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Abstract

According to future projections based on current demographic growth trends, Auckland's population will reach two million in 2033. Since the city is already afflicted by a serious housing crisis, at the beginning of 2017 the newly elected Mayor Phil Goff set up a task force. Formed by representatives of various stakeholders, it was given the task of producing a report with strategic and tactical guidelines to mitigate the situation. Unitec researchers were invited to respond to the report, which came out at the end of 2017, in the form of three think pieces towards the Building Better Homes, Towns and Cities National Science Challenge. This paper is a new iteration of one of these think pieces, focused on collaborative living, and expands on the new role that designers should play in this field. Its ideological position is that the house cannot and should not be considered as a commodity on the free market; nor should focus solely be on bringing down prices by increasing the number of houses on offer. Over time, housing might evolve to being more about social (use) value than exchange value. Other models of the production and consumption of household goods are documented throughout the world as alternatives to mainstream market logic, using collective procurement mechanisms to cut construction and marketing costs with savings of up to 30%. These experiments, not limited to achieving financially sustainable outcomes, are linked to new social practices of collaboration between neighbours. The sharing of spaces and equipment to complement private housing units also leads to social and environmental sustainability.

Background

In a scenario of intense demographic development that will bring the population to two million by 2033, Auckland faces a severe housing crisis, which can only worsen if specific corrective policies are not adopted.

In 2017, the newly elected Mayor Phil Goff set up a task force consisting of representatives of all groups in the housing sector, with the aim of issuing, within one year, a report containing strategic and tactical guidelines for mitigating the crisis.

Unitec successfully participated in the Building Better Homes, Towns and Cities National Science Challenge contestable round and obtained funding to involve researchers qualified to produce three think pieces in response to matters raised by the mayoral report in three areas: developing at scale, including during times of peaks and dips in the building industry; increasing land available through zoning and infrastructure; and streamlining the consenting process (Auckland Council, 2017, p. 3). This paper extends the content of the think piece that was particularly focused on alternative tenure and ownership models to fill the gaps between social housing and market-rate housing.

In the mainstream discourse, we often hear that real estate is equivalent to any other sector of the market in reflecting the dynamics between supply and demand. Therefore, to keep prices affordable against an increasing demand, the only possibility is to increase the supply of new buildings. This think piece challenged this assumption. According to its vision, it is possible to take inspiration from collective procurement mechanisms widely tested in Europe, the USA, and Australia: savings of up to 30% of final price are achieved by cutting back on the profit margins of developers and marketing agencies, and dwelling-unit spaces are reduced through the outsourcing of shared functionalities.

The profile of the actors who animate this scene is different from that of the free market. For example, ‘cohousers’ are not clients with average needs to be served, rather proactive decision-makers uninterested in standard products and services currently sold on the market, whether affordable or not. To them the meaning of ‘home’ encompasses a range of new social interactions: by repositioning individual needs as access to services rather than product ownership, co-housing can even create new job opportunities. If, for instance, rather than a status symbol, transport is a utility, then it can become a service for the cohoused: a multi-modal mix of cargo-bikes, scooters, public transport, and car-share. The role of professionals changes dramatically: they are not only problem-solvers imbued with technical skills but also facilitators capable of leading the groups toward the discovery of solutions.

Many of these experiments arise from the spontaneous action of self-organised groups. Unfortunately, their mortality rate is very high in the absence of an ecosystem capable of streamlining and supporting cohousing initiatives. It is this paper’s contention that such an ecosystem ought not be further delayed if Auckland wants to accommodate the variety of lifestyles every liveable city of the world should permit (Tāmaki Makaurau Design Alliance, 2016, p. 2).

2 Diagnosing the problem

2.1 SOME FIGURES ON THE HOUSING CRISIS IN AUCKLAND

According to the data published in the *Knowledge Auckland 2016* report, it is expected that the population of the city in 2033 will amount to two million inhabitants, corresponding to the current size of Wellington and Christchurch combined.

In the same period, projecting the current trends in the housing sector seems to indicate a worsening of the crisis. For example, the rate of owner-occupied housing in Auckland has dropped from 74% in 1986 to just 62% in 2013. The fall is even more dramatic for specific demographic groups. The *State of the State New Zealand 2017* report says that between 1991 and 2013 house ownership plummeted by 32% among Māori and 38% amongst Pasifika (Favager, Moore, Brandt and Tabarias, 2017, p. 23).

In just one year, from June 2014 to June 2015, the average house price in Auckland increased by 28% to about $787,000. Approximately 42% of buyers are classed as 'investors' and as a result 57% of the population older than 15 years are tenants.

Housing affordability is a topic that has been widely discussed between economists and technicians in the sector, including urban planners and architects. For example, Grimes (2015) proposes a theoretical model in which the complex interaction between different interplaying factors determines the average price of houses. These factors include the availability of property and land on the market, ease of access to credit at reasonable interest rates, construction costs, migration flows, concessional or government-subsidised rentals and mortgages.

However, the international community of the sector's stakeholders today considers purely financial and technical considerations insufficient. The affordability of housing, in fact, can only fit into the broader framework of sector sustainability, which is not only financial but also environmental and social (United Nations General Assembly, 2005). This means that no innovation in the sector can break through if it does not take account of these three levels.

3 Identifying the specific opportunity

3.1 THE MAYORAL HOUSING TASKFORCE REPORT

The Mayoral Housing Taskforce determined three critical areas for change:

- Identifying actors capable of building through the dips to drive the sector to new peaks.
- Unlocking cost-effective development opportunities through zoning and planning.
- Launching cutting-edge consenting and risk-management processes.

However, any incidental or systemic problems causing Auckland's housing supply challenge should not be considered as irreversible. The report identifies a total of 33 strategic recommendations and tactical actions to address them, each requiring Auckland Council to engage with government, non-government, industry and tertiary providers, professional bodies and communities.

The report concludes with the suggestions to further investigate these recommendations and design policy; to first trial any recommendations to boost development and refine policies based on findings; and to take any measure to scale up and implement recommendations to achieve consistent housing development at scale.

3.2 A UNITEC RESPONSE TO THE MAYORAL HOUSING TASKFORCE REPORT

Of all the 'next steps,' Unitec's response particularly addresses the one that suggests "investigating recommendations and designing policy responses" (Auckland Council, 2017, p. 25). It also contributes to the impacts targeted, specifically:

- Securing an adequate housing supply to satisfy Auckland's growing population.
- Improving housing affordability and variety to make Auckland more attractive to the skilled workforce and businesses that would make the city vibrant, productive, and wealthier in the long run.
- Building new housing at a faster pace and larger scale, providing a wider offering of quality built and affordable homes, ranging from traditional standalone homes to terraced homes and midrise apartments.
- Planning at a larger-scale, funding and building different types of developments, including through cyclical peaks and dips.
- Addressing the tactical interventions identified in the report to help to create a platform for policy changes.

The invited Unitec researchers are qualified to provide intelligent responses to the strategic recommendations of the Taskforce's report in their capacity as experts in community development, architecture, landscape architecture, construction, building technology, civil engineering, design and workforce. Their strengths lie in the applied and practical approach to teaching and researching and strong relationships with community and industry. Being a polytechnic pursuing applied research, Unitec has strong connections between and iwi/hapū/whānau groups, Auckland Council, industry training organisations, industry and community groups.

Three think pieces were released to pitch into a selection of the strategic and tactical suggestions identified and include a mix of recommendations for changes and actions that can be implemented immediately or following future research.

The author of this paper developed the think piece as a response to one of the recommended "strategic interventions" of the *Mayoral Housing Taskforce Report*: *Investigate other mechanisms to enable new tenure and ownership models that can fill gaps between social housing and market-rate*

housing. Identify whether and how these are feasible to implement to address affordability issues. Moreover, the piece also responds to at least two of the research questions identified by the National Science Challenge: *What is the role of 'public housing' in delivering a more balanced range of housing choices? What innovation is possible in financing home ownership?*

3.3 WHAT IF WE CONSIDER HOUSING AS A COMPLEX PRODUCT/SERVICE SYSTEM (PSS) IN TRANSITION?

The think piece applies the broader perspective of Transitions Studies (Geels, Elzen, & Green 2004; Rotmans & Loorbach, 2010) and the theoretical framework of Product/Service System Innovation (Mont, 2004; UNEP, 2009) to the theme at hand.

'Transition' is defined here as "a continuous process of societal change, where the character of society (or of one of its complex subsystems) undergoes structural changes" (Rotmans et al., 2000, as cited in Ceschin, 2014, chapter 3, section 3.1.1, para. 2). At this scale, transitions affect entire socio-technical systems because they have an impact on the whole range of elements necessary to implement a social function (e.g., housing), including the relationships between them: policies and regulations, infrastructures, technology, cultural meanings, customs and habits, markets, maintenance networks and supply chains. Adopting a perspective at the socio-technical-system level involves a broader range of stakeholders beyond those profiting in the market: public sector, citizens' groups and associations, NGOs, education and research institutions, etc. The systemic innovation of the housing system is therefore inherently multi-actor, multi-factor, multi-level, highly uncertain, and long-term (Ceschin, 2014).

Here we conceive of housing as a system constituted by the cluster of products and services that implement the function of housing at the structural level. According to UNEP (2002), "Product Service Systems (PSS) are a particular type of value proposition that shifts the business focus from the design and sale of (physical) products alone, to the offer of a bundle of products and services that are jointly capable of satisfying a particular customer demand" (cited in Ceschin, 2014, chapter 2, section 2.1, para. 1). Applying this concept to housing, we focus on alternative housing production and consumption models, namely alternative collective procurement mechanisms that are largely documented in experiments across Europe, the USA, and Australia. These new production and consumption models shift the concept of 'house' from a market product to a complex PSS and must be combined with social innovation experiments and distributed economies. These PSS housing models are the only development capable of steering toward real sustainability, which is always environmental, social and financial at the same time (United Nations General Assembly, 2005), and can be implemented at the required scale and pace.

It is not possible to classify all models and subsequent variations resulting from the first cohousing experiments, which were specific types of intentional communities defined by the presence, in different combinations, of six key characteristics: participatory design process, settlement layout oriented toward community life, extensive common facilities, management by the

residents, non-hierarchical structure and separate income sources (McCamant & Durrett, 1988). The phenomenon appeared for the first time in Denmark in the 1970s, and in the following decade spread to Northern Europe. Since the 1990s the model has been scaled up in Canada and the United States, Japan, Korea, Australia and New Zealand (Meltzer, 2005, cited in Faraj, 2017). Contemporary cohousing models (e.g., The Commons in Sydney) maintained only a few features from the traditional cohousing concept and proliferated into spatial arrangements to suit the high-density compact typologies of an urban context. In any case, they are always based on the principles of sustainability and purpose-designed neighbourhoods. Their main objective is to create a cohesive community with a combination of private and communal aspects of everyday living. These models are not new, as in essence Indigenous people around the world have traditionally lived in, and continue to strive to live in, environments characterised by these principles. Here in Aotearoa New Zealand, Māori papakāinga have evolved from precolonial times to be based around or near both rural and urban marae (Hoskins, Te Nana, Rhodes, Guy, & Sage, 2002). Māori groups currently looking to develop modern papakāinga often look to a combination of traditional pā-based housing and co-housing models (Kake, 2015).

Whatever the variant at hand, common resources within cohousing are an integral part of the community, giving access to a range of comforts that would not normally be available in single-family households and are created to supplement private living (McCamant & Durrett, 1988). A common space designed for everyday use can contain a commercial-scale kitchen and dining facilities along with a laundromat, playroom, workshop space and tool library, meeting room, guest rooms, community gardens and children's play areas (McCamant & Durrett, 1988; Meltzer, 2005). Residents of cohousing communities take full responsibility for the management of these services. Self-management is embedded in the community model and involves participation in decision-making and day-to-day activities. Along with the common characteristics of cohousing, the model emphasises the balance between community and private life. Participating in community life is an option while continuing the routines of private life. The community design allows residents to have a private dwelling, coupled with the benefits of community/shared living.

All these frameworks apply the very basic concept of the functional economy to housing. According to Stahel (1997), the economic objective of the functional economy is to create the highest possible use value for the longest possible time, while consuming as few material resources and as little energy as possible (cited in Ceschin, 2014). In this kind of economy, consumers are satisfied through their access to functions instead of products: e.g., mobility instead of cars, thermal wellbeing instead of heaters, or holes in the wall instead of drills. By repositioning the individual needs of cohousers as access to services rather than products, the model creates new opportunities within the housing that can even generate job opportunities for the community members. Of course, we must broaden our idea of 'home'; not only is it a technological envelope confined by walls and ceiling but it is also the sum of all daily functions accommodated. Some services can arise informally and spontaneously simply by replacing the ownership of seldom-used products

with access to their function: it is estimated that on average a drill is used for ten minutes in its entire life cycle. A shared tool library will give access to the function, decoupled from the necessity of owning the product.

4 Research question

The initial research question can be formulated as follows: If housing is a PSS in transition to which the paradigm of the functional economy can be applied, how do we redefine the role of designers who want to work in this field?

5 Research topics

5.1 TOPIC 1. DEFINE THE ENVIRONMENTAL, SOCIAL AND FINANCIAL SUSTAINABILITY OF COLLABORATIVE LIVING.

Below are summarised the findings of a literature review about the environmental, social and financial sustainability of the emerging models of PSS in housing.

Environmental sustainability: It is demonstrated that housing contributes hugely to the overall ecological footprint, well beyond the Earth's biocapacity regarding CO_2 emissions, energy consumption, resource usage and waste production, topsoil and biodiversity loss. It is not enough to focus only on improving the eco-efficiency of housing without fundamentally rethinking the reward system of real estate. A systemic change is needed at different levels simultaneously: innovation in housing as a product must be coupled with innovation in its production systems, services to housing, regulation, governance and policy-making.

Social sustainability: Cohousing was defined from the outset as a more contemporary form of intentional community that focused on the issue of social sustainability of housing (McCamant & Durrett, 1988). According to Faraj (2017), cohousing has always been able to ensure a balance between sociability and privacy, providing an alternative way of life within urban environments, based on principles of cooperation and communication. Dissatisfaction with value systems of mainstream urban environments has lead to the creation of alternative lifestyles through intentional community living (Loomis, 2011; Metcalf, 1996; Christian, 2007, cited in Faraj, 2017) in order to envision a way of life distant from what is perceived to be the oppression and conformity of everyday life in the suburbs. Cohousers do not identify themselves as clients with average needs to be served, rather as proactive decision-makers not interested in mainstream products and services currently on the market, whether affordable or not. To them, the meaning of home accommodates a range of new social interactions.

Financial sustainability: The outsourcing of common functionalities can reduce the dimensions of dwelling units, and create savings of up to 30% on developers' and marketing costs (Southcombe, 2016).

5.2 TOPIC 2. CONDUCT A REVIEW OF INTENTIONAL COMMUNITIES, COHOUSING AND COLLABORATIVE EXPERIMENTS IN AUCKLAND AND NEW ZEALAND.

Although there are several groups working towards developing their variant of the collaborative living model, Earthsong Eco-Neighbourhood is currently the only community in New Zealand that has been completed based on the six characteristics (Allison, 2016).[1] Located in the suburb of Ranui, West Auckland, and started in 1992, the community has fulfilled the vision of establishing a medium-density settlement of 32 houses surrounded by open areas, cultivated through permaculture, achieving almost double the density of an ordinary suburb. Residents have access to organically grown fruits and vegetables in the community garden, which is located at the back of the lot and co-managed by the residents. The houses are compact, thanks to the outsourcing of common facilities, and are built on principles of eco-building. The overall design allows for the rationalisation of space and a smaller footprint. A central house, containing common facilities, gives access to extensive patios, pergolas and communal outdoor space. The houses are grouped in smaller clusters within the larger community. Private kitchens overlook the community space, while the backs of the houses open into private yards. The layout adopts the principles of human-centred design and gives priority to pedestrian paths for access to all parts of the community, rather than front-door car parks. Transition areas between private and public space guarantee privacy and autonomy.

It took 15 years for the core group to achieve the result, from the initial meetings to the completion of the settlement. Today, residents come from different walks of life, a range of ages, ethnic backgrounds and economic circumstances. Multi-generational interactions are encouraged at any given opportunity: optional shared activities include communal meals twice a week and working bees in the community garden. The emphasis on social sustainability contributes to the cooperative and respectful atmosphere.

5.3 TOPIC 3. INVESTIGATE THE CHANGING ROLE OF PROFESSIONALS AND THE CONSEQUENT NEED FOR CONTINUOUS EDUCATION TO PROVIDE NEW COMPETENCIES.

The present role of Earthsong's founder Robin Allison in the cohousing scene in New Zealand is indicative of the new range of competencies required for professionals: they need to not only be problem-solvers with considerable technical skills, but also facilitators capable of leading the groups toward their own solutions.

Architects, urban designers and service designers need to be now familiar with the emerging practices of co-design and participatory design (Figure 1).

The main shift of mindset is in terms of the meaning of their occupation: they must stop seeing themselves as expert providers of top-down design solutions, and start conceiving themselves as 'orchestra conductors.' Ezio Manzini (2015) writes extensively about the need to move from the designer's role as a problem-solver to the designer as a sense-maker. Designers who work with large groups of stakeholders need to know how to patiently build the best co-created solution with the participants. Manzini (2013) warns

1.
Following Earthsong's example, and often with the professional support of its founder Robin Allison, many other groups have taken steps to create cohousing experiments in New Zealand. A list and description of some of these initiatives can be found on the Communities page of the website cohousing.org.nz (http://cohousing.org.nz/communities). Several Facebook groups discuss topics related to cohousing in New Zealand, for instance, Cohousing NZ (https://www.facebook.com/groups/cohousingNZ/) and Eco Village, Farm-share, Co-housing, Intentional Community New Zealand (https://www.facebook.com/groups/ecovillagenz/).

Figure 1. Urban Auckland Cohousing group. Workshop 3. Tool: Get On the Grid (Faraj, 2017).

against confusing this practice with the pervasive plague of 'post-it' design; to be a designer, it is not enough to collect people's ideas and stick them on the wall. In fact, the orchestra conductor is a musical expert and can often play multiple instruments. Similarly, the sense-maker designer is very experienced in the research field at hand and knows the specific technical aspects of each service component – products, business, stakeholder constellations, etc. – however, they will have a specific interest in the relational aspects of the whole system. Although this shift is very dramatic for designers, and certainly not suitable for everyone, new generations of professionals usually receive it well, after an initial shock. They tend to know that they will be involved more and more in widened design groups grappling with the innovation of complex socio-technical systems.

Initially, when spontaneous groups start to convene over an idea, they are just a group of individuals with a blurred brief, such as *we would like to develop a collaborative living experiment on the city fringe*. To any human-centred designer, it is immediately apparent that their ambition is even broader, although not explicit. For example, they aspire to become a cohesive team with good neighbourly relations, whatever that means. In other words, they want to embrace not only an innovation process in housing, which is a design problem, but also a personal transformation, probably over an extended period.

The figure of the designer-facilitator faces two different orders of questions:

- The construction of a map of meaning, negotiated iteratively through productive dialogue between different personalities to navigate unknown territory.
- The necessity to keep the group motivated and engaged in a broad transformation process over an extended period, avoiding as much as possible the disintegration of the group due to negative emotions, which can displace positive ones.

If giving birth to a new experiment of collaborative living is a complex task, the designer is faced with the challenge of having to act on the world's complexity with a limited perceptual and cognitive system. Peterson (2015a) claims that, for humans to control the emergence of emotions like frustration, anger, fear, and disengagement, this would unrealistically require them to live in an environment that is stable and predictable. Unfortunately, at any time, he explains, any of the components on any level can go wrong in our environment, which can trigger negative emotions. If the magnitude of the collapse is of catastrophic order, the emotional response can cause people to become cynical, nihilistic or chronically anxious, depressed, and eventually disengaged. Negative responses to unexpected adverse events are defensive mechanisms that have been in place since humans evolved to avoid being the food of predators. It makes sense because it urges us to move away from unfortunate situations. However, it can also jeopardise the involvement in complex and lengthy projects of radical innovation.

If every problem of the world is subject to multiple possible levels of analysis, then to look at it productively we need a frame of reference as a prerequisite to any act of perception. It is important to select the right lens – defined by Peterson also as *levels of resolution* – through which to look at the problem.

As per Peterson's example, we can decide whether the meaning-driven innovation of housing should happen:

- At the family level: as such, we investigate how housing could evolve to adapt to the matter of fact that, during life, people start multiple families.
- Zooming out, we can look at it at the neighbourhood level, to understand how innovative housing can foster a range of social ties, from the weakest to the strongest.
- Moving upwards, we could even end up discussing the possibility that new planets similar to the Earth, recently discovered, might offer new housing opportunities.
- Zooming in, we can inquire how housing can support an individual's health and wellbeing.
- Zooming deeper, we can start exploring the intra-psychic level of individuals, which reveals itself to be an entire galaxy of a different order that cannot be overlooked when it comes to personal transformation. For instance, cohabitation with a partner or neighbours can raise issues of privacy, territoriality, and self-expression that might be acted out via the domestic environment in a way that is less threatening than confrontation (Marcus, 1995). The ultimate goal of the experiment could be the design of an environment that reconciles privacy and self-expression with sociability.

To select the most appropriate level of analysis, a good starting point for the designer could be generating a low-resolution picture at the experience level in order to deal with a percept as opposed to a concept. We indeed interact with individuals, families, and neighbourhoods, whereas the city, as a whole, is quite abstract, although with some concreteness to it. For each level of resolution, we get a picture, which is a reduction of reality, and then we try to

name it, which is another level of reduction.

This double compression can raise the question, to which extent, at any given time, is the entity under observation still 'real'? Adopting a pragmatic and local approach, we can say that it is real enough to perform certain actions on it but not others. The picture's validity is dependent on its applicability to the situation at hand. Under no circumstances can we simultaneously see the problem of housing in its layered depth, because we have limited perceptive capabilities. We can only perceive a subset of it, depending on our intent or goal. Hence, each time we make a determination, we should choose carefully what to attend to and what to ignore; so to keep on the radar only the components necessary to produce the desired outcome.

Peterson (2015a and 2015b) considers it an economic strategy to attend only to the roadblocks that can interfere with the desired result. In other words, we can respond to the world as if it was a predictable place as long as all the invisible parts that are off the radar are working as expected. We respond to the world as an unpredictable place when anything happens that stops us from reaching the desired goal. Whatever facilitates the goal is considered positive, and will trigger positive experiences, whereas things that get in the way are negative with negative consequences.

Once we have identified the initial level of resolution, we can start investigating elements of it. Pretty soon the co-design team will face the task of exploring concepts that do not correspond to any given object of the natural world. For instance, we can explore what being a good cohouser means. We can start to build a complex hierarchy represented by a clustering diagram. A first branch might be 'being a good neighbour,' a sub-branch might be 'taking care not only of your family but also of neighbours,' and a leaf might be 'playing with kids and cooking a good meal,' etc.

A shared structure starts to emerge that is composed of actions, patterns, and perceptions. The phenomena are no longer abstract and conceptual but embodied. Designer and users are engaged in a continuous process of exploration and bilateral negotiation to determine how the hierarchy of frames is constructed. Without an explicit agreement about the conceptual architecture, communication is impossible. It's no surprise that abstract representations like the good cohouser, which is by no means an objective category, generate all sorts of arguments.

Self-directed groups working without a designer do not generally engage in this kind of discussion because they tend not to focus on how to handle starting a cohousing experiment, and as a result they can find the experience a frustrating no-man's land. Sadly, every no-man's land offers limited outcomes: either the most powerful, influential, opinionated and vocal people take the lead at the expense of the others, or a slow negotiation process starts.

The traditional way of solving arguments by adopting standard hierarchies, which assigns relative roles, doesn't tend to apply well to social innovation experiments. Radical innovation in those fields can be long and uncertain. Especially given that the structural conditions (including legislation, policies, and access to capital) for a guaranteed success do not usually exist. Consequently, failure is the rule and may arrive after years of roadblocks: Earthsong took 15 years to happen, from the very first concept to moving in.

Figure 2. Urban Auckland Cohousing Group. Workshop 1. Tool: Envisioning (Faraj, 2017).

6 Research method

Sara Faraj completed her Master of Creative Practice at Unitec in 2017 with a thesis on her experience as a service designer in support of the Urban Auckland group (Faraj, 2017). The group had just formed with the intention of investigating the feasibility of urban cohousing in Auckland. Before embarking on a project that could have taken years without the certainty of results, participants agreed to attend a series of six introductory workshops to co-create the shared model of collaborative living, make the level of commitment required by the project explicit, and verify that it was sustainable with current life obligations. Faraj's role in conducting the cohousing workshops with potential users is a tangible illustration of the designer's new potential cultural significance and working methods. The workshops took place in Auckland between September and December 2016, mostly fortnightly. The participants' recruitment process happened via the internet, either through the project page on cohousing.org.nz or a dedicated Facebook group. Fourteen people attended the first workshop, while the number was between five and seven participants in the following meetings.

Faraj's goal was to realise in each workshop a specific tool as part of an overall toolkit. According to Manzini & Jegou (2008, p. 39), toolkits are "tangible and intangible instruments conceived and produced to make a special task easier. Each tool can be more or less dedicated to a special task, and the whole kit can be more or less specialized to fit a specific activity. On the other hand, whoever adopts the toolkit can use the different tools in the freest way. And whoever produces the kit takes no responsibility for the results of its use. The growing number of toolkit proposals is linked to the

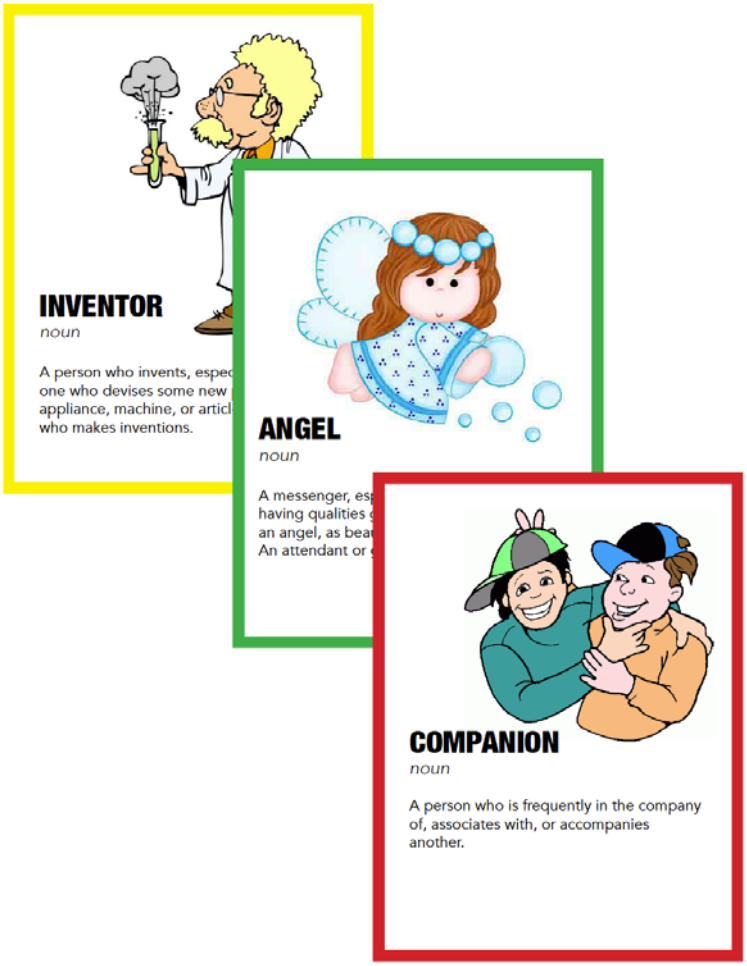

Figure 3. Urban Auckland Cohousing Group. Workshop 2. Tool: The hero in you (Faraj, 2017).

diffusion in more and more application fields of the do-it-yourself approach."

What follows is a brief account of the activities carried out and tools used in each workshop.

TOOL 1. ENVISIONING.

The first tool was used to bring to light beliefs and opinions about the nature of collaborative living. The participants were asked to define by keywords what it meant to them to live collaboratively in social, economic and environmental terms. Post-its of three different colours were then distributed, for each category. All post-its were attached to the wall in three color-coded groups, and then all participants discussed together how to eliminate duplication and synthesise concepts (Figure 2).

TOOL 2. THE HERO IN YOU.

The second tool aimed to highlight the role that individuals play in challenging situations, beyond skills and professional background. The tool consisted of a deck of cards that were distributed to each participant. Each card was color-coded and had a label, a descriptor, and a pictogram illustrating a particular archetypal role (Myss, 2013). Yellow cards were for creative roles, green for

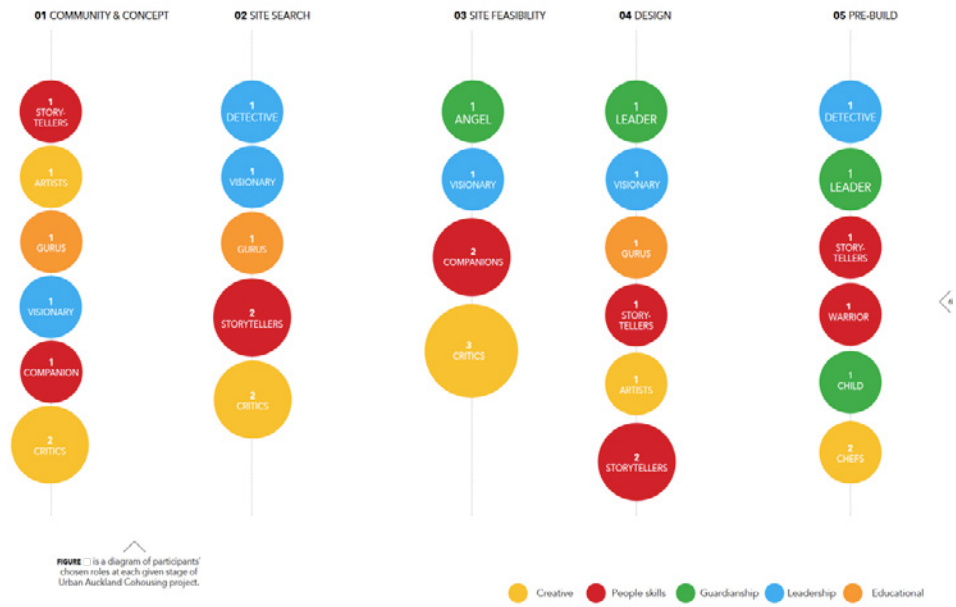

Figure 4. Urban Auckland Cohousing Group. Workshop 2. Tool: The hero in you (Faraj, 2017).

guardianship, blue for leadership, orange for education, red for people skills. Users were shown a flowchart with the project phases, and they were asked to choose the card that represented the role they would most likely play at each stage (Figures 3 and 4).

TOOL 3. GET ON THE GRID.

This tool (Figures 1 and 5) consisted of a map of four different collaborative living scenarios, designed on the floor. Participants were asked to position themselves on the map at their preferred location and to explain to others the reason for their choice. The map was devised from the clustering of concepts of the first workshop, which showed that six categories describe the core meaning of collaborative living: recycle, affordable, sharing, self-managed, community, compact. In an effort to further synthesise, the group distilled on this occasion two axes that represented strategic variables of collaborative living: 'community' and 'compact,' were represented through perpendicular axes plotted on the floor. The vertical axis represented 'community' and swung between the two extremes of 'individuality' and 'togetherness.' The horizontal one represented 'compact' and swung between 'condensed' and 'uncondensed.' Crossing the two axes generated four quadrants that represented four lifestyle scenarios very different from each other, and illustrated via an existing example: individuality X condensed (Daisy, Ockham Residential), individuality X uncondensed (Hobsonville Pocket Neighbourhood), togetherness X condensed (Nightingale 1.0), togetherness X uncondensed (Earthsong Eco-Neighbourhood). Most of the participants positioned themselves in the lower half of the map.

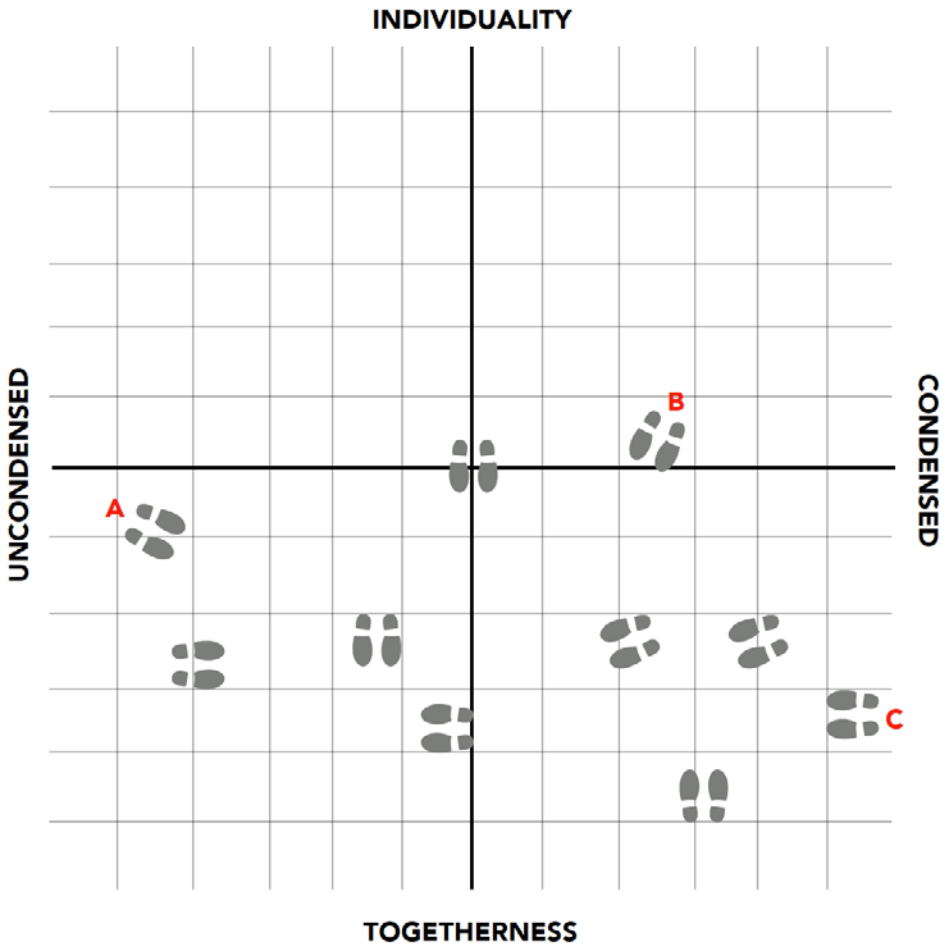

Figure 5. Urban Auckland Cohousing Group. Workshop 3. Tool: Get on the grid (Faraj, 2017).

TOOL 4. THE MAGIC CIRCLE.

The tool was used to manage the conversation in the group and facilitate the emergence of a consensus in making a decision. During the workshop, for demonstration purposes, participants were asked to make a unanimous decision on the question, "To what extent will we cater for car-parking & private car ownership?" By using the tool and observing the rules of discussion, the group reached a shared decision in 1.5 hours. The tool consisted of a multicoloured target lying on the table and a set of Lego bricks of the same colours (Figure 6).

The meaning given to colours is different depending on the stage of the discussion: discussion mode color-coding is different from that of decision-making mode (Figure 7).

For instance, during the discussion, according to whether the participants had a doubt, a question, or a big reservation on the issue at hand, they placed the brick of the appropriate colour on the target. The designer facilitated the discussion by letting people speak according to the order indicated on the table affixed to the wall. Everyone was given the same amount of time to speak.

Figure 6. Urban Auckland Cohousing Group. Workshop 4. Tool: The magic circle (Faraj, 2017).

Figure 7. Urban Auckland Cohousing Group. Workshop 4. Tool: The magic circle (Faraj, 2017).

Figure 8. Urban Auckland Cohousing Group. Workshop 5. Tool: It's game time (Faraj, 2017)

TOOL 5. IT'S GAME TIME.

Having established a total number of hours of work that each cohouser must be ready to donate for the functioning of the community, it was a then a question of negotiating the common activities of the group. To conduct the discussion in a straightforward manner, the group was subdivided into working bees, to each of which a stack of color-coded cards was distributed. Yellow cards illustrated activities that contributed to the identity of the group; green offered environmentally sustainable activities; blue ones contributed to economic sustainability; and red ones proposed social activities (Figures 8 and 9). At each working bee (Figures 9 and 10) participants had to choose from the deck the activities that would constitute the hours of commitment for each (in this case it was 10 hours per month for each cohouser).

TOOL 6. PROJECT DNA.

This tool helped the group to co-create a shared roadmap. It consisted of a long timeline containing the project phases, which were printed and placed on the table. A set of colour-coded cards described the tasks, divided into different categories: for example, yellow cards were for recruitment tasks, blue cards were financial tasks, green were legal, etc. The cards were lined up along the timeline in the order negotiated by the group. Finally, paper frames were distributed to highlight tasks identified as milestones or early success (Figure 11).

Figure 9. Urban Auckland Cohousing Group. Workshop 5. Tool: It's game time (Faraj, 2017).

Figure 10. Urban Auckland Cohousing Group. Workshop 5. Tool: It's game time (Faraj, 2017).

Figure 11. Urban Auckland Cohousing Group. Workshop 6. Tool: Project DNA (Faraj, 2017).

7 Conclusion

Spontaneous collaborative housing initiatives are multi-factor attempts at radical innovation. As such, they are destined for high mortality rates if they cannot mature for the necessary time in a growing medium with characteristics favourable to the germination and reinforcement of the young bud. Premature exposure to mainstream market forces or lack of constructive input from one of the key stakeholders of the PSS would almost certainly be fatal.

7.1 SCALING UP INITIATIVES

The new PSS models in housing that we have briefly addressed are all examples of radical innovation, which usually fails if exposed unprotected to mainstream market dynamics. Therefore, it is crucial to let these experiments develop and mature inside intentional niches that can function as incubation pods provided with the required environmental conditions, including the presence of tax exemptions, subsidies, and strategic investors. The niche is a ring-fenced area where all relevant stakeholders can participate in the process of social learning, not limited to the technical aspects but also including new practices and trends, innovative policies and regulations, financial instruments and legal bodies.

The scaling-up process shows a constant pattern: at the early stage this social learning effort is erratic and scattered in many directions; trial-and-error attempts are subject to a great deal of uncertainty about design, and this often leads to dead-end paths. Repeated experimentation and interactions between the niche actors, often under the tutoring of experienced social heroes

(Manzini, 2016), may result in the establishment of a broader community of actors who exchange stories of experiences and failures, methods, tools and best practices. Gradually, radical innovations percolate into a dominant design, gaining momentum and taking advantage of unprecedented windows of opportunity. Once the innovation breaks through into the mainstream market, the existing regime is seriously threatened, and the new regime may lead to developments on the broader landscape (Ceschin, 2014).

It is proven worldwide that without an integrated multi-actor, multi-factor and multi-level ecosystem capable of streaming cohousing initiatives, the average probability of success for spontaneously formed groups reaches only 25% (Fellowship for Intentional Community, n.d.). Good practices around the world provide evidence that the existence of complex platforms has often created ideal conditions for the development and scaling up of initiatives. In conclusion, we look at the example of Milan, where the combined efforts of public-private partnerships have been able to accelerate the scaling-up process. Since 2004, the Fondazione Housing Sociale (FHS) has promoted ethical financing initiatives, led by a Real Estate Ethical Fund that combines private and public capital to develop social and collaborative housing initiatives. The Politecnico di Milano offers an international Master in Social and Collaborative Housing "to meet the growing need for general knowledge and professional skills in planning, designing, and managing contemporary forms of living that are based on policies and choices of social integration and collaboration" (Politecnico di Milano, n.d., para. 3). Several agencies specialising in contemporary experiments in collaborative living, such as Cohousing.it or Housing Lab, offer professional support to groups. Dedicated annual fairs, like ExperimentDays Milano, promote and disseminate to a wider specialised audience the new emerging lifestyles and housing models inspired by the sharing economy.

A similar ecosystem capable of streamlining cohousing initiatives must not be further delayed if Auckland wants to lead and spread nationwide innovation in housing up to the level expected from a South Pacific city where this need is greatest.

8 Recommendations

The following is a series of recommendations addressed to the various stakeholders so that Auckland can create an ecosystem capable of streamlining the processes that lead to the success of the experiments.

8.1 RECOMMENDATION 1, ADDRESSED TO AUCKLAND COUNCIL: TO IMPLEMENT 'AD HOC' REGULATION, GOVERNANCE, AND POLICY-MAKING FOR THE INNOVATION PODS.

Collaborative housing interventions require specialised and proactive support from a dedicated municipal office. This office should be in charge of promoting co-design sessions with the participation of all stakeholders, including spontaneous groups that are working on collaborative housing projects, so

the participative design of innovative policies can be tested in the innovation pods. In general, these policies should establish a quota for cohousing initiatives, regulate the criteria for access and establish a range of tax benefits for operators, ranging from increases in volumetric density per surface unit to discounts on urbanisation charges.

The municipality should make available building assets that are underutilised or able to be converted, through calls for tenders dedicated to spontaneous local groups that are currently working on collaborative housing. Creating an online platform that matches the available assets with the demand would be very useful.

8.2 RECOMMENDATION 2, ADDRESSED TO THE INVESTORS AND FINANCING BODIES: TO ESTABLISH AN INTEGRATED SYSTEM OF FUNDS, COMPRISING A NATIONAL FUND AND A SERIES OF LOCAL FUNDS, WITH PUBLIC AND PRIVATE STAKEHOLDERS.

Collaborative housing interventions should be implemented and carried out in the territory through dedicated local funds, which are in turn shaped by the national fund.

Alternative forms of access to credit should be studied and tested: for example, the financing of the right of use and not of the property, as in the German Baugruppen (Wang & Grant 2017, para. 13) or the rent-to-buy formula trialled in France.

To select the most virtuous initiatives for financing, it would be necessary to develop a tool for assessing not only the financial but also the social rating of each intervention (Ferri, 2016). The tool should allow the assigning of a score to indicators such as the environmental sustainability, the quality of the living environment, the social aspects of the architectural project, the variety of unit typologies, the social and functional mix, and the social management of the project.

8.3 RECOMMENDATION 3, ADDRESSED TO DEVELOPMENT MANAGERS: TO TAKE RESPONSIBILITY FOR THE MANAGEMENT OF THE PROPERTY, THE FACILITIES, AND THE COMMUNITY OF RESIDENTS.

The development manager of a collaborative housing initiative should be distinguished from a normal real estate developer by virtue of the centrality given to residents and the community beneficiaries of services. The experimental establishment of this type of operator, which we could call "Social Manager" (Ferri 2016, p. 35), to distance them from a mainstream developer, represents the most strategic node of the ecosystem.

It is crucial that the Social Manager's activity goes beyond the provision of real estate services and the management of financial and administrative operations to include community and neighbourhood services. To achieve this, the activation of external non-economic or technical expertise, typical of the non-profit and limited-profit sector, is highly recommended.

The primary objectives of the Social Manager are the provision of high-quality services, including monitoring and assessment, and the integration of the economic and social dimensions, aiming at activating relational and solidarity networks, participation of cohousers in managing the cohousing

spaces and activities and sense of belonging.

8.4 RECOMMENDATION 4, ADDRESSED TO RELEVANT EDUCATION AND RESEARCH INSTITUTIONS: TO DEVELOP ONGOING RESEARCH AND CONTINUOUS TRAINING AROUND COLLABORATIVE HOUSING.

Universities and polytechnics should form an interdisciplinary research unit responsible for extending a feasibility plan to boost cohousing in Auckland. The research unit should become a permanent monitoring centre for initiatives in the territory to be able to continually adjust the characteristics of the innovation pods.

New masters degrees and maps to professional pathways should be offered to train a new generation of technicians with specific skills and knowledge.

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