr Jasper Mbachu; Dr Dane Miller	Improving productivity and profit margins of contracting firms in the Australian construction industry: Perspectives of quantity surveyors and contractors

Bond University

Gold Coast Queensland 4226

Australia

+61 7 5595 000

research@bond.edu.au

bond.edu.au

The information published in this document is correct at the time of publishing. However, all programs are subject to review by the Academic Senate of the University and the University reserves the right to change its program offerings and subjects without notice. The information published in this document is intended as a guide and persons considering an offer of enrolment should contact the relevant Faculty or Institute to see if any changes have been made before deciding to accept their offer.

CRICOS 00017B

TEQSA PRV12072