

Re:GEN
An Alternative to Occupying Urban Space

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Abstract

Re:GEN

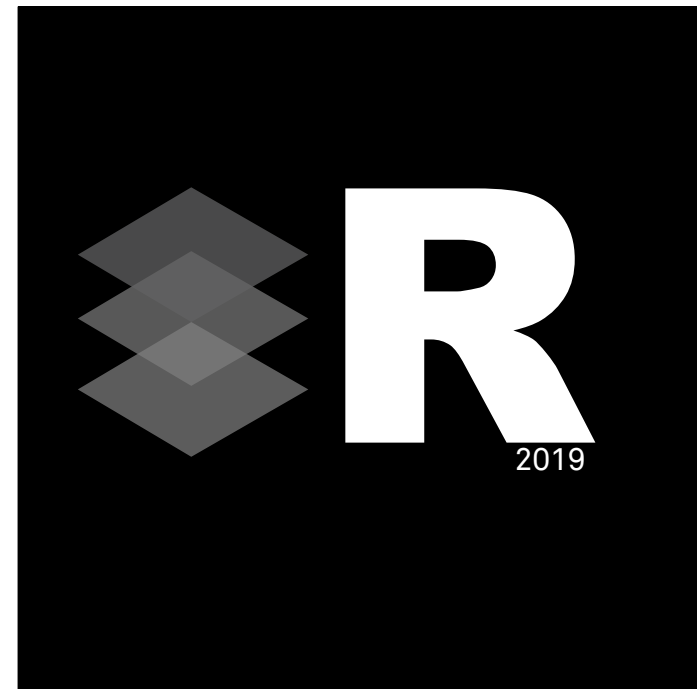
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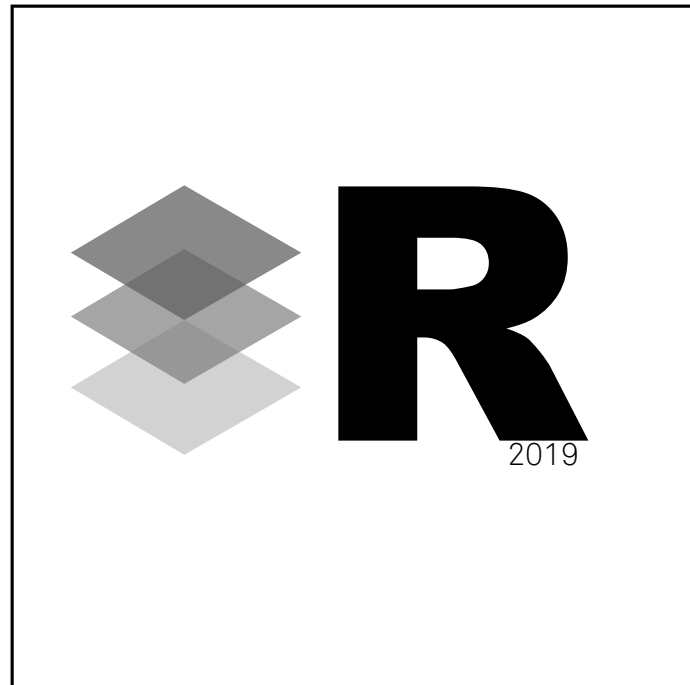
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Cities are growing at unprecedented rates. Simultaneously, society is beginning to experience physicality through a combined digital and social frame. We currently live within an economic and real estate system whose rigidity makes generating equity, finding quality, affordable space, and fostering community simultaneously difficult. It is apparent that new forms of habitation, that draw on changing contemporary conditions, are becoming critical. Re:GEN is the speculative design of a new system that leverages changing economic and digital social structures as a means to employ a form of the sharing paradigm within the built environment. This thesis proposes that architecture, as both a profession and design, can leverage the resource-exchange platforms already available while advocating for a community-based culture, addressing many of the problems of high-density living in urban environments. Re:GEN, as the catalyst of a new collective development pattern, offers an alternative method to occupying space as an exploration into the future of high-density living.

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1.0

Current Condition

1.1 Urban Evolution

By 2050 two-thirds of the world's population will live in urban environments, a statistic that increases to 80% in the United States. "For the first time since the invention of the car, many cities saw their populations grow faster than their suburbs between 2010 and 2015."¹ People are moving back into cities at rates faster than ever before, creating new challenges for the functional structure of the built environment.

The evolution of urban lifestyles has drastically changed from its outward migratory character, where the quintessential American Dream moved much of the middle-class American population out of city centers and into suburban locations. Owning a single-family home became a structural component of the American Dream. This 20th century dream was fueled by financial speculation, relaxed regulation and the invention of the automobile. These factors together created an unsustainable landscape of single-use residential suburbs, and this vast homogeneous landscape of sprawling single-family home ownership brought with it a lack of mobility and flexibility.² Today, 75% of American residential land allows only for single family homes. It is no surprise that our fascination with this lifestyle has lasted so



Figure 01 (Right, Page 7): Re:GEN logo
Figure 02 (Left, Page 8): Re:GEN logo inverted
Figure 03 (Pages 10-11): Graphic world map
Figure 04 (Right, Page 15): Urban Densification



long, as it is a landscape our society has known to be successful at a large scale.³ There has been a basic assumption that a high-quality life requires ownership of land. Homeowners fear the loss of their property values and believe their quality of life will suffer if they can no longer own a home.

In *Ladders*, author and architecture professor Albert Pope examines the constructed forces that “precipitated a change from the open system of the pre-war urban grid to the fragmented and closed spaces of suburban cul-de-sacs, expressways, and office parks,” stating that the character of architectural spaces has been shaped more by the presence of immense urban spaces and associated infrastructure than the built forms themselves.⁴ This reorganization of space and its utilization defined the single family home and the conceptual “American Dream.”

The recent history of the catastrophic 2008-2010 foreclosure crisis in the United States has generated larger questions about the structural function of home, and the essence of ownership moving forward.⁵ The shift to a disproportionate dominance of suburban landscapes that occurred a century ago, when Americans envisioned the suburban family home lifestyle possible, normal and desirable, is now reversing. As of two years ago, a staggering 48 percent of millennials believed the American Dream to be dead.⁶ The population that grew up in the “fragmented and closed spaces of suburb[ia]”⁷ is choosing a different path at a growing rate. As the complex social arrangement of reoccupying cities begins to unfold more rapidly than ever before, the embedded social structures and their ability to influence and change to physical state of space need to be addressed.

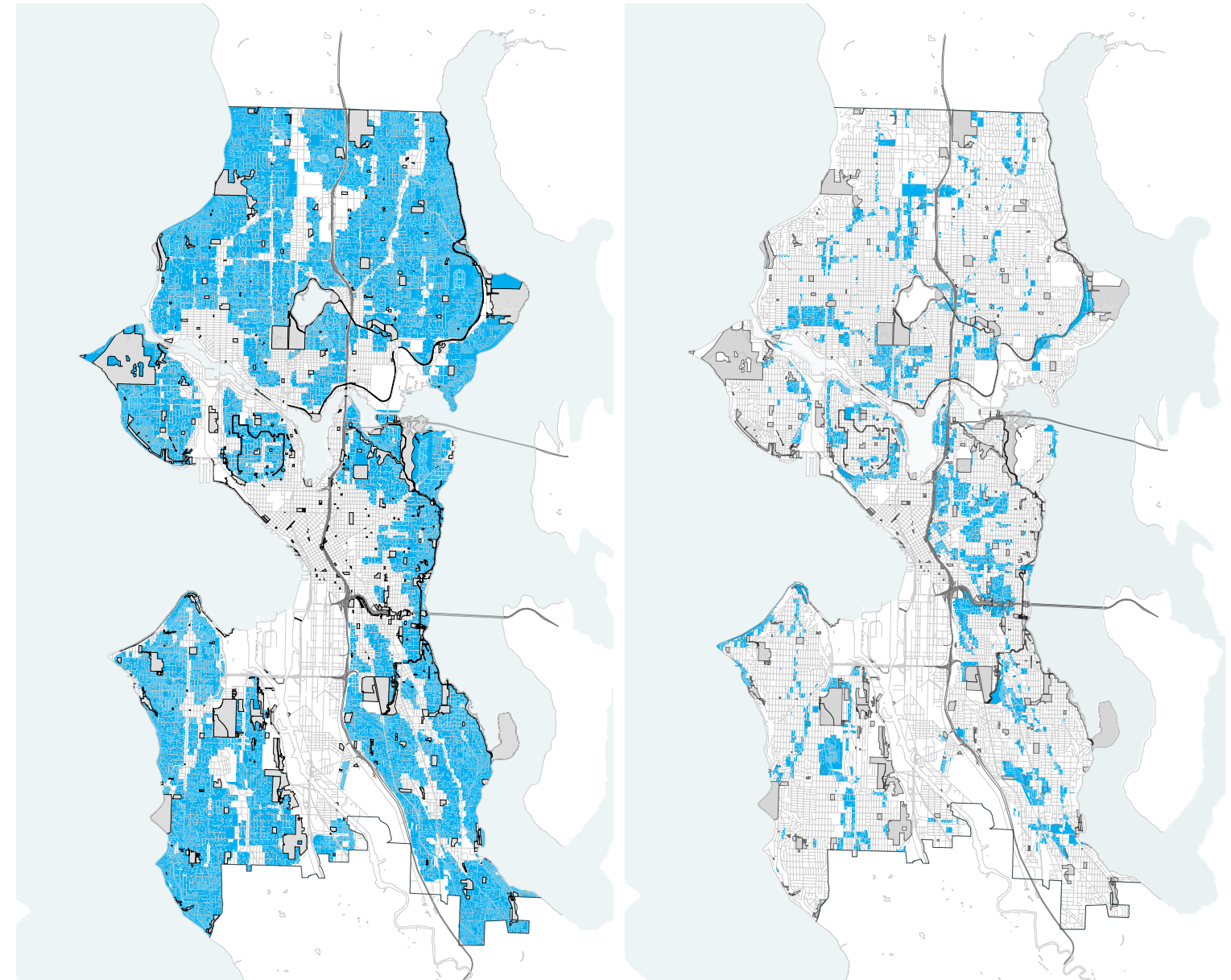
Figure 05 (left): Google Maps - Spokane, WA 2019.

1.2 Seattle's Evolution

Currently experiencing a period of immense growth, Seattle sits uniquely within a landscape that is urban with characteristics of its suburban history. With an 18.7% growth rate last year (2018), it is one of the fastest growing cities in the United States. Of its 83 square miles, 73 percent is considered to be developable land. There are two dominant typologies that visibly, and statistically, make up the Seattle landscape: single-family homes and multi-family residential buildings. 90 percent of Seattle's residential plots are occupied by single-family residential homes, which are typically characterized as detached houses often with a yard, driveway and garage. 49 percent of all developable land area in the city is single family zoning.⁸ The next dominant

typology is multi-family structures making up just 8 percent of the city's developable land area. These structures, characterized as an apartment building positioned above mixed uses at the ground levels, account for 88 percent of the city's new housing, and is crowded into 16 percent (zoned multi-family residential and commercial and mixed-use) of the total land area of the city. Spatially, the massing and The rate of construction in conjunction with the change in density creates the appearance that multi family structure are consuming the city much more than 8 percent of its statical land allotment.

Figures 06-07 (left, from left to right): Single family zoning, accounting for 49% of land area, and Multi-family zoning, accounting for 8% of land area, in Seattle, WA.





When built at a rate this rapid with a high level of urgency, one that has become common in urban areas, the apartment typology of maximized buildable space often becomes homogeneous and quality is compromised. The bulk and scale of many multi-family structures intrinsically assumes the type of family and demographic likely to live there. Data is used to establish a pattern of "normalcy," but these calculations do not represent an unconventional, ever changing

world. Particularly, a pattern of globalization with non-local financing, the market tends to produce generic buildings fitting predetermined formulas for profit gains. The conventional way of allocating space for people follows established rules that do not address the changing social climate or changing social structures of their inhabitants.

*Figure 08 (left, top): New multi-family building in the South Lake Union neighborhood of Seattle, WA.
Figure 09 (left, bottom): Typical Seattle single family suburban house.*

1.3 Patterns of Ownership

“It is important to understand that even after 2008, that [same economic structure] is still the economy that shapes our housing systems and our cities, and it comes at a catastrophic cost.”⁹

The very housing system that crashed, which can be attributed to many factors, is the same dominant means producing housing in the US, shaping today's residential landscape. Insecurities about the future have heightened for good reason as innovation in the system of ownership has been slow to develop.

Nonetheless, as cities become more densely populated, new patterns and scales have begun to emerge. “We are seeing a systemic transformation in the pattern of land ownership in cities: one that alters the historic meaning of the city.”¹⁰ Mass production of apartments, full-block developments, and luxury complexes are replacing the grit and diversity of the urban core, “with a rectified, homogeneous culture of the new global entry.”¹¹

Figure 10 (right): Aerial view of the city skyline in Johannesburg, South Africa..





Cities are being bought up by private investors in large sections, typically to provide rental units at market rate and above for the more affluent moving back into city cores. This trend is both exciting and alarming. The perception of the effort and the money being spent on revitalizing cities is generally popular; however, the product available, the population its marketed to, and the speculation associated with the system projects a recurring, troubling outcome.

The single-family home has, for too long, been seen as an urban marker of the individualistic character that swept the country, and the city was the antithesis of that notion. With the introduction of the scaled-up individualistic pattern, we are now seeing a reinterpretation and larger scale of the same system. "There is a missing sector in housing. In the 19th century it was the philanthropic sector. In the 20th century it was the public sector. In the 21st century it will be the citizen sector..."¹²

Figure 11(left): Beirut Towers by Herzog & de Meuron.

1.4 A Binary System

Present patterns of development create a binary choice between large single-family homes and small single-occupant apartments, supporting a housing identity crisis. "If the sameness of use is shown candidly for what it is - sameness - it looks monotonous. Superficially, this monotony might be thought of as a sort of order, however dull. But aesthetically, it unfortunately also carries with it a deep disorder: the disorder of conveying no direction."¹³

Much of American zoning and land use history, of dense urban centers and sprawling suburban areas, has constructed an outcome that has seemed inevitable. This binary pattern embeds a polarizing wealth structure into the physical fabric of cities, one that does not allow for variation. Terms like the housing crisis and affordable housing in

a modern sense conflate the problem and anticipated solutions. The housing crisis and a city's density response stem from a cultural shift that is associated with the values of new generations and their affinity to live a lifestyle different from the past social norm.

The most extreme cases are visible in cities where the digital revolution of information technology has shaped the housing market. San Francisco, San Jose, Seattle, and Boston, to name a few, are seeing tech headquarters moving in and attracting young, digitally savvy populations to its markets and supplying housing marketed within their income bracket. This shift has occurred in addition to the vast numbers of people moving back into urban centers and has created the housing crisis to which we so often refer.

Figure 12 (right, top): "Construction Potentials: Postwar Prospects and Problems, a Basis for Action,"
Figure 13 (right, bottom): Schwartx plan of Hollywood, CA.





The physicality of the binary choice is mirrored in the markets that support it. Renting and owning are the basis for occupying space in cities. Having for too long oversold the dream of homeownership, we are now coming to understand the effects that both renting and owning property have on the economy as a whole.¹⁴ A home can no longer be seen only

as a financial investment, as real estate barely outpaces inflation in these growing cities. The effects are not as static as their creators and make up the complex urban landscape that dictates affordability and livability choices.

*Figure 14 (above): Single family lots against the downtown backdrop in Seattle, WA. Photo from 2019.
Figure 15 (right): Families began to move to suburbs in the 1950's as a result of the GI Bill. Photo from Levittown suburb in Long Island, New York.*



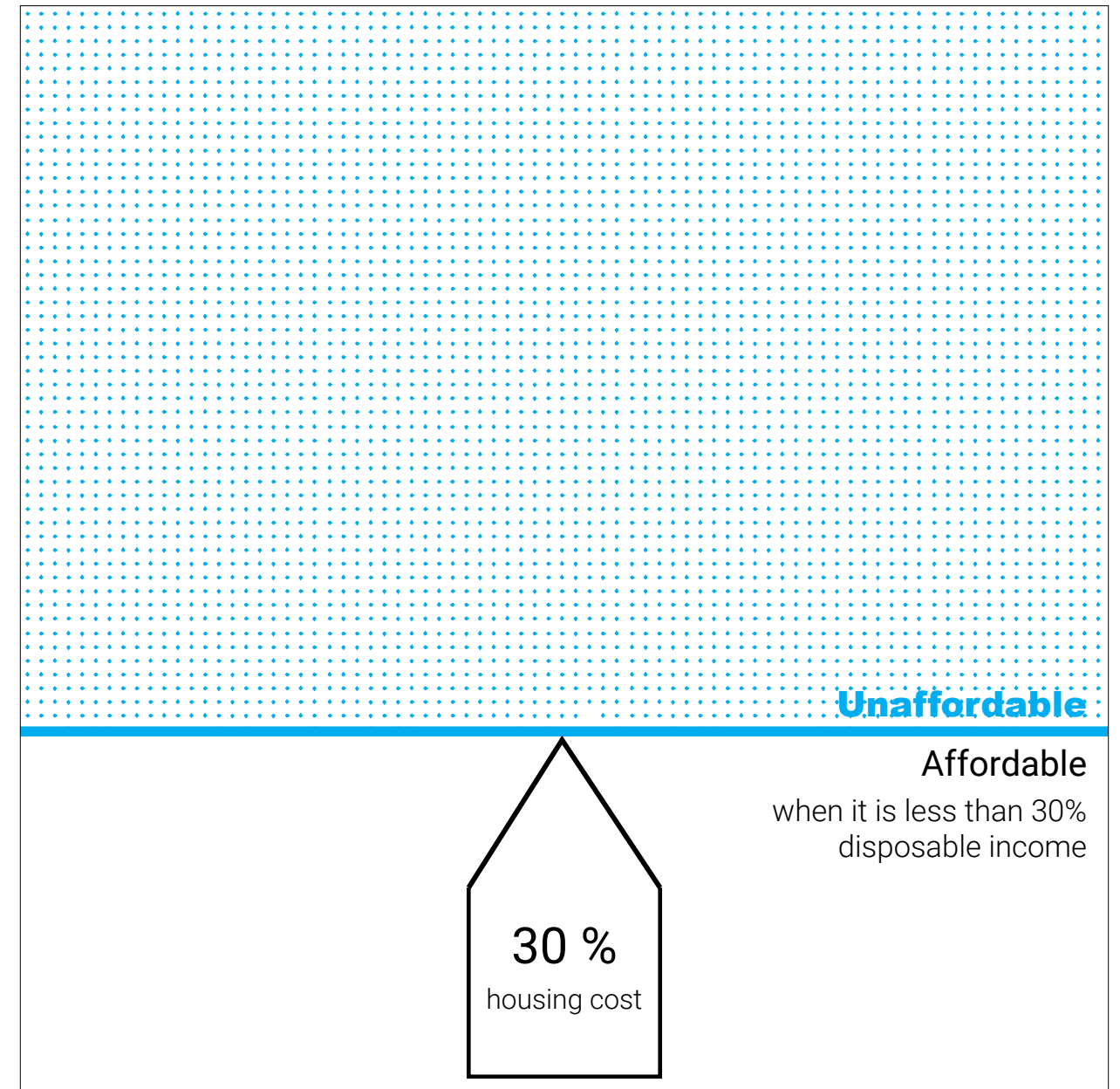
1.5 Liveability

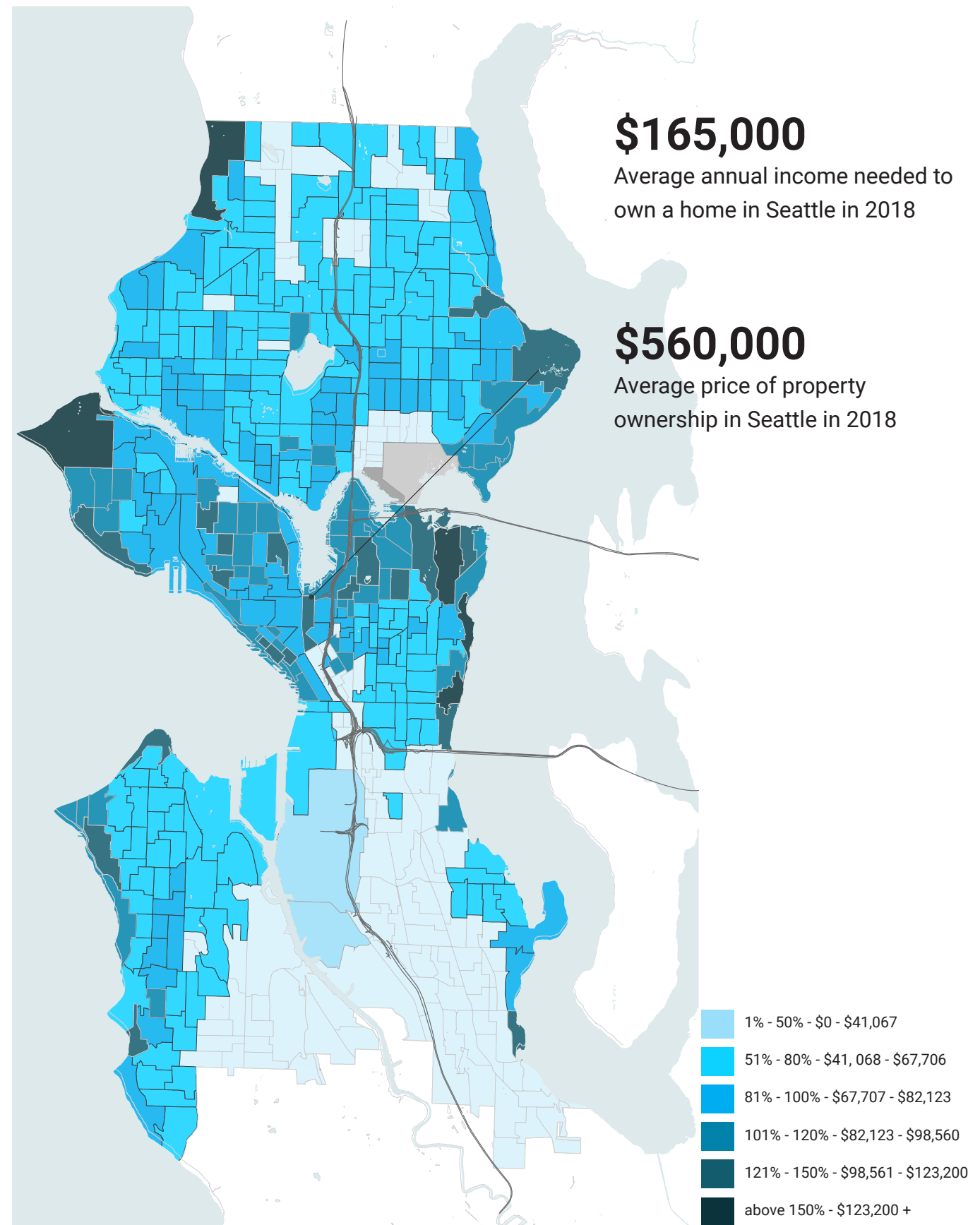
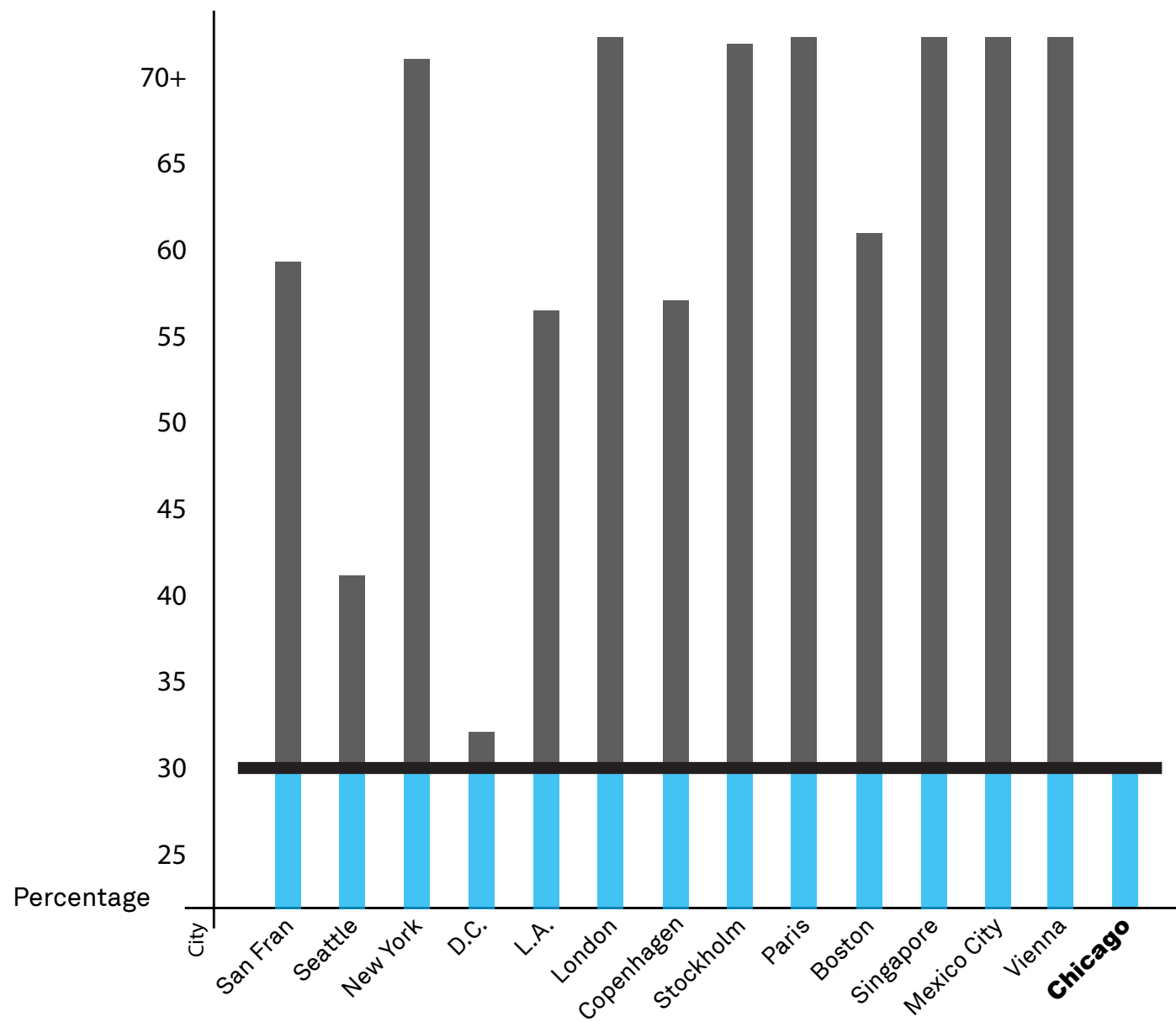
“Adding stories to the city structure as we know it is not necessarily the solution to increasing density, and diversity doesn’t necessarily occur by making an occasional change in the façade for every 15 meters.”¹⁵

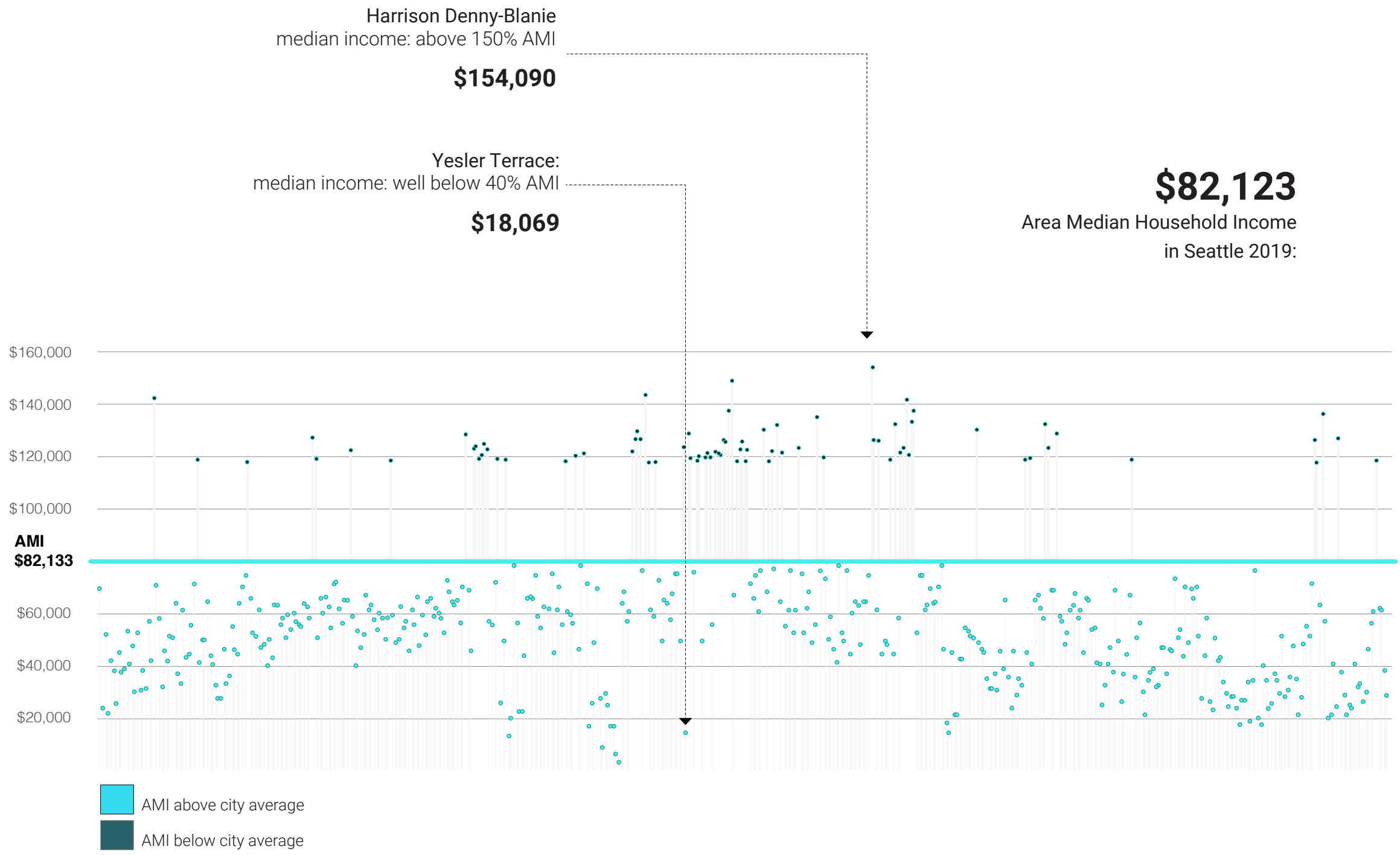
Buying property is no longer affordable to the bulk of the urban workforce. Data shows that those who own property do not represent the growing diversity found in urban areas. For living to be considered affordable housing expenses should account for no more than 30 percent of a person's disposable income. When housing costs rise above this, other needs are compromised.¹⁶

The Department of Housing and Urban Development (HUD) classifies middle class living to be between 80 - 110% of any given Area Mean Income (AMI).¹⁷ Given this, only Chicago is considered affordable in the sample of large cities shown in Figure 17.

*Figure 16 (right): Defining affordability in the US market.
Figure 17 (pg. 32): Average real estate prices compared to city's AMI in 14 urban, global markets.
Figure 18 (pg. 33): Income brackets by census block to determine AMI and affordability in Seattle.*







In Seattle, the AMI for 2019 is \$82,133.¹⁸ When broken down by census block, it is revealed that many more blocks average below this AMI than above, signaling the existence of a polarized wealth economy. A Seattle household must now make 120% of the AMI to afford a home, making urban living statistically unaffordable. The inability to build wealth as values increase extends from this problem. Property owners build wealth as property values increase while renters are priced out of homeownership and subjected to higher rents with no invested value. Terms generally associated with urban environments like affordability and housing crisis are doing little to properly identify or address the social issues embedded in the livability discussion.

Figure 19 (left): Seattle's area mean income by census block. Arranged from north to south, left to right.

20 Trends

2.1 Generational Trends

Societal values and expectations are changing, but social trends, values, and influences are unrepresented in the current density discussion. Today Baby Boomers, Generation X, and Millennials comprise of the workforce, while Generation Z is influencing the marketplace by augmenting social trends. As of 2015, millennials had become the largest generation in the workforce, and in 2019 overtook boomers as the largest adult population group in the United States. Sometimes referred to as "tech natives," millennials grew up with, value, and expect technology to be a pivotal aspect of their everyday living standards. This demographic is manipulating the market now, setting new standards for living and augmenting the ways in which we move and interact in physical space.

Too many developers, builders and architects build for the future as if it is going to be just like the past, but trends in measuring livability indicate that a market demand for "more of the same" does not properly identify or respond to our present urban identity crisis or prepare for future, changing scenarios.

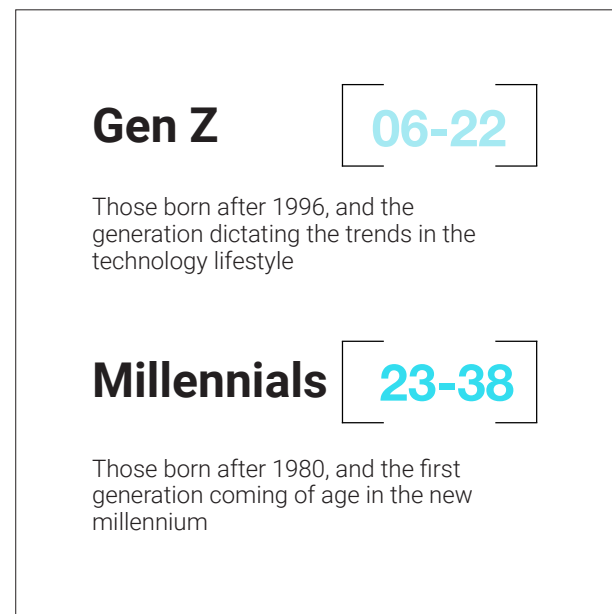
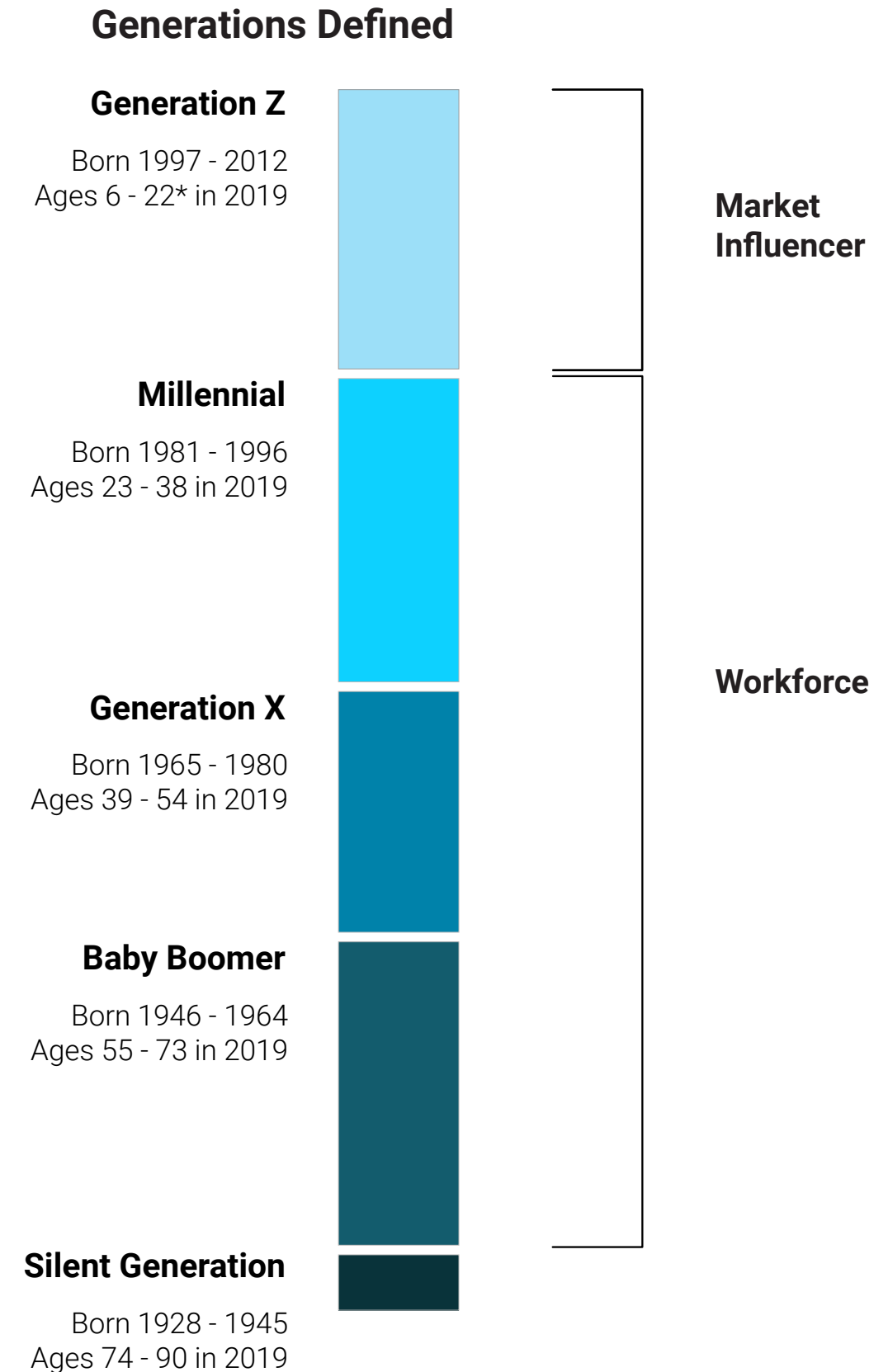
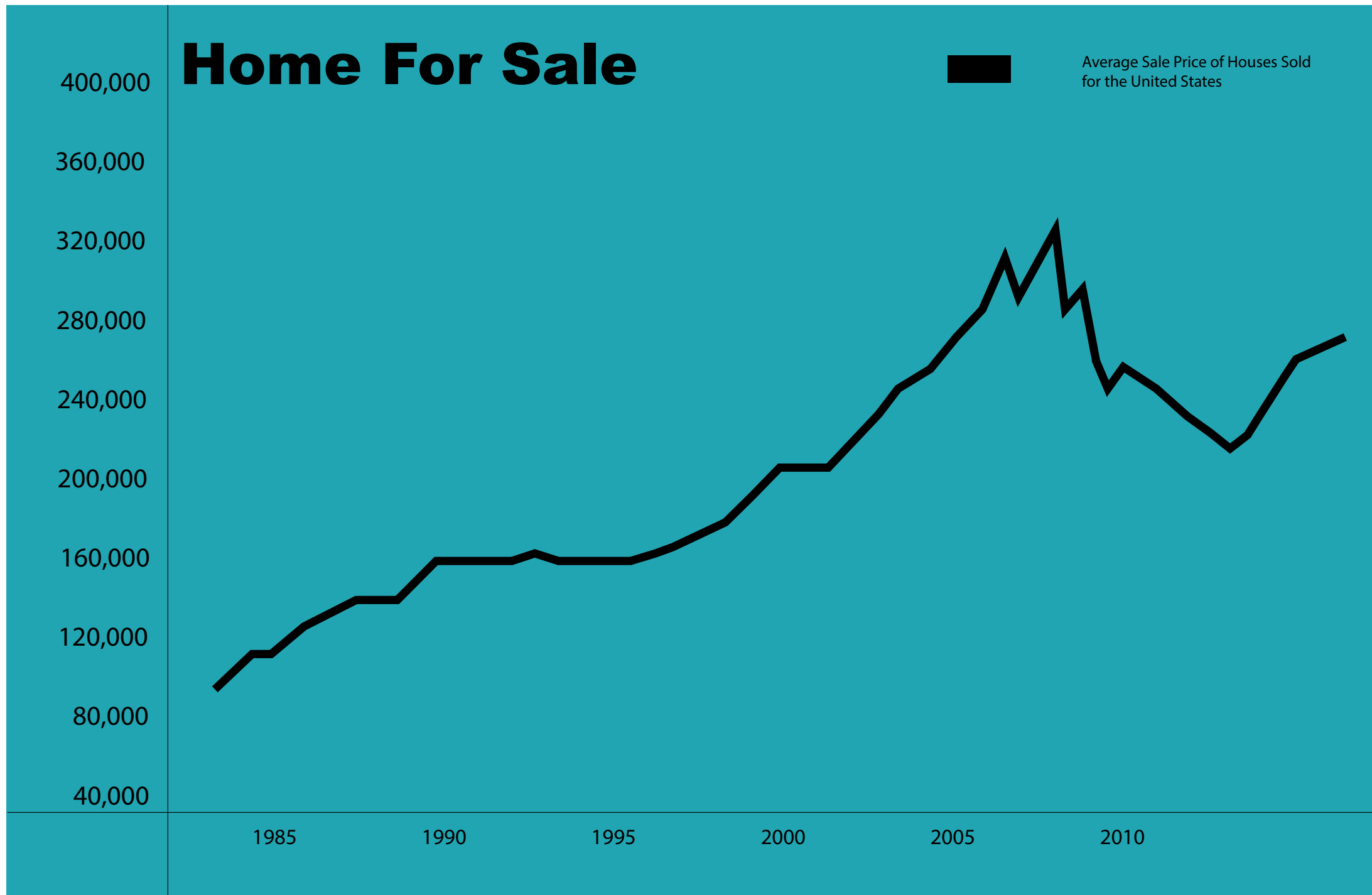


Figure 20 (left): Gen Z and Millennials defined.
Figure 21 (right): Population generations defined

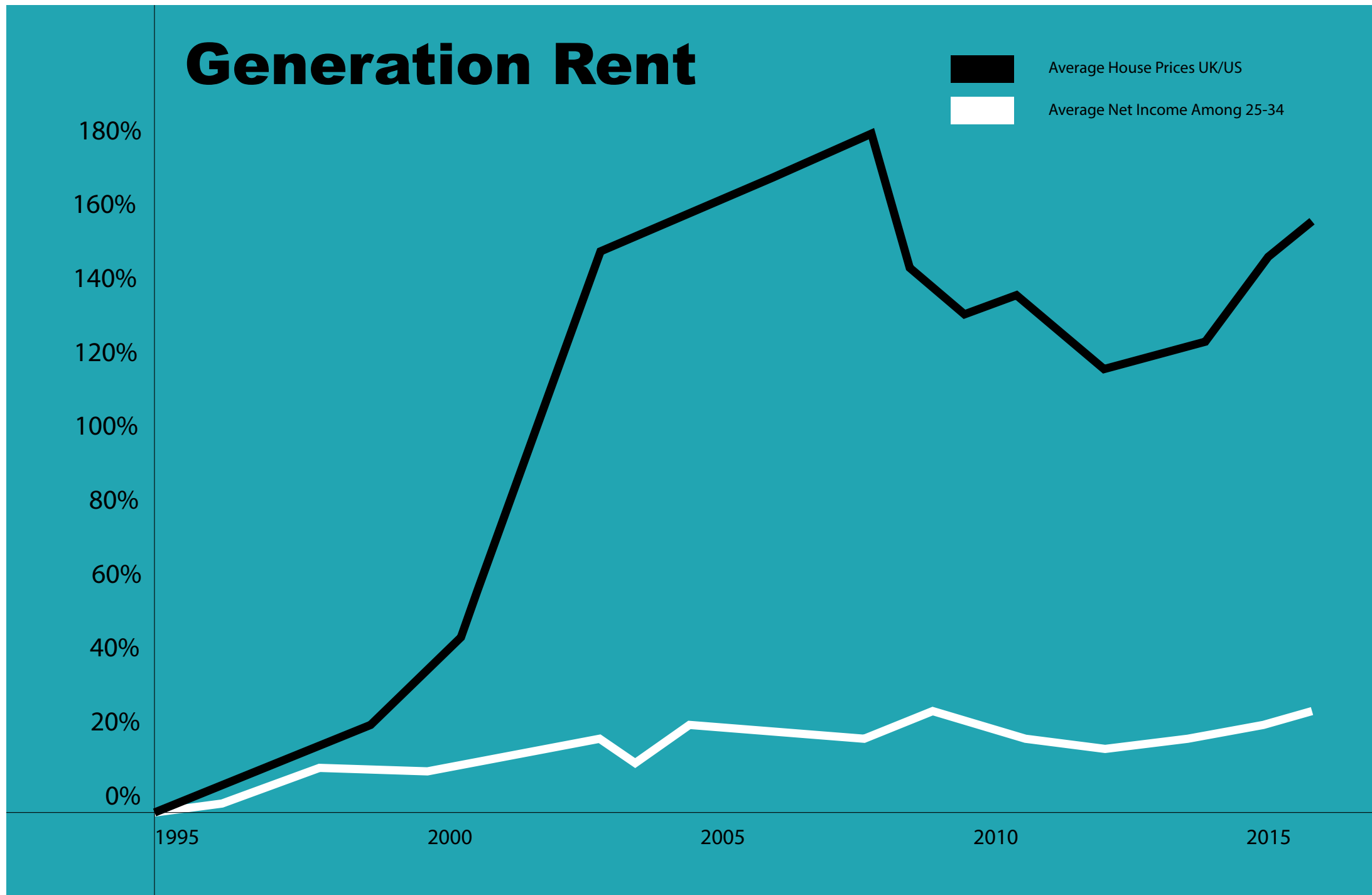




Housing Market

According to the US Census Bureau, home prices in the US have risen dramatically since the devastation of the 2008 market crash. The recession begs the question of financial security in home equity for future generations. Only 35 percent of people aged 25-34 owned homes in 2018, compared to 45 percent of both Generation X and Baby Boomers when they were of the same age. These numbers in growing cities like Seattle are even more stark.

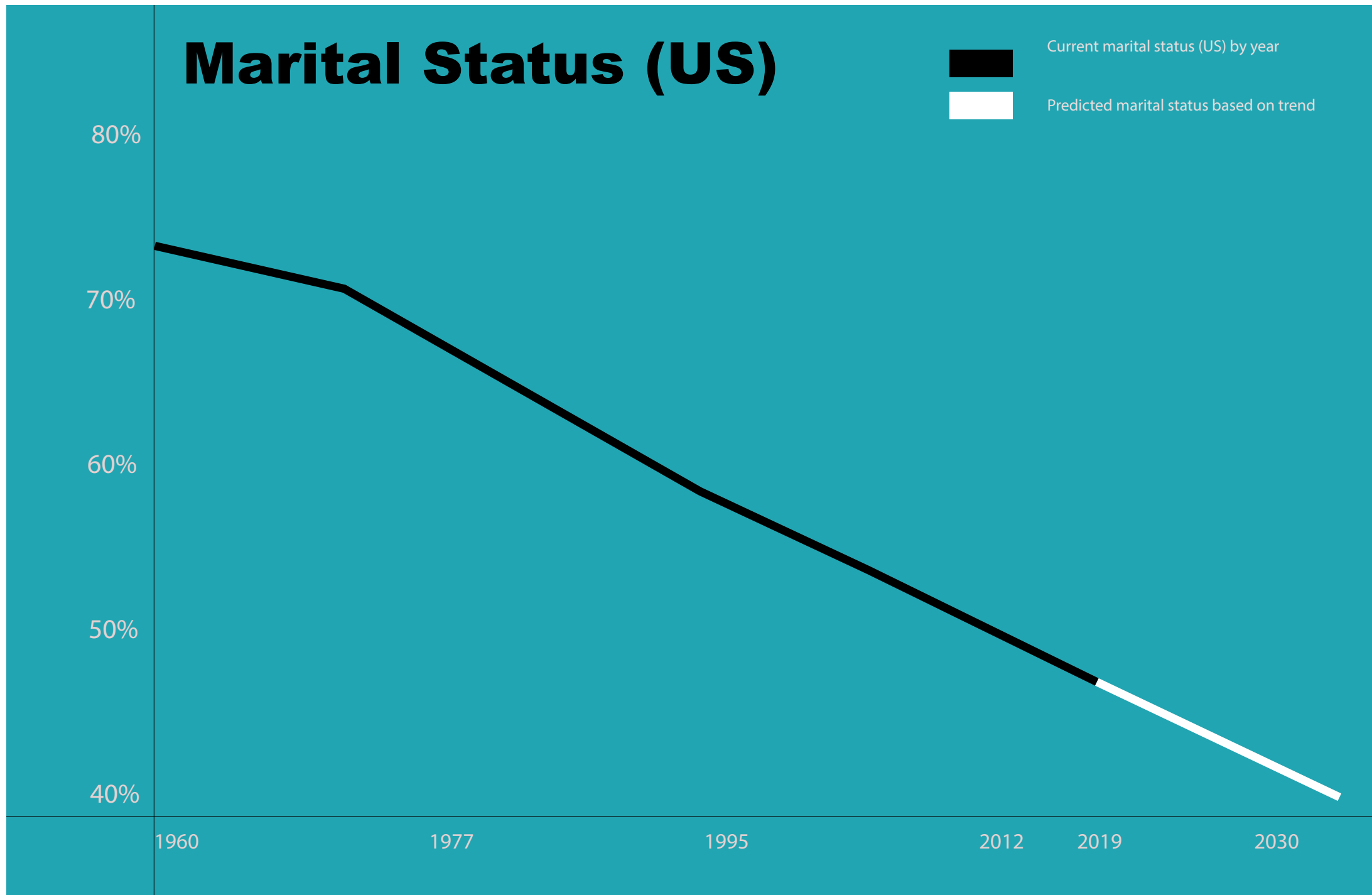
Figure 22 (left): Average sale price of houses sold in the United States between 1980-2018.



Generation Rent

Generation Rent: Younger generations are financially locked out of the ownership, making renting not an option but a necessity. In the US, millennial homeownership is at a record low, according to federal reports. The recession put into question the financial security associated with home equity, and many are reassessing the lifestyle demands that come with ownership.

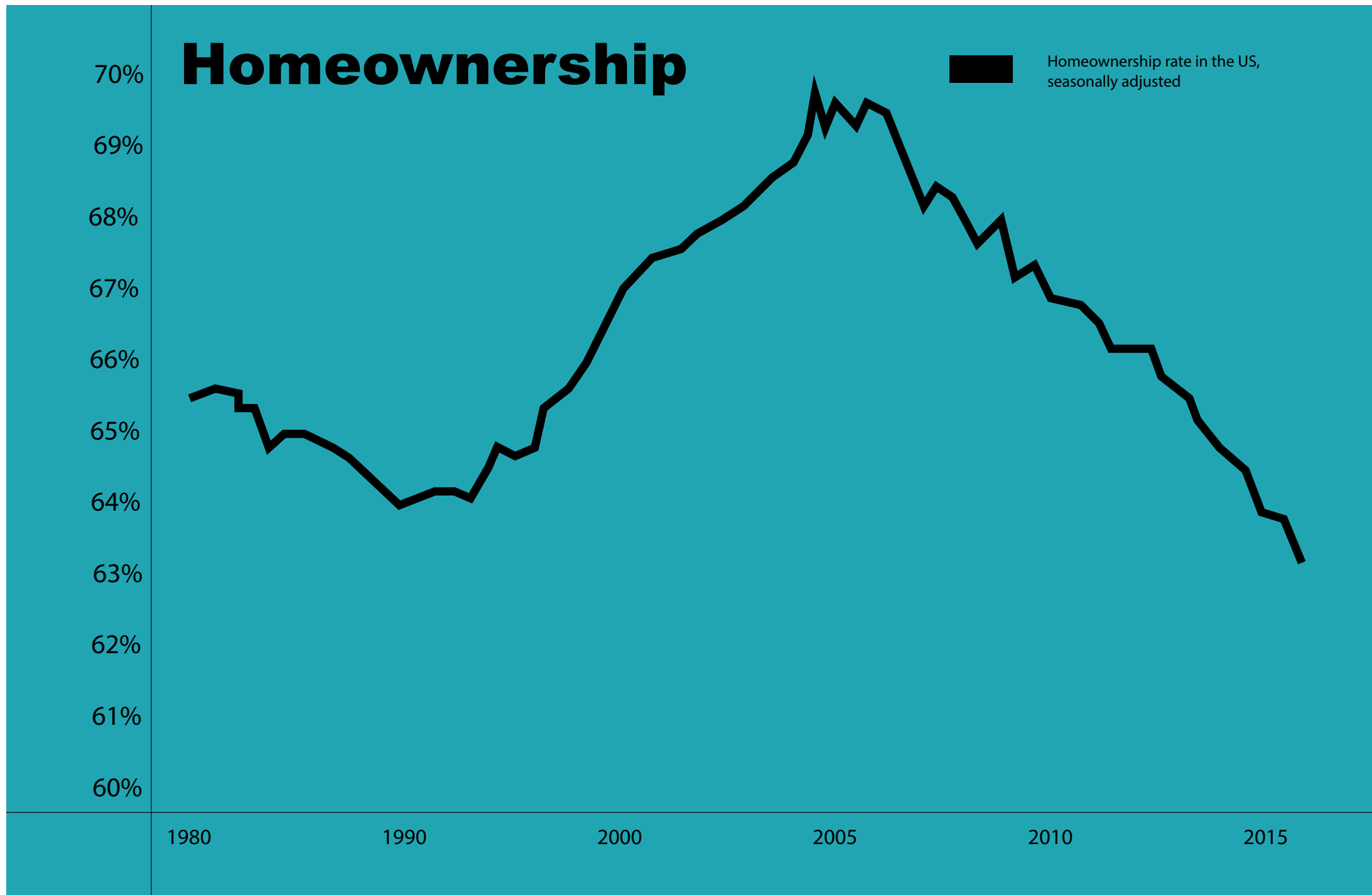
Figure 23 (left): Average house prices in UK/US as compared to the net income for the age bracket 25-34 in the US.



Marriage

According to the Pew Research Center, in 2035, fewer than 40 percent of people in the US will be married.¹⁹ In New York City, almost half of adults over 25 are single people living alone.²⁰ These lifestyle changes systematically change the use of space and who it is built for. “The nuclear family structure is no more, so why do we still build for it?”²¹ Controlling for income, gender, and education, a married person is 23 percent more likely to own property compared to a person who is not married. Marriage and homeownership are tightly linked, and the decline of one triggers a parallel decline in the other. “A decline in the incidence of marriage mechanically lowers homeownership”²²

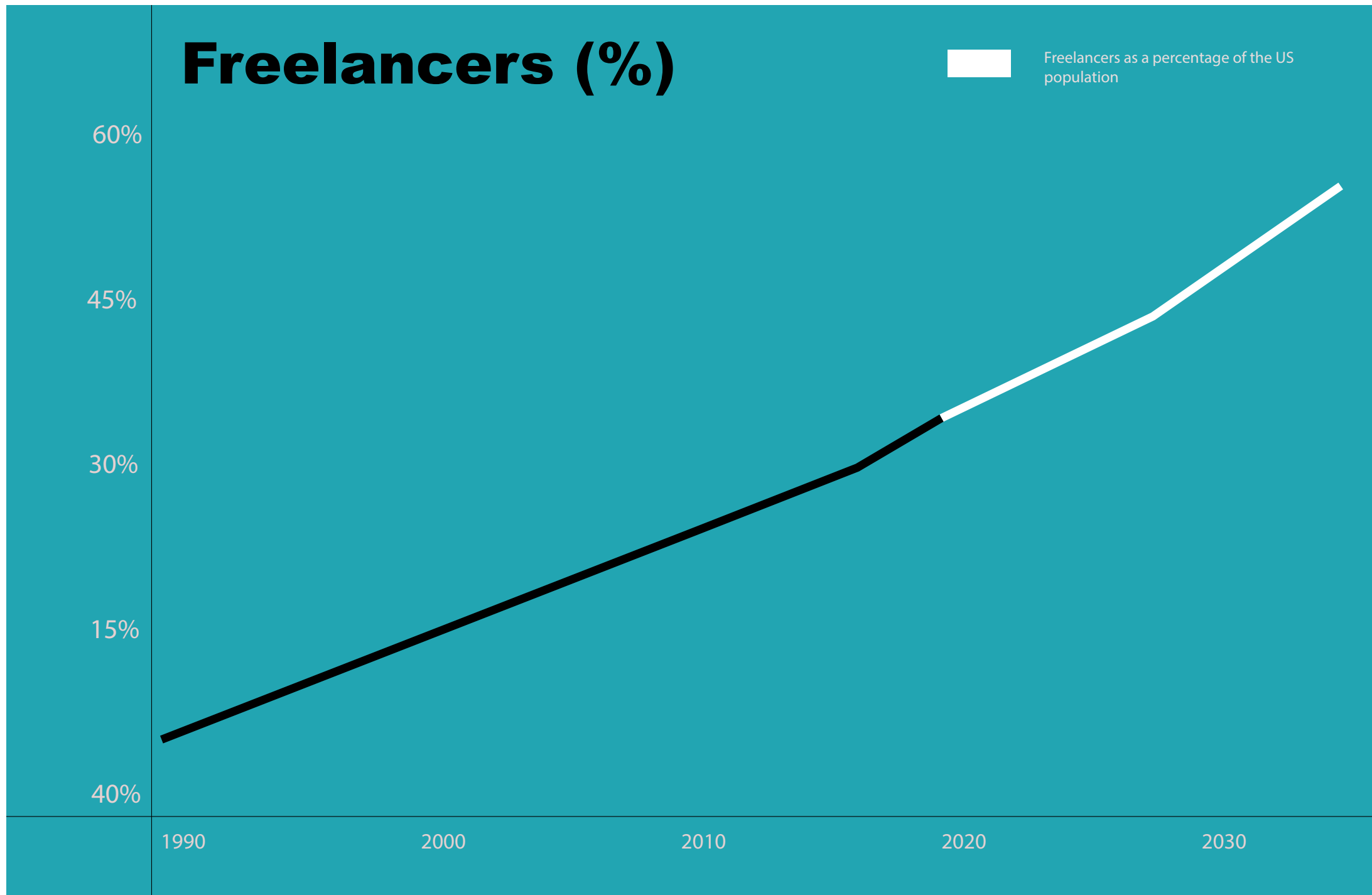
Figure 24 (left): Current marital status in the US, with prediction based on current trend.



Homeownership

A study from DNX found that the rate in homeownership, overall, in the last three decades has been on the decline. Not only can the average millennial statistically not afford to buy a home; many are finding that the ownership earnings risk and the limited flexibility are no longer as attractive, changing the structure of the "American Dream."

Figure 25 (left): Homeownership rate in the US, seasonally adjusted, from 1980-2015



Work Culture

Changes in lifestyle choices are mirrored in the job market, with Americans holding jobs for an average of less than 5 years.²³ As employee commitment to specific companies diminishes, their autonomy and flexibility grows. About 30% of the Western world's workforce considered themselves to be freelancers in 2014, with a growth statistic that outpaced itself by three times in 2017.²⁴ Nearly 50 percent of the US workforce currently participates in a form of freelance work, a statistic that responds to the desire for flexibility in lifestyle in relation to work. Remote work enables the workforce to interact directly through a distributed governance structure, one that is not mirrored yet in the housing market. A diverse portfolio is now more desirable than security in longevity and place.

Figure 26 (left): Freelancers as a percentage of the US population, with prediction based on current trend.



“Urban life, and our experience of it, is a complex mix of economic systems, social relationships, and infrastructural spaces”

In Between Economies

These trends reflecting generational change can be distilled to questions of access, connection, and flexibility. Access to work, data, and communication, either physically or through proximity, has dictated how the millennial generation is choosing to live. Many believed with the digital age there would be a decentralization of the city, but, in fact, densification is occurring as millennials seek to live in progressive and engaging urban environments. Connection and communication have defined the twenty-first century with more options than ever before. This has increased our ability to find independence in ways that were not previously possible. The ability, and now the need, to be flexible infiltrates both social and living structures. Through these

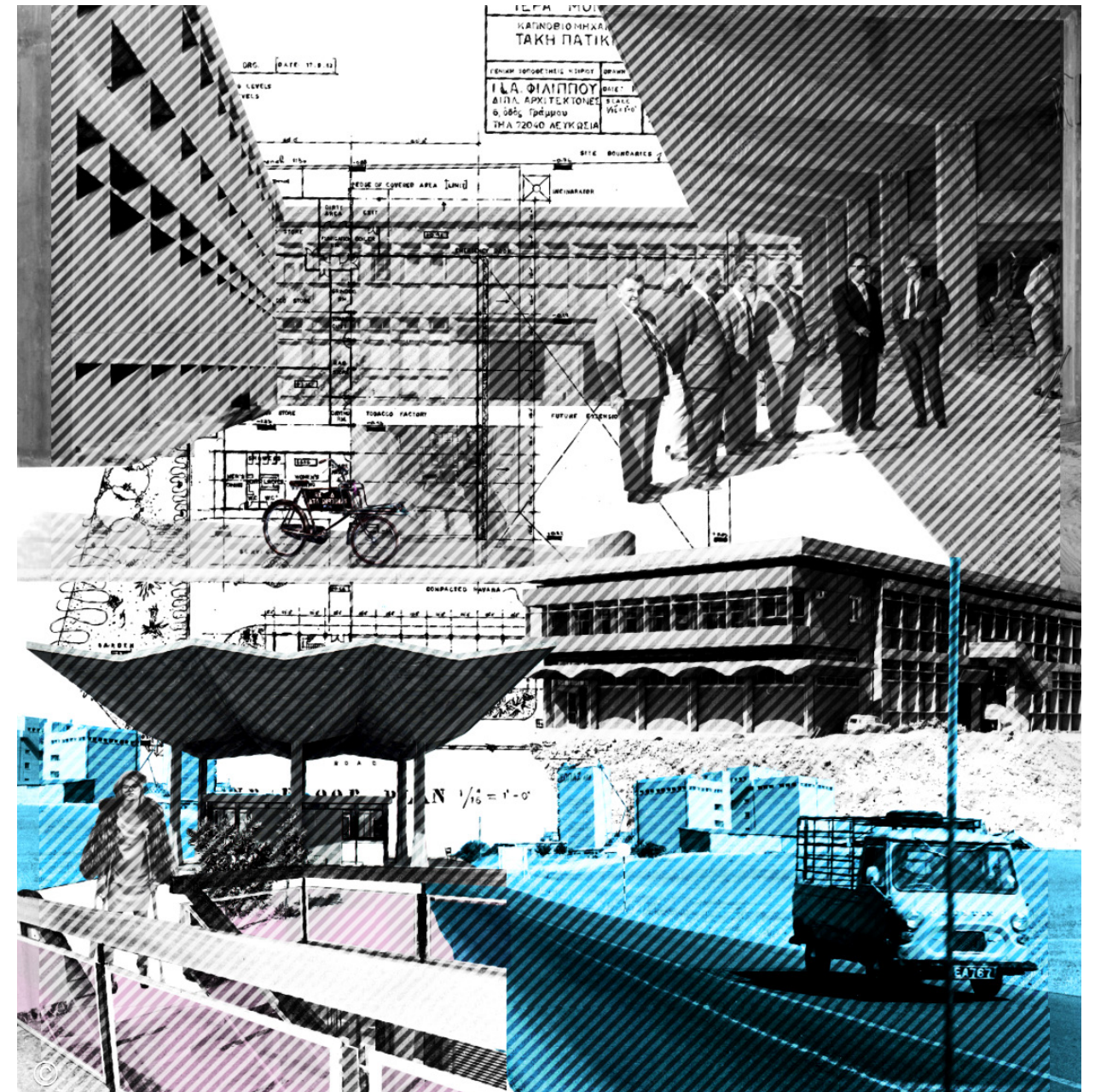
trends we have seen a rise in digital nomads, remote workers, and the gig economy, all of which have structurally contributed to the polarization of wealth in our society. These lifestyle choices have and will continue to transform the world. These are not just trends, but rather larger organizational values that are fundamentally altering our expectations for the urban environment.

Figure 27 (left): Graphic representing mixing of complex relationships.

2.2 Urban Indicators

Changes in movement patterns through built environments have indicated shifts in use. These urban indicators are a physical expression of the societal shifts that are taking place in dense environments across the globe.

Figure 28 (right): Collage of urban indicators



Tech Campuses

Technology corporations have begun to create self-sufficient campuses within urban environments that lure employees into having all the necessary functions in one place, promoting a lifestyle that depends on work, and is controlled by an employer. These campuses have begun to occupy large portions of urban centers, such as Amazon in Seattle and Salesforce in San Francisco, a shift from past suburban structures and locations. This trend extends past technology companies, as large corporations universally find it necessary to attract new workers living in urban environments. "For the first time in history, instead of people moving where jobs are, jobs are moving where the talent is."²⁵

Figure 29 (right): Edited image of the Amazon spheres and tower.



Privatized Transportation

Privatized Transportation: Since 2008, cities have seen the emergence of privatized “public transportation models.” Large companies provide added incentive of free wifi enabled buses to their campuses for their employees (for example, the Microsoft “Connector”), which turn their commute into productive work hours. This allows employees to occupy popular neighborhoods without taking their commute into account or using public transportation, giving exclusive transit access to a specialized workforce.

Figure 30 (right): Edited image of the Microsoft Connect privatized transportation.



Third Places

The return of the social infrastructure, now privately owned, has emerged in the form of "third places." Third places, the communal places between home (first place) and work (second place) as coined by American urban sociologist Ray Oldenburg, found their niche because home and work spaces do not support human interaction needed on a personal level.²⁶ With the disinvestment in public infrastructure, privately owned companies such as Starbucks have capitalized on the necessity of supportive communal spaces, adjusting to the change in work and social culture.

Figure 31 (right): Edited image of a Starbucks cafe interior.



On-Demand Tech

The rise of on-demand technology has dismantled the one-time purchase ownership model in favor of owning a service. A digital ownership model responds to the desire for flexibility, shared use, and the expectation of instant access. We see products becoming services where purchases and ownership consider time, usability, and lifespan. Divesting in personal ownership correlates to a time and material savings model that promotes a collective use. Collective ownership in a digital form is able to up end social barriers that exist in a physical sense.

Figure 32 (right): Edited image of user navigating Uber's platform.

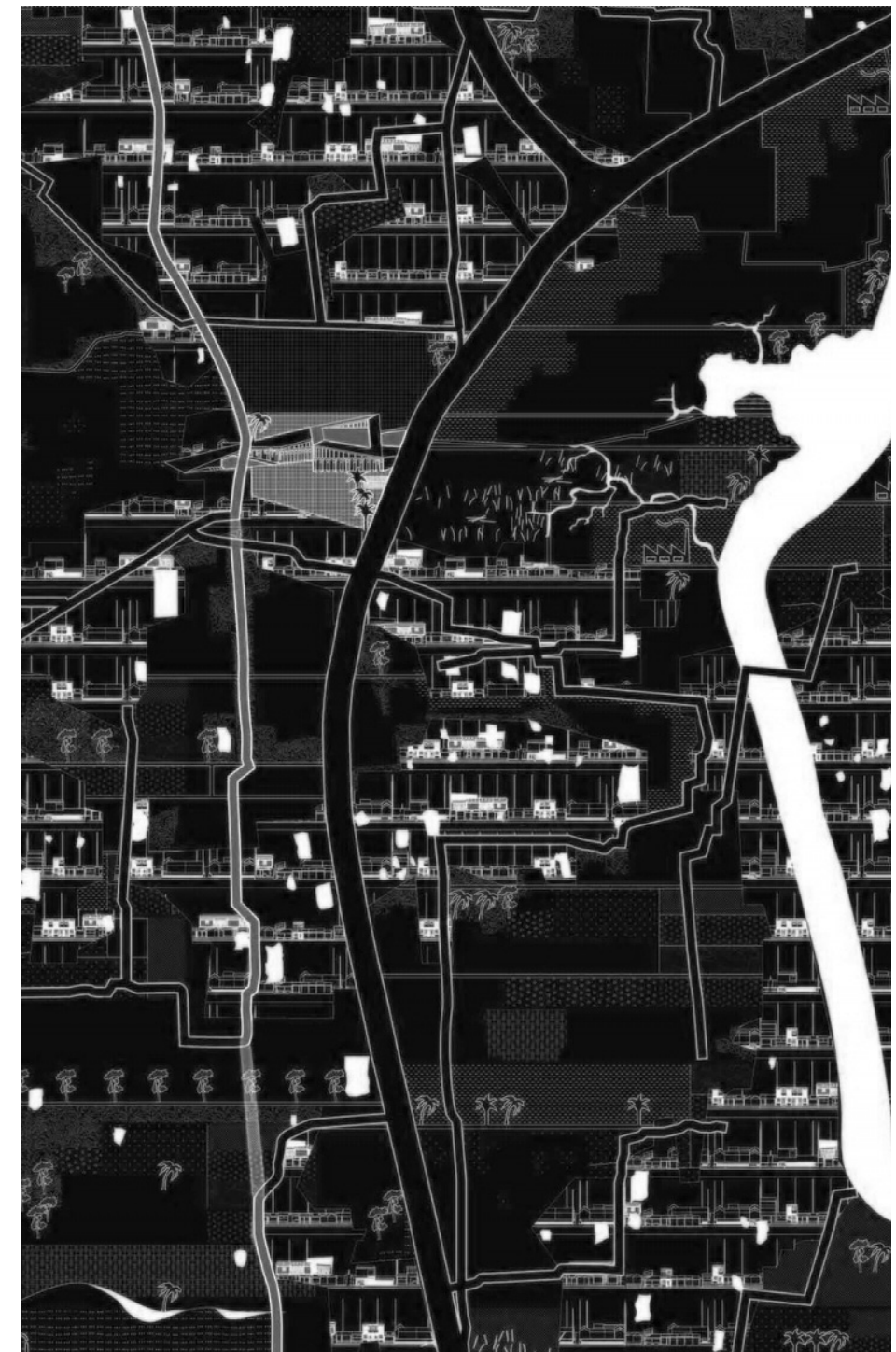


When these fragmented developments are presented as a whole, the correlation between societal shifts and changes in use of the built environment can be realized. The privatized control that is implemented subtly within our environment begins to dictate the way we use space.

The conventional way of allocating space for people follows established rules but does not address the changing social climate.

Analyzing data regarding these trends and development offers a method for making sense of the uncharted, unconventional world. The proposition in this thesis relies heavily on data for support, not to arrive at a way to work within existing conventions, but rather to identify the opportunities for new directions and unconventional approaches. The social temporality should facilitate our approach to densification and the organization of the urban fabric.

Figure 33 (right): Spatial activism graphic for *Inbetween Economies #1 Pamphlet*.

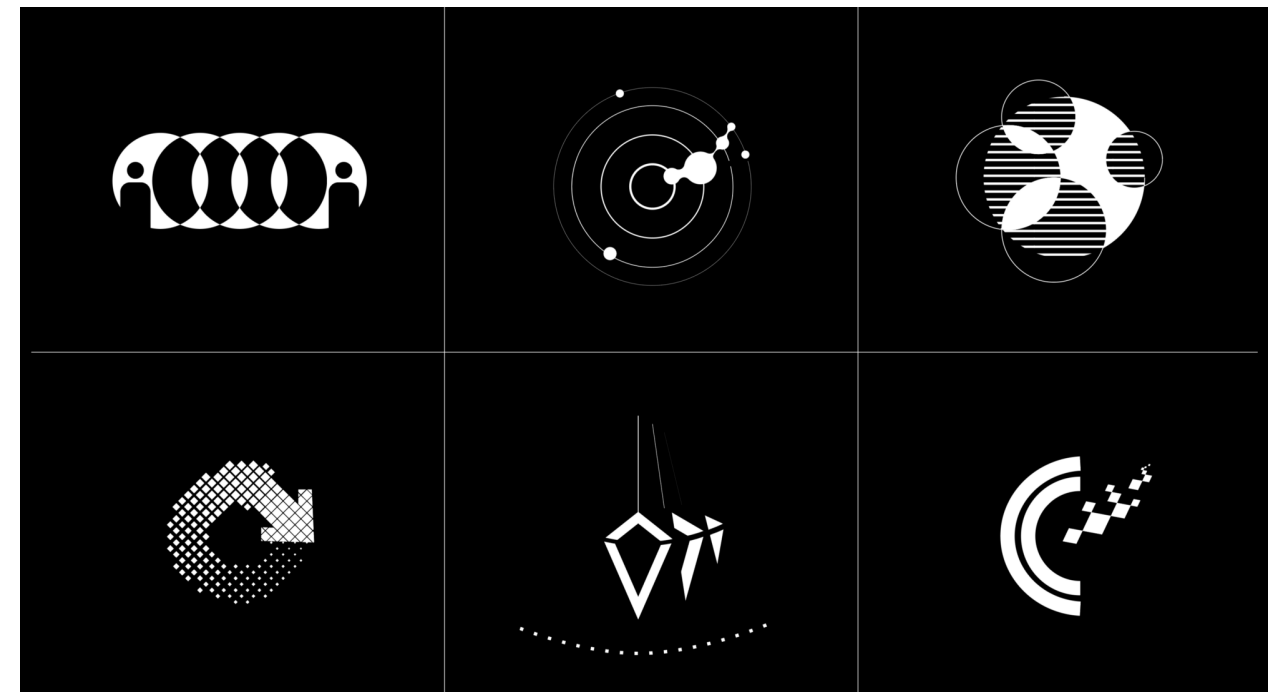


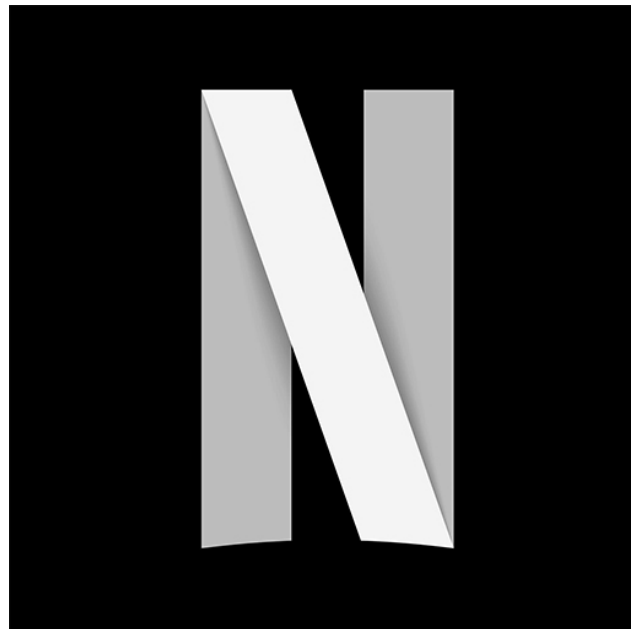
2.3 The Sharing Economy

“If we’re going to imagine the cities and places of tomorrow it’s incredibly important, we have the reimagine the philosophy of understanding these environments in different ways.”²⁷

The paradigm of the sharing economy has received significant attention in the past decade as a new way in which we trade goods and services. It can be defined by a peer-to-peer organization of distributing and exchanging goods, utilizing an online platform for communication and compensation.²⁸ Rather than individual ownership, where the product is left idle for much of its life, the sharing economy began with the intent of generosity and collective use. Though this term, and the associated reconceptualization of ownership, have since been exploited by for-profit businesses and the general sense of self-interest, the sharing ideal revolutionized a wave of new business that matches people with services for real-world exchanges that reorganize our economic structure.²⁹

Figure 34 (right): Dark Matter Laboratories graphic for the Futures in Long-termism series.





In terms of market approach, the sharing economy maximizes flexibility and creates opportunities for a form of ownership for many people as a method of maximizing the use of under-utilized assets. During the past decade, new forms of the sharing economy have been developed as an alternative tool for the satisfaction of heterogeneous needs.³⁰

According to business consultant Rachel Botsman and entrepreneur Roo Roger, the authors of *What's Mine Is Yours: The Rise of Collaborative Consumption*, principles for the success of collaborative consumption include both quantitative and qualitative factors. Collaborative consumption resides within the umbrella of the sharing economy,

with companies such as Netflix, Zipcar and Zopa revolutionizing the exchange, value, and creation of goods and services through networked technology and peer communities.³¹ These include the critical mass of participants and idling capacity of resources, along with the belief in the commons and trust among strangers.

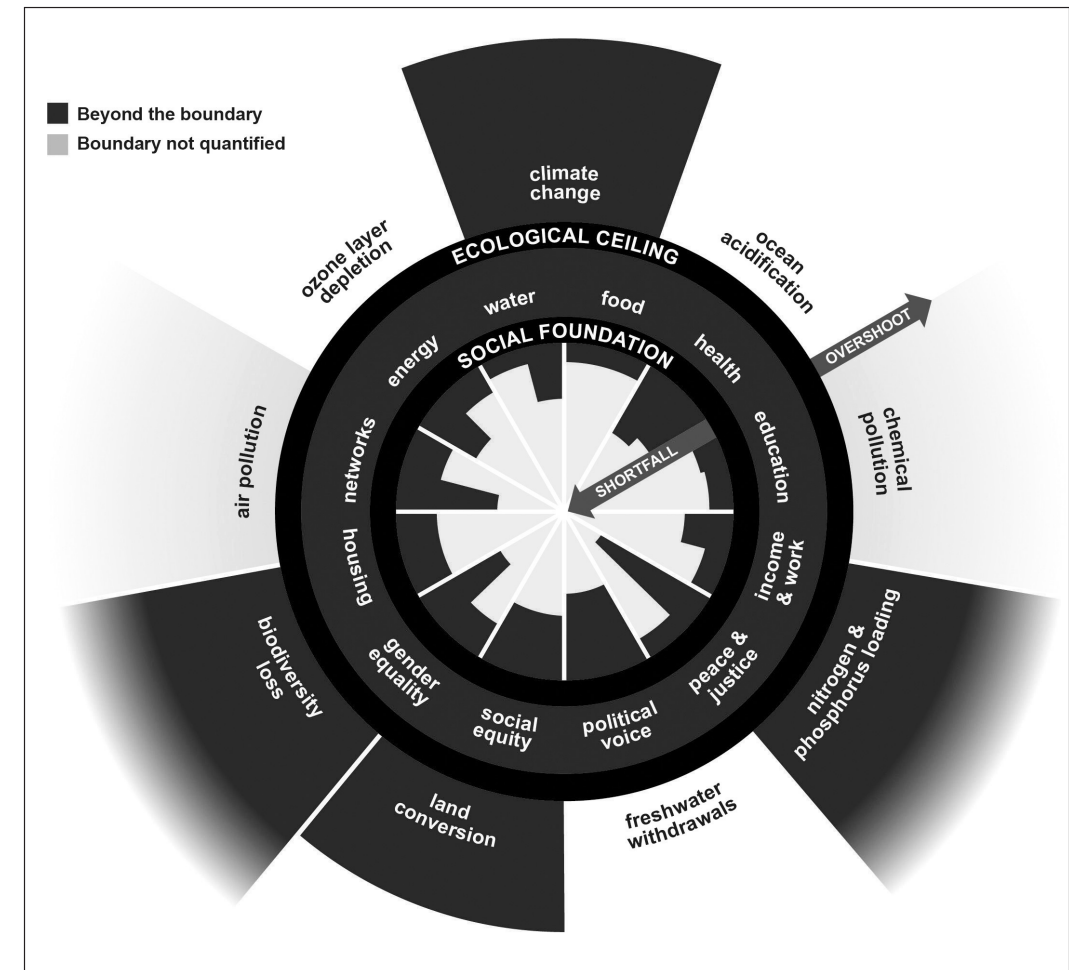
Figure 35-36 (left, top to bottom): Collaborative consumption examples Zipcar and Netflix.

Economist Kate Raworth lays out her concept of the “embedded economy” in the book *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. An embedded economy is the economic market “within and dependent upon society, which in turn is depend upon the living world.”³² This ends the notion of a self-contained, self-sustaining market in favor of an economy based on increased sharing rather than singular ownership, prompting new questions. Human action creates cycles of resource use and live by these resources we use. “Though claiming to be value-free, conventional economic theory cannot escape the fact that value is embedded at its heart: it is wrapped up with the idea of utility, which is defined as a person’s satisfaction or happiness gained from consuming a particular bundle of goods.”³³ “Rather than immediately focusing on making markets work more efficiently, one can start by considering: when is each of the four realms of provisioning - household, commons, market

and state - best suited to delivering humanity’s diverse wants and needs? To that end, “What changes in technology, culture and social norms might alter that [each of these four provisions]?”³⁴ This, she notes, is the basis for rethinking of the economy as a circular economy.

Cities lend themselves as the place to begin to implement and test the circular economy model because their scale allows for human and non-human interactions of different varieties to take place. In this era of transformation, new ways of thinking will need to utilize the robust city organization we’ve already created. Social capital is changing the perception of our built world, as well as the things we value. Physical environments can be augmented by the way we consume product and information. What does that look like, and how might it function?

Figure 37 (right): Kate Raworth’s “doughnut economic” model



2.4 How Do We Want to Live?

“Urban life, and our experience of it, is a complex mix of economic systems, social relationships, and infrastructural space.”³⁵

The foregoing collection of statistics, trends, projections and theories does not correlate with the population for which the conventional market is building. Considering the limits of what is affordable to be the statistical “middle class,” it is essential to reassess the types of spaces being provided, and the market structures that provide them. The housing crisis and density response stem in large part from a cultural shift that is associated with the values of new generations and their affinity to live in a way different from the former social norm. The focus of this thesis rethinks the social perception of the built environment and the means through which it is produced. Is it possible to build a better model of living that supports community, builds financial equity, and supports the flexibility of lifestyles that have become the new reality?

Figure 38 (right): Spatial collage of shifting urban experience.



3.0

Methods

3.1 Intro to Methodology

“The economy is a design. In fact, it’s multiple designs overlapping and intersecting each other.”³⁶

In contrast to many architectural theses, the focus of this thesis is to reconsider the system that delivers the environment in which we currently build, work and live. Early questions and curiosities have been distilled into categories that could intersect at various points and translate into a new system. The thesis research encompassed precedent studies of building designs, financing delivery systems, models of sharing and subscription services, and the roles of social media in establishing or enhancing community. Although the production of the built environment in the United States is dominated by conventional approaches, this research sought to uncover ideas that challenge the conventional. A broader exploration indicated

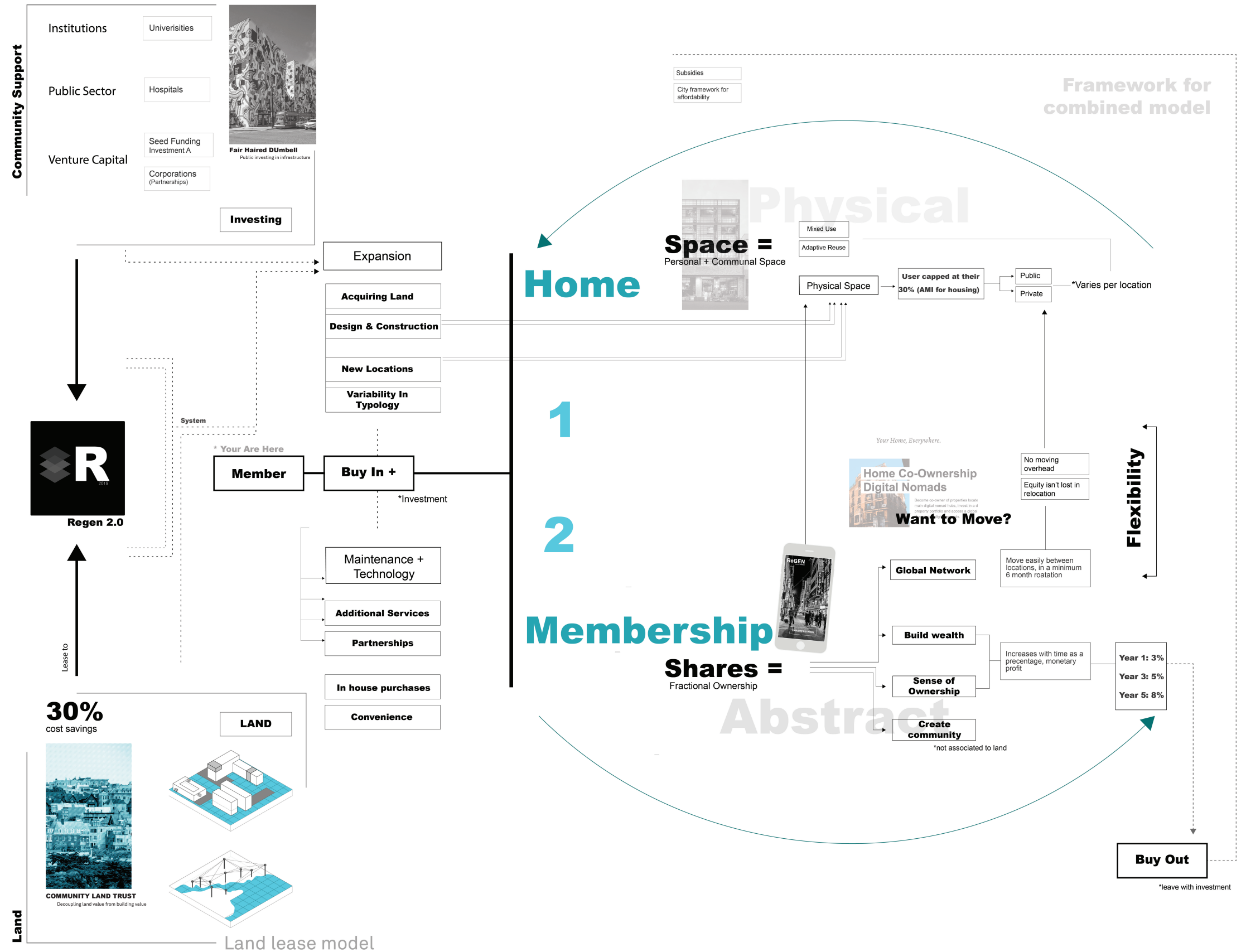
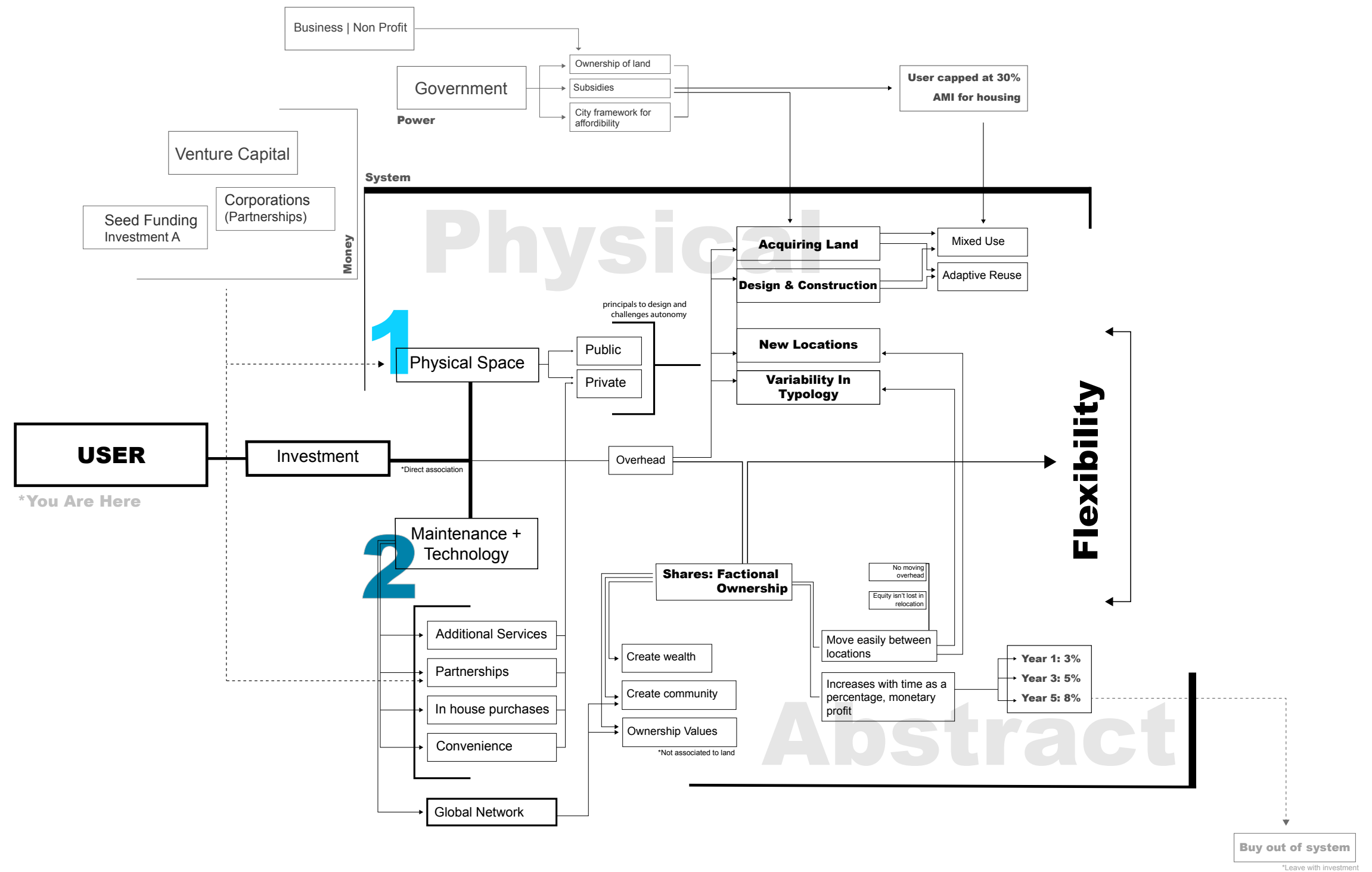


Figure 39 (right): Final Flowchart of the Re:GEN system.

that there are many feasible experimental approaches are being tested globally. This chapter documents the findings of the research regarding alternative approaches for project delivery, design, flexibility, sharing and connectedness. Some examples incorporate more than one of the new directions or techniques. What began as a simple catalogue of precedents led to the construction of a matrix spanning multiple industries and platforms. Questions and hypotheses that grew from this way of organizing the findings of the research through the juxtaposition of the various case studies generated the impetus for the proposed Re:GEN system.

Figure 40 display's a flowchart of the functional methodology developed for this thesis. This is meant as a representation of the first generation of the Re:GEN system's organization, one that begins to illustrate the theme of the project delivery. The intention is that it could be expanded and developed further.

Figure 40 (right): Initial flowchart the Re:GEN system.



3.2 Clustering of Sources

The forthcoming precedent case studies have been organized according to the themes that make them potential models in addressing the complexities of project conception, delivery, design, management and operation that the Re:GEN system seeks to address. The thesis design is, therefore, a design of the systems that facilitate urban life. Four categories have been identified as key to shaping the emergent design:

Tech Integration / Open Source Networks

Financial Models

Dwelling Typologies

Sharing / Expanding

Figure 41 (right): Delineating the categories of importance for system structure and organizing research finding within.

Open Source System

- In-between economies
 - <https://archinect.com/features/article/149998647/finding-the-contemporary-city-between-the-local-and-the-global-with-in-between-economies>
- Nomadic Co-ownership
 - <https://nomadlist.com/forum/t/property-ownership-should-digital-nomads-buy-properties/9415>
 - Digital Nomads
 - <https://www.nomadwise.co/>
- App for housing association
 - <https://www.borigo.com/>

Financial Models

- Nightingale Model
 - <https://nightingalehousing.org/model>
- Vertical Integration: a company that controls more than one stage of production of a good or service, and sometimes the entire production.
 - <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/when-and-when-not-to-vertically-integrate>
 - But in the hands of its participants, instead of a private company?
- Air BNB sharing phenomenon
 - What effect might a co-owning model have on the housing market?
 - A new Economic Policy Institute study finds that Airbnb contributes to rising home prices in cities, yet often escapes comprehensive regulation.
 - <https://www.citylab.com/equity/2019/02/study-airbnb-cities-rising-home-prices-tax/581590/>

Dwelling | Architecture | Tangible

- The Garden in the Machine - Studio Gang
 - Pg. 95 Foreclosed
 - <https://studiogang.com/project/garden-in-the-machine>
- The Urban Village Project - Effekt
 - Modular, cross generational project with financing component
 - <https://www.oeffekt.dk/urbanvillageproject>
- How will you live? - IKEA | Space10
 - <https://www.dezeen.com/2017/11/14/one-shared-house-2030-ikea-space10-lab-anton-irene-co-living-website-platform/>
- The **We Company's** Future Cities Initiative
 - "...to reimagine not just the future of work, but of space and how we use it, and in doing so, help our cities thrive and become more livable, more human and more inclusive"
 - Under this umbrella, the company is developing a range of initiatives, including WeGrow schools, WeWork, WeLive for co-living and the Rise by We gym.
 - <https://www.dezeen.com/2019/03/21/future-cities-the-we-company-studio-drordr-ann-eisnor/>
 - Public space in a privatized model?

Sharing | Replicating | Expanding

- Mehr Als Wohnen
 - "the vision was to create a part of the city rather than an estate."
 - funded by fifty small co-operatives
 - A series of subsidies are offered to low-income earners, and 10% of the apartments are allocated to charities and not-for-profits
 - <https://arcSPACE.com/feature/mehr-als-wohnen/>
- Shared Housing Model
 - <https://www.dezeen.com/2013/08/29/share-house-by-naruse-inokuma-architects/>
 -

Thesis Case Study Log																					
File Edit View Insert Format Data Tools Add-ons Help Last edit was on November 5																					
fx Y - site acquisition, architecture, construction, management																					
Project Name / Case Study	Category	Keywords/Notes	Project Description (Synopsis)	Organization Type	Operations	Physical Component (YN)	Scale (S,M,L,XL)	Financial Model	Ability to Scale	Ownership Model	Flexibility Where does it live?	Phase	Collaboration (Architect/Investor/Other)	Architect team?	Key Players	User Type	# User's	Takeaway for Thesis	Research Question	Links	
Open Source: Tech Integration	Tech	- Digital Nomads - Co-owning Property - Investment while not location based - Fractional Investing		International ownership of property for transient populations	System of co-ownership, to have a home anywhere in the world	N - Impacts physical Physical rental properties	M - geared towards small property owners and real estate companies	Financial model: startup financing unclear		Fractional Ownership	Flexibility in ownership model - breaking the binary	Idea/Concept working on getting off the ground			A collective of individuals	Digital Nomads who intend to make living conditions 2-4 times per year	collective, # unclear		How can we use fractional ownership to create full investment? How can fractional ownership create a new system of ownership to the present binary condition?	https://www.nomadlist.com/ https://nomadlist.com/forum/property-ownership-should-digital-nomads/	
Borjia	Tech	- App based platform for housing associations - source of communication amongst neighbors		Community communication Neighbor interaction	Operates and looks a bit like Facebook, but can be bought and privatized for a specific company	N Not tangible, is a app based product	S - application													https://www.borjia.com/	
Vertically Integrated Platforms	Financial Model	- Multiple portion of the supply chain - opportunity to maximize profit, streamline system	Definition: A company that controls more than one stage of production of a good or service, and sometimes the entire production.	2 Types: - Forward (beginning of supply chain) - Backward (back end of supply chain)	System of a process, in real estate	Y - site acquisition, architecture, construction, management	Generally L, XL. Backward & consists of what is normally multiple job descriptions	- pro is the ability to scale, streamlines, waterfall system. Has ability to be agile in performance but within system is waterfall - lower cost, taking out portions of middle man exchanges	N/A - corporation focused	Limits ownership shares by controlling into one conglomerate, expands or modifies concept of ownership in the housing market, potential for new possibilities. When the bulk of capital is managed by one entity the could be room for an ownership model downstream that allows one to buy in at lower than market rate.	Companies are using this model, includes a build/construction architect in its pipeline	Every model looks different to each	developers, corporations	5 Parts Asset Management Construction Architectural Design Financing Site Acquisition	"homeowner" at end product	per business or system		This is a newer model in the real estate industry that is in the hands of its participants, instead of a private company?	Can vertical integration be put in the hands of a public entity or collectives? Does combining portions lower back and costs, that can in turn be used from front end needs?	https://www.thebalance.com/what-is-vertical-integration-3305507	
Nightingale Model (see below)	Financial Model Dwelling (see below)																				
Fair-Haired Dumbbell	Financial Model Dwelling	- Crowdfunded Construction	A method of fractional ownership in return for investing in the project at inception.	Kevin Conover/owner of Curvella Development "We make buildings that prove that good design and good financial returns are not mutually exclusive"	Open source office. All data is online and available to replicate. Over the course of 3-5 years, investors receive 8% Dumbbell specifically: 87 investors have contributed \$1,360,000 to the project. Conover says that this will radically change the investing market but did it to prove a point.	The building itself is traditional in essence, but the financial model and composition are unique	M - 1 building	Capped and transparent project profits provides housing at below market price, with buildings designed to minimize the ongoing costs of operating and maintaining homes Resale price: the maximum resale price of each property cannot exceed the price paid for it (including Stamp Duty) plus the percentage increase in median house prices of the suburb where the property is located for the year you bought it to the year you are selling it, as determined by the REIV 75% of the buildings initial cost was covered funded, in addition to traditional bank loans. Over the course of 3-5 years, investors receive 8% annualized return on their \$1,000,000 investment, like a certificate of deposit at the bank.	model has the ability to be applied to other buildings, but its other real estate crowdfunding companies work with unaccredited investors because of the expensive regulatory hurdles that exist to protect individuals of lesser means	first building in origin (one of the few in the US) to be crowdfunded using the regulations recently approved by congress	Flexibility in up front investment and investors. Flexible in the WHO and HOW the project is able to be funded	construction	architect not mentioned	unique investment firm and investors giving as little as 3k	"teachers, librarians and mechanics."	87 investors total, but only 44% pre-leased		A concrete example of fractional ownership in a physical property? I'm curious about what your investment gets you, and how you buy and sell that. The Curvella website states it was only 44% pre-leased, signifying that investors are not able (all) rent. The development is driven by community engagement, open source data and transparency, and focusing on the needs of the people it serves (those being both investors and building users). "The capital stack" - where the money is coming from and the order in which the investment is paid out, not equity in a tangible asset. They built a building, not a system	Can fractional investing help curb affordable housing? Is there a way to incorporate diverse funding strategies into mandatory affordability models on the back end? How can we encourage an investment life cycle of real estate that covers costly expenses associated with reimagining/creating, which inhibits flexibility? Can a building system be interconnected, one that encourages engagement, forms and new strategies at once? Conover/owner describes the wants for the "energy and creativity on the inside" to match the energy and creativity on the outside". He is making associations with the building form, the work happening within the walls and the way the building is completed, which is unique.	https://www.crowdfunder.com/2018/04/04/504-ongors-guerilla-dove-g-a-5e-1-crowdfunding-deal-for-the-unusual-fair-haired-dumbbell-building http://guerrilladev.com/projects/the-fair-haired-dumbbell/ https://www.rtdcity.com/origin/building-leads-nation-with-crowdfunded-hedonic-design/article_4c241663-304f-304-3c04-43414140a5a.html Another crowdfunding investment typology: https://www.crowdfunder.com/invest/investor/	
Nightingale Model	Dwelling		Framework for integrating multiple operations into one new system The Nightingale model is a set of systems and processes for housing provision. The model exists to enable financial architects to develop Nightingale buildings using the savings and transparency of architects who have previously developed Nightingale buildings.	intentional model for building that identifies goals and frames specific intent	Operates based on normal economic and operation model. The work is on the back end.	Y - Building multi-family residential building model is the product	M	Capped and transparent project profits provides housing at below market price, with buildings designed to minimize the ongoing costs of operating and maintaining homes Resale price: the maximum resale price of each property cannot exceed the price paid for it (including Stamp Duty) plus the percentage increase in median house prices of the suburb where the property is located for the year you bought it to the year you are selling it, as determined by the REIV	Nightingale has a code of standards that must be upheld through the model. Each project is different, the general guidelines are the same making the model transferrable and scalable, but this also makes each product different.	Priced below market rate - interested parties go into a lottery system before permits are acquired. If failed, a down payment for purchase is due before construction can begin. Designated owner gets survey about what they might like to see, finance etc and is included in the process. Must have capital for down payment of housing purchase	flexibility in apartment layout, with acknowledgment of economy of scale community involvement at the planning phase and development decisions (your money)	in production - 6 live projects	Collaboration begins in early planning phase (before building permits are submitted) Collab is geared towards the chosen "investors" or homeowners	marketed towards homeowners	Homeowners, not generation specific	per building	The Nightingale model focuses on a triple bottom line - environmental, socially and economically sustainable. This model incorporates the end user/citizen into the beginning stages of the process and aims to see the purchasing capital to build a desirable multi-family project. These units are owned, not rented, and leverage affordability by applying strict marketing rules. Units cannot exceed the original sale price, including inflation and taxes, with the intent that turnover will be relatively low due to of the communal building process. How this model has been replicated multiple times, I wonder if there is an ability to create a second layer to the network, which residents can move amongst the different properties as their needs change. This one was hard to place in a category, because it blurs the line of living, travel, and technology. This is part of the strength of Airbnb, it disrupts multiple market while not relying on one model to assure business.	How does this model incorporate flexibility into a larger system? Current model seems building dependent. Can a range in unit types encourage a diverse ownership group, so that the buy in can be affordable as well? Does this model work as the exception and not the rule? How do we take a sound building method and make it more accessible, so that it might scale faster or have less steps involved in the process? Can the flexibility of this model be prescribed to a permanent housing market? How can ownership be rethought in this model? How does living come a global network? Is there a component of affordability that could come with a subscription life service?	https://nightingalehousing.org/nightingale-entire https://five.google.com/filed/1dLYP0r0-2Qd5Siak4-Qn8Q9nBnDvV		
Air Bnb (Dwelling Model)	Dwelling	- Disrupts the existing market - New definition of feasible - Eliminates (some) overhead costs associated with housing	Airbnb is a short term rental platform, it changing the way people travel and move throughout space. It exists digitally as a platform to connect stranger with a place to rent temporarily with others who need to place to stay. Airbnb doesn't own any assets, they are simply the medium used to connect people who already have assets.	Digital platform - connect people with places to rent on a per night basis	Airbnb doesn't have any assets. By the nature of its platform, the company can go into new aspects of the customer value chain without putting much money up front. It started with temporary housing and has grown into other markets associated with traveling Airbnb identified a customer need, a loophole in what was available, and moved quickly to fill it. A large portion of that was flexibility	it maximizes the amount of time a space is used. Instead of someone owning a vacation home only used by that family, it allows for more frequency. It relies on created physical space, but the invention itself is not physical in nature.	XL - Global	The flexibility is measured on a per night basis, with no upfront costs or extra expenses, in the housing market, this is the shortest amount of time. In terms of user experience, it is also flexible, existing as an app that is portable and available whenever one needs	global network												
The Urban Village Project	Dwelling	- shared living focused on sustainability, livability and affordability - plan for physical hub/out - back by lease	A new model for livable, sustainable, affordable living. The model aims to be modular to build, incorporate a new financial model that allows for constraints to enter the housing market at a drastically lower rate than market, and create cross generational living communities that a person can grow within	development project, ongoing and not tangible currently				by partnering with Effect early on the physical component has been thought through even though it is still in development	scale is central to this model, one size does not fit all, within a modular grid, the layout of public and private spaces and grow to fit needs. system can also be replicated anywhere (theoretically)	scale is central to this model, one size does not fit all, within a modular grid, the layout of public and private spaces and grow to fit needs. system can also be replicated anywhere (theoretically)	it is a generic model that can essentially grow to be anywhere. There is no ideal place for this to be network of collectives 1. Monthly rate for all your essentials (rent, utilities, shared facilities maintenance) 2. Option to Add-On Subscriptions to other services (food, media, insurance etc.) 3. each month, residents would have options to "buy ahead" lots of real estate, to own ownership			Space 10 think built developed by NCA in collaboration with Effect. This is purely conceptual, though building seems to be back by lease	Effect - Copenhagen				This model is more conceptual, but offers a tangible component in the housing plans that offer constraints to enter the housing market at a drastically lower rate than market, and create cross generational living communities that a person can grow within		

The precedent case studies are presented first in a table with columns of data addressing categories including Project Brief, System Information, Process and Ownership Models, User Experience and Analysis, and Impact. Additional information included takeaways, research questions, and web links. The table summarizes the findings of research for each precedent case study and allows for comparison. More in-depth information on the clustering methods can be found in an Appendix.

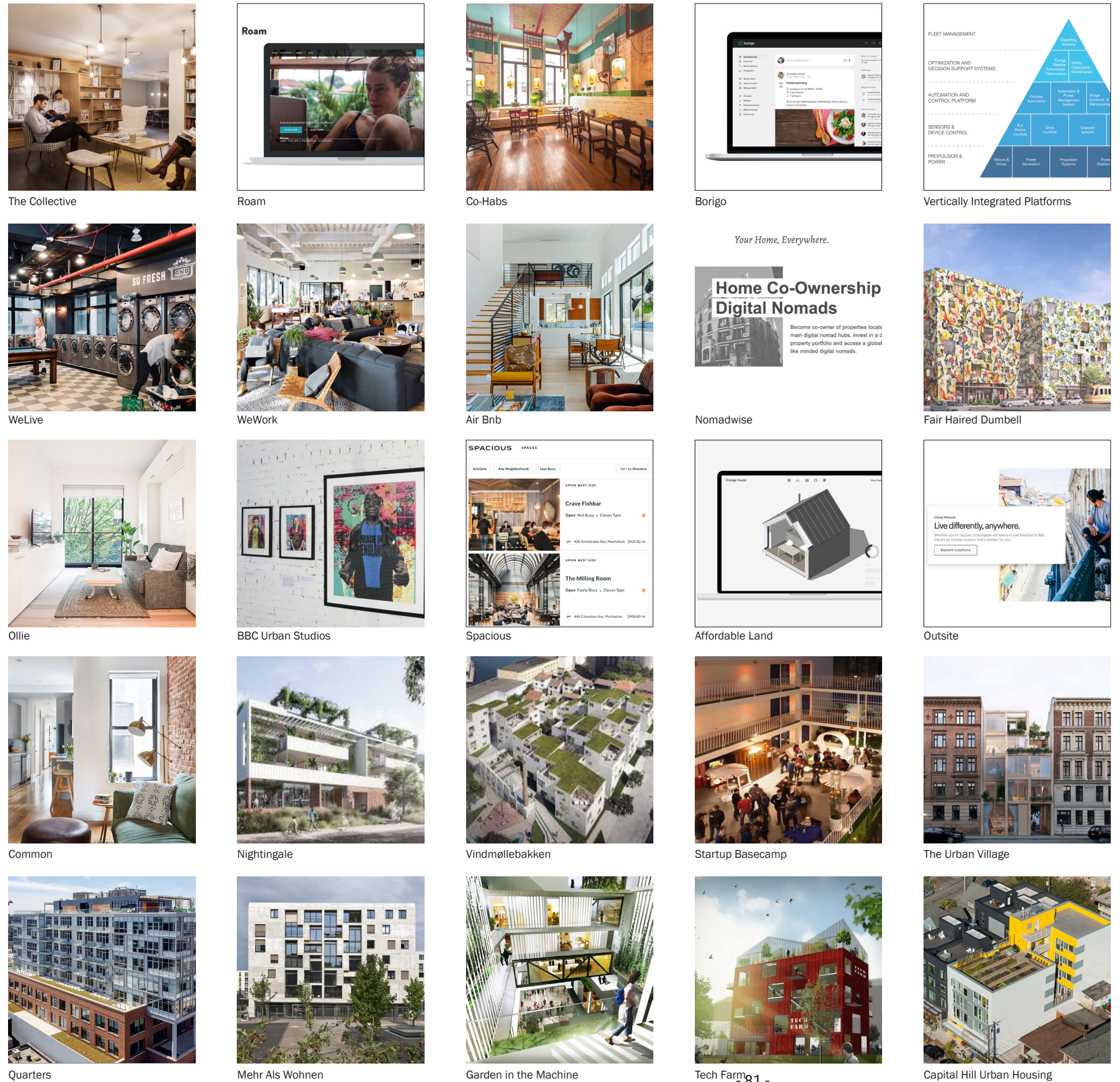
Figure 42 (left): The case study log organizes each case study's information by categories for comparison.

3.3 Matrix and Expansion

The table presented information in a linear sequential listing, but using this tabulation as a basis for comparison was not as flexible as desired so the case studies have been re-presented in a matrix that summarized the information in two dimensions. This matrix extends the case study tabulation and presents a coherent sample of the many precedents explored. This sample includes case studies addressing each of the four initial categories, some of these address multiple categories.

This research found that there are multiple current precedents that partly respond to the physical, digital and social changes explored in this thesis. The new generation of urban living will come from a hybrid combination of the research and experimentation happening

Figure 43 (right): Collage of all case studies for presentation.





across these industries. The proposal for Re:GEN adopts some of the best of these new models spanning multiple industries and combines them toward a common urban living goal, one that is accessible to the new millennial generations.

The development of the Re:GEN proposal was iterative. As the elements drawn from different case studies were combined, they were reconsidered, revisited and the matrix was revised. A category of Urban Co-Living was added as the difference between co-living and co-housing emerged as a critical issue for the thesis. What became apparent was that each precedent case study (and within them, each concept, company, or system) offered something unique and forward-thinking, but that none of the precedents focused solely on societal change affecting the built environment as the basis for their development or structure.

The following pages expand upon exemplary precedent case studies within each category as described in this chapter.

Figure 44-47 (page 82, left to right): Nightingale Housing Provisions, AirBnB App & Service, The Collective co-living brand, Fair Haired Dumbbell building in Portland, OR.

Traditional Co-housing

Mehr Als Wohnen: Following the Swiss-developed model of co-housing dating back to the early 1900's, Mehr Als Wohnen centers its focus on community and how residents want to live. It is the extensive scale, and audience, of the development that makes this project updated and revolutionary for traditional co-housing. Funded by fifty small co-operatives that banded together to support the project, this housing system is both democratic and holistic.³⁷ There is a focus on craft, and how architecture plays a central role in the discussion of living. The architects were encouraged to explore new modes of planning and organization based around human interactions. "Across the development, the architecture intentionally acts as a quiet backdrop, allowing the stuff of life to act as embellishment."³⁸ This large-scale prototype serves as a model that encourages collaborative new models of collective living elsewhere.

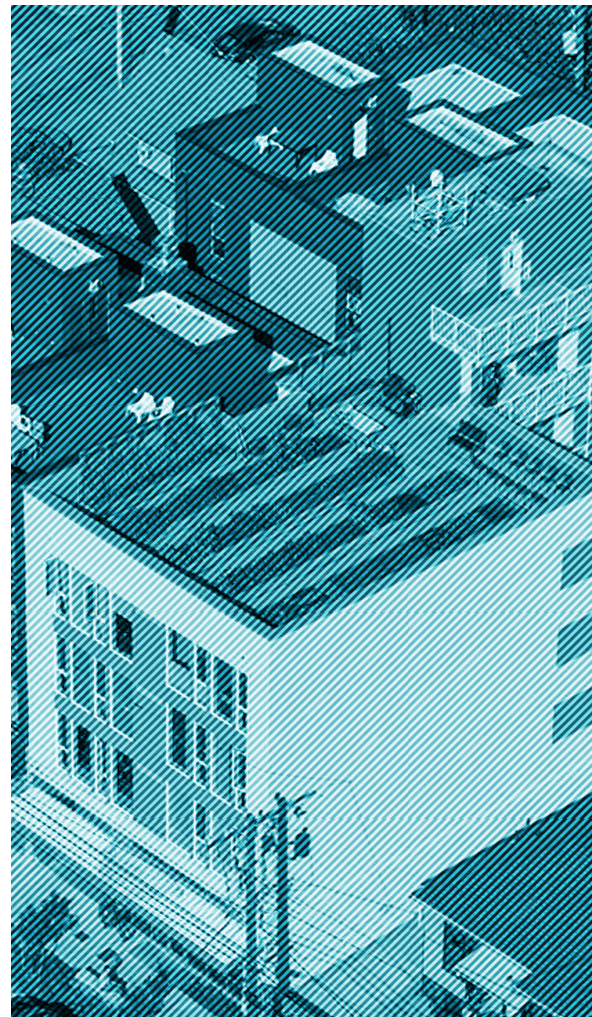
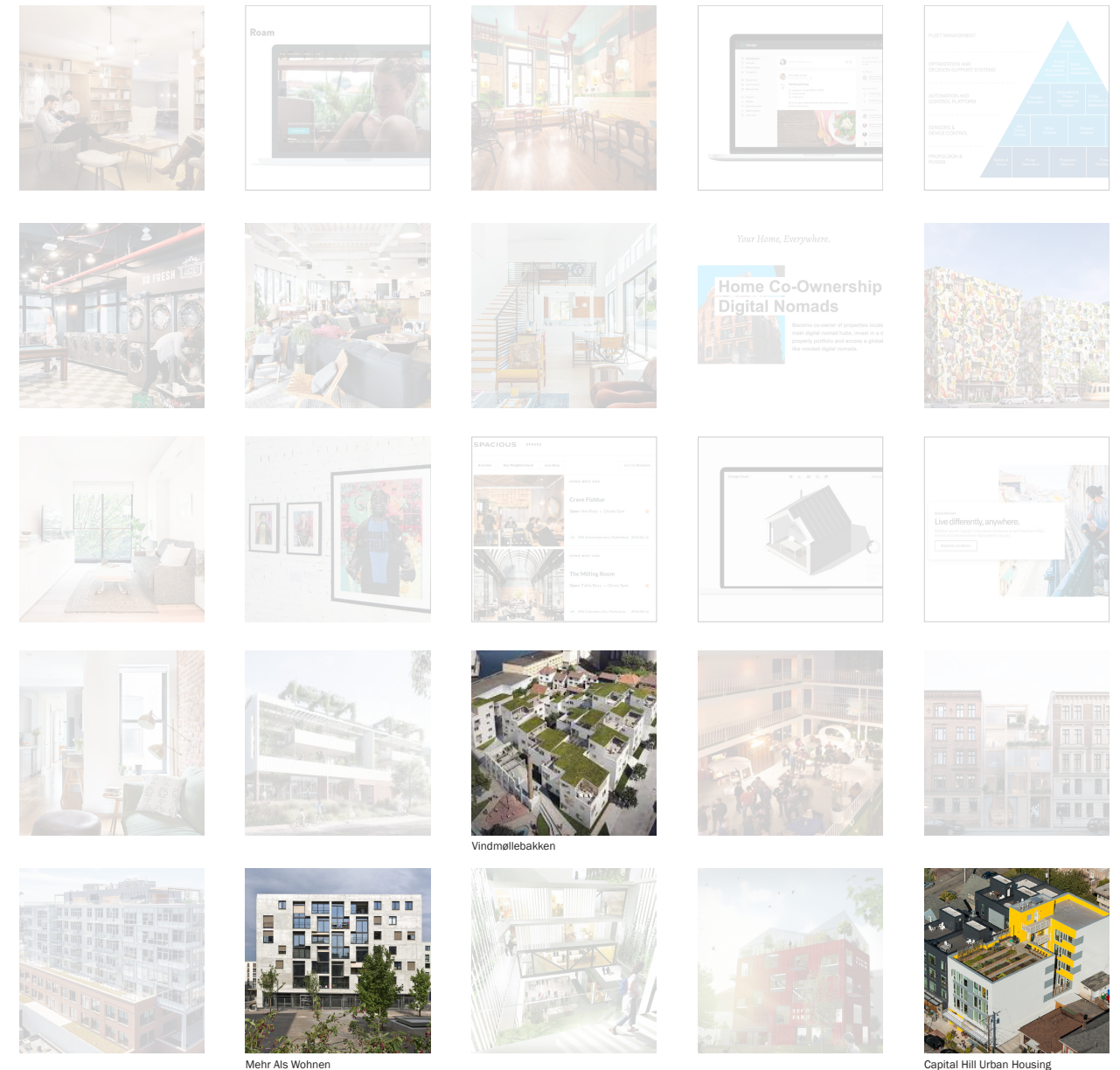


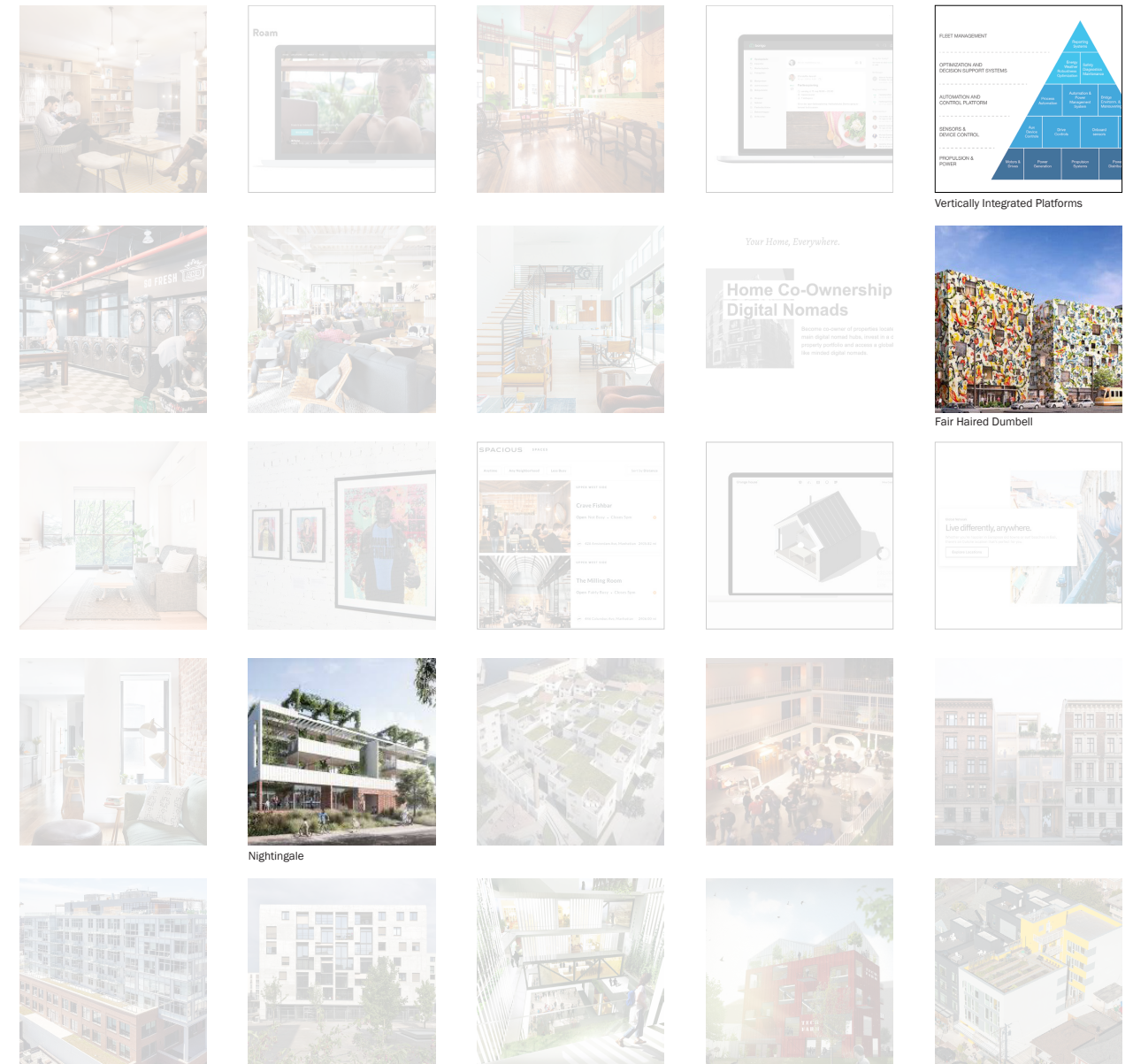
Figure 48 (left): Edited image of Capital Hill Co-housing, Seattle.
Figure 49 (right): Collage of traditional co-housing case studies.



Nightingale Model

The Nightingale model is a set of systems and processes for housing provision in Australia. The model enables licensed architects to develop Nightingale buildings, where the systems guidelines and the experience of past projects are used to develop new Nightingale buildings.³⁹ The residential units are owned, not rented, by the user and leverage affordability by applying strict reselling rules. This model considers the users as the most important part of the development model, where housing is not a profit mechanism.

Figure 50 (left): Edited image of the Nightingale 1 located in the Brunswick neighborhood outside of Melbourne, Australia.
Figure 51 (right): Collage of alternative financing case studies.

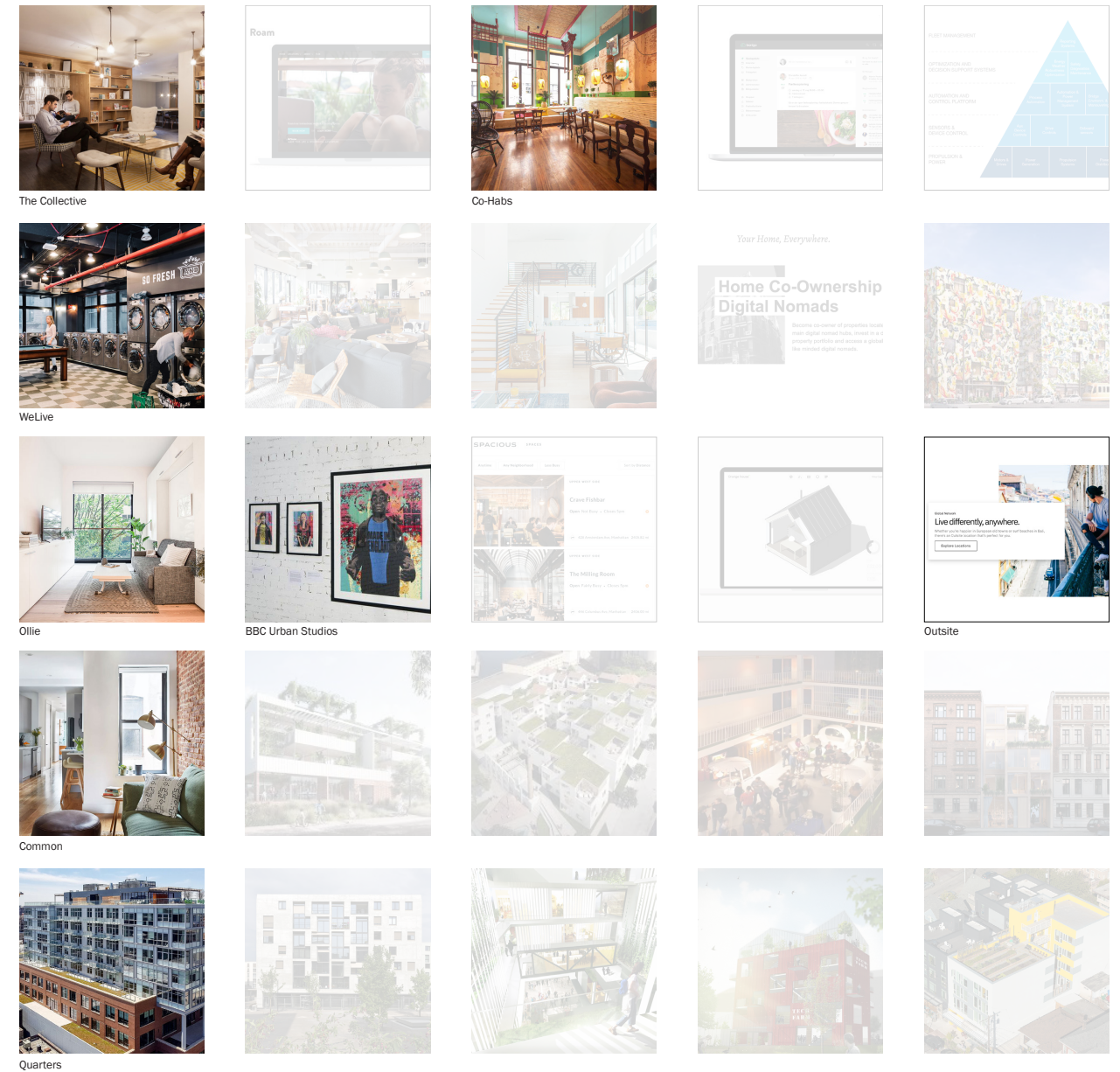


Urban Co-living

The Collective is one of many new age co-housing corporations that has become a brand servicing project worldwide. From Seattle to London, this company provides serviced micro-apartments with shared communal spaces and co-working all included in one monthly price. This serviced approach to living reorganizes what it means its own space and have place; here the spatial construct is subjugated to the social construct. The Collective aims to decouple the function of living from a physical location with the intention of curating a community within an apartment building. It brings the trend of subscription servicing and to the rental market to produce a new way of occupying space.

Figure 52 (left): Edited image of The Collective co-living building in London, UK.

Figure 53 (right): Collage of new co-living organizations.

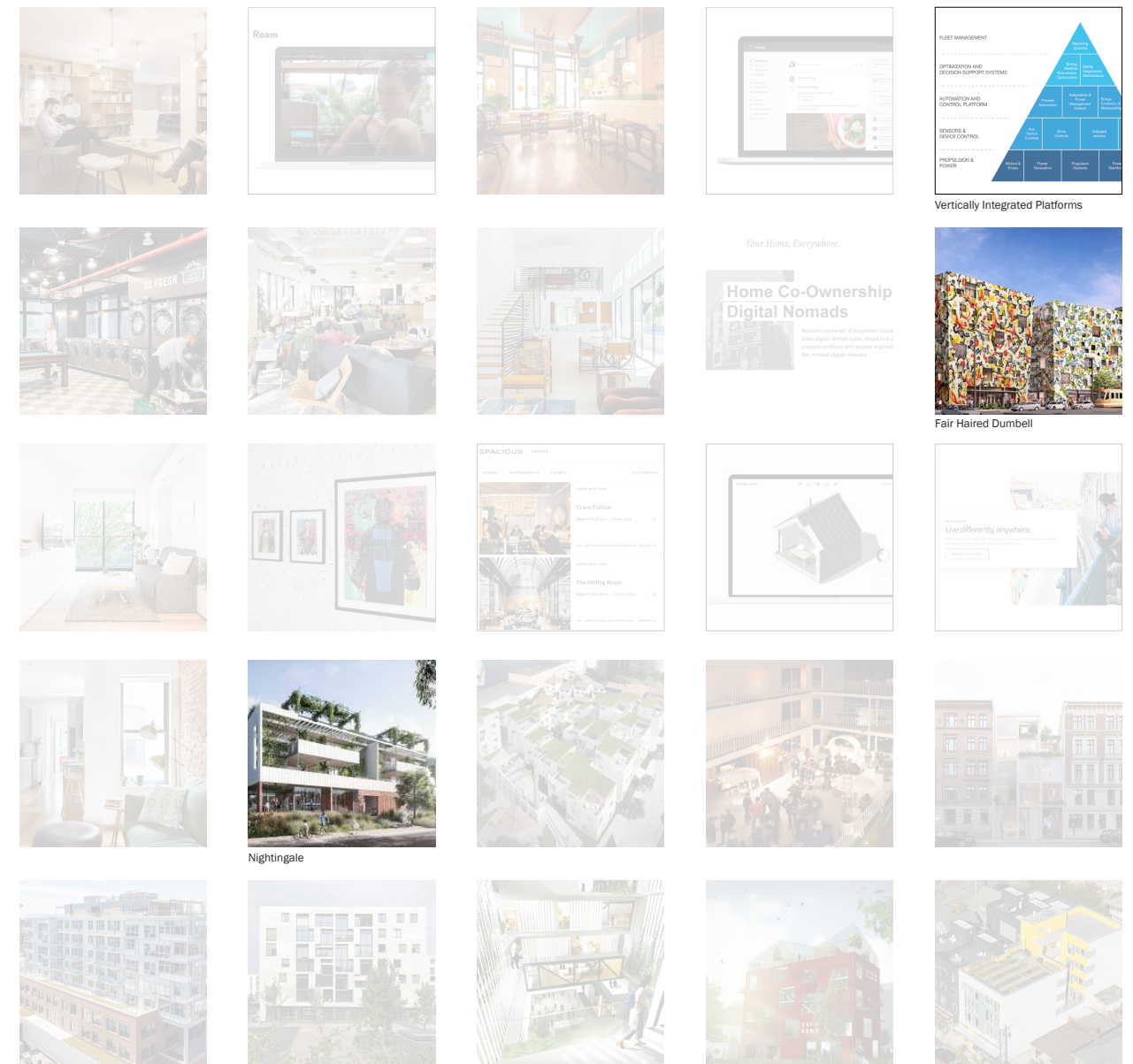


Financial Models

The Fair-Haired Dumbbell project in Portland, Oregon uses Crowd-funding as a way to minimize the “lender’s seat at the table,” putting the citizens in charge. As an investment strategy this project asked for initial funds in reasonably small amounts that would attract community members to become investors. Although developer-driven, this model incorporates fractional ownership in return for investing in the project at its inception. Within 3-5 years, investors receive 8% annualized return on their \$3,000–250,000 investment, similar to a certificate of deposit at a bank.⁴⁰ Community member investors see their equity grow while also gaining a small piece of physical ownership in their city. This model cleverly engages the public in its financial system which increases the chances of its community becoming interested and committed to the quality of the city’s infrastructure.



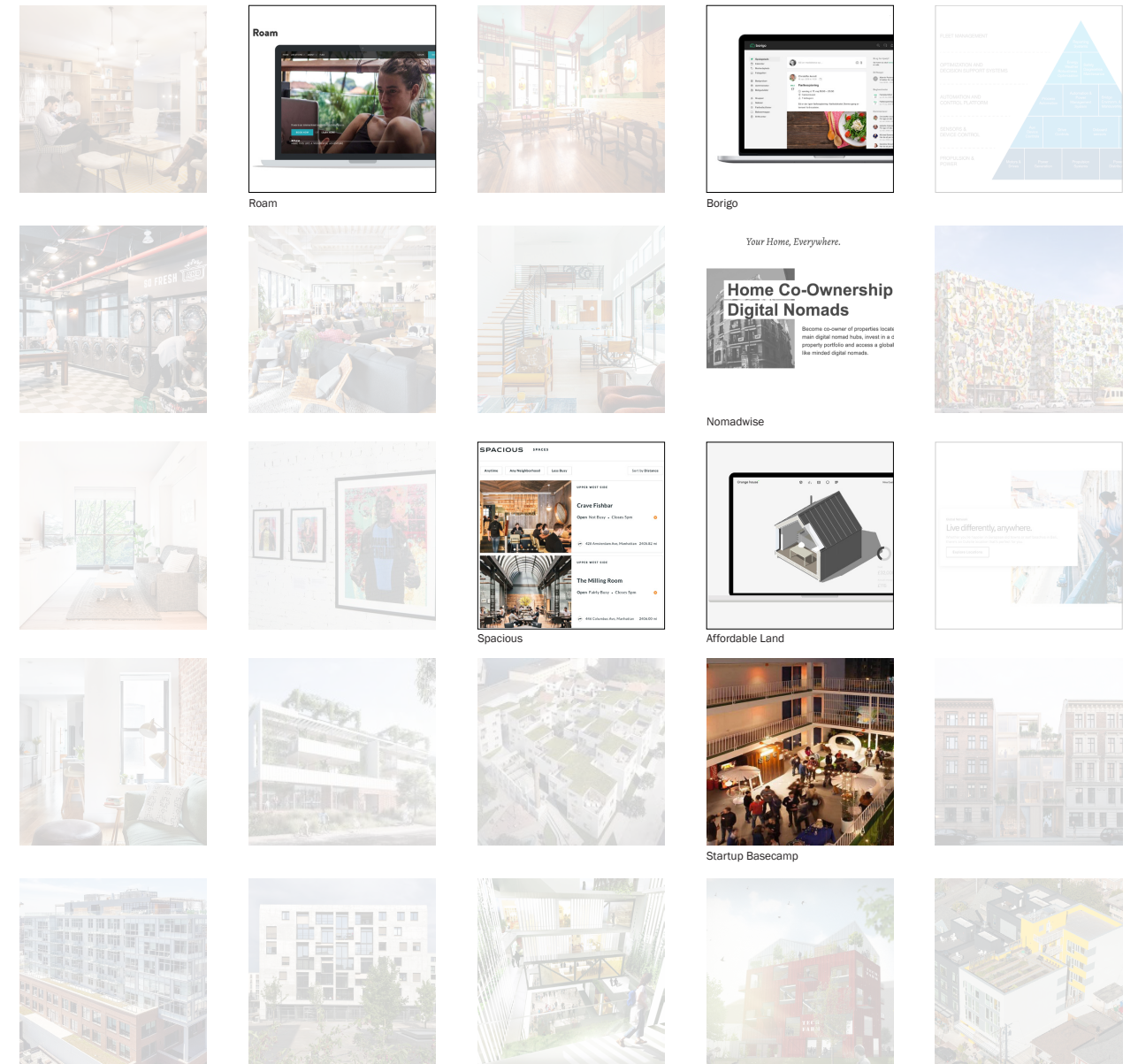
Figure 54 (left): Edited image of the Fair-Haired Dumbbell project in Portland Oregon.
Figure 55 (right): Collage of alternative financing case studies.



Technology Applications

AirBnb is proving that a sharing approach to housing is successful and welcomed in our market. AirBnb disrupted the traditional real estate market, decentralizing short term renting by utilizing flexibility and peer-to-peer relationships - all made possible through the use of digital platforms. This model used existing infrastructure as a method of redistributing availability and occupancy on a global scale. Giving the perception of control to the users has revolutionized how we interact and occupy space, challenging the industry-tired hoteling system.

Figure 56 (left): Edited image of an Air Bnb stock image. Figure 57 (right): Collage of digital companies and redefining ways we move throughout space.

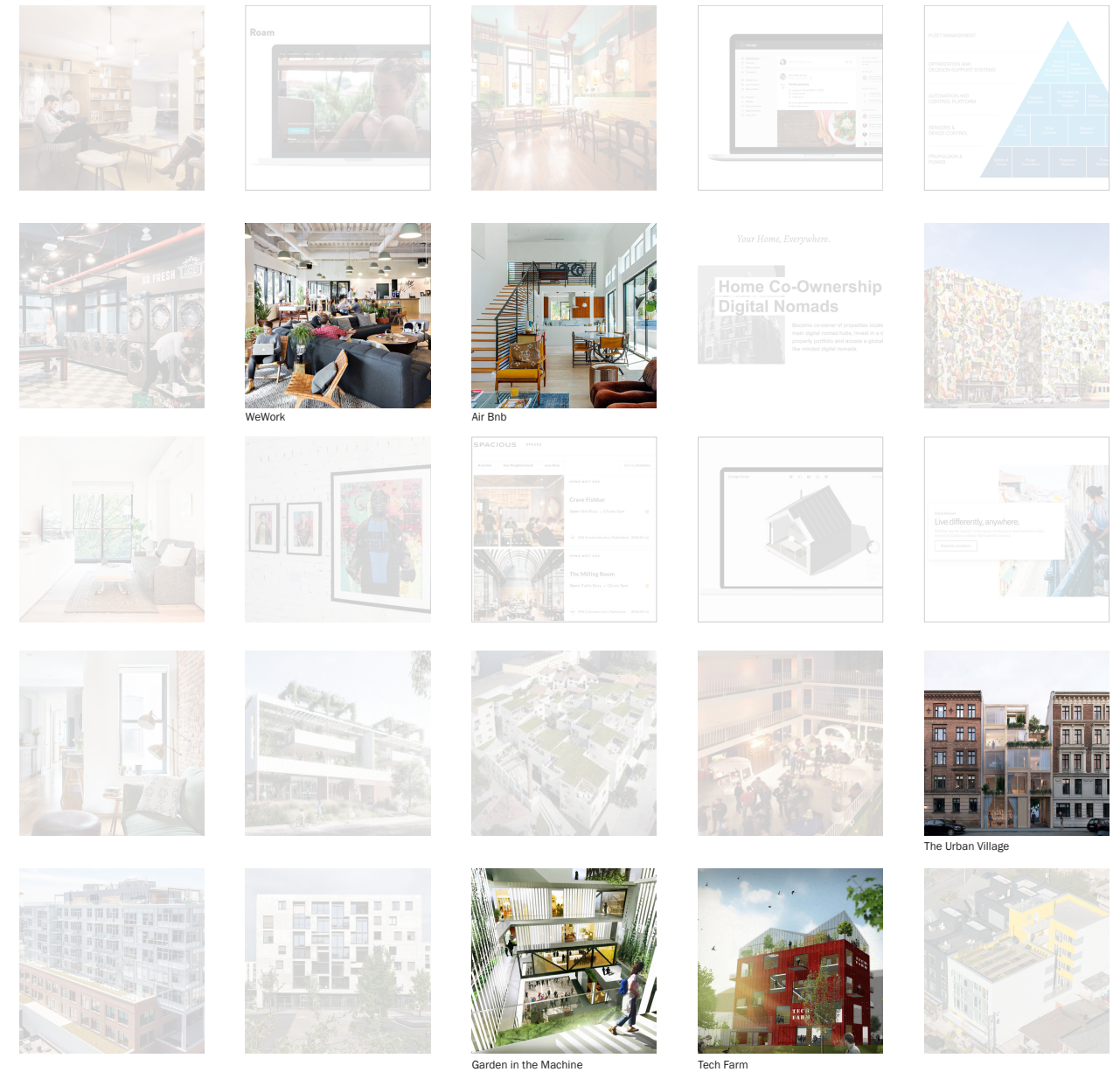
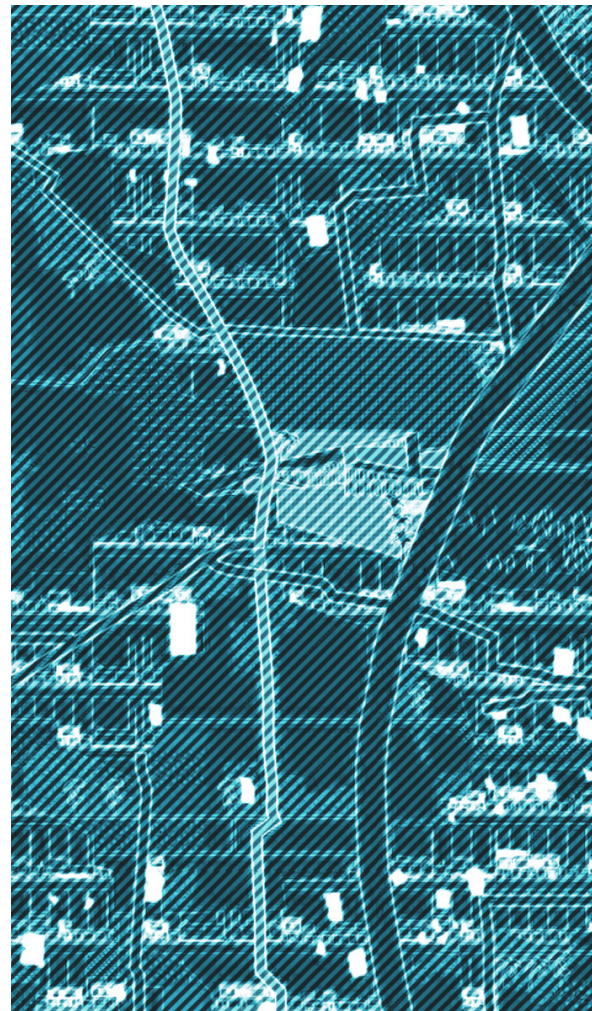


Conceptual Practices

InBetween Economies: The urban think tank InBetween Economies is an online publication and platform that examines the effects of local and global economies on shaping the built environment. This publication simply questions the trajectory of economic thought within the cycle of financing and asks how the assemblage of relationships can reshape how we head towards globalism. Often speculative in thought, but rooted in pragmatism, their conceptual ideas emerge at the confluence of various economic issues, a method that has contributed to structuring the approach of this thesis.

Figure 58 (left): Edited image of an Inbetween Economies #1 Phamplet poster.

Figure 59 (right): Collage of collectives and conceptual ideas questioning the relationships humans have with space.

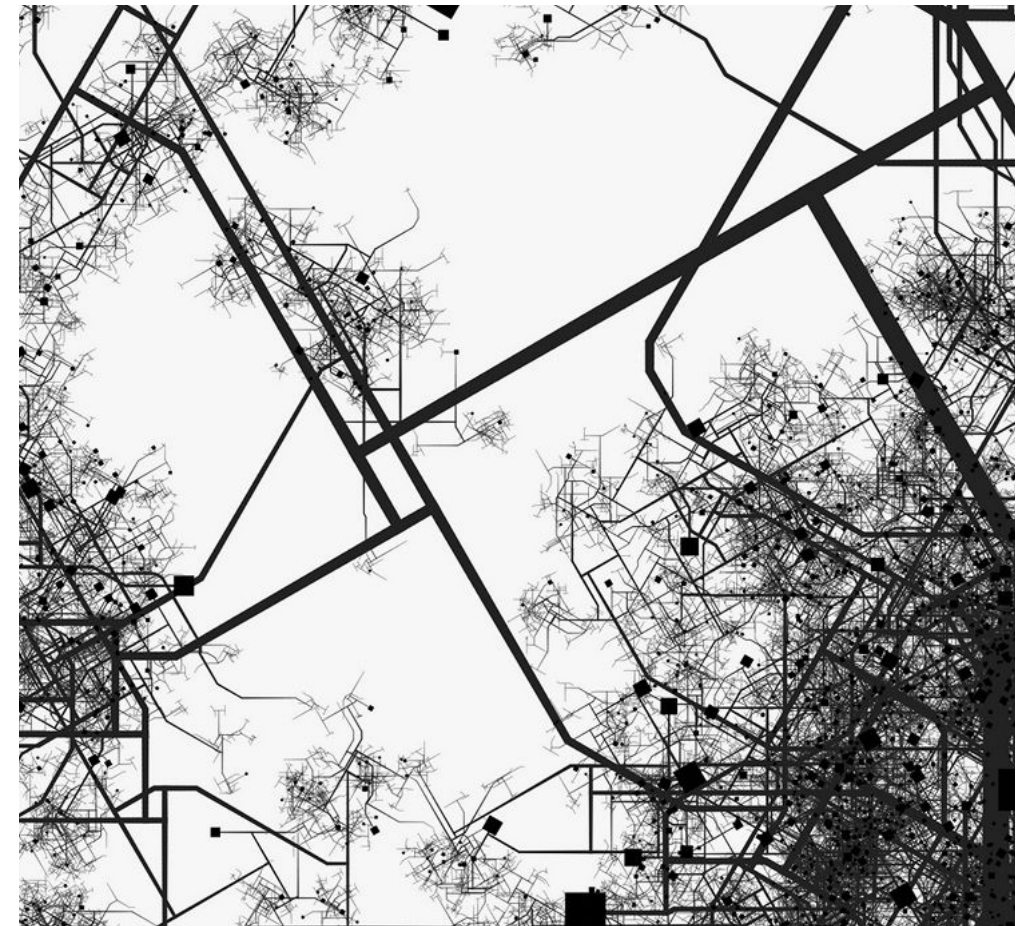


“Mainstream architecture’s recent history has focused its energy on the centralised, top down models of urban production. Alternative models are all around us but require a more holistic approach to shift them into a mainstream architecture practice.”⁴¹

These case studies are a selection of the many new ideas and approaches that are influencing urban living and that collectively provided the basis for creating the proposed strategy. This research indicates that there are many examples that are responding to social changes, but each tends to work in isolation. In contrast, this thesis seeks to draw on information and ideas from each to address widely recognized needs and common goals needed to update and restructure urban living.

Drawing upon each of the highlighted case studies and others, Re:GEN was conceptualized. The proposed Re:GEN system offers a new approach to planning, development, delivery and management of the living economy, one that aims to respond to the expanding and changing needs of urban residents.

Figure 60 (right): Evolving the Future.



40 Re:GEN

Design and innovation within the realm of the built environment tends to focus on singular "disruptive" ideas. However, to realize tangible change in the physical environment, innovation in a broader sense of intersecting systems, both physical and digital, is required. The space in-between material place and virtual domains provides opportunities to create the types of exchanges that could exist in between the two. Therefore, this thesis focus is at the intersection of changing economic systems, social relationships and infrastructural spaces to offer a new approach to urban living.

Re:GEN

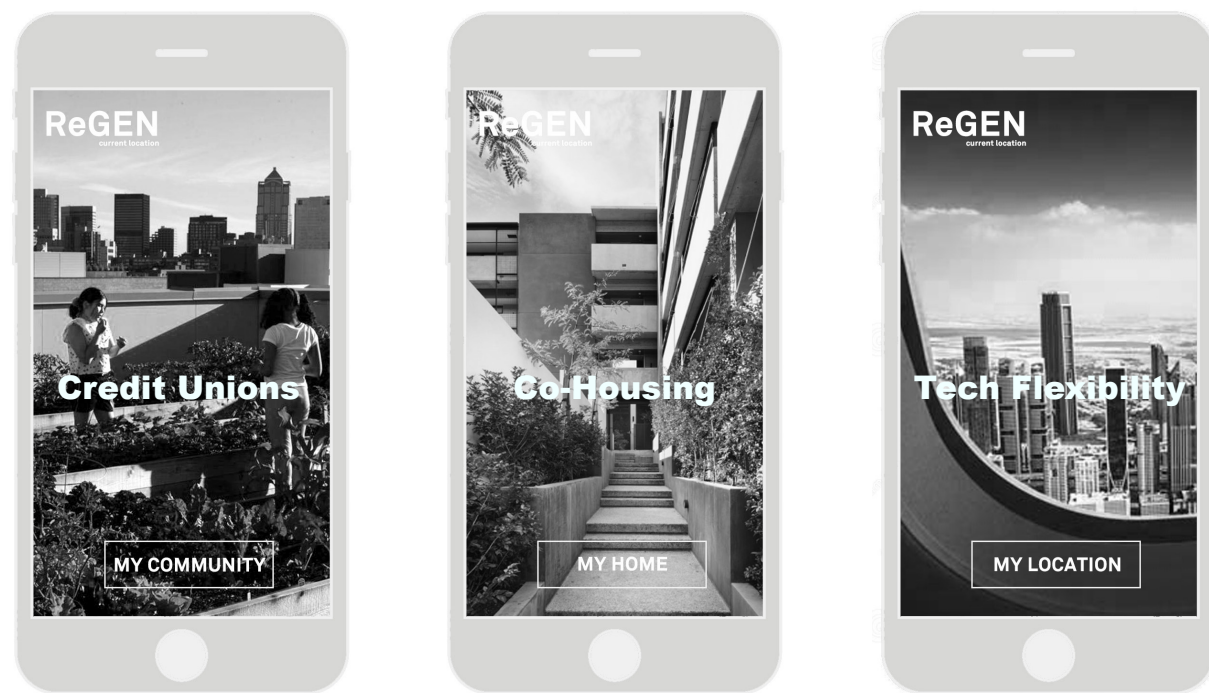
In **R**eference
to **G**enerational change

4.1 Welcome to Re:GEN

Welcome to Re:GEN, available in your app store now. Re:GEN is a system dedicated to creating and supplying a quality urban lifestyle option, in an innovative way. With a vision that allows for a new way of co-owning and operating in physical space, the Re:GEN system disrupts the binary of renting and owning (and its associated values) in favor of a hybrid model that helps build financial equity, allows for flexibility of space, and supports community. In response to conventional slow, centralized, "top-down" models of urban production, the Re:GEN model depends on a decentralized-peer to-peer organization.

Figure 61 (right): Platform to access Re:GEN



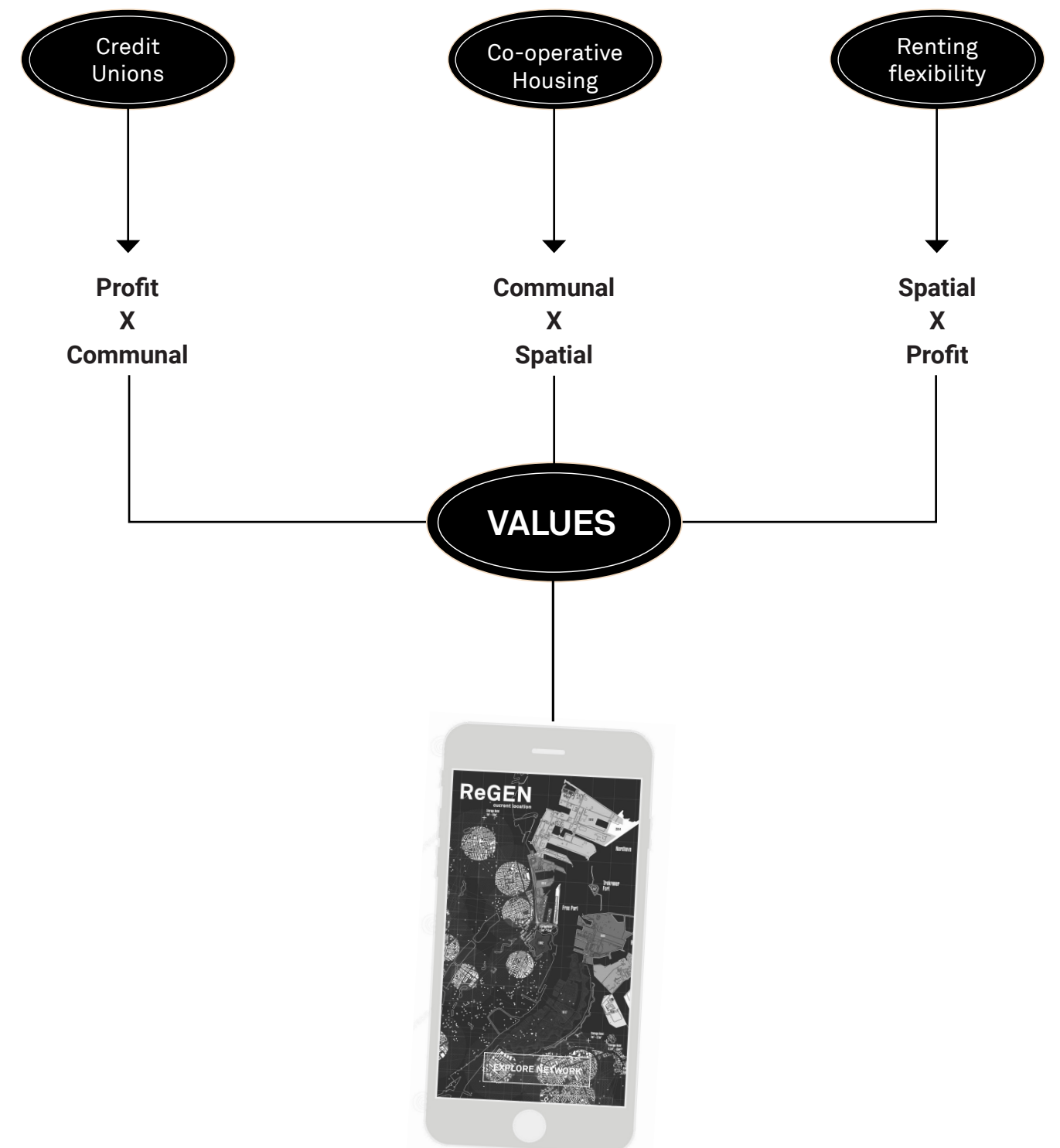


Contemporary cities are much more than their built form. Recognizing this, Re:GEN provides the financial and legislative designs of community land trusts, the cultural essence of co-operative housing models, and the technological innovation of online, peer-to-peer engagement; brought together through

Re:GEN platform. By combining the innovative solutions from existing models Re:GEN offers a new system of living with real long-term value. Re:GEN is a vision of the future.

Figure 62 (above): The three systems that influenced the Re:GEN system.

Figure 63 (right): Values of each system used as the foundation for Re:GEN.



4.2 Financial Framework

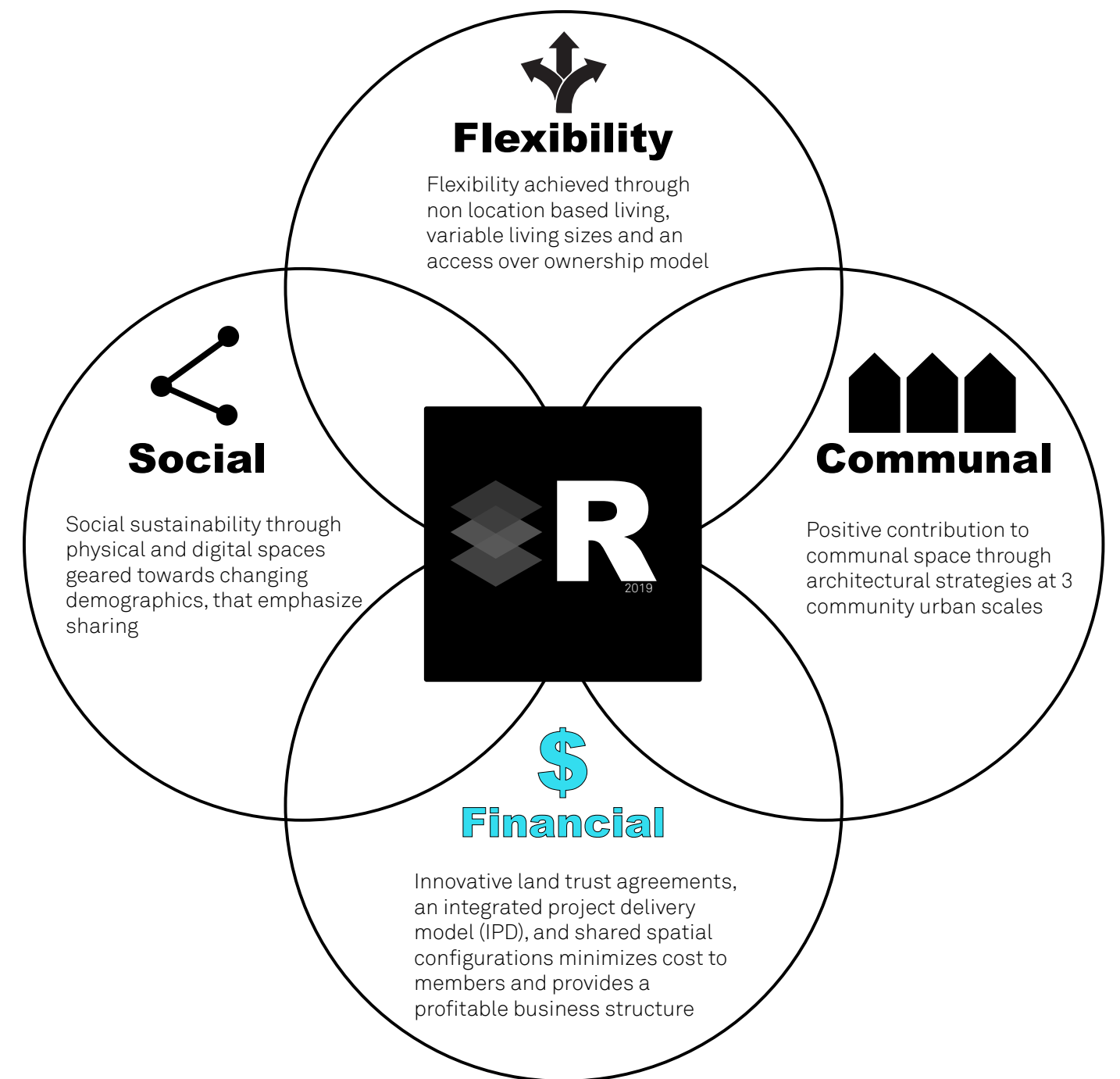
Step one in Re:GEN is Financing Integration. The current binary housing delivery model is increasingly distant from the needs and desires of the growing population of urban residents. The binary choice between renting and owning has created a wealth gap and commodified the essence of home.

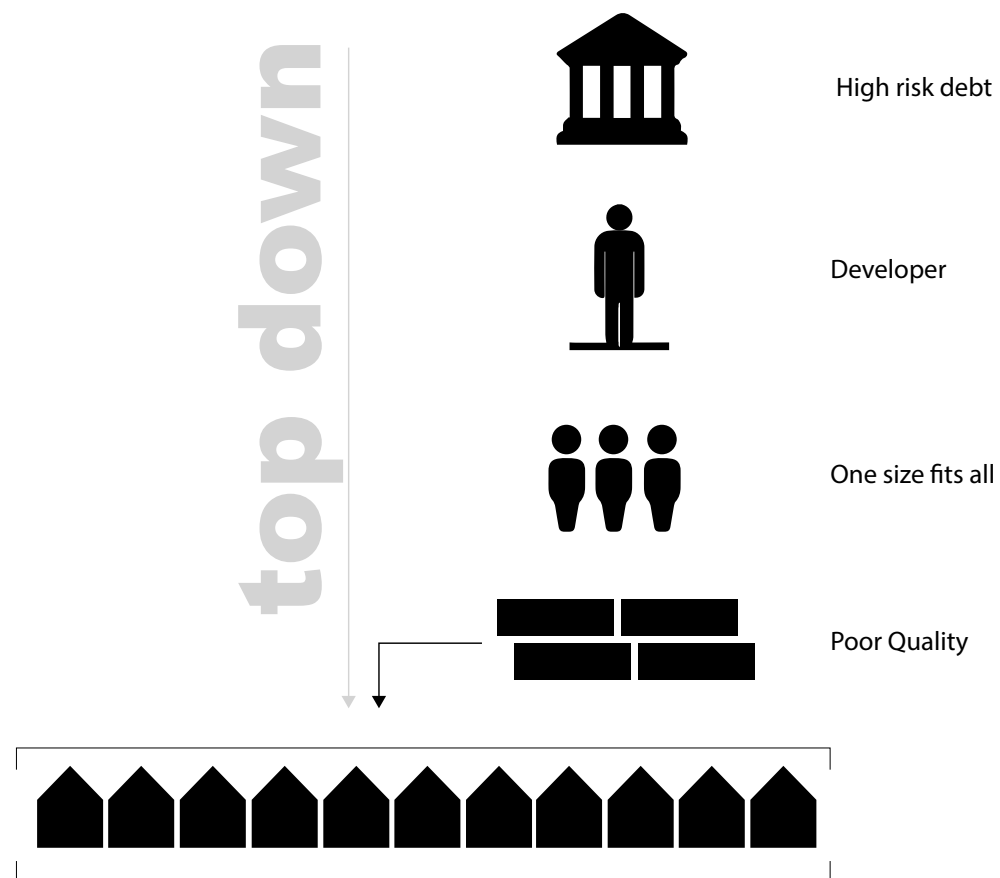
The traditional lending system ties individual owners to land and properties through long term mortgages from banks, where owners do not realize a significant return for long periods of time. For most middle-class people, housing is a problem of capital, not earnings (or cash flow). Seattle's median down payment has more than doubled in recent years, surpassing six-figures in 2018. With typical down payments and monthly mortgage levels well out of the means of average city dwellers, many are priced out of the market. At the same time, increases in income levels are only fractions of increases in housing prices; the

problem continues to grow. Through this profit-driven system, many citizens are left with poor quality options and large amounts of debt. The system is individualized, profit-driven, and has no means of retaining affordability with land and dwelling tied together as one entity.

Shared equity models represent a sustainable alternative to conventional homeownership. Traditional models of shared equity include Community Land Trusts and Limited Equity Cooperatives both of which dismantle traditional relationships between renter, owner, property manager and bank. Generally, shared equity models are defined as resale-restricted, owner-occupied housing where the collection of property rights is divided between the homeowner and the community. Decoupling building and land rights, and thus associated costs, allows people to access

Figure 64 (right): Re:GEN concept diagram - Financial Chapter





more affordable ownership opportunities and enables the community to retain a stake in the land. Shared equity models are most commonly known for maintaining permanent affordability and mitigating speculative market forces, as well as volatility in the market.⁴²

In Limited Equity Communities (LEC) a co-operative owns a building in its entirety, while households own a share of the corporation. This model removes the need for a third-party operator (potentially a profiteer). Households share the maintenance and operations costs through a monthly rent in addition to their up-front costs. Subsidies and below-market interest rates allow developers to secure affordable loans, offering communities an affordable way to enter the housing market.

In Community Land Trust systems (CLT) a household retains the ownership of its dwelling unit while the CLT, as a non-profit organization, retains the title to the underlying land. A 2008 study of CLTs found that “foreclosure rates among members of 80 housing trusts across the United States were 30 times lower than the national average.”⁴³ Both LEC’s and CLT’s place limitations on a household’s level of appreciation when they sell back their shares to their identified co-op.

Dating to the 1960s, Community Land Trusts are one of the most prominent, and flexible, examples of shared equity homeownership because they separate land value from the value of the built structure. As a non-profit organization, the CLT retains the

Figure 65 (left): Top down, developer driven method to housing.

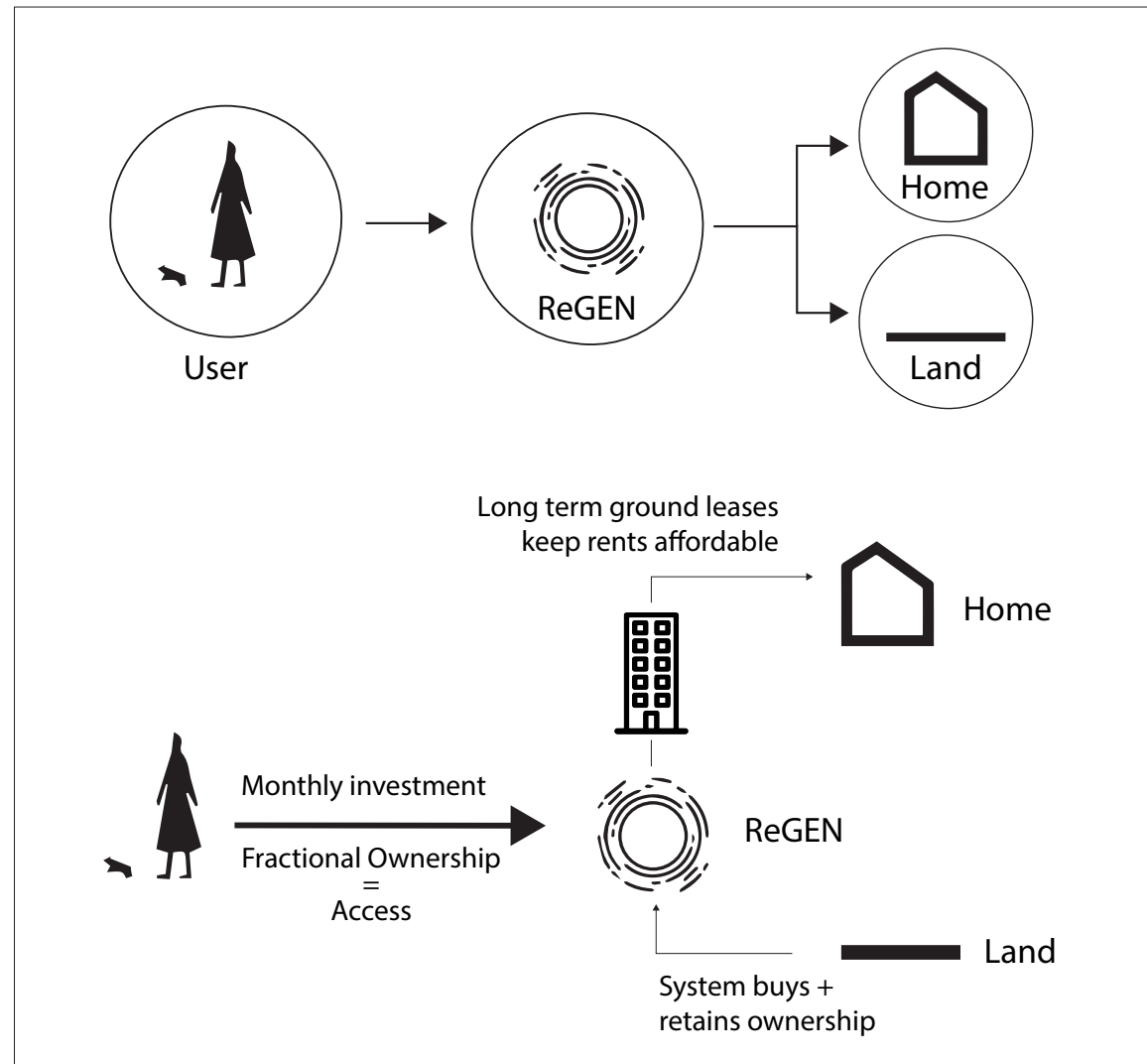
title to underlying land, allowing users to retain ownership of their dwelling. A ground lease connects the homeowner to the CLT and is used to enforce shared equity and affordability. As CLTs limit the rate of increase in resale prices, homes are kept at a consistently affordable rate over time. This strategy is typically applied to existing structures and helps increase the stock of permanently affordable housing. The National Co-op Research Project, funded by the nonprofit Urban Homesteading Assistance Board (UHAB), has mapped “305,828 affordable cooperatives created in the US and Canada, although only 166,608 remain shared-equity as of the end of 2016.”⁴⁴

A method of tying community into the financial success of the city, Community Investment Trusts (CIT) provide variations for investing in commercial properties. Using a structure

similar to that of the Fair-Haired Dumbbell case study, a community member is able to participate in the monetary and physical ownership of commercial property in a non-individualized way. The community is defined by its area code, allowing residences living in the adjacent areas to invest and limiting foreign spectators from the program. CIT's provide a range of investment opportunities at obtainable rates to kickstart collective investing in infrastructure.

Figure 66 (right, top): Mercy Coprs Northwest CIT property.
Figure 67 (right, bottom): Cooper Square CLT in East Village NYC.





The initial Re:GEN solution to affordability is to apply a Community Land Trust along with the Nightingale building model to achieve a sustainable, affordable structure. Members can build equity through rent-sized payments that are then reinvested in buying and building new Re:GEN properties. Through the Re:GEN on-line platform, members enter their income and the Re:GEN algorithm finds available space within their means (capped at 30% AMI). Equity can be built up through renting and held at the system level, allowing each member to keep their investment as they move locations, if desired. This The Re:GEN system decouples land value from property value as a mechanism to retain affordability and network a collective spirit. The Re:GEN model leverages the Community Land Trust system by including a shared management group as part of the system. This group manages the ground lease and coordinates maintenance, partnerships and the digital network.

Figure 68 (left): Re:GEN concept diagram.

Figure 69 (right): Edited image of San Francisco.

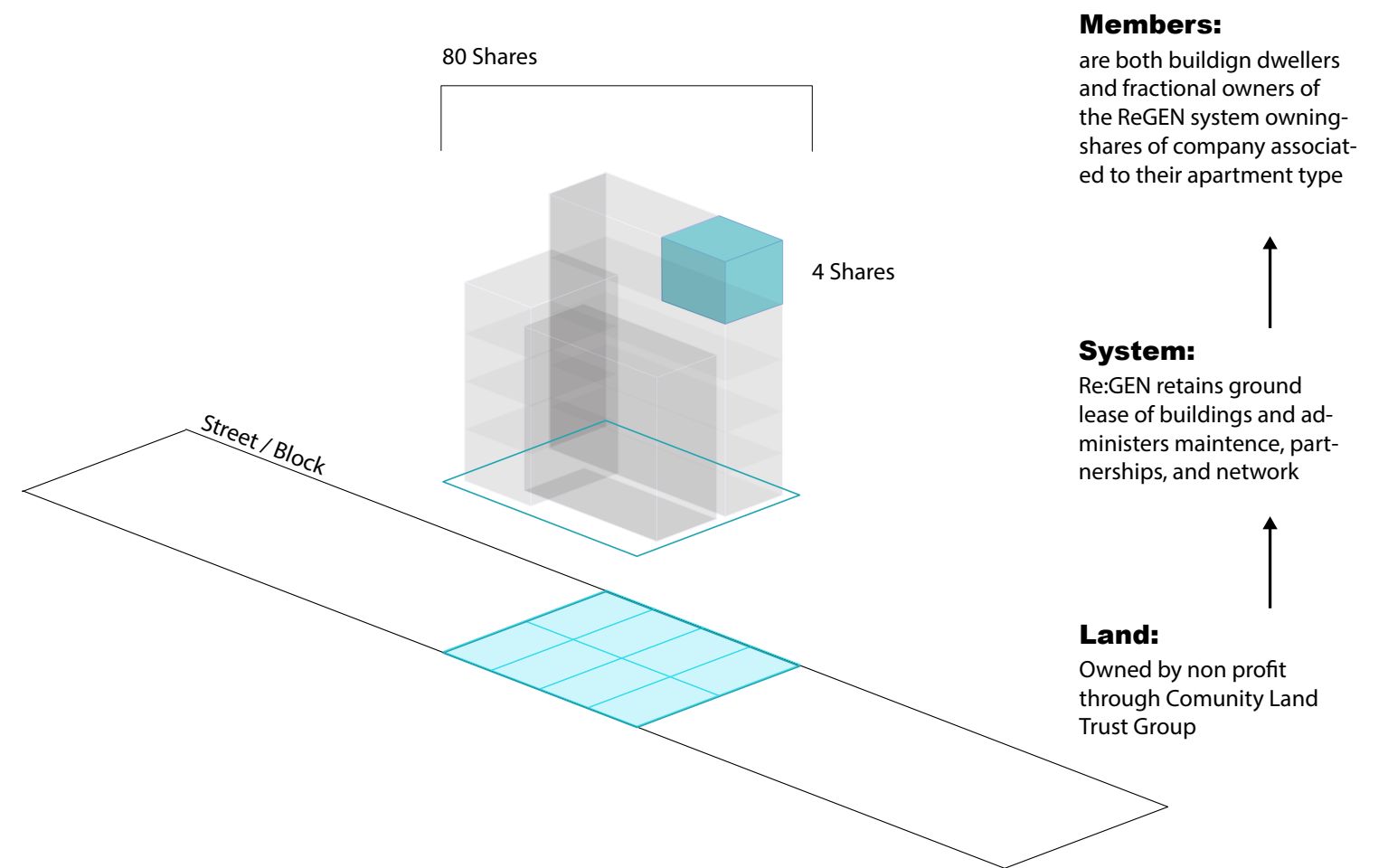
Re:GEN offers a hybrid system of community land trusts, low equity co-ops, and community investment trusts that provides variations of household and commercial ownership networked and organized through the Re:GEN system. Although the vision is large scale, it

could be implemented incrementally. There is value in increasing numbers of participants; and due to the potential size and scale of the Re:GEN community, participants would gain greater access to various types of ownership over time.

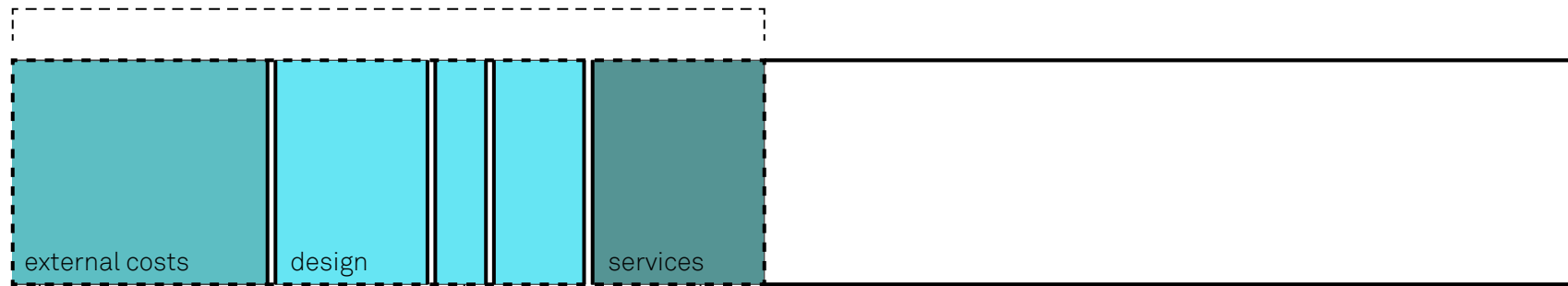
Re:GEN members are both building dwellers and fractional owners of the Re:GEN system through shares that are associated to their apartment dwelling. The Re:GEN model uses the realized cost savings to invest in more properties, expanding the system, and applies the rest to its members monthly payments with the intention of keeping costs below the AMI in the cities where it offers residences. Re:GEN allows middle-class individuals the opportunity to buy into a system that allows for accumulation of wealth over time. The equity built up through payments (for the fractional ownership shares) is held at the system level allowing each member to take their investment with them to a new location if desired. In comparison, the Re:GEN model accumulates monetary wealth at a slower rate than that of a mortgage, but is available a wider breadth of people and is not tied to a specific piece of property. This system



Figure 70 (left): Nightingale Brunswick East.
 Figure 71 (right): Re:GEN collective ownership diagram.



15% Savings
increase quality reduce cost



IPD MODEL

ReGen cuts the costs of marketing, advertising, and real estate agents by implementing an integrated project development model

SERVICES & ACCESS

Centralized services combined with communal spaces optimize use, while integrating the subscription based economy lowers individual need

SPATIAL DECISIONS

Lifestyle decisions that effect cost are implemented, like no basement car parking, individual facilities, and limit of plumbing fixtures in personal residences.



15% cost savings to generate better shared spaces and building use

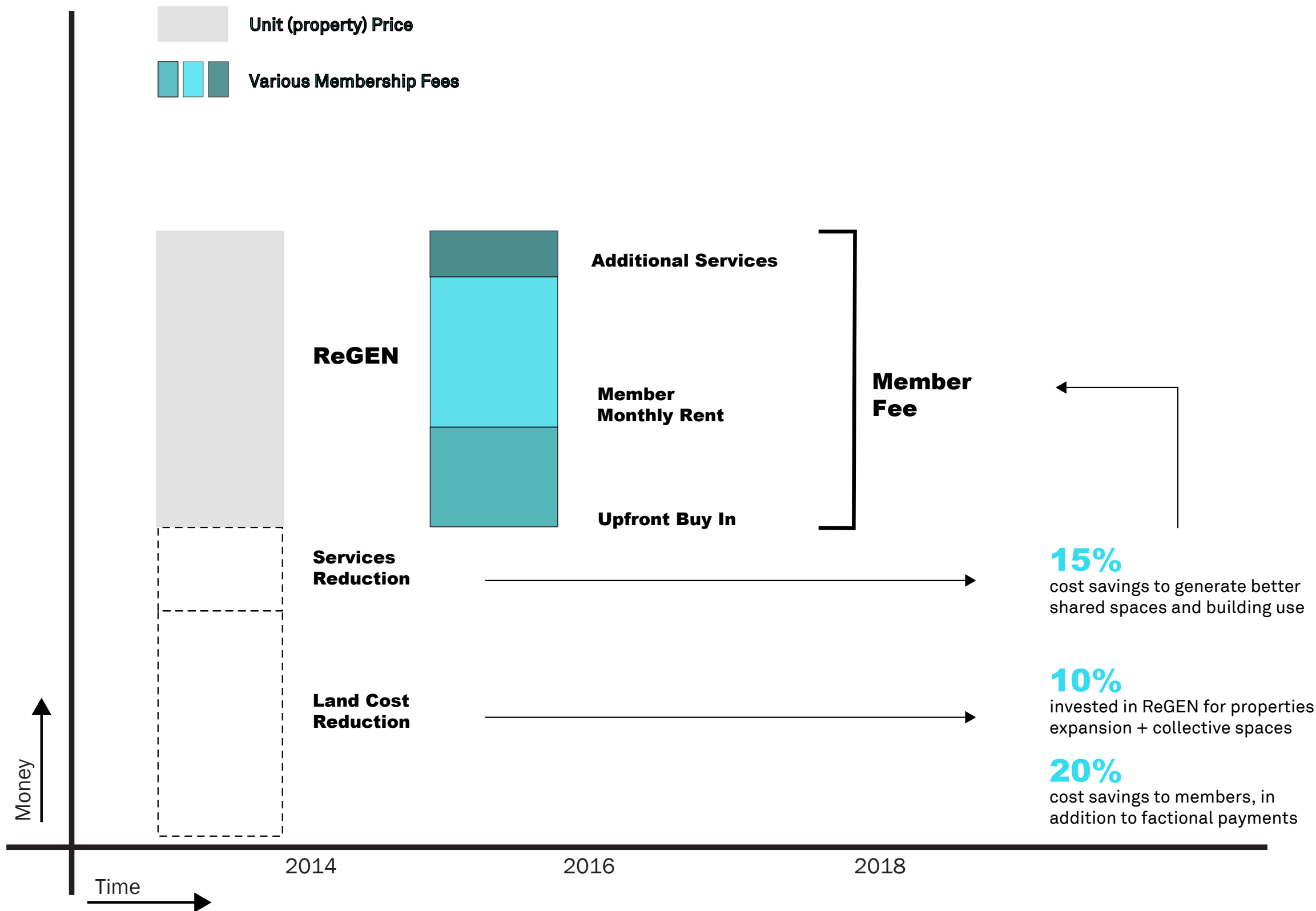
ReGEN Model

Utilizing Nightingale model

imagines decoupling land value from property value as a measure to retain affordability and network a collective spirit.

Re:Gen follows the example of the Nightingale model to generate homes at the medium density scale and promotes a quality of architecture that retains permanence. Following Nightingale, Re:GEN leverages affordability by applying strict reselling rules and oversees project procurement and funding, bypassing developers and offering shares to members, to provide well-designed buildings. Guidelines to limit project costs, make informed spatial decisions, and centralize services allows Nightingale to be delivered at a 15% savings, with higher quality product. Re:Gen focuses on generating better shared spaces and promoting a quality of architecture that retains permanence.

Figure 72 (left): Model components - applying architectural strategies with external cost decisions.



Overall, innovative cost savings in the financial structure of ownership allows for flexibility in the tangible, architectural product. By combining successful parts of these shared equity models, Re:GEN keeps costs below market and reinvests in itself, applying funds to maintaining and opening more properties while promoting a level of design worthy of long term occupancy. This reconfiguration of financing and ownership allows Re:GEN to create housing with a new set of values.

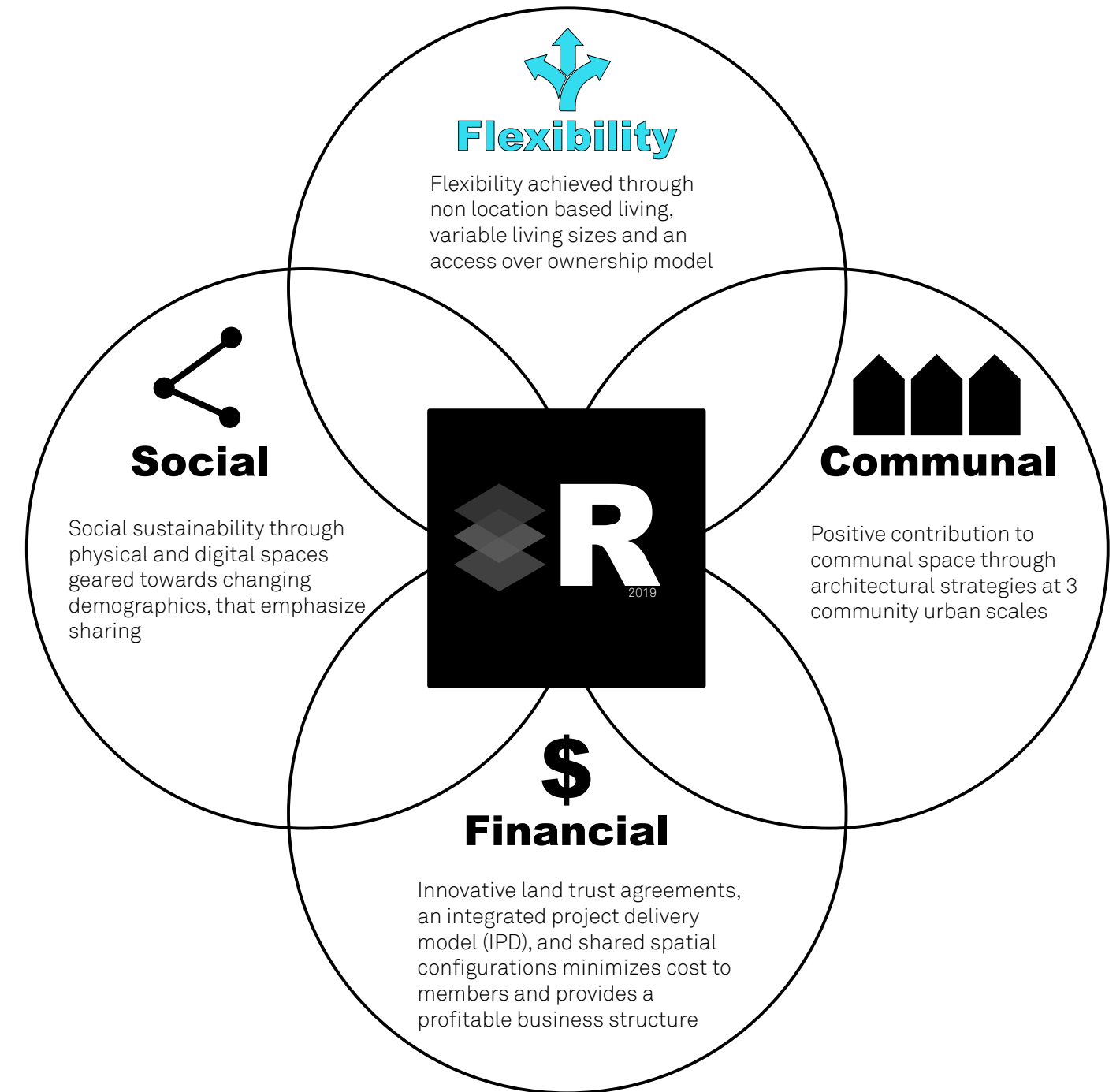
Figure 73 (left): Applying collective ownership model to cost savings structure.

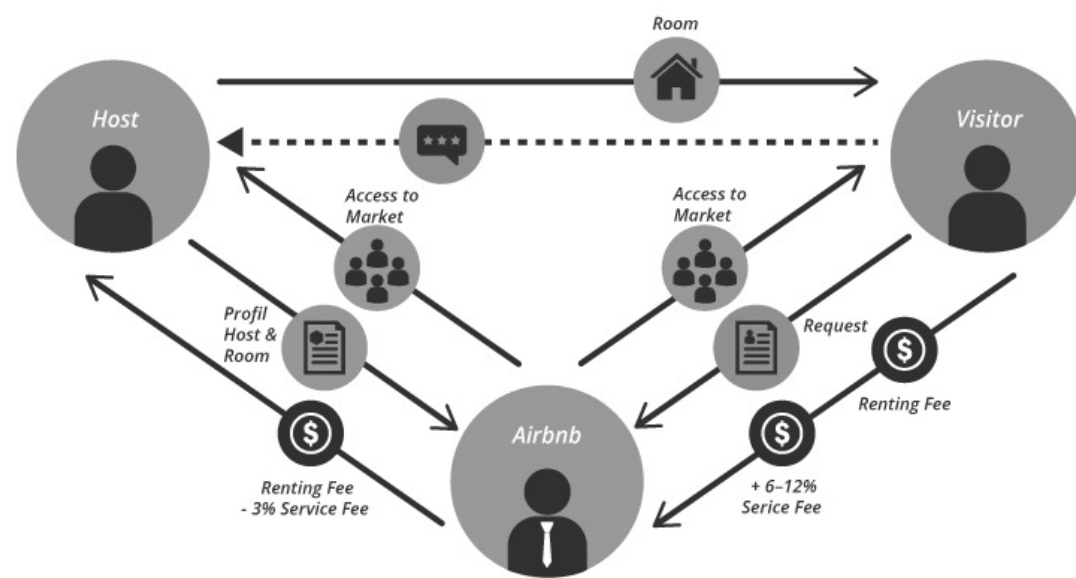
4.2 Flexibility Framework

“If there’s one lesson we can take from digital & web platforms over the last two decades, it is that it is now possible for networks of small, distributed producers to outperform large, centralised, one-size-fits all industrial models.”⁴⁵

Re:GEN responds to new forms of collective development and simultaneously offers locational flexibility. Lifestyles are changing, but the options for living, owning and moving have been slow to keep up. Re:GEN allows people to choose their location without many of the expensive and headache-prone costs associated with moving.

Figure 74 (right): Re:GEN concept diagram - Flexibility Chapter





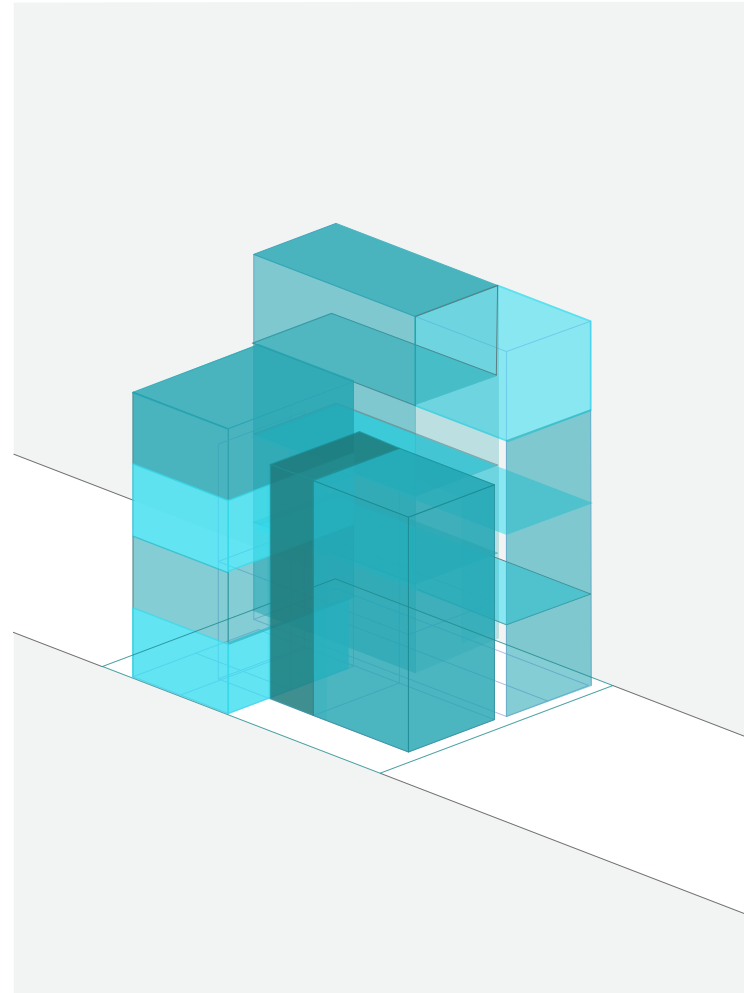
AirBnb disrupted the traditional real estate market, decentralizing short-term renting by utilizing the idea of flexibility and peer-to-peer relationships - all made possible through the use of a digital platform. AirBnb is now available in 191 countries, driven by its popularity and collective participation. Airbnb is a demonstration that it is possible to live as citizen of urban, technological environments, but no longer be bound to live continuously a single place.

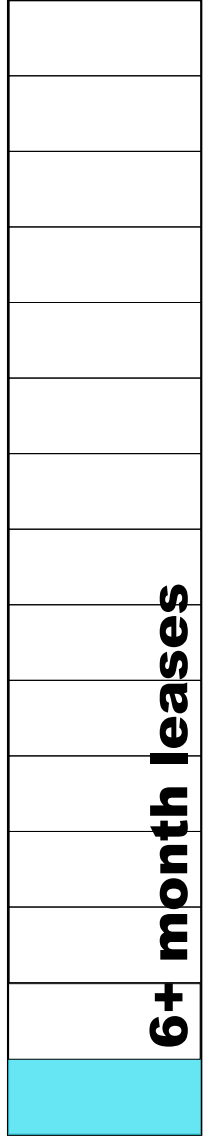
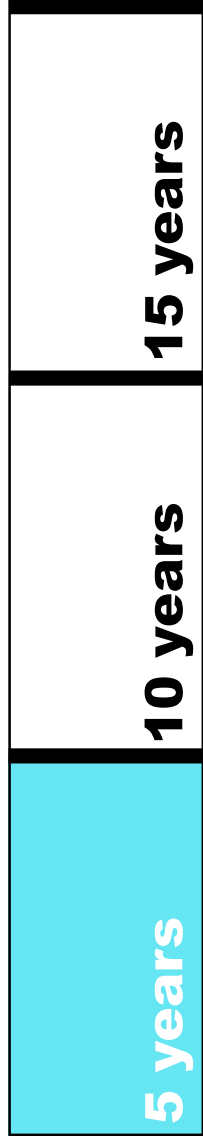
Figure 75 (left): AirBNB business model

Figure 76 (right): Edited AirBNB stock photo.

By decoupling ownership from land, Re:GEN allows its members to move with the season of their life. Whether within a single building, among various parts of a city, or internationally, Re:GEN offers options for the unexpected. A member buys into the system with a five-year commitment. This allows Re:GEN to produce accumulated wealth and expand the system. Members have the flexibility to size up, size down, move across town or across the world at minimum six-month increments. No longer is one's monetary or social wealth tied to a physical place. The phenomena of mobility and choice that have infiltrated our lifestyles are now a consideration in parts of the housing sector as well.

Figure 77-79 (left to right): Building - hyper-local scale, Neighborhood - local scale, City - Global scale.





5 years - 2 cities

**Long term resident
10+ years**



2 years - 1 cities

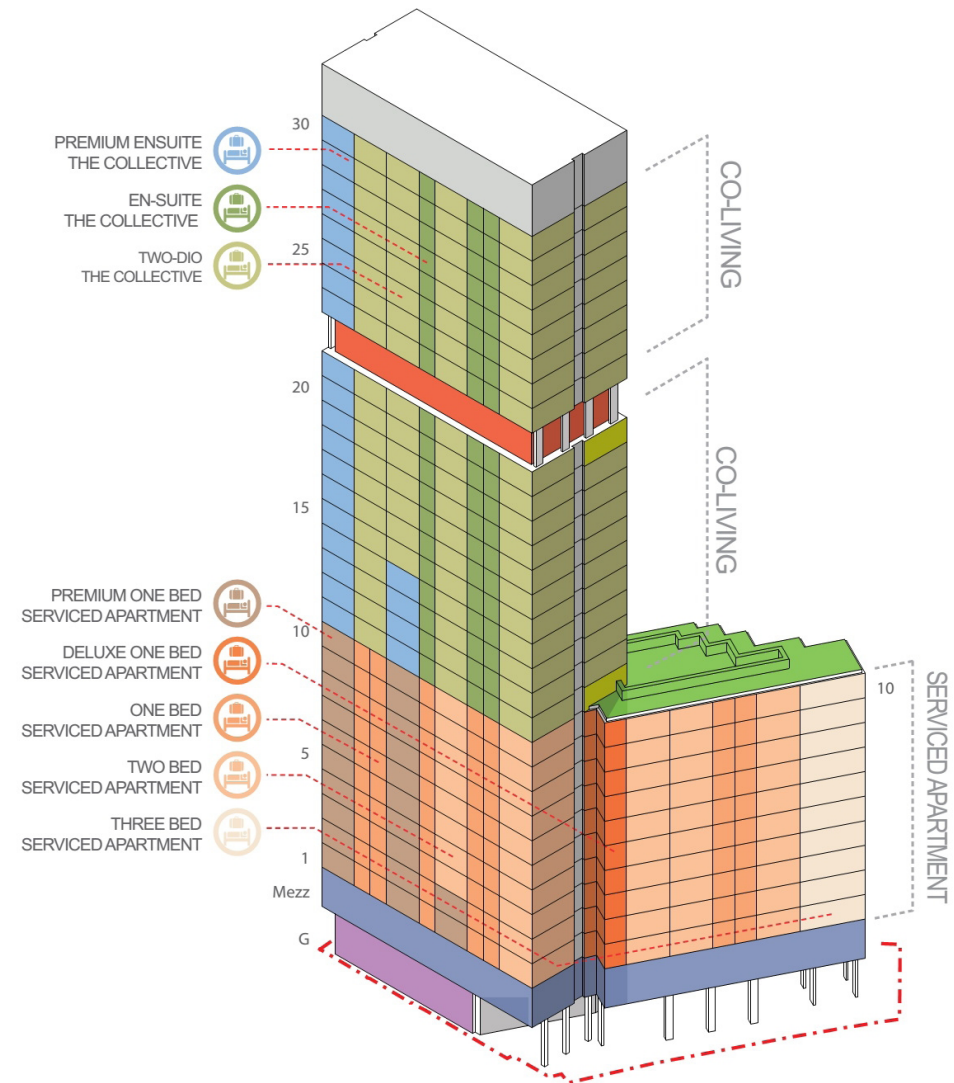
The terms "Co-living" and "Co-housing" are often used interchangeably but offer different approaches to living with others. The term "Co-housing" is usually reserved for smaller-scale intentional communities built around private homes with shared facilities. In contrast, the term "Co-living" is a newer convention that covers a range of small dorm-style apartment buildings with a larger allocation of shared amenity spaces.

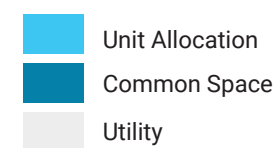
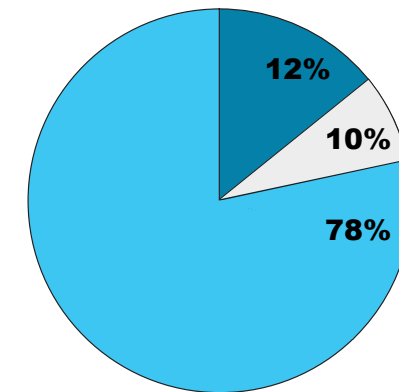
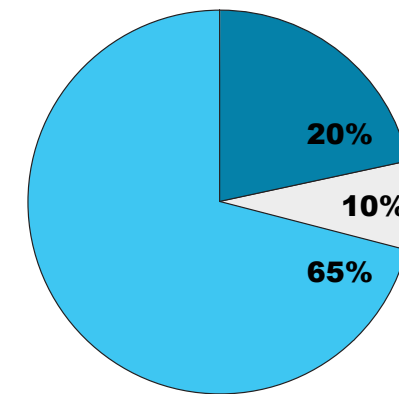
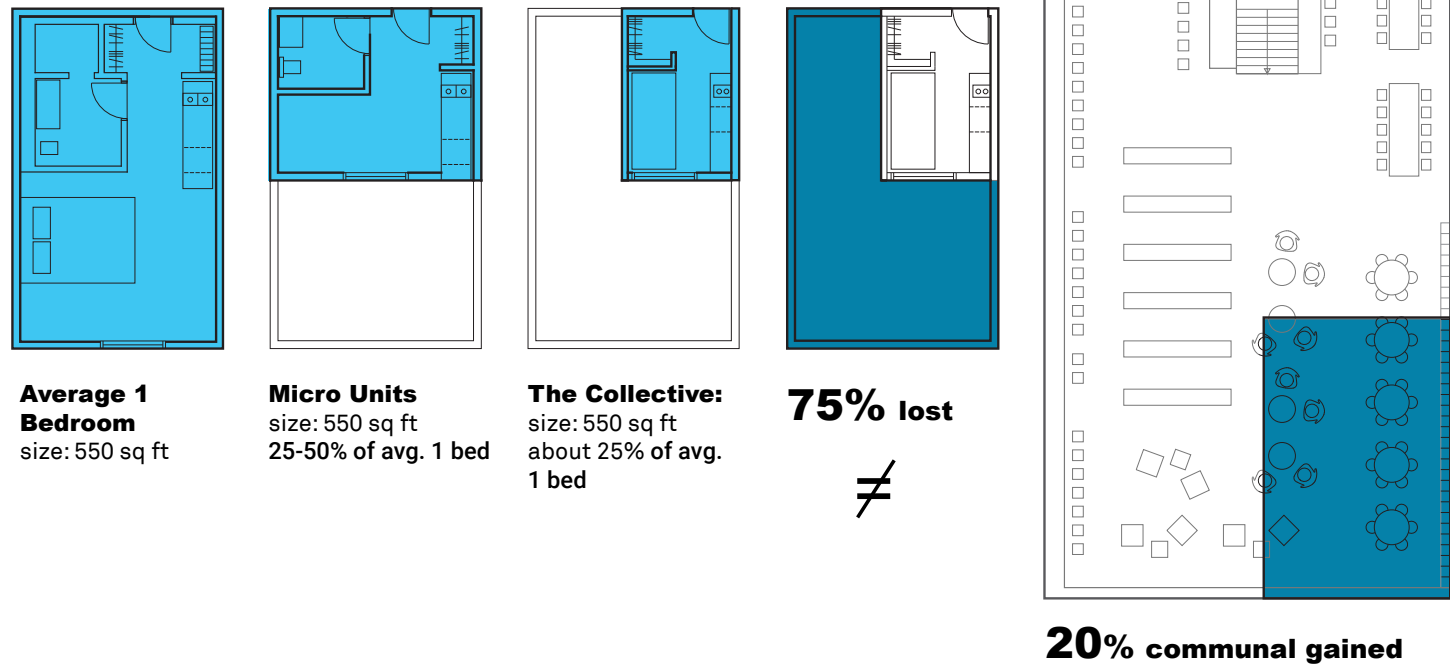
Unfortunately, too often co-living is branded as a lifestyle change, but is not emulated in the building's delivery. WeLive, the subsidiary company to WeWork claims "The new way of living is inhabiting time, space, and place that stirs inspiration inside of us." This slogan

is used to sell co-living as a lifestyle change, but a typical co-living operation dedicates 65 percent of a building to micro-units and another 20 percent to communal spaces. In terms of communal spaces, co-living does account for a larger amount of shared space, but the total shared space is not equate to the personal space lost from the individual

Figure 80 (page 124-125): Graphic exploring the hyper local scale within a building occupying the Re:GEN system.

Figure 81 (right): Program breakdown of the co-living brand The Collective's Old Oak building in London UK.





micro-units. In fact, a typical micro-unit is 25-50 percent smaller than the average studio apartment in typical co-living examples. The Collective allocates 130 square feet per resident. The 75 percent lost area (from a typical small one-bedroom) is not made up by the 20 percent of dedicated communal space in each building. Co-living floor plans typically enable a 50–100 percent premium in revenue per square foot compared to traditional apartments.⁴⁶ As realized co-living is squeezes more units into less space as a profit mechanism for the developer; too often it is a commodified version of the sharing economy.

Figure 82 (left): Comparison of various apartment square footage allocations each against the average studio, based on national averages.

Figure 83 (right): Comparison of space allocation in co-living and multi-family structures.

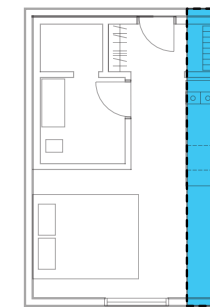
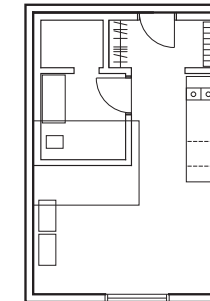


Re:GEN is structured to emulate a co-housing arrangement, with the 21st century functions that make co-living so appealing. Units are decreased from the national average by smaller margins, and the space removed from the units is 100 percent reallocated into smaller clusters of communal spaces near personal spaces along with larger communal spaces placed more infrequently. Following the Nightingale model, many functions do not

need to be individualized, but can be shared at a scale that promotes communal interaction. In many conventional markets, take Seattle, typical multi-family apartment buildings and condominiums situate common spaces at the ground floor(s) and sky levels, with repetitive

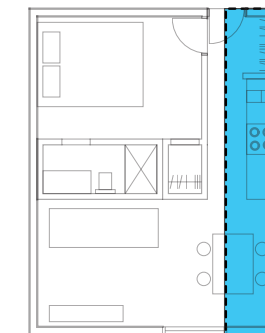
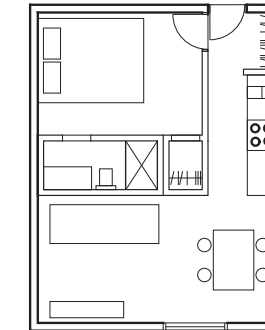
Figure 84 (above): Conceptual plan of The Collective's Old Oak building
 Figure 85 (right): Top - typical units at national averages in SF.
 Middle - Identifying a reasonable amount of individual SF could be redistributed.
 Bottom - How this redistribution of individual SF to communal space could produce a more favorable plan.

Studio
size: 300 sq ft



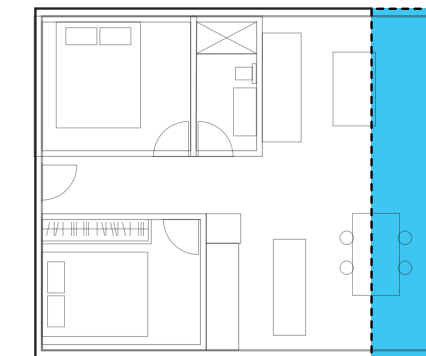
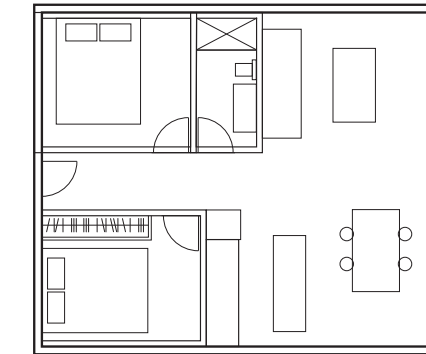
30%

1 Bedroom
size: 550 sq ft



25%

2 Bedroom
size: 950 sq ft



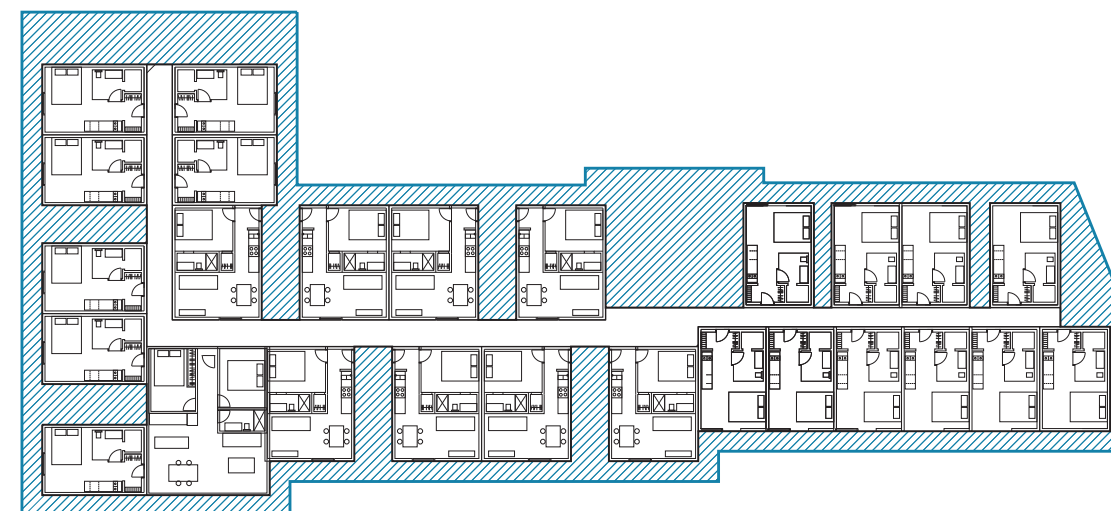
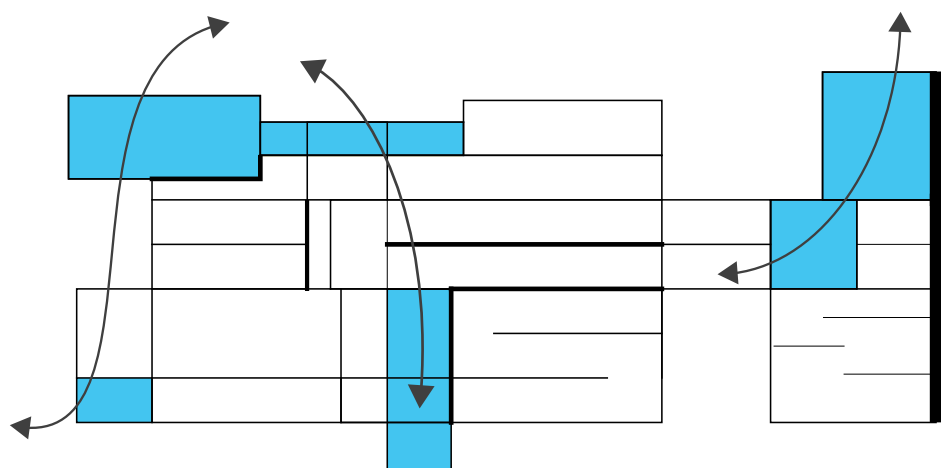
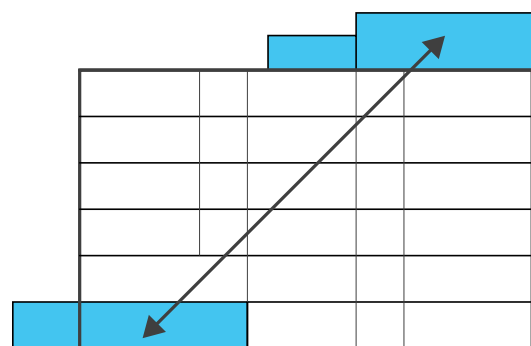
15%

Average
apartment sizes

Reallocating
spatial difference



Re:GEN
difference redistributed



floor plates of residential units in between, allowing for no sensory connection between among the shared spaces or their inhabitants. Instead, with the increased allocation of communal spaces, Re:GEN supports both the individual unit clusters and the collective by a more varied placement of shared spaces. Patterns of shared space locations vary based on the size of the Re:GEN building, its location

in a city, and the number of units. With an investment in the system and smaller, more manageable spaces, Re:GEN members feel a sense of ownership of these shared spaces, equally.

*Figure 86 (left, top): A common distribution of communal spaces in multi-family buildings.
 Figure 87 (left, bottom): If communal space were redistributed within shared parameters.
 Figure 88 (right): The previous floor plan revisited with communal spaces redefined and space allocation redistributed.*



“Adding stories to the city structure as we know it is not necessarily the solution to increasing density, and diversity doesn’t necessarily occur by making an occasional change in the façade for every 15 meters.”⁴⁸

Research and trends show an increase in a new kind of sharing economy, the subscription economy.⁴⁷ Access is prioritized over individual ownership. Under this system, the users and the space will emphasize actual use and sharing, facilitated by the digital social network of Re:GEN. Re:GEN challenges preconceptions of how housing is made and who it is made for, not only offering affordable places to live, but also a variety of components of scalable, sustainable, community-led solutions.

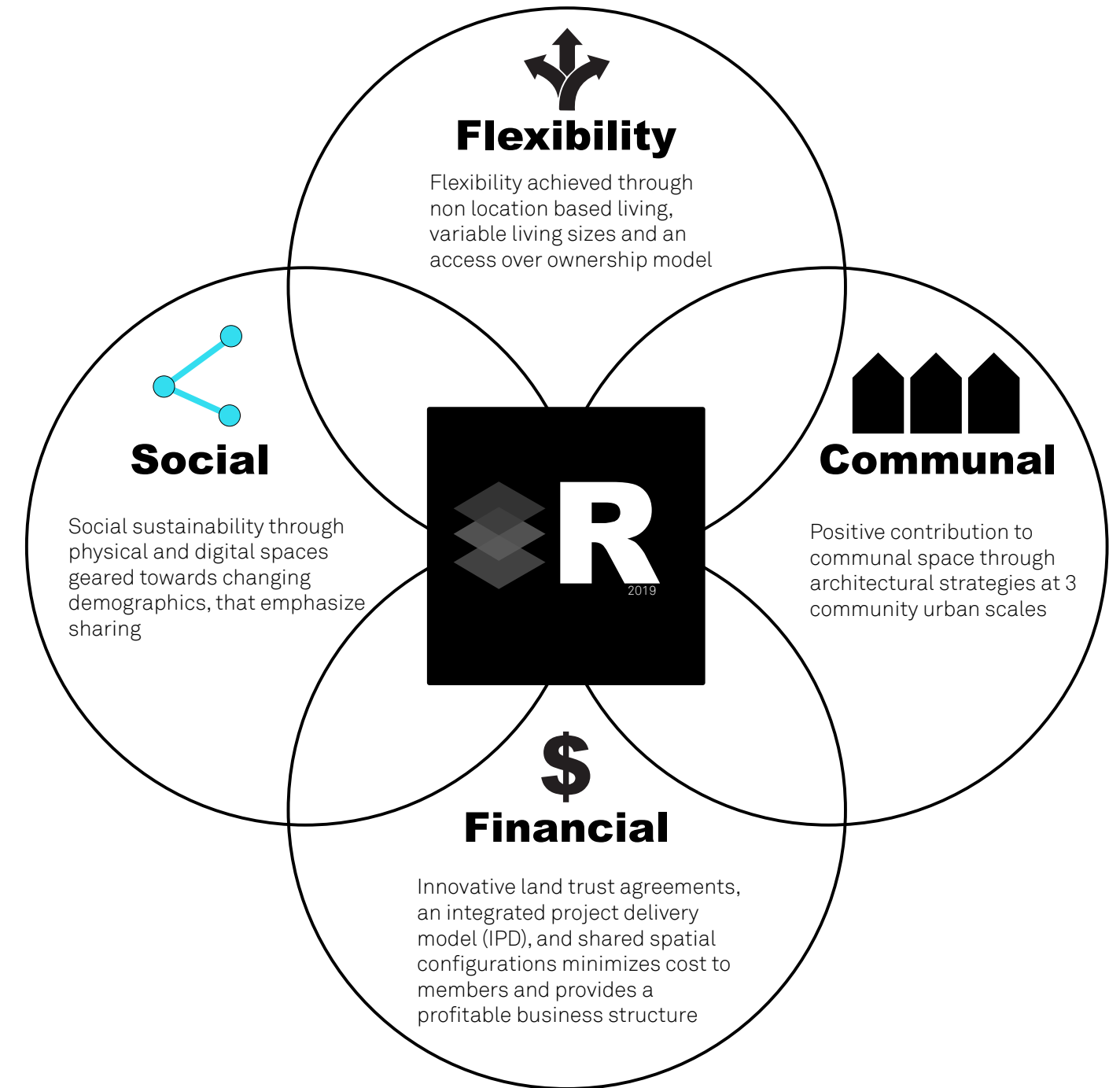
Figure 89 (left): The city conceptually augmented by a new system of ownership.

4.4 Social Framework

The contemporary city is much more than its built form. Once Re:GEN decouples the function of living from physical location, close attention must be paid to the social structure that binds this system and offers an innovative form of social infrastructure for its members. Much like Silicon Valley changed the experience of communication through decentralized platforms, or the way WeWork pioneered a decentralized system of co-working spaces, Re:GEN decentralizes living, giving agency to its members to choose an environment that supports their lifestyles at any given time.

With the help of upfront investment funding and institutional support, Re:GEN will begin by occupying five cities internationally each with multiple locations. As the system grows through time and membership, Re:GEN can expand into new places, building a global collective, one that is hyper local, local, and global.

Figure 90 (right): Re:GEN concept diagram - Social Chapter





Technology is a distributive overlay of social wealth creation of Re:GEN. Every person carrying a cell phone has a node to the digital network in their pocket, making this option of living a viable, accessible option.⁴⁸ The integration of the digital world allows for the Re:GEN system to function. It bridges the gap between individual spaces, shared spaces, the immediate community and the global digital world at large. The stability and security that was once associated with wealth and home ownership has been lost to those without the wealth to enter the traditional single-

family market. Re:GEN offers a community, connected in many ways digitally, that counteracts the social isolation that has grown among individual renters. The digital platform keeps members connected even as they move within the global system.

Figure 91 (left): Collage of technology as distributive overlay.

Similarly within each building, the digital platform encourages social interactions and supports the use of any number of communal Re:GEN spaces. Social linkages with a collection of shared physical spaces spread across each Re:GEN building encourages members to connect with and trust in each other in ways our built environment does not wholly require us to do now. Re:GEN's hybrid model of fractional ownership gives its members the ability to relocate, explore, or resize elevating the concept of sharing and living to a platform where social wealth is transferable.

Technology integration is influencing users and changing the conversation about a static life and the value of things. With an application centered on service and peer relationships, social needs and community can function collaboratively even within the flexibility Re:GEN offers. Historically urban neighborhoods created community through the organization of shared streets and neighborhoods. Applications such as Borigo and NextDoor have identified and proposed a solution for shifting social engagements that may precede physical encounters.

Figure 92 (right): Collage of Re:GENs potential reach, and ability to define and design the urban landscape.





While an important step, the local, social message board concept can be expanded. Re:GEN decouples ownership from land and thereby reduces reliance on land and physical location to define and create the communities these apps rely on as parameters. Within financial and social investment into the Re:GEN system, community members at every scale have a vested interest in keeping their community informed and making information accessible. The system incorporates social interaction platforms, financial and housing information, and moving and purchasing mechanisms all under one application. This does not replace physical interaction, but rather enhances accessibility and allows for more interaction to take place. In Re:GEN,

communication comes first. In fact, social interaction through technology creates a more flexible system that allows people to live differently and have a network of Re:GEN neighbors locally and globally.

Figure 93 (left): Connecting digital applications beyond location.

4.5 Communal Framework

With a globalized system made up of local pieces, the future of community can take on new meaning. It is understood that this system would expand, but the mission is to create a regenerative social economy that enables its community to thrive, not sustain an exponential growth rate. With Re:GEN, each city is a node in a greater fabric where people can meet and re-create their ideas of home. Re:GEN revitalizes a communal vision of ownership.

*Figure 94 (left and right): Collages of the physical digital, and social connections incorporated into the system.
Figure 95 (pages 146-147): Collages blurring the context that exists within and beyond the building.*





5.0 Application

This thesis expands on the concept posed in Albert Pope's Ladders, mentioned the first chapter. "The contemporary urban environment is composed and recomposed by each individual every day around literal and virtual itineraries, and not in relation to a fixed arrangement of places."⁴⁹ The intellectual property of Re:GEN is the compilation of its four major themes: financial modeling, dwelling typologies, technology integration, and expansion. These arrangements continually change and conform to its members but are made viable by overlapping and investing in a variation of each part. The visualization of this model is flexible enough to be culturally and location sensitive and occupy existing spaces for a manageable transition into the physical world. Within the brick and mortar, a community of sharing can begin to form and inform how the structure can best serve its people.

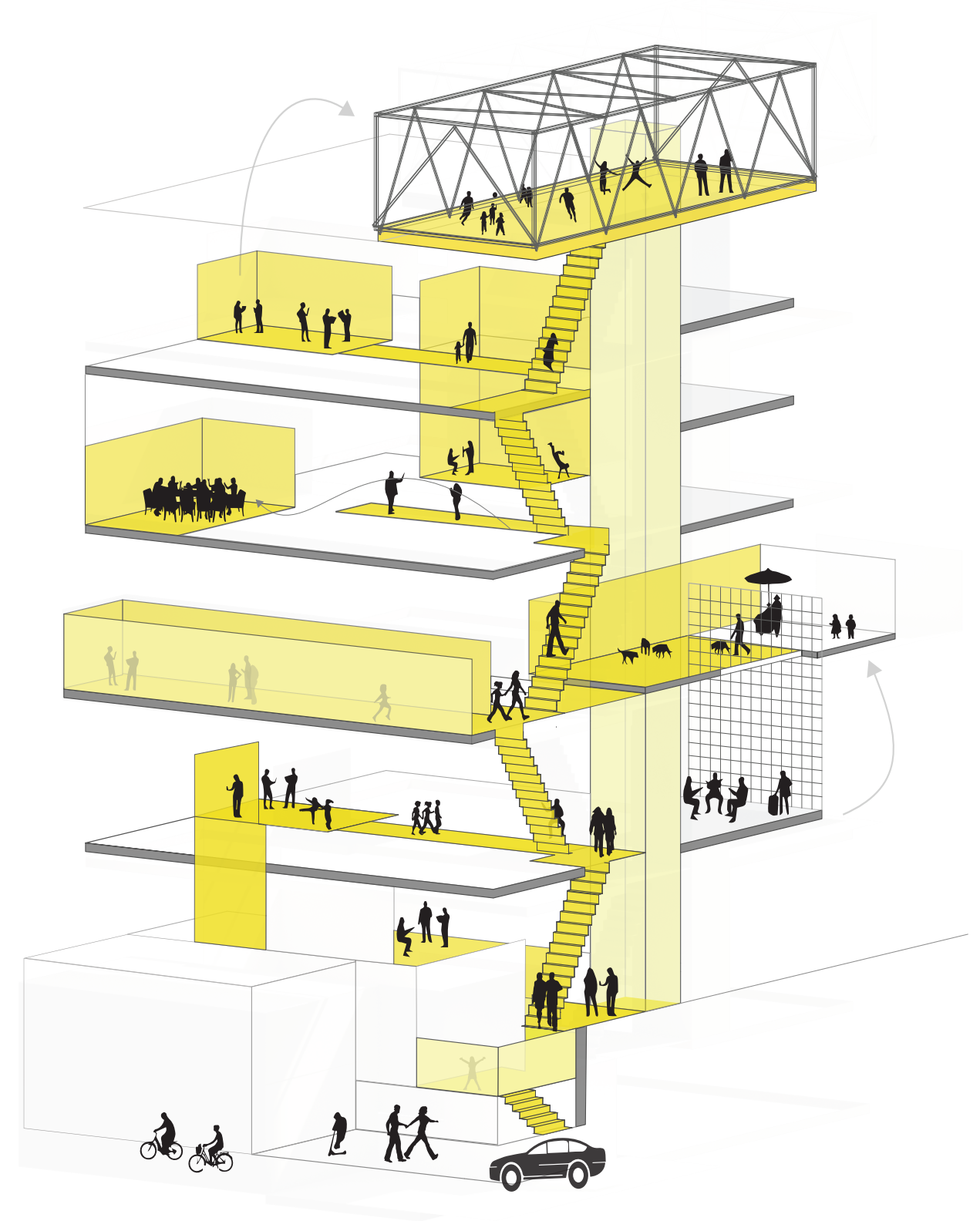
5.1 A Future Vision

“[A] building is not just an assembly of dwelling units but a place where the sharing economy manifests itself in its many new facets.”⁵⁰

Re:GEN begins to restructure how we live in cities. It offers the vision of communal living that prioritizes subscription ownership and organizes living from a communal standpoint, untied to place. Re:GEN allows designers to explore of the happenstance within the quantifiable measures usually used to define and create homes. As people live more flexible and nomadic lives, the spaces between individual dwellings will support this model of living, because the notion of nesting is simplified and rethought.

While the future cannot be predicted, it is possible to imagine what a Re:GEN community could create.

Figure 96 (right): Axonometric hypothetical structure that redistributes square footage allocated for communal spaces. Here the spaces are more intentional and dynamic than a typical community room.





Below Deck

Plants and puppies both need exterior space to grow. Care for them on a mid-tier deck with a ball pit and herb garden. Flower beds might be watched by your neighbor while you're caring for your dogs.



Chef's Table

Large dining areas accommodate events too large for any one home - friendsgiving, weekend dinner parties, or holiday celebrations. The ability to eat and share time together, spontaneously or planned, is a valuable, hyper-local example of living



Urban Garage

Parking ends with the 21st century. Ride share, carpool and future vertiport pick up can be implemented into social spaces on the ground floors. Wait for your ride to pop up on the automated screen with your neighbor, whose just ordered Thai food. These social spaces offer a different opportunity to engage with each other and the urban context simultaneously.



Kid City

Let the kids (and adults) play. An outdoor playscape or sports court allows for impromptu games of basketball and double as a canvas for the adjacent makers space, activating the inner kid in everyone. These spaces aren't sacred, and could allow for experimentation for communal benefit.



The L Lounge

Laundry and lounging areas are combined for maximum efficacy, and social time. Relax with neighbors and let your Re:GEN app tell when you the next washer is free. Combine energy resources while enjoying a new book from a communal library.



Porches

Access to outdoor space is vital, especially when living in a city. Porches institutes larger exterior spaces just outside individual units. Reallocating interior space as exterior extensions of living rooms doubles as entry stoops and small networks of communal space. Your garden will never dry again.

The L Lounge

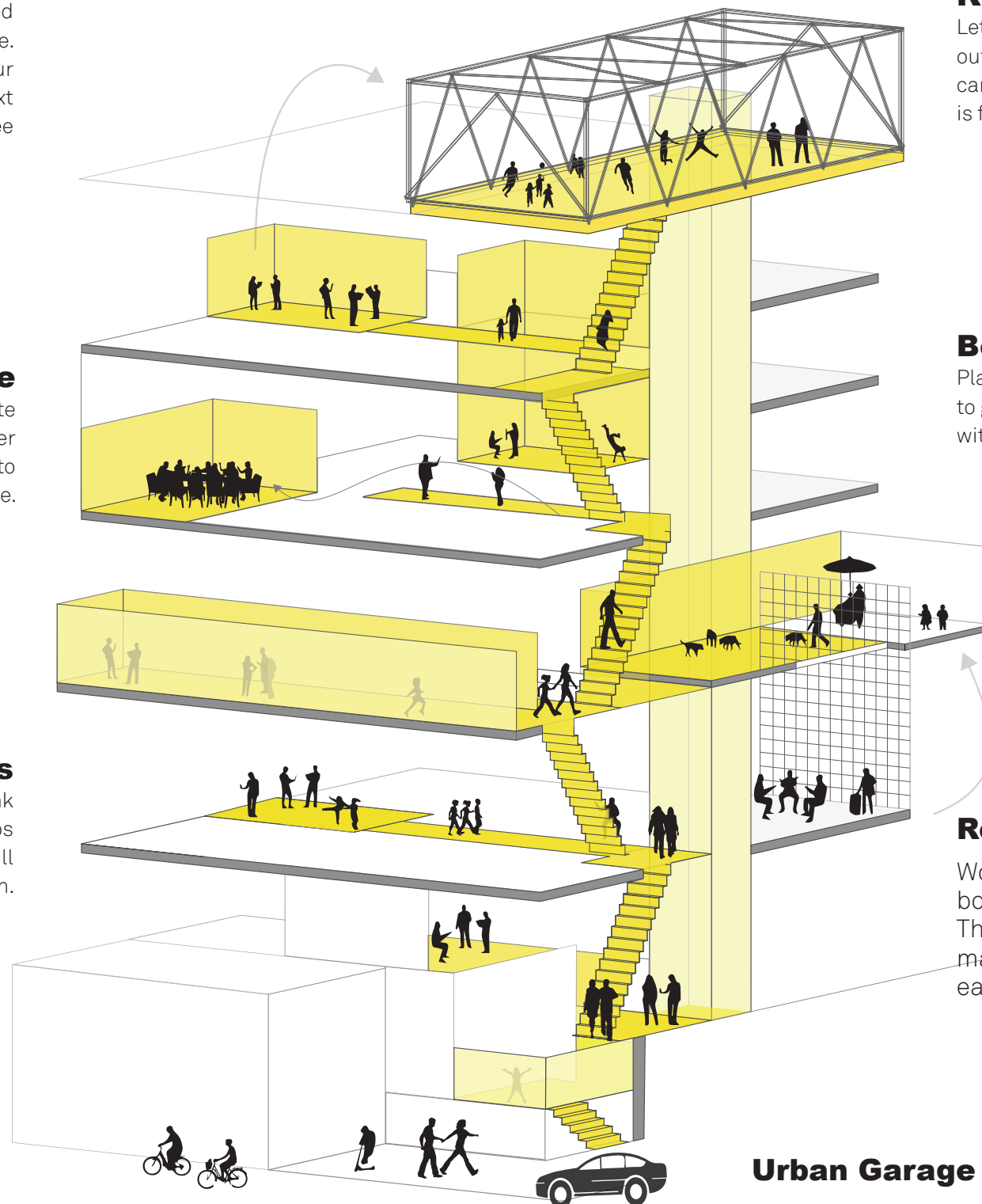
Laundry and lounging areas combined for maximum efficacy, and social time. Relax with neighbors and let your Re:GEN app tell when you the next washer is free

Chef's Table

Large dining areas accommodate freinds giving, weekend dinner parties, or an early cup of joe next to the fireplace.

Porches

Outdoor space is best shared. This bank of porch space doubles as entry stoops and communal space. Your garden will never dry again.



Kid City

Let the kids play...and adults. The outdoor playscape, doubling as a canvas for the adjacent makers space, is for the inner kid in everyone.

Below Deck

Plants and puppies, they both need space to grow. Care for them on the mid-tier deck with a ball pit and herb garden.

Re:Work

Work how you want - use the single booths or the larger community table. The view of the puppy ball pit above makes bringing your dog to work even easier.

Urban Garage

No parking needed - ride share, carpool and future vertiport pick up can be implemented. Wait in the garage lounge for your Thai food or ride that pops up on the automated screen.

5.2 Microclimates

Re:GEN makes such interactions and exchanges everyday events by encouraging meetings between members and residents through "Microclimates," as the multitude of shared spaces connecting the buildings' living volumes have come to be called. These local interventions are physical places of enactment; their presence fosters a level of engagement that connects the digital meeting place with the physical space of human action.

Figure 97-102 (pages 152-163): Collages depicting Microclimate spaces and activities - spaces that are created by the meeting of two of more normally unassociated activities. These combinations create new opportunities for connection and expansion.
Figure 103 (left): Axonometric hypothetical structure with communal "microclimate" spaces delineated.



Re:GEN provides a way for members to find a place in the city, to live the flexible lives of the future, yet still build personal wealth and share in a community fostered by the Re:GEN social infrastructure. This conception holds potential to generate a professional shift, one that feasibly values a different set of standards. This system is a prototype for how design can support the social intelligence, collaboration and communication of urban living while leveraging the professional practice of architecture. Thus, the Re:GEN system becomes a space where the collective accumulation of stories prevails.

Figure 104-107 (pages 166-175): Conceptual collages and story lines within Re:GEN, by author.

6.0 NARRATIVES

"History unfolds as a series of events. Secondary stories coalesce and become a grand narrative, the history of a people, and the history of a place. The physical world we inhabit emerges from these various stories, incidents happenstance played out. Thousands of parallel histories exist, and as such, unlimited alternative realities. Each individual inhabits his (their) own story. Form follows Fiction."⁵¹



that has accumulated on the ground floor. Downtown Seattle is outside her doorstep, a view of the street she shares with many of the local shops along 2nd Avenue. She recently used her building's maker space

an apprenticeship in Berlin next month. She's looking forward to the change of place and pace, moving to a Re:GEN building situated within a public, communal garden.



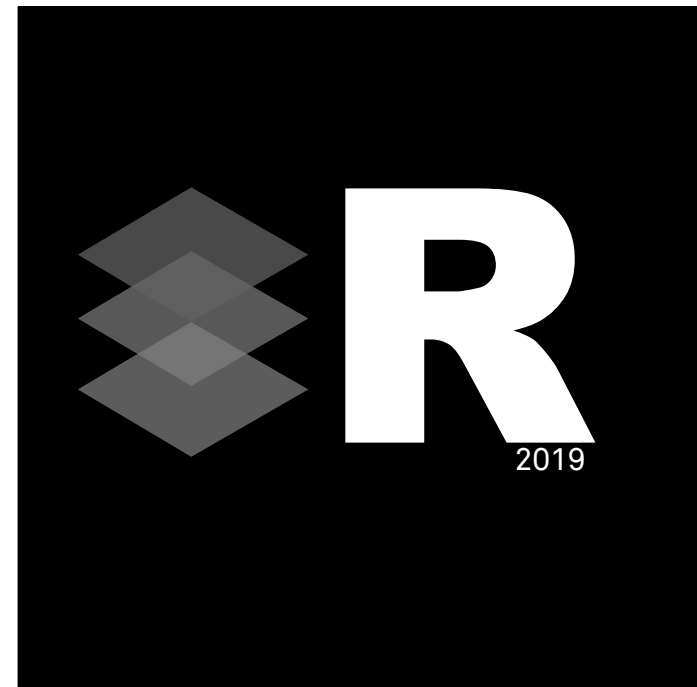
Two floors down, digital nomads Jon and Carla, and dog Snacks, have just moved in to the Re:GEN community. Previously they've spent the last four years hopping between jobs, cities, and locations without much consistency. Marriage is something they're looking forward to and plan to use

their accumulated equity to save for their wedding while still living bi-coastal. Next year, they plan to move to Barcelona location of Re:GEN to be close where Carla's family. Re:GEN has allowed them to spend time in the cities they love and foster community across the globe.

Jordan has lived his entire life in Berlin. He has raised his two daughters in a series of places around the city, finally settling

transition seamless, and his daughters have met kids living in the building before they even moved. Jordan's daughter has just





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7.1 Epilogue

Author's reflections and conclusions

This thesis is a product of its research. Re:GEN, and thoughts on restructuring the urban systems that support architecture, is an important and necessary consideration as designers reinvent what it means to live in growing cities. The unsustainable landscape of single use combined with the social construction of homeownership bring with it a lack of mobility and flexibility in an age of digital innovation and physical exploration. Re:GEN is one possibility that responds to and innovates with developments in digital technology and social connectivity to offer a degree of freedom from conventional living structures.

The intent of this thesis was to structure a purely objective argument based on the available data on Seattle's changing urban landscape. During my research phase, I listened to a podcast titled *Work as Identity, Burnout as Lifestyle*⁵² while reading the MoMA exhibition book *Foreclosed: Rehousing the American Dream*⁵³, both of which completely restructured my focus. Themes of ownership, agency, and spatial boundaries took precedent over strictly quantitative data and an exploration into the systems and methods that structure our living environments became my focus. These system influence and indirectly produce the physical form we refer to as architecture. The changing social experience of cities and the role the architecture community could play in their change became the driving force for this exploration. Re:GEN is a speculative project exploiting standard architectural issues of flexibility, scale and context. Because the project is ideological and not tied to a specific place, there is no ideal city or location. Matters of globalization and identity were a main concern moving forward in developing

a physical design for Re:GEN and pose opportunities for discussions around equitable and feasible options.

This thesis does not call for upending our system of producing single-family and market rate housing in its entirety, but rather proposes that new models can be added in city contexts to support different lifestyles that are becoming more prevalent. Further, there is potential to ask how current systems, like single-family lots, might evolve to support a changing social climate and include a larger sector of our growing population. How we as designers and city leaders organize not only the house itself but the systems that produce the house tell a story and make a statement about the changing world, and the future of living.

2020 Update:

I researched and wrote this thesis in the year 2019, which looked a lot different from where I sit now. The Coronavirus began spreading across the world in early 2020 rising to the level of a pandemic, forcing us to completely rethink our living and working operations. Particularly this moment is drastically reshaping how we use and share space. Systematic unaffordability and value are overarching topics in this thesis. Now these issues are acute due to the vast majority of America suffering from job insecurity, lack of personal space to quarantine, or both.

My thoughts on how a speculative housing system like Re:GEN might be structured have changed, largely due to the research I've engaged with for this project. However, the current, very real change in how we use space to work and live brought on by this pandemic have solidified my findings, that there is a need to reconfigure how we conceptualize, occupy and afford living. Though a system based on traveling might be halted during a pandemic, localized shared spaces might be a key solution to providing variation and community at a smaller scale. Incorporating designated drop off and pick up points within a building and prioritizing access to outdoor space and light are absolutely critical. If there's a lesson we can take from the rise and expanse of digital platforms, it's that smaller distributed models can outperform larger one-size-fits all models, both financially and emotionally. Now more than ever, how we use and share space is valuable and critical.

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