

The STAR Toolkit: Embracing Variety

Professor Sara Wilkinson BSc MA MPhil PhD FRICS AAPI

Adaptive by Design:
Embracing Variety in the
Built Environment.

CIBSE

19th August 2025



***Sustainable
Temporary
Adaptive
Reuse***



STAR Toolkit Overview



- Supported by City of Sydney through Knowledge Exchange
- 3 workshops over 3 years exchanging knowledge with experts from Sydney to Perth, and Washington DC
- The problem we started trying to solve
- The STAR team – Dr Gill Armstrong, Mark Willers (Charter Keck Cramer), Dr Kusal Nanayakkara (RMIT), Laura West (UTS), Dr Rob Fleck (UTS), Prof Jua Cilliers (UTS).

Outline



Context and rationale for the research and alignment to CIBSE Buildings Reimagined



Variety—the third key performance metric—focusing on how building services can unlock adaptability, inclusivity, and multifunctionality

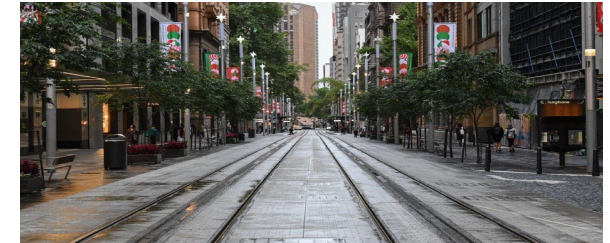


The Tools



Sum up and next steps

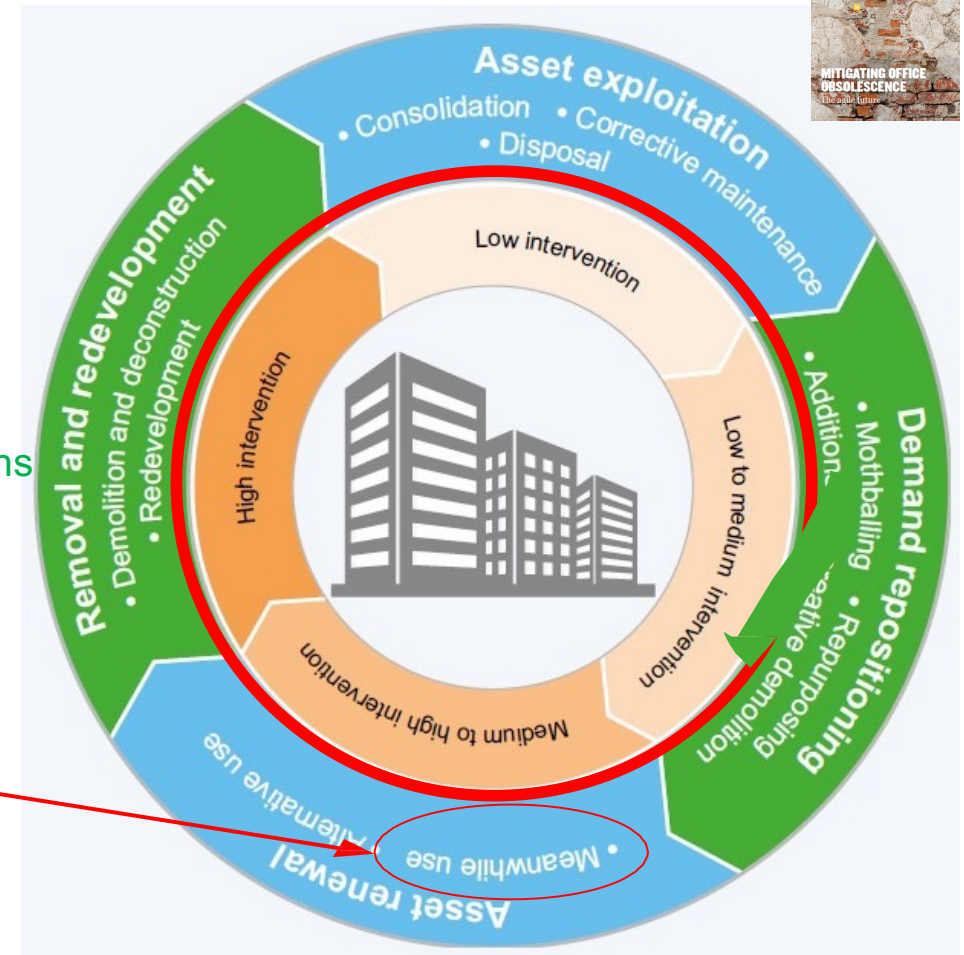
Context and rationale for the research and alignment to CIBSE Buildings Reimagined



- Rationale – COVID and new ways of working
- Post COVID work patterns have changed – technology enabled
- The TWATS
- Occupancy 60-80% in CBD – depending on PCA category and City
- Circa 11% vacancy mid 2023. *what is it now?*
- It's global
- Economically times are uncertain
- Empty space physically deteriorates faster than occupied space.
- What can we do with underused and vacant space? We can reimagine them.
- Which spaces are most vulnerable?
- <https://www.uts.edu.au/about/faculties/design-architecture-and-building/built-environment/research/sustainable-temporary-adaptive-reuse-star-project>

Asset management strategies & STAR

- **Asset exploitation**
 - Consolidation
 - Corrective maintenance – market expectations
 - Disposal – Sale
- **Demand Repositioning**
 - Mothballing – permanent/temporary
 - Retrofitting upgrades & Repositioning
 - Creative demolition, additions and vertical ‘top- ups’ extensions
- **Asset renewal**
 - ‘unofficial’ new uses e.g. storage
 - Meanwhile use
 - Permanent change of use, irreversible – e.g. conversions to private residences
- **Demolition, & redevelopment**
 - Demolition and deconstruction
 - redevelopment



Findings ... what is Temporary in STAR?

Consensus reached by participants –

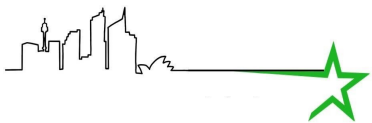
- 1 year to less than 1 year is 'temporary' for STAR in Sydney
- Trial, unknown

“How can we get Environmental & Social opportunities to flow into economic viability”

“Decision makers – transition from office market to ‘something else’

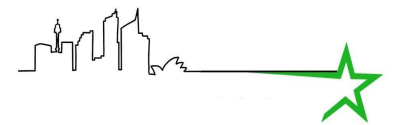
“Need to look at non-tangible benefits, as well as economics”

“Social benefits seem to be akin to sustainability 10 years ago”



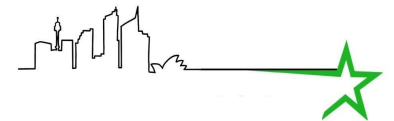
CONSENSUS

- Existing Trends were accelerated by COVID
- Keeping places vibrant (building scale > city scale): Social + Economic
 - Evolution of Sydney's CBD uniqueness and attractiveness as a global city, & as centre for other urban & regional hubs
 - STAR co-benefits from STAR – vibrancy, benefits flow between space users, wider communities, asset owners
- Focus on People (end-user centric)
 - Attracting & retention of knowledge economy workers through curation of space uses for benefits of knowledge economy workers to use CBD offices (economic, social)
 - Amenities for existing CBD users, and for visitors
 - Diversify support access for groups previously locked out of Sydney CBD (social / economic)
 - Provide space for growing new talent (economic/social)
- **Different STARs are needed for different grades**
 - STAR for primary grade buildings (Premium, A, B)
 - STAR for secondary grade buildings (B, C, & D)



CONSENSUS

1. STAR is an alternative to 'wait and see' strategy, opportunities to explore emerging ESG
2. STAR framed as additional income STAR contributes to operational cost overheads \$
3. Transition spaces in existing buildings to higher demand use, benefit to existing end users, or give back to the communities
4. Low-cost conversion by considering compatibility of new use to existing building & space within
5. Circular Economy principles for 'making good'
6. STAR has capacity to demonstrate ESG principles
7. Trial or temporary change of use



Possible Iterations of STAR

+ Independent use

- Considers demands for new uses
- activates space
- offsets operational costs

≡ Retention & attraction

- Creates connection within – internal hub or precinct
- Curation with extg users
- Creation of connections for commercial tenants



Community use

- Benefit for wider community
 - Arts/education
 - First Nations orgs
 - Inclusion/Equity
 - Social issues



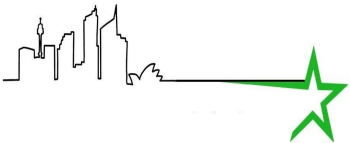
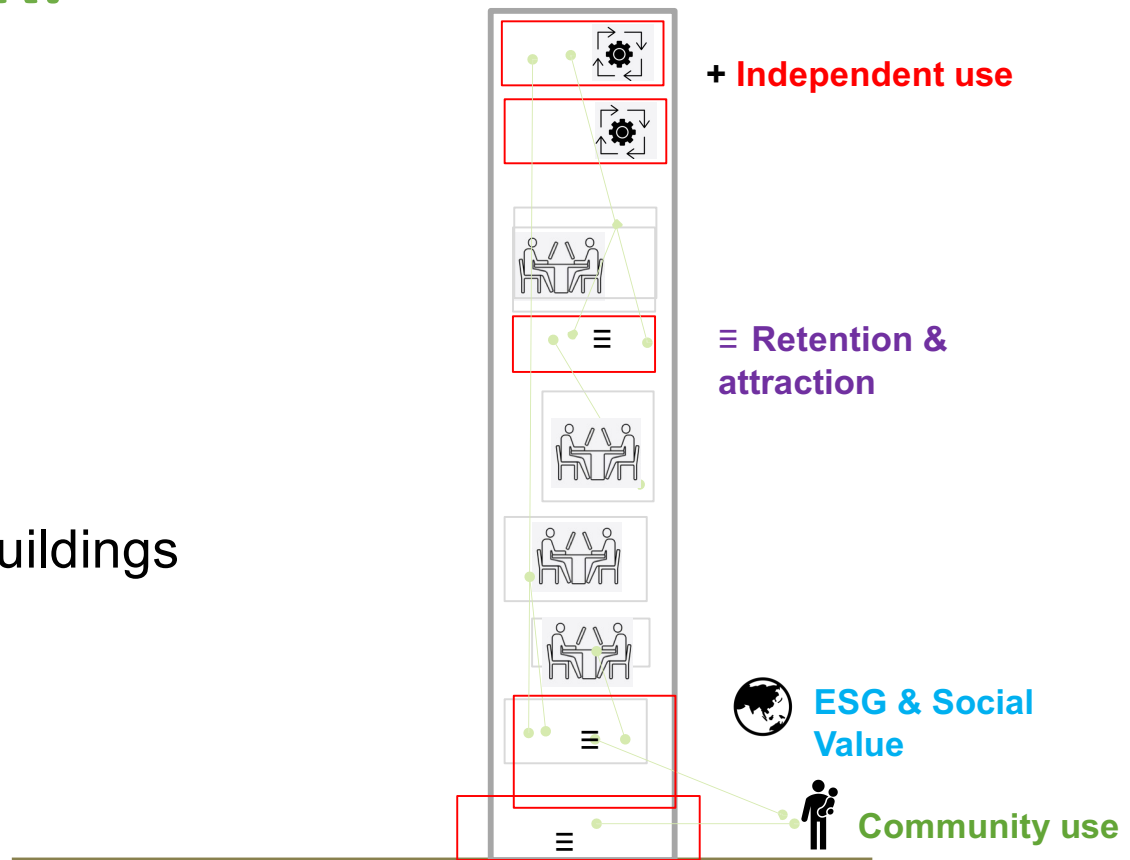
ESG & Social Value

- Social investment to benefit wider community
- Attracts ESG tenants



Iterations of STAR:

- Appropriate curation
- Reactivation
- More than 1 solution
- Solutions for different buildings



The 7 Tools



The STAR Guide - Tool 1.



STAR Visions - Tool 2.



STAR Matchmaker Tool - Tool 3.



The STAR NCC Checklist - Tool 4.



The STAR SDG Mapping Tool – Tool 5.



The ESG Scorecard - Tool 6.



The STAR Video Suite – Tool 7.

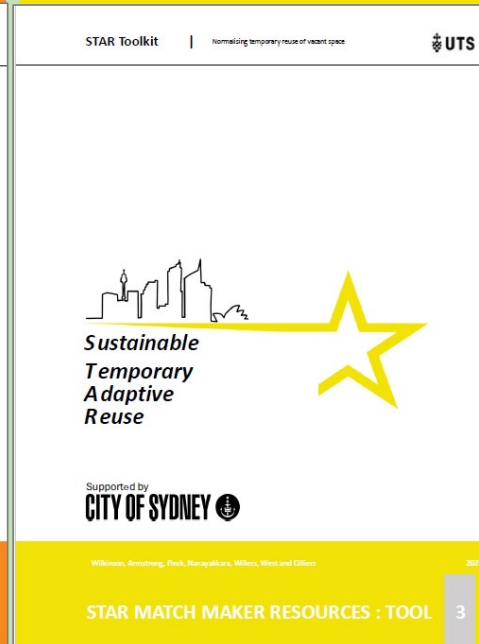
STAR GUIDE – THE OVERVIEW



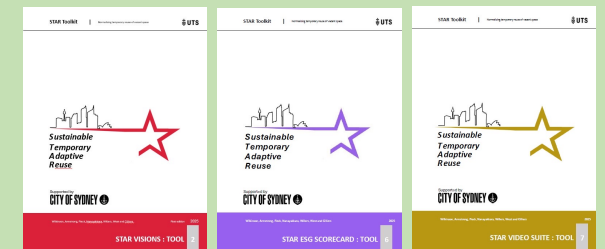
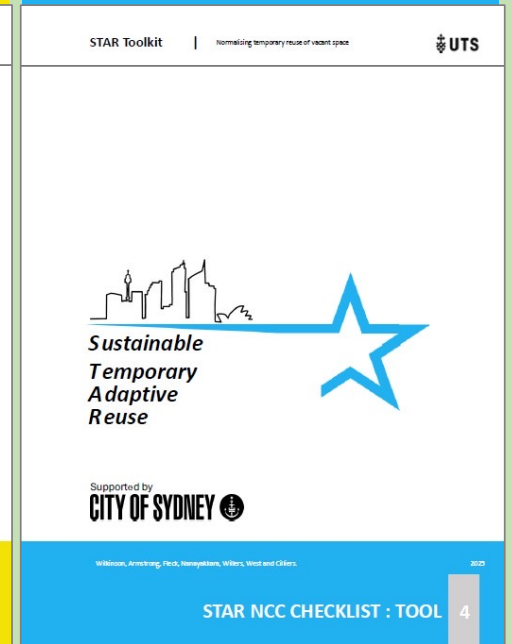
MAPPING SDGs - SUSTAINABLE DEVELOPMENT GOALS

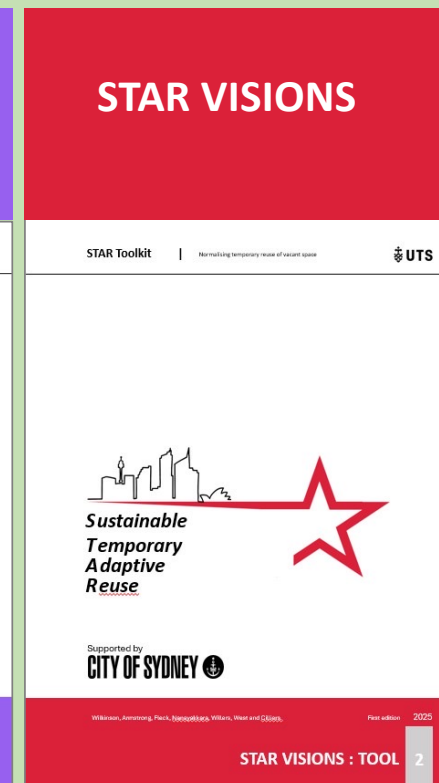
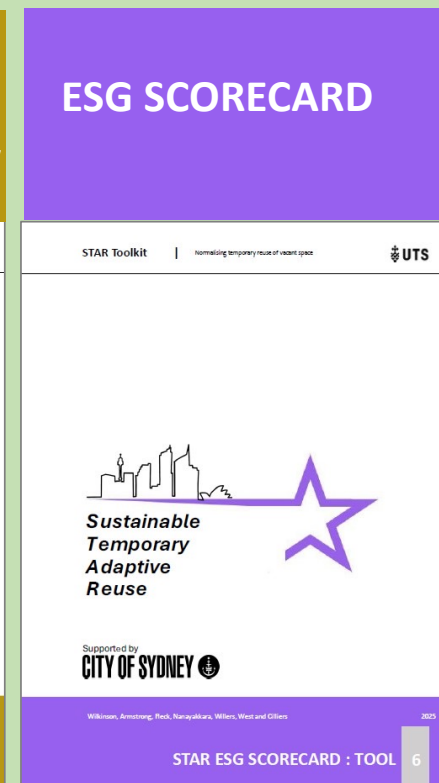
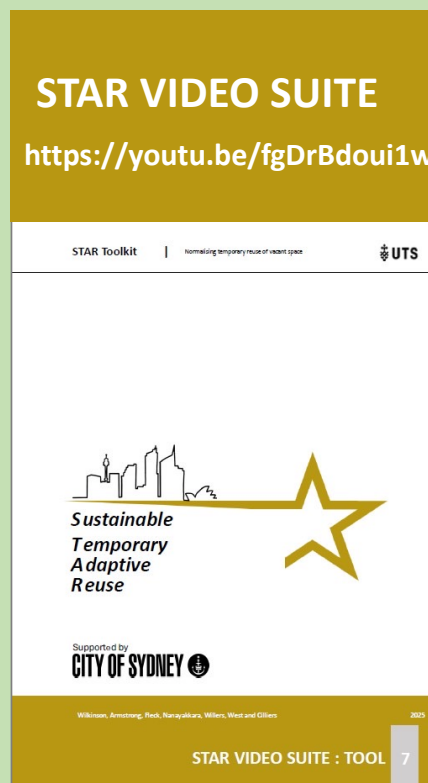
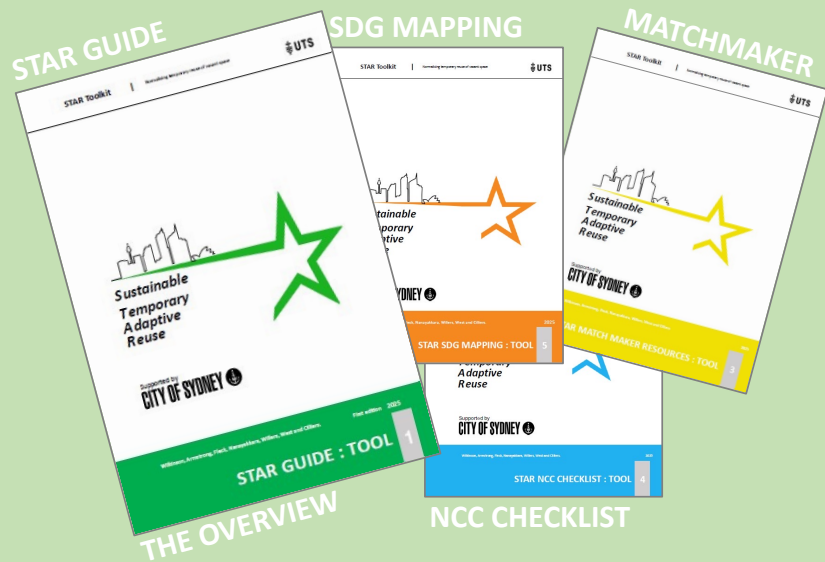


MATCH MAKER PROTOTYPE - LEARNINGS



NCC CHECKLIST - FEASIBILITY STAGE DISCUSSIONS

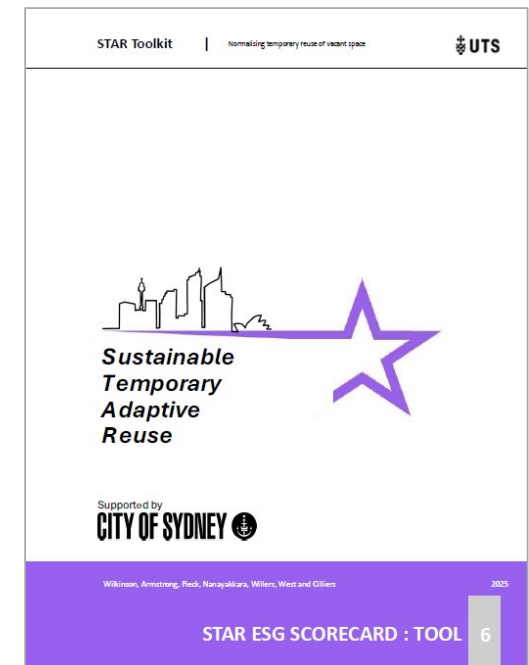




The STAR ESG Scorecard

Rating 0-10 for 15 social attributes

Social Attributes	Social Attributes	Social Attributes
Additional people generate additional income for building owners	Focus on the well-being of the community	Short timescales for end users to activate
Attraction of new groups to spaces	Health and safety	Social initiatives bring direct income for building owners
Commitment to upholding human rights	Philanthropy	Support innovation and sustainable employment
Contribution to the community	Retention of existing tenants	Support neighbouring businesses
Diversity and equity	Sense of place	Tenant's contribution to ESG
Subtotal /50	Subtotal /50	Subtotal /50



07

**Total Score
/150**



Gallery entry at the ground floor plane



Interior Architecture
Washington State University

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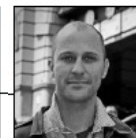
Elise Jensen Hall
elisehall11@icloud.com
@visionsofelh



Kelly Richardson
kellrich1122@gmail.com
https://www.linkedin.com/in/kelly-richardson-82330a1aa/



Studio Lead
Assoc. Professor
Vahid Vahdat
vahid.vahdat@wsu.edu



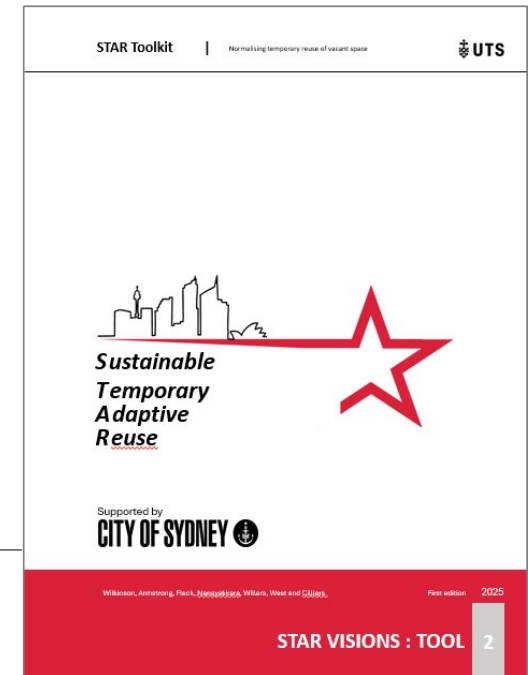
Studio Lead
Dr Campbell Drake
Campbell.Drake@uts.edu.au



Studio Lead
Michael Ford
Gillian_Armstrong@UTS.edu.au



Guest Reviewers
Dr Gill Armstrong
Prof Sara Wilkinson
Valentino Gekart
info@valentinogekart.com



Over 30 interior architecture students across UTS and Washington State University 16 visions for STAR

- A generic C&D grade office building, as defined in research by Perth architects Cameron Chisholm Nicol.
- 191 Thomas Street NSW 2000
- Exhibition with QR codes linking to further STAR designs

STAR Launch Panel discussion



- **Prof Jua Cilliers** UTS Moderator
- **Matt Levinson** Committee for Sydney
- **Alison Holloway** SGS Economics
- **Nick Chapman** Willoughby Council Resilience Lead
- **Caroline Pidcock** Architects Declare

The 'Spring Quarter', Corner Albert Av & Spring St., Chatswood CBD. Willoughby Council



Adaptive Reuse - 'Spring Quarter', Chatswood CBD

Credit: Ellis Cooper-Frater

- Ground floor publicly accessible, water feature, greening, 'hole in the wall' bars, eateries.
- Level 1 & 2 hospital/key worker accommodation.



Dissemination – spreading the word

- Peer reviewed papers
- Professional body journal articles
- Conference presentations
- 5th Estate articles
- **STAR Toolkit Website** - <https://www.uts.edu.au/about/faculties/design-architecture-and-building/built-environment/research/sustainable-temporary-adaptive-reuse-star-project>
- Wilkinson, S., Armstrong G., & Cilliers, J. 2022 ***Sydney innovates to revitalise commercial stock***. RICS Property Journal 14th November.
[https://ww3.rics.org/uk/en/journals/property-journal/revitalisation-commercial-stock- Sydney.html](https://ww3.rics.org/uk/en/journals/property-journal/revitalisation-commercial-stock-Sydney.html)

What about the BS? Building Services 😊

- Good question
- Assumption is most services can be reused for short term
- What about transition to longer term new use?
- Adopting connectedness, emergence, variety and readiness.
- This leads to a questioning / review of
 - The times – they are a changing
 - existing building codes and planning regulations,
 - of standards
 - And ???

Wrap up and next steps for STAR



Thank you - City of Sydney Knowledge Exchange Grant.



Thank you to all the experts & people who attended the workshops and exchanged their knowledge.



Thank you, Willoughby Council and Burwood Council.



Thank you to STAR Team - Dr Gill Armstrong, Mark Willers, Laura West, Dr Kusal Nanayakkara (RMIT), Dr Robert Fleck, Michael Ford, and Professor Jua Cilliers.



Next steps – Building Services, Material Reuse Scorecard and Carbon Quantification Checklist.

**Let's embrace and unlock
connectedness, emergence,
variety and readiness.**

