

# Robustness as Resilience, Mobility and Stability: An Actor-Network Approach to Identifying Typologies of Australian Pop-Up Shelters

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## Abstract

The escalation of homelessness is a growing concern in Australia. The number of homeless people increased by 14,000 between 2011 and 2016, and in the state of New South Wales the percentage of homeless persons increased by 27 percent. Root causes include economic factors like the high cost of housing as well as social factors like domestic violence and family breakdown. A number of long-term strategies have thus been mobilised to address this persistent and multifaceted issue. In New South Wales, these strategies include increased investments in homelessness services and programs as well as policies to support affordable rental and social housing, strengthen family connections and address safety from violence.

Because homelessness has reached crisis levels in key cities, a few short-term solutions have also emerged. One example is the use of pop-up shelters in buildings awaiting development or on unused government land, to provide short-term affordable accommodations to specific groups. While there are early reports about the effectiveness of these pop-ups, their benefits have also been questioned. Some stakeholders raised concerns about the wisdom of investing in short-term solutions. Other groups have also been wary of the “pop down”, when residents have to be forced to leave these settlements. A key question that we wish to address, then, is whether there are ways to make these pop-ups more robust, to mitigate some concerns about their precariousness. We use actor-network theory and qualitative techniques to examine four pop-up shelter networks in Australia. Our findings suggest that there are at least four typologies of pop-ups, with varying degrees of robustness: *basic* pop-ups which are readily replicable, seeking to providing short-term accommodations in a single location; *resilient* ones which can pop down then pop-up again in more adaptable forms; mobile pop-ups that can be built then dismantled across geographical spaces and finally *stable* pop-ups that can persist, even for multi-year periods, thus interrogating assumptions that pop-ups must always be highly contingent. In the course of our analysis, we identify human actors (developers, property owners, housing service providers) and non-human actors (buildings, transportable panels, transportable houses) that need to be enrolled to support such ongoing settlement programs. We also theorise on how less robust networks can be made more robust through the use of digital technologies such as dynamic digital town planning models and collaborative technologies such as Hyve 3D.

**Keywords:** pop-up shelters, actor network theory, networks, homelessness, temporary settlements

# 1. Pop-Up Shelters in Australia

Australia's history of dealing with homelessness has been mixed. One government organisation reports that last year, a record budget of Aus \$1.1 billion was allocated for supporting homeless people and for services for those in social housing (Family and Community Services 2018), while the NSW government developer LandCom has made a commitment that five to ten percent of its residential projects will be in the form of affordable housing (Landcom 2017). However, homelessness remains an escalating concern. As of 2016, a total of 116,427 were homeless in Australia, an increase of 14,000 since the 2011 census (ABS 2018). In December 2014, the federal government made a decision to defund three national peak bodies for housing and homelessness (Homelessness Australia 2016).

A number of influential stakeholders in the housing sector have begun to point to the need for more short-term but nimble responses, since long-term solutions have not adequately addressed what is now described as a crisis. An emerging solution is the idea of the pop-up shelter, dwellings that are constructed on vacant properties such as buildings awaiting development or vacant government land. Four examples of this novel arrangement have emerged in Australia: two in the state of Victoria and two in New South Wales. A number of key players have described the initiative as sound. The deputy director of a housing organisation, for example, noted they could be useful for those who "just need to get out of the weather while they work with a caseworker to get their next start" (Caneva 2016). Other stakeholders, however, raise concerns, with some claiming that long-term solutions should be given more priority, and that the pop down could have difficult ramifications when tenants are pushed out of the dwelling after a short-term stay.

Our purpose for this study is to examine four case studies of pop-up dwellings in Australia. Our specific interest is in exploring questions such as: Should they be expected to simply pop down? Or can they be managed so that they can be efficiently recreated, readily deployed to other locations and perhaps even stabilised over the longer term for the benefit of pop-up residents? To examine these issues, we examine each case study against an ideal of robustness, which we define broadly as a characteristic that implies strength in a pop-up network. We argue that pop-ups can be temporary, precarious arrangements, but we also hypothesise that there are ways to render them more robust, for example in cases where they are recreated in new adaptable forms, when they are replicated in other locations, and when they persist over the medium term. We use an analytical approach, actor network theory (ANT), combined with qualitative case study techniques to examine a range of reports on pop-up dwellings in Sydney and Melbourne. The research question we seek to address is: *What is the value of actor-network theory in developing a typology of pop-up shelters that explains how different forms of robustness can be achieved?*

To address the research question, we conducted a web-based search for pop-up shelters in Australia using terms such as "pop-up", "temporary" shelters "transitional", noting that we were looking at dwellings in a non-disaster context. We found four initiatives, all in early stages. Case Network 1 (The Addison Project, Kensington, NSW) involved a vacant three-storey hotel awaiting development approval. The developer Toga and building owner Qualitas announced in April 2017 that it would be making 42 fully-furnished rooms available to 16-25 year olds for at least twelve months. Each room would have a bathroom and a kitchenette, and would be available at a nominal rental rate of Aus \$180 per week. The Toga Managing Director Allan Vidor obtained the services of a youth housing organisation to operate the residence, a task that was described as surprisingly difficult. Residents selected were expected to transition with ease into other housing arrangements at the end of the lease. During their time at Addison Hotel, they would have access to free "rescued" food, secondhand clothing and free laundry facilities.

Case Network 2 (Uniting, Leichhardt, NSW) involved vacant building in Sydney's inner suburbs owned by Uniting, the service arm of the Uniting Church. The building had been used previously for residential aged care and is scheduled for demolition in early 2019. In the interim, Uniting made the decision to use the structure as a transitional home for older women. Donations for furniture were obtained from a hotel undergoing refurbishment; apart from this, basic cleaning and maintenance were conducted.

Uniting started taking tenants in March 2018. Each of the 30 rooms had a microwave, bar fridge and bathroom. A Uniting manager mentioned they are considering more pop-ups in the future.

Case Network 3 (Lakehouse, South Melbourne, Victoria) involved a 55-room aged care facility formerly known as Claremont Home, operated by CaSPA Care, which was awaiting master planning for development. The initiative can be traced back to the efforts of Robert Pradolin, former CEO of a large property developer Frasers. Pradolin has recently become very passionate about pop-up housing, and has established an organisation, Housing for All Australians (HAA), that seeks to make it an ongoing effort. The Lakehouse project emerged after Pradolin spoke of the idea of pop-ups with a fellow Rotarian who happened to be on the board of CaSPA Care. When CaSPA Care found a vacant property, they partnered with the local council in the City of Port Philip, which prepared a tender for operations. The tender was awarded to the YWCA at a peppercorn rent of \$1 year. The Lakehouse started taking tenants in July 2017, and targets women over 55. The umbrella organisation, HAA, has an emerging presence in social media and Pradolin has begun communicating his advocacy over various news channels, describing HAA's many plans, including a target of three pop-up shelters a year. Pradolin seems well-positioned to pursue this given his position as a former executive in property development.

Finally, Case Network 4 (The Harris Transportable Project, Western suburbs, Victoria) involved 57 new affordable, transportable homes to be built on nine parcels of land in the western suburbs Footscray and Maidstone. The project is driven by one of Australia's largest housing organisations, Launch Housing. Launch Housing has partnered with philanthropists who have given Aus \$4 billion for the project. The donation appears to be one-time. Partner architects and builders have designed transportable townhouses to be set up on land owned by the government organisation VicRoads, which will eventually be used for widening, but this is planned only in the long term. Target tenants include low income adults and families. The units are fully furnished and fitted out for the tenants, who are slated to move in Christmas 2018.

## **2. Actor-Network Theory**

To analyse our case networks, we used an analytical approach called actor-network theory (ANT). ANT overarches an eclectic set of concepts and methodological tools, and is underpinned by the assumption that all phenomena are networks of human and non-human actors linked in webs of association, leading to network effects. For example, organisations, teams, computers, and construction projects can all be understood as assemblages of people, objects, devices and texts brought together to achieve specific network goals. Network creation begins when a prime mover frames a problem (e.g., homelessness) and a solution (pop-up shelters) in a particular way, then proceeds to identify different actors that can fulfill roles in this network. Actors that join a network must take on roles that are interdefined relative to other actors' roles, and this may result in a narrow, simplified identity that betrays an actor's existing one. An example is a skilled worker relegated to repetitive work when interdefined against a mechanical assembly line. Entering a network, then, involves all actors being funneled through an obligatory point of passage. Once created, networks can converge, expand, destabilize or fail. Many of these stages are understood to be part of the process of translation (Callon 1999). Since networks are continuously being created and recreated, they are understood to be contingent and precarious, even when they appear stable and persistent (Callon 1999, Latour 2005, Law 1992). The underlying assumptions of networks as time-bound phenomena and as heterogeneous assemblages of humans and non-humans make ANT well-suited to examine the phenomenon of pop-up shelters.

## **3. Methodological Approach**

To address our research question, we conducted thematic analysis of 82 pages of data available on all four of our pop-up case studies. The study is ongoing and our target is to enrich this data with transcribed interviews and videos about pop-up initiatives. For this study, data came in a range of forms: news, PowerPoint presentations, blog posts, government media releases, project descriptions by builders,

industry publications and LinkedIn newsfeeds. We conducted thematic analysis on the data in line with key concepts of ANT. We began by looking for themes on the beginnings of each network, such as which actors championed them and how champions problematised the problem of housing. We then traced the associations with humans and nonhumans that the champions sought to create to address the homelessness problem. The focus on associations is consistent with ANT principles, which suggest that important attributes emerge only from actors' interactions, not from the features of autonomous actors (Callon 1981).

We began our analysis with Case Network 1 (Addison), our designated benchmark. We then proceeded to the next case network. As we progressed, key similarities and differences emerged and these became notable themes. We built progressively on our list of themes as we moved iteratively between themes and data. We identified five key links that appeared to be the most significant in accounting for differences in the case studies, and combined these with a sixth item, the manner by which the prime mover problematised pop-up housing, to form a scaffold for our final round of analysis. Using this scaffold of six themes, we did a qualitative comparison of each case relative to others, describing (not measuring) whether a case study fared as "High", "Moderate" or "Basic" in relation to each of the themes. Because pop-ups on vacant properties are emerging phenomena, there are no set ideals for each theme, thus our basis for our descriptors were cross-case comparisons. For example, in "commitment of champion to providing housing", we noted that the Addison is championed by a commercial developer. While it has a strong corporate social responsibility unit, the Addison champion so far has a one-time commitment to a pop-up. This could very well change in the future, but we note that other champions had ongoing and more comprehensive missions linked to homelessness. This led us to situate Addison on one side of a hypothetical continuum where the priority to provide housing is basic, while the other three with sustained commitments to homelessness are positioned on the opposite side (high). It is important that the term "basic" not be misconstrued as substandard or lacking. Our purpose in differentiating is to demonstrate that even actors that are not squarely in the homelessness domain are capable of driving pop-up networks. For "link between champion and building service providers", we noted that both Addison and Uniting made almost no mention of seeking partners to refurbish or install new fixtures (we assessed them as basic). Harris had a partner architect and builder to construct houses, a substantial partnership, but this was limited to a one-time arrangement (we called this moderate). HAA claimed they would have ongoing partners to give pro-bono services (potentially high), but this has yet to be seen beyond one case study, which led us to the more tempered description of moderate-high. Appendix 1 summarises these findings.

## **4. Findings: Typologies of Pop-ups**

Our ANT analysis reveals pop-up as assemblages of people, organisations, buildings, land, panels, development plans and other actors. These assemblages are created significantly, but not solely, by prime movers or champions. In our study, the champion/ actor varied across cases: two were building owners with empty buildings, one was a former property developer executive mobilising a network of contacts who owned buildings, a fourth was a housing organisation partnering with a government agency with vacant land. Space does not permit us to exhaustively report how each network was created. We do, however, want to highlight a key observation: in each network, the non-human site was a significant actor. In ANT, non-humans are understood to have agency: they can "authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid, and so on" (Latour 2005, p. 72). In the case studies, vacant sites became obligatory points of passage, "permitting" certain actors' enrollment while excluding others. In Case Networks 1-3, for example, empty buildings were interdefined with development approval documents, and thus translated into spaces with strictly short term availability. In ANT terms, these short-term rentals "allowed" only certain types of residents to be enrolled: residents with simple needs and who could exit with ease into alternative housing. In Case Network 4, the land was interdefined with lease agreements and was translated differently, this time into a space for long-term occupancy. The land therefore "permitted" other kinds of residents and housing providers to become part of the network. Tracing the relations between actors in networks in this manner allowed us to discern the overall characteristics of each network; these are described below.

Case Network 1 – Addison: A basic yet replicable network. The Addison network is described in Appendix 1 as “Basic” across all six themes. Again, the decision to characterise this network as “basic” does not mean it is substandard; it means that it is a pop-up network that can be created by assembling a limited pool of actors for a limited time. The pop-up network, the first of its kind in Australia, was created almost entirely from scratch, with limited time and resources. One of the champions, Alan Vidor of Toga, was not running a housing organisation and Toga had no vacant resources beyond a single building, yet Vidor and a team from Toga chose to assemble an entirely new pop-up around this non-human actor. We note that Toga has a corporate social responsibility unit with a focus on young people and homeless, and this suggests that similar initiatives could be executed in the future. However, the articles examined suggested the pop-up was a novel undertaking and thus foundational relationships did not yet exist. Articles also did not suggest any concrete plans for future pop-ups yet, thus this remains a matter for future empirical investigation. Initially there were difficulties in enrolling a housing service operator. Toga finally enrolled My Foundation Youth Housing, thus the building was “translated” from its former identity as a hotel into temporary accommodation. Other services were then enrolled accordingly, and specific residents were brought in on very specific terms: they would stay 12 months, pay rent, then exit into other homes. The key lesson from this case, we argue, is its replicability. The Addison experience as a pop-up is valuable in the sense that it is something almost “anyone” can copy: champions with no experience, actors with access to “only” one property, people with limited housing contacts. The specific elements of the Addison network do not have to be copied exactly; future pop-ups do not have to have, say, a rescued food outlet. In ANT, discovering who the actors are is always an empirical matter (Law 1992). But the case does show that a single champion with a non-housing mission and a relatively thin roster of actors can still create a temporary pop-up network, despite limited time and resources. In Figure 1, Case Network 1’s characteristics are captured in the hexagon in the centre with the smallest area, and this was based on our descriptors in Appendix 1. We have also plotted Case Networks 2-4 and in contrast, we see these three other case networks spread beyond this small hexagon at various points, indicating that they move away from this “basic” model, to either “moderate” or “high”, in a number of categories, possibly because they are driven by champions more squarely in the homelessness domain. These three pop-up networks are more “robust.” While none of them are “high” on all themes, they nevertheless have characteristics that make them stronger than a basic-pop-up. Furthermore, they move outward in different directions, suggesting diverse pathways to robustness. We thus sought to explore how the robustness of each network is qualitatively different from that of the others. Our findings suggest Case Networks 2-4 are *resilient*, *mobile*, and *stable* pop-ups.

Case Network 2 - Uniting: Robustness through resilience. Data suggests that the Uniting network is distinct from others in that it involved the recreation of an existing network into a pop-up network. Notably, the goals of the existing and new network had significant congruence. Uniting was already a non-profit entity supporting homelessness as one of its aims. Many actors needed for the desired pop-up housing network were already enrolled in an existing network, and simply had to be interdefined then mobilised differently. For example, the existing vacant residential aged care structure was already part of the network and transforming it “did not take too much work”. Uniting had links with referring organisations as well as and homeless people. The organisation was the regular recipient of donated goods, although there is no evidence to suggest that it was actively pursuing donors that would support the specific needs of pop-ups. Certainly there was, in ANT terms, more work of translation that had to be done to recreate existing associations: the facility had to undergo change; the referring organisations had to be educated on screening procedures for the new facility. Still, it is noteworthy that, unlike the Addison case, many relationships no longer had to be built from the ground up. In the Uniting case, there was little evidence of the active enrollment of new actors that characterised Cases 1, 3 and 4. The network was deficient in some links, one being virtually nonexistent links with other property owners, but it appears Uniting chose to work within these constraints rather than to actively pursue new connections. For example, Uniting mostly relied on its donor channels, apart from the single “serendipitous” donation from the hotel undergoing refurbishment. For future pop-ups, it would simply look within its own building portfolio. The ease and nimbleness by which a network carries out this ongoing process of network recreation is what we consider “resilience”. We propose that Uniting was resilient in the creation of this first pop-up, and it is plausible that it can create a future pop-up using

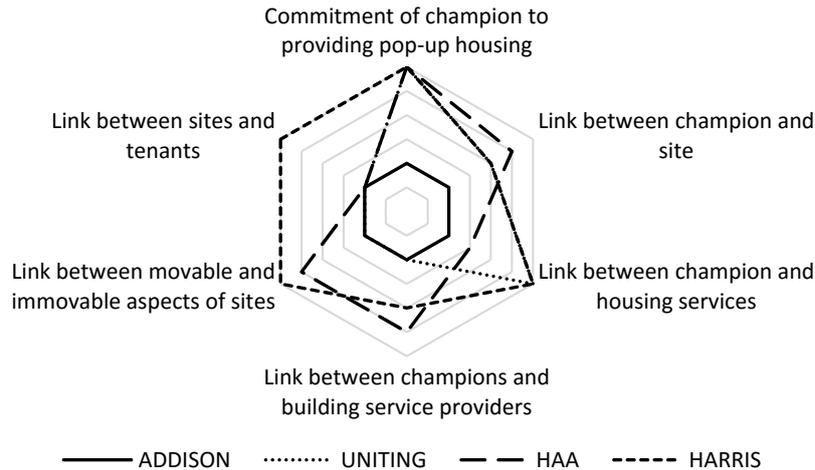


Figure 1: Characteristics of Different Pop-up Networks Examined

the same strategy, using a different property as a central actor. Resilience as a pathway to robustness, then, is a strategy which involves the resourceful, albeit intermittent, recreation of existing networks, in order to create an emergent pop-up network. The strategy prioritises transformation, but in a limited way because of resource constraints. The resilient pop-up capitalises on existing actors and relationships, translating them anew by enriching or changing their roles to align with new goals.

Case Network 3- HAA Robustness through mobility. Under the resilience strategy, the key question was: how can we recreate an existing network into a pop-up, in light of limited resources? Under HAA's strategy, the key question appears to be, how can we create and later dismantle new networks in a sustained manner across different geographic locations? HAA is launching an ambitious program involving the serial creation of multiple new short-term pop-up networks that are geographically spread out, and it will do so in an ongoing manner. HAA's network, then, is characterised primarily by mobility, not resilience. Many elements of each pop-up, most notably the building and its owner, will be new. Data suggests, though, that some actors like panelised systems may be re-enrolled upon relocation. If our analysis is correct, these panels will be the bread and butter of the mobile networks, the physical centerpieces of each new location. In ANT, they are "immutable mobiles" (Law 1992) that allow some patterns of previous pop-ups to be recreated in new pop-ups. The extensiveness of mobility, we argue, will depend heavily on the economies of scale that can be achieved with these panels: manufacturing them in bulk efficiently, transporting them, assembling/ disassembling them and designing them to fit different buildings. The geographical breadth and ongoing nature of the HAA effort also means significant effort must be exerted to support the enrollment of new actors such as buildings, building services, and the executives and organisations that steward them. The HAA network has a number of features that support this. Appendix 1 shows HAA as ranking highest in key areas (links with sites, links with building services) relative to other case studies, although we describe it "middle-to-high" given it is a new firm with an understandably limited track record for success. HAA is also exclusively devoted to the mission of providing pop-ups, and this single-mindedness allows for vigilance needed to execute expansion in a fluid way. That said, HAA marked low-to-moderate in terms of links with housing providers. Data suggests that the need for housing service providers has been treated as primarily incidental; much more discussion has been devoted to getting building-related actors on board. In the end, however, this may not be too problematic. As a housing expert commented, this type of pop-up strategy may be seeking simply to "get [people] out of the weather", not provide a context for long-term, comprehensive social support.

Case Network 4- Robustness through stability. In contrast to the HAA case, the main strategy of the Harris network was to create pop-ups that achieved robustness through longevity from the perspective of housing for a specific group of residents. While the HAA network prioritises extension across space, the Harris case network emphasises persistence of the network over time. This is a pop-up strategy of

stability. Under this arrangement, there is the possibility of individuals residing in the same house and land parcel for ten years, thus this case shows that pop-ups do not have to be fleeting and precarious. Stability comes from a number of sources, one of them being the length of lease of the land. However, it seems the linchpin of this stability is the housing units, which are fully transportable and have a 50-year life. The unusual length of this pop-up residence tempers the network's dependence on a number of actors. Once the houses have been built, for example, there is limited need to continuously solicit large-scale donor funding, and unlike Case Network 3, there is no need to depend on a steady stream of infrastructure suppliers or building service providers. The fact that Case Network 4 ranked "only" a medium in these links is therefore not a major cause for concern. That said, there is a pronounced need for rich relationships between housing service providers and long-term residents. In this case study, though, the network is already driven by a large housing organisation and this is seen to make it more viable.

## 5. Discussion and Conclusion

*Conceptual contributions.* In conducting this analysis, key ANT concepts were central in the formulation of our typologies. Specifically, the ANT concepts of network creation, stability and expansion (Callon 1999), along with the argument of ANT scholars that all networks are provisional and continuously being recreated (Law 1992) significantly informed our formulation and our understanding of the replicable, stable, mobile and resilient typologies, respectively. We reiterate this to emphasise that ANT is a fruitful analytical approach to formulate insights on pop-ups. We point out, however, that the reverse is also true. ANT can enrich our understanding of pop-ups, and pop-ups can also open up possibilities for the conceptual enrichment of ANT. For example, there is considerable work in ANT on the use of devices called "immutable mobiles" to make networks more irreversible (Law 1992). However, there is limited work that has been done to examine the specific mechanisms that make networks nimble, adaptable and resilient. While claims have been made that networks are constantly being created and recreated in a status of contingent stability, there is a lack of research that explores how a network can be deliberately dismantled, only to be swiftly recreated with substantially the same actors, this time running under new programs. Resilient pop-ups like the Uniting case may in the future provide a rich context for exploring these concepts.

*Methodological contributions.* We have provided the beginnings of a framework for operationalising robustness in a pop-up network, specifically by identifying the six elements presented in Appendix 1. We have also proposed that a network's key characteristics in each of these areas can be plotted in a diagram, allowing robustness to be visualised. Further work can seek to develop a more detailed instrument, and eventually even a quantifiable index, to capture this notion of robustness.

*Implications for practice.* In presenting the four networks as bases for theorising on a typology of housing pop-ups, we have interrogated the assumption that pop-up shelters are always fleeting, contingent arrangements that are unsystematic solutions to homelessness and unable to provide continuity for tenants. Pop-ups may not be long-term solutions, but they are emerging as surprisingly flexible mechanisms that can attack the problem of housing shortages from different angles. Our work shows that there is no single type of pop-up, and future champions have a range of typologies to choose from given their goals, resources and the capabilities of their existing networks. Our efforts to operationalise and visually portray robustness will also be helpful for practitioners. For now, Appendix 1 and Figure 1 let us "see" that among the four case networks, it is Case Network 4 which is most robust, but it can still be strengthened. Figure 1 also guides key areas for development.

*Future work.* We believe that an important starting point for making any pop-up more robust is to establish a systematic and ongoing process for identifying possible sites. We believe that this process of identifying vacant land (in Harris) and buildings (in HAA) can be rendered significantly more systematic through the use of digital technologies. An important research direction, then, is examining the extent to which digital town planning models could be potentially rich repositories of information on vacant land and buildings. If they are sufficiently integrated with government planning systems, they

can be mobilised to capture not just the type and location of the sites but also the timing and length of availability of vacant infrastructure. Digital technologies can thus provide substantial guidance for decision-makers on how to plan for a chain of pop-ups over time and across different geographic locations in a fluid manner. More sophisticated information may also lead to logistical efficiencies, for example when models help users visualize when and how transportables can best be moved from place to place. In addition, some of these models can be viewed with collaborative technologies that will allow planning to be done in a participative manner, with the meaningful involvement of other actors in the network. Hyve 3D, for example, is a virtual reality environment that allows for models to be viewed on a large parabolic screen, and can be connected with other Hyves in different locations. This will potentially allow infrastructure sourcing and planning for pop-up projects to cross councils and suburbs, making efforts more comprehensive.

## Acknowledgements

The authors would like to acknowledge the support by the Australian Research Council, Discovery Project 180101178: “Rethinking housing-Actor network analysis for digital collaboration”.

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	CASE 1: ADDISON	CASE 2: UNITING	CASE 3: HAA / LAKEHOUSE	CASE 4: HARRIS
Commitment of champion to providing housing (long term/ short term?)	[BASIC] ONE-TIME POP-UP BUT LONGER TERM POSSIBILITIES EMERGING . Data suggests this is a one-time project but a strong CSR unit suggests there might be more.	[HIGH] ALREADY HAS A MISSION THAT INCLUDES ADDRESSING HOMELESSNESS. Has done this pop-up and is seriously considering doing more.	[HIGH]. ONGOING COMMITMENT TO POP-UP HOUSING SPECIFICALLY. Umbrella organisation HAA wants to do pop-ups in vacant buildings in an ongoing manner	[HIGH]. CORE COMMITMENT TO HOUSING IN GENERAL, ONE-TIME TRIAL OF POP-UP. Otherwise offers a range of long-term housing solutions.
Link between champion and site (is the site owned? Are there multiple sites? Were the sites actually committed or are they just potential sites?)	[BASIC] OWNER COMMITTING ONE PROPERTY; OTHERS POSSIBLE BUT NOT DISCUSSED. No mention yet of expanding to other buildings currently awaiting development. Made it clear to community partner that “what pops up must pop down” [1F]. Hopes “other property owners will follow suit” [1F]. Presence of CSR unit suggests this could be a pattern but current articles do not mention concrete future plans.	[MODERATE] CO-OWNER COMMITTING MULTIPLE PROPERTIES FROM OWN RESOURCES Pushing for this initiative, and is considering doing more. “We will continue to look for other opportunities to use our buildings to accommodate those experiencing homelessness, and would encourage other building owners to do the same.” [2A]. Claims “Really, anybody can do this.” [2C]	(MOD -HIGH) NON-OWNER SEEKING MULTIPLE SITES FROM POTENTIALLY LARGE NETWORK. Pradolin, a key figure in development, says “[f]inding property owners willing to back him took longer than Pradolin had hoped” [5E], but sees potentially “1000 underutilised buildings across the country which could be repurposed by the property industry for short term transitional accommodation that can be managed by not for profit housing providers” [5F].	[MODERATE] OWNER HAS ACCESS TO MORE OF ITS OWN PROPERTIES. Launch Housing is a large organisation with access to other properties [3A]. Vic Roads will identify other land they own that could be suitable for the transportable units to be relocated [3A]. In the future, “[o]ther government departments could also make vacant land available”, but there is no indication in the data that Launch Housing is actively pursuing this opportunity [3D]
Link between champion and housing services (are partnerships one time or ongoing? Does the champion have its own expertise?)	[BASIC] EMERGING FIRST-TIME LINK. The hotel was available but it needed an operator: “Mr. Vidor said finding an operator for [sic] comprehensive project proved “surprisingly difficult”; “[t]he response was lukewarm” [1A]. That said, the partnership seems fruitful. Plans for future collaborations not mentioned in current data corpus.	[HIGH] SOME INTERNAL EXPERTISE ON HOUSING AND ONGOING CONTRACTS WITH AGENCIES. As part of a church, Uniting knows how to provide housing services, and simply needed referrals from four specialist homelessness services for referrals [2A].	[LOW-MOD] SPECULATIVE LONG-TERM PARTNERSHIPS, TRIAL SUCCESSFUL FOR ONE PROJECT THROUGH TENDER. Victorian YWCA was brought in as manager, through a tender process executed by the City of Port Philip [5E]. No long term plan.	[HIGH] INTERNAL EXPERTISE COMPREHENSIVE. Launch Housing is one of Australia’s largest housing organisations. Serves as project lead, property manager, assessing, placing and supporting tenants [3B]. Well-placed to replicate effort.

	CASE 1: ADDISON	CASE 2: UNITING	CASE 3: HAA / LAKEHOUSE	CASE 4: HARRIS
Link between champions and building service providers/ furniture and fixtures (are the links one-time or ongoing? Is the champion a passive recipient or an active seeker of services?)	[BASIC]. BEGINNINGS OF ATTEMPTS TO ACQUIRE BUILDING SERVICES. Initial linkages formed with free laundry, rescued food and secondhand clothing. Again, future linkages appear plausible but plans for these are not discussed in the current article pool.	[BASIC] MINIMAL, ONE-TIME EFFORTS TO OBTAIN FURNISHING. Not much was needed so the pop-up was “furnished with secondhand items from a major hotel chain that was having a cleanout” [2C]. “It did not take too much work to make 30 rooms in the building fit for use. They just needed a good clean and for the utilities to remain connected” [2C]. One-time donation from refurbishment of a large hotel [2A].	(MOD-HIGH) SIGNIFICANT, POTENTIALLY ONGOING SUPPORT. Broad range of partners from the property sector already mobilised, presumably because of Pradolin’s vast network. Metricon cleaned, refurbished, installed industrial kitchen and laundry [5E]. YWCA providing a team of women tradies to perform improvements [2A]. Crowne Plaza donated old furniture [2A]. Future upfront costs covered via crowdfunding.	[MODERATE] SIGNIFICANT, ONE TIME SUPPORT. Partnership with Schores Projects (architects) to create environmentally sustainable units. [3B] Brad and Geoff Harris provided a donation of \$4 million to fund majority of the building costs. [3C]. Fully furnished and fitted out for the tenants [3A]. No indication that such funding is available on an ongoing basis.
Link between movable and immovable aspects of sites (can the entire housing unit and its fixtures be moved? Or is it just panelised systems?)	[BASIC] No mention of furniture, systems, or housing units being relocated in the future to another site.	[BASIC] No mention of furniture, systems, or housing units being relocated in the future to another site.	(MOD-HIGH) PLANS FOR TRANSPORTABLE PANELS/ PODS. Plans in place for construction of pods or panels that can be moved from building to building. “Labour needed to construct done for free through industry support and companies such as ProBuild Australia” [5D], Pradolin claims ProBuild support has been obtained [5B]	[HIGH] DWELLINGS FULLY TRANSPORTABLE. “Units can be repurposed on other land sites if need be...the units sit on top of [a removable] surefoot footing system...during their lifespan of 50 years they can be relocated an unlimited number of times” [3A]
Link between sites and tenants (short term or long term tenancy?)	[BASIC] STRICTLY SHORT TERM. Residents selected were “likely to have viable exit options” [1B] because arrangement was strictly short term, only 12-18 months.	[BASIC] STRICTLY SHORT TERM. “The vacant building presented a transitional opportunity within a twelve month window” [2A] Silent on rehousing/ extending.	[BASIC] STRICTLY SHORT TERM. “Some shelter for two years is better than nothing” [4A]. Silent on rehousing/ extending.	[HIGH]. Long-term solution. “We won’t just give them eviction notices”; land available for at least 10 years [3A]. VicRoads required to give 12 months’ notice [3A].

Appendix 1. Characteristics of networks examined.