Sustainable Temporary Adaptive Reuse for a COVID-19 Recovery and Resilient Cities Approach

Gillian Armstrong, (University Technology Sydney), Sara Wilkinson (University of Technology), Jua Cilliers (University of Technology)

Introducing STAR

This paper presents reflections and findings of early-stage research using a co-design methodology to develop the Sustainable Temporary Adaptive Reuse (STAR) Toolkit, supported by a City of Sydney (COS) Knowledge Exchange Grant (2022-2025).

Temporary adaptive reuse is an economic renewal policy mechanism to address vacancy (O'Callaghan, & Lawton, 2016; O'Callaghan & Di Feliciantonio, 2021), and an asset management technique to maximise space in underused commercial buildings (BCO, 2017). Temporary reuse connects with the UN Sustainable Development Goal 11; inclusive, safe, resilient and sustainable cities and human settlements (United Nations, 2021). Resilience enables society to adapt to foreseen inevitable change while maintaining system functioning (Erixon *et al.,* 2013). Resilience thinking challenges 'business as usual', in terms of co-production of knowledge, network building across sectors, and innovative thinking in addressing complex urban problems (Carden *et al.* 2016).

Temporary-use is a focus for urban planning policy at local government level (City of Sydney, 2020), and in the NSW State Government Inquiry *'Options to improve access to existing and alternate accommodation to address the social housing shortage'*. This Inquiry investigates; options to better support 'meanwhile use' and current planning barriers to 'meanwhile use' (Parliament of NSW, June 2021).

Adaptive reuse reduces obsolescence in existing buildings whose current use is no longer in demand due to economic change and shifts in social behaviours or end-user expectations (Abramson, 2016). Owner motivations for temporary adaptive reuse of offices include enhancing or maintaining property value, securing premises through regular use, preventing decay from inactivity, reducing running costs, and improving marketability (BCO, 2017).

From an end user's perspective, such as the creative arts and emergency housing providers, motivations include a shortage of fit-for-purpose space (City of Sydney, March 2016; Housing for All Australians, 2021). Adaptive work can be minimal if a proposed use is compatible with a building's existing structure, performance or end-user expectations. Factors affecting the viability of conversion include economic, environmental, social, and legislative, and aesthetic judgements (Vehbi *et al.*, 2021).

Temporary-use is associated with entrepreneurial activity, often through community, creative arts or cultural groups, and 'pop-up' businesses that cannot commit to longer-term leases. Temporary-use is a desirable alternative to mothballing space

until end-user demand for existing uses increases (BCO, 2017). In Australia, Renew Newcastle, and Renew Adelaide (Deloitte Access Economics, 2018), temporarily couple underused commercial spaces with new end users but rarely involve change-of-use.

Adaptive reuse is sustainable if most materials are retained and not sent to landfills. Retention of embodied energy can offset construction waste and partial demolition generated during construction. However, the sustainability of temporary adaptive reuse needs careful consideration due to the shorter timescales and potential to generate waste for short-term occupation. STAR is a desirable strategy that minimises waste from construction and the fittings or fixtures used temporarily.

A change-of-use can involve the whole building, several floors or a small portion of a building (Armstrong, 2021). Temporary adaptive reuse is defined as a strategy to use whole or part of a building for a new use, on a trial or short-term basis, before transitioning to a more permanent use on an indefinite basis or reverting to former use.

Early Findings

Three themes emerged. These are: 1) a lack of confidence by stakeholders and uncertainty in current STAR understanding; 2) enthusiasm for STAR to enable resilience and help Sydney's COVID-19 economic recovery and address stakeholders' underoccupancy or shortage of space in Sydney's CBD; and 3) different STAR solutions may be needed for different sections of Sydney's property market and end-user groups.

Theme One: Current lack of STAR consensus

Stakeholders agreed there is a lack of consensus about definitions of adaptive reuse, and a nuanced vocabulary is undeveloped for temporary adaptive reuse. The implication is for workshops to develop a clear STAR description and build a consensus of understanding, including limitations. Stakeholders are aware of mandatory regulation, but many explained they were not across the detail to assess the early-stage viability of STAR.

Theme Two: Appetite for mainstreaming STAR

The enthusiasm to participate in STAR, scheduled for 2022-2025 was unequivocal, and 10 letters of in-kind support were gathered for the funding application. Supporting partners come from a wide range of stakeholder groups, demonstrating a high-level interest from both space supply (building owners and advisors) and end-user demand perspectives. Stakeholders were aware of the potential of STAR to address vacancy but expressed awareness that STAR is not a panacea for longer-term problems such as social stresses and homelessness or the need for increased creative art space.

Theme Three: STAR Premium and STAR Retail

Advocacy for permanent whole building adaptive reuse often targets lower-grade buildings, but there is an appetite for STAR across premium grade buildings from stakeholders who have a more expansive view of how their buildings can contribute to urban vibrancy. Stakeholders' motivations for involvement differed between developing tools for premium grade office buildings, lower-grade buildings, and STAR retail. Premium office building tools is about curating positive experiences and creating attractive cities for workers returning to the office after months of home working. Whereas stakeholders in lower-grade office buildings and retail are interested in curating new uses on a trial basis, retail space stakeholders are keen on new temporary-uses to attract footfall. One common element is the need to curate space use carefully to satisfy both existing users and the needs of the proposed new temporary users.

Conclusions

COVID19 brought urban vulnerability to the fore and how current infrastructure can be better employed and deliver multiple-use functions (Cilliers *et al.,* 2021; Lai et al., 2021). The importance of flexibility is highlighted as it shapes the way forward for city planning in terms of physical aspects (urban access, infrastructure, and land-use patterns) and non-physical aspects (socio-cultural, governance, and economic factors) (Afrin et al., 2021). Developing context-specific integrated approaches is essential for implementing effective planning, response, recovery, and adaptation actions in cities and urban areas alike. The STAR tool optimises underused buildings as a re-activation strategy for reclaiming sustainable and resilient cities.

References

Abramson, D. M. (2016). *Obsolescence: An architectural history*. University of Chicago Press.

Afrin, S., Chowdhury, F.J. and Rahman, M.M., 2021. COVID-19 Pandemic: Rethinking Strategies for Resilient Urban Design, Perceptions, and Planning. Front. Sustain. *Cities*, 3, p.668263.

Armstrong, G., Soebarto, V., & Zuo, J. (2021). Vacancy Visual Analytics Method: Evaluating adaptive reuse as an urban regeneration strategy through understanding vacancy. *Cities*, 115. Doi.org/10.1016/j.cities.2021.103220

British Council for Offices (BCO) (2017). *Mitigating Office Obsolescence – The Agile Future.* Available at http://www.bco.org.uk/Research/Publications/Mitigating_Office_Obsolescence_The_Agile_Future.aspx

Carden, K., Ellis, D. & Armitage , N.P. 2016. Water sensitive cities in South Africa: developing a Community of Practice. Proceedings of the 3rd *International Conference on Design, Construction, Maintenance, Monitoring and Control of Urban Water Systems* (UW 2016) www.witconferences.com. WIT Transactions on The Built Environment, Vol 165,

Cilliers, E.J., Sankaran, S., Armstrong, G., Mathur, S., Nugapitiya, M. (2021) From Urban-Scape toHuman-Scape: COVID-19 TrendsThat will Shape Future City Centres. *Land*,

10, 1038. https://doi.org/10.3390/land10101038Available from: https://www.mdpi.com/2073-445X/10/10/1038

City of Sydney (March, 2016) *New ideas for old buildings: findings of the creative spaces and the built environment forum.* Available at: https://www.cityofsydney.nsw.gov.au/surveys-case-studies-reports/understanding-the-cultural-sector-research-and-studies

City of Sydney (2020). *Making Space for Culture in Sydney: Cultural Infrastructure Study.* City of Sydney. Available at: https://www.cityofsydney.nsw.gov.au/surveys-case-studies-reports/understanding-the-cultural-sector-research-and-studies

Deloitte Access Economics (2018) *Cost benefit analysis of Renew Adelaide*. Available at: https://www2.deloitte.com/au/en/pages/economics/articles/cost-benefit-analysis-renew-adelaide.html

Erixon, H., Bergstrom, S. & Andersson, E. 2013. Challenging dichotomies – exploring resilience as an integrative and operative conceptual framework for large-scale urban green structures. *Planning Theory & Practice*, 14(3): 349–372.

Housing for All Australians (2021) *Lake House pop-up shelter*. Available at: https://housingallaustralians.org.au/product/lake-house-victoria/

Lai, K.Y., Webster, C., Kumari, S. and Sarkar, C., 2020. The nature of cities and the Covid-19 pandemic. *Current Opinion in Environmental Sustainability*, 46, pp.27-31.

O'Callaghan, C., & Lawton, P. (2016). Temporary solutions? Vacant space policy and strategies for reuse in Dublin. *Irish Geography*, 48(1), 69-87.

O'Callaghan, C., & Di Feliciantonio, C. (Eds.). (2021). *The New Urban Ruins: Vacancy, Urban Politics and International Experiments in the Post-Crisis City*. Policy Press.

Parliament of New South Wales (June, 2021) *Terms of Reference: options to improve access to existing and alternate accommodation to address the social housing shortage*. Available at: https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2823#tab-termsofreference

United Nations. (2021). Sustainable Development Goals. Goal 11: Make cities inclusive, safe, resilient and sustainable. https://www.un.org/sustainabledevelopment/cities/ [Accessed 8 May, 2021].

Vehbi, B. O., Günçe, K., & Iranmanesh, A. (2021). Multi-Criteria Assessment for Defining Compatible New Use: Old Administrative Hospital, Kyrenia, Cyprus. *Sustainability*, 13(4), 1922.