GROUP BUILT HOUSING FROM BERLIN TO TORONTO

Exchanging housing concepts for sustainable residential development

Eric Pitre
McGill University
School of Urban planning

[This page left intentionally blank]

GROUP BUILT HOUSING FROM BERLIN TO TORONTO

Exchanging housing concepts for sustainable residential development

Supervised Research Project Report

by Eric Pitre

Submitted in partial fulfillment of the Master of Urban Planning degree
School of Urban Planning
McGill University

Supervised by Prof. Dr. Nik Luka

July 2019

[This page left intentionally blank]

TABLE OF CONTENTS

[This page left intentionally blank]

ACKNOWLEDGEMENTS

This research is partially funded through the MITACS Globalink Research Award.
No potential conflict of interest has been identified.

Thank you to my supervisor, Prof. Dr. Nik Luka of McGill University, to my second reader, Prof. Dr, Richard Shearmur, and to my German mentor, Prof. Dr. Tatjana Schneider of the Technische Universität Braunschweig.

To my classmates and colleagues.

To my parents and family.

To Claire.

ABSTRACT

Ensuring the quality and sustainability of housing in Canadian cities is a significant challenge. In light of this challenge, new concepts and ideas have been proposed, often originating from international locales, for how to improve the delivery of housing relative to these objectives. This report critically examines the potential transposition of the concept of *Baugruppen* from Berlin to Toronto in a manner that reinforces the sustainable elements of the concept. First, the report evaluates the sustainability of *Baugruppen,* as currently implemented in Berlin, against a Quadruple Bottom Line evaluation framework. Second, it identifies areas and processes where the concept may be applied in the Greater Toronto Area. The report concludes that, while *Baugruppen* cannot be considered a scalable or radical solution to pressing housing issues, the concept offers certain opportunities to promote sustainable residential development practices. Additionally, the concept has a unique potential to integrate into mainstream housing delivery in the Canadian context, focusing specifically on the City of Toronto, due to the compatibility of *Baugruppen* with existing features of the housing system and the relative advantages of this concept over other modes of housing delivery. Ultimately, the report illuminates how certain modifications to the process of delivering housing can lead to more sustainable housing practices and how the exchange of international housing concepts may contribute to the implementation of these modifications.

RÉSUMÉ

Assurer la qualité et la durabilité du logement dans les villes canadiennes est un défi de taille. À la lumière de ce défi, de nouveaux concepts et de nouvelles idées provenant très souvent de l'étranger ont été proposés pour améliorer la prestation de logements. Le présent rapport d'étude examine le potentiel du concept du *Baugruppen* tel qu'il existe à Berlin à être transposé à Toronto de manière à bonifié ces qualités en matière de durabilité. Dans un premier temps, le rapport évalue la durabilité du *Baugruppen* dans son contexte Berlinois vis-à-vis un cadre d'évaluation de « Quadruple Bottom Line ». Deuxièmement, il identifie les secteurs et les processus où le concept pourrait être appliqué dans la grande région de Toronto. Le rapport conclut que, bien que le *Baugruppen* ne puisse être considéré comme une solution évolutive ou radicale aux pressants problèmes de logements, le concept offre la possibilité de promouvoir des pratiques de développement résidentiel durable. De plus, le concept a un fort potentiel d'application au Canada et plus particulièrement à Toronto de par sa compatibilité avec le système de logement existant et sa supériorité relative comparé à d'autres méthodes d'augmentation de l'offre de logements. Pour terminer, le rapport démontre comment certaines modifications apportées au système de logement pourraient améliorés la durabilité des pratiques en manière de logement et le rôle qu'on à jouer les concepts venus de l'étranger dans ces améliorations.

[This page left intentionally blank]

LIST OF FIGURES AND TABLES

1.0
INTRODUCTION

— ‘Canadians are obsessed with housing affordability’
(National Post, Jan 2019)

By all accounts the issue of affordability in major Canadian metropolitan areas has reached crisis levels. Across the country, vacancy rates remain low, waitlists for subsidized housing continue to grow and the overall level of homeownership affordability (carrying costs to gross median household income) is at ‘its worst level in thirty years’ (RBC 2019). This last point has caused a particular furor. Despite the practical and ideological emphasis placed on homeownership in Canada since the Second World War, in Toronto the average share of income (household, before-tax) required to afford the carrying cost of ownership is 79%. In Vancouver, it is 88%. Increasingly those seeking to purchase housing are struggling to find dwellings that are: (1) available in terms of matching the supply to their individual needs; (2) suitable in terms of characteristics and quality as a residential unit; (3) connected in terms of reliable access—by location or transit—to a variety of employment and social opportunities; and yet (4) cost-appropriate in terms of budget given stagnating real wages and increasing costs of living, notably for transport (CMHC, 2018b; Clark & Dieleman, 2017; Clark et al., 2006; Lawrence, 1995). A growing sentiment is that housing in major Canadian population centres has become increasingly unaffordable for all but the wealthiest households (Moos et al. 2018; Bunting et al. 2007; Moore & Skaburskis, 2004); some observers ask if the costs of housing in our major cities ‘threatens the well-being of its people and their ability to achieve the Canadian Dream’ (Toronto Star 2019). Unsurprisingly the issue of affordability is an area of significant concern for academics, policy makers, practitioners and the public alike. Federal, provincial and local governments have sought to address this challenge through a variety of market and state driven mechanisms (see for example CMHC, 2018a) and, across Canada, a construction boom is underway that has produced over 200,000 new housing units in 2018 alone (Statistics Canada, 2019). And yet the issue persists. Across the political spectrum, it is acknowledged that we seemingly can not build the quantity or types of housing necessary to improve affordability (Burda, Haines, & Hildebrand, 2017; CANCEA, 2017; CMHC, 2018; Evergreen & CUI, 2018; Pomeroy & Lampert, 2017).

Affordability is only one part of the housing question. Housing, as both an object and an activity (Turner & Fischer, 1972) is deeply integrated into the social, cultural and environmental makeup of a society. Housing, in other words, is incapable of being narrowed down to a single issue. Stepping back from the collective ‘obsession’ with the financial elements of housing, the current crisis affords us an opportunity to think about housing from a broad perspective and to challenge conventional assumptions about the ways in which we produce, distribute and maintain housing.

Considered from this perspective, seeking answers to 'why is housing important?' 'what outcomes do we want from housing?' and 'who is involved in building housing?' are all equally important as seeking answers to the question of quantity and type. Housing from this perspective must be able to shelter and suit current households while also accounting for the needs and desires of future generations (Aalbers & Christophers, 2014; Qu & Hasselaar, 2011).

The central preoccupation of this report—'how we build housing'—is at face value something expressed through bricks, mortar and a set of blueprints but in reality, it is far from being a simple question. The real question is how we build housing that is not only more affordable, but of higher quality and with better social, cultural and environmental outcomes? Many useful studies and strategies attempt to respond to these questions. Various publications call our attention to new or resurgent concepts—such as cohousing, shared living, cooperative development, etc.—entailing sometimes drastic changes to the way we view the delivery and occupation of housing (Czischke, 2017; Parvin, Saxby, Cerulli, & Scheider, 2011; Tummers, 2016). Increasingly, these concepts and practices are considered as 'best practice' at an international scale, traveling across territories to influence the delivery of housing on a global scale (Baker & Temenos, 2015; Peck, 2011; Temenos & McCann, 2012). In light of both these challenges and opportunities, this report aims to underline the foundations of these concepts—namely that exploring alternative forms of housing delivery is useful—with the understanding of how these impact the housing system in the local context. In doing so, it explores how the momentum behind these concepts may be transformed into more sustainable processes of delivery and suggests how concrete practices may facilitate the pursuit of these objectives.

1.1 Objectives

This project explores how to translate international approaches to the provision of affordable, high-quality housing for sustainability, based on the premise that certain modifications of process have the potential to substantially improve the delivery of housing in Canadian metropolitan regions. It aims to develop an understanding of alternative modes of housing delivery—focusing on the case of *Baugruppen* in Berlin—and how these might be introduced to the Canadian context. In doing so the report also assesses the problems and possibilities of transferring ideas, models and/or policies from one locale to another, emphasizing both the limitations and opportunities associated with 'exchange.' It is not intended to present a grand solution or the elusive silver bullet, but instead to contribute in meaningful ways to current debates on how housing is provided (and by whom) in Canada.

1.2 Research Questions

Based on detailed study of *Baugruppen* residents in Berlin and key informants in both Germany and Canada, the central questions that frame this report are:

1. How effective is the *Baugruppen* mode of housing delivery as a prototype for scalable sustainable residential development in major cities?

2. What considerations, strategies, and modifications to conventional practices might support an exchange of the *Baugruppen* approach to housing provision into the Canadian context, focusing on the institutional and contextual specificities found in the City of Toronto?

1.3 Structure of the Report

Alternative Housing Deliveries and International Exchange
The first section presents a scan and review of relevant literature aimed at understanding the emerging operational frameworks of cohousing, self-organized housing and collaborative housing development and how these can be situated within Canada's housing system. This section also assesses the problems and possibilities of transferring ideas, models and/or policies from one locale to another, emphasizing both the limitations and opportunities associated with 'exchange'. Specifically, this section describes the conceptual foundations of the *Baugruppen* approach and analyzes how it can contribute to the sustainability of housing— understood in this case as a measure of how well the production of housing supports the capacity of both current and future generations to create healthy, inclusive, viable and responsible communities.

Baugruppen Berlin: Current Context Analysis
The second section examines *Baugruppen* in Berlin to asses the potential of this approach vis-à-vis the preoccupations of sustainable development. This combines a brief background on the local context of these models, combining analysis of data on the current application of *Baugruppen* in Berlin and interviews with local stakeholders to produce an account of implementation processes and outcomes. Questions concerning the future trajectory of these models and these can be continuously implemented in ways that complement and improve the process of housing delivery are addressed using a 'Quadruple Bottom Line' framework. Developed by Bratt (2012), this framework evaluates the multi-dimensional sustainability of housing deliveries with regards to the environmental, social, economic and built form impacts of a given delivery process.

Baugruppen Toronto: Potential Exchange
The final section explores the potential opportunities associated with recognizing and encouraging the *Baugruppen* approach and similar innovative concepts as alternative modes of housing delivery in the Canadian context. It identifies opportunities and obstacles to translating this mode of housing delivery, using the City of Toronto as a hypothetical testing ground. The report

concludes by considering how material presented in the first two sections on *Baugruppen* and the exchange of concepts and strategies for innovation sheds light on the challenges of reform to housing production in the Canadian context.

1.4 Methodology

Assessing the sustainability and transferability of *Baugruppen* vis-à-vis the Canadian context requires a multi-level understanding of the concept and strategies that have been used for implementation. A methodological 'triangulation' was adopted for this report, combining complementary methods to analyze a topic from multiple perspectives. The relevance of this approach, which is widely used in qualitative research, is primarily its capacity for generating greater confidence in observations and findings when comprehensive empirical research is not feasible (Denzin, 2017).

The foundation of the report was built on a literature and media review of peer-reviewed academic articles, grey literature (reports, policy documents and white papers) and media commentary. From this starting point, two methods were used to cross-examine *Baugruppen* in its current context. Data analysis was used to understand current implementation of the concept at a broad-scale and to evaluate the frequency and distribution of projects with certain features or elements. This data was taken from the CoHousing Berlin platform database and was cleaned to remove duplicated or irrelevant data (issues identified with this method of data collection is identified below 1.5 Limitations).

Semi-structured interviews with experts and residents were then used to learn about implementation and processes associated with the concept at the level of individual projects as well as changes and evolutions that have occurred over the past two decades. A 'purposive sampling strategy' was deployed, which aimed to locate 'information-rich' examples of the concept in practice (Robinson, 2014). These projects were selected with the intent of presenting a range of models based on the following criteria: (1) completed recently, (2) diversity of 'commoning' features, (3) different levels of resident involvement, and (4) different partnerships with state, non-profit and private sector actors. Key stakeholders in these projects were then identified as potential interview subjects. This sampling method intended to target practitioners (those actively involved involved in the delivery process), commentators (those who observe or otherwise participate indirectly in the delivery process) and residents of *Baugruppen*. Subsequent interview subjects were then identified through a 'snowball sampling' approach (Noy, 2008). The structure of these interviews was explorative and iterative with findings from earlier interviews informing and shaping the content and questions of interviews conducted at a later date. Cursory policy analysis was also carried out for the City of Toronto to evaluate areas where *Baugruppen* may be strategically translated and implemented.

1.5 Limitations

Language and Culture

Research based in languages and cultures foreign to the principle researcher is exposed to several challenges to the validity and replicability of the research. Most significantly for this project, interviews could not be conducted where potential interview subjects could only communicate comfortably in German. Therefore, language introduced bias into the process of selecting resources and interview subjects, potentially limiting the perspectives being considered for this research. Similarly, language and culture differences impacted the ability to locate and interpret relevant materials such as government policy documents, studies and local media. In larger studies, these impacts would be mitigated through the use of translator or local research assistant. However, the timeline and scope of this project did not allow for the extensive use of these resources. Where appropriate, every effort was made to overcome this obstacle through the use of free translation software.

Data and Available Resources

The primary data used for this report has been collected from CoHousing Berlin—a self-reported database platform created and curated by the id22: Institute for Creative Sustainability and Winfried Härtel Projektentwicklung—which aims to catalogue completed and in progress Baugruppe projects completed after 2000. The self-reported nature of this platform makes drawing inferences from the data problematic. Data generated by the site was not assembled by impartial or external sources (such as academics or government researchers) but instead by active proponents of the concept. Indeed, many of the practitioners and commentators interviewed for this report were actively involved in curating the site or had previously uploaded project details or supplemental information. This type of platform can act to introduce or reinforce stereotypes regarding participants or project details and has the potential to build in inherent biases that obscure the true nature of the concept. At the same time, access to official, comprehensive data on *Baugruppen* in Berlin is limited or outdated. Therefore, use of this data is intended to be purely illustrative and has been checked against the existing literature and interview findings where possible.

Figure 1
Ausbauhaus Neukölln
Source: CoHousing Berlin
Praeger Richter Architekten

2.0
ALTERNATIVE HOUSING DELIVERIES & INTERNATIONAL EXCHANGE

Reformers may broadly agree that modifications to the delivery of housing are required to address issues of affordability and quality (Burda et al., 2017; CANCEA, 2017; CMHC, 2018; Evergreen & CUI, 2018; Pomeroy & Lampert, 2017), but perspectives tend to diverge on how this should be approached . For instance, even if we were to accept that certain modifications are necessary, what is the process by which we might understand and engage with alternative or emerging practices? How do we create a vision for the housing system we would like to see, how do we set up criteria for evaluating the success of these concepts in practice? With these questions in mind, this section presents an overview of the literature in terms of (1) the system within with changes must occur, (2) concepts that informed the development of the *Baugruppen* approach as a solution to certain housing issues, and (3) processes of evaluation of housing strategies and debates concerning their exchange between distinct cultural and political contexts.

2.1 Challenges in the Housing System

In order to say that Canada's urban areas are facing a housing 'crisis'—or to propose different approaches or models that may address these issues—it is important to establish a basic understanding of how the housing system works in the Canadian context. Each country has a housing system and usually one that is uniquely expressed at various scales and geographies. In most Western nations, these systems generally consists of three elements: supply, demand and institutional context (van der Heijden et al., 2011 cited in (Stoeger & Lang, 2018). In simple terms, housing is supplied by a range of actors—such as government entities, non-governmental organizations or the private sector—to the households, individuals and investors who demand this housing. These exchanges are typically mediated through both a market apparatus and a range of policy interventions at various state levels. The functioning of both the market and non-market delivery of housing as well as the wider policy framework are in turn framed by the cultural, social and political norms of a society. The extent to which the state subsidizes or regulates different methods of delivering housing, the respective roles of non-profits, the private sector and the state and the respective proportion of owners and renters are all examples of outcomes that are determined by the continuously shifting relationship between different elements within the housing system (Hulchanski, 2006; Stoeger & Lang, 2018). The characteristics of this system determine who builds new housing, how much new housing is built (and indeed how much existing housing gets renovated or otherwise transformed), for whom (or for what reasons) housing gets built, and the relative quality of the housing that gets produced vis-à-vis sociocultural norms in its context.
In certain respects, it is incorrect to say that Canada has a single housing system, given the various overlapping jurisdictions, geographies, and regional cultures. The provinces and territories all have differentiated frameworks and each individual local government interacts with and operates

within these frameworks in different ways. Different actors operate across different geographies and with varying levels of influence at different scales. Centralized action on housing by the the Federal government has been limited to the scope of activities covered by the Canada Mortgage and Housing Corporation ('CMHC') and has consequently had little impact on creating a cohesive national housing system. These differences shapes the delivery of housing and have produced widely varying outcomes for individual households across the country.

That is not to say, however, that there are no identifying features of a Canada-wide housing system nor that these features do not have a significant influence on how housing is produced and distributed. Two features which have come to define this countrywide housing system are the shift from supply-side approaches (low interest construction loans, building subsidies, direct social housing construction, etc.) to demand-side strategies often predicated on State subsidies (tax rebates, housing benefits, etc.) and the ideological and practical emphasis on home ownership since the late 1960s (Cooper & Skelton, 2015; Hulchanski, 2006; Pomeroy, 2016). Recent commentary on the Canadian housing system has pointed to the retreat of all levels of government from the physical provision of housing—in the form of affordable or social housing—and the growing influence and relative importance of the private market as a key provider of housing as particular outcomes of this system dynamic (Dalton, 2009; Hulchanski, 2006; Suttor, 2011).

Some researchers have theorized, particularly in larger urban areas such as Toronto and Vancouver, that this system has also crystallized the current range of housing providers, a growing majority of which are large, corporate real-estate firms specialized in investment and land development (Rosen, 2017; Rosen & Walks, 2015). As a result, the supply-side of housing in Canadian urban areas can be characterized as having a strong market dynamic (where 95% of Canadian households obtain housing) consisting increasingly of large, private institutional players and framed by varying levels of government regulation (Hulchanski, 2006; Rosen, 2017). On the demand side, subsidies are typically targeted towards low-to-moderate income households or, as has been convincingly argued in other critiques (Hulchanski, 2006), at households pursuing homeownership. As a result, homeownership has become a defining feature of the Canadian housing system (68% of all Canadian households were home owners as of 2016), where the purchase and sale of a 'home' has become a critical investment in an individual household's overall financial portfolio (Harris, 2004; Kalman-Lamb, 2017; Purdy, 1993). Besides conditioning high rates of homeownership, these conditions have further incentivized the creation of new legal forms (condominium ownership) and the proliferation of specific housing types, such as high rise apartments, in urban areas (Lehrer, Keil, & Kipfer, 2010; Rosen, 2017; Rosen & Walks, 2015). In Toronto, for example, condos account for 81.5% of all completions; 99.1% of all condominium completions between 2007-2017 were in apartment buildings as opposed to single-, semi-detached, or row houses (CANCEA & CUI, 2019; Rosen, 2017).

Understanding the current ecosystem of housing in the GTA from a systems perspective, two challenges have become increasingly pressing for practitioners and policymakers. The first is the need for housing to be affordable to all citizens. This challenge has been articulated from a

policy perspective as the need to provide housing across the housing continuum (see Figure 2), where households are able to find shelter of a suitable type and tenure that cost no more than 30% of a household's before-tax income (Canada Mortgage and Housing Corporation, 2018). The second is the need to provide sustainable, high-quality housing that suits the needs and preferences of individual households. In the Greater Toronto and Hamilton Area (GTHA), the regional manifestation of this challenge is a lack of suitable mid-rise housing types, the so-called 'Missing Middle' (see Figure 3), where only 15% of all households (owner and renter) reside. The impact of these challenges can be seen in the growing number of households in 'core housing need.' In 2016, 21% of all households in the City of Toronto (owner and renter) lived in housing that was unaffordable (costs more than 30% of a household's before-tax income), unsuitable (not enough bedrooms for household size) or in need of repair (CANCEA & CUI, 2019).

Figure 2
The Housing Continuum
Source: CMHC

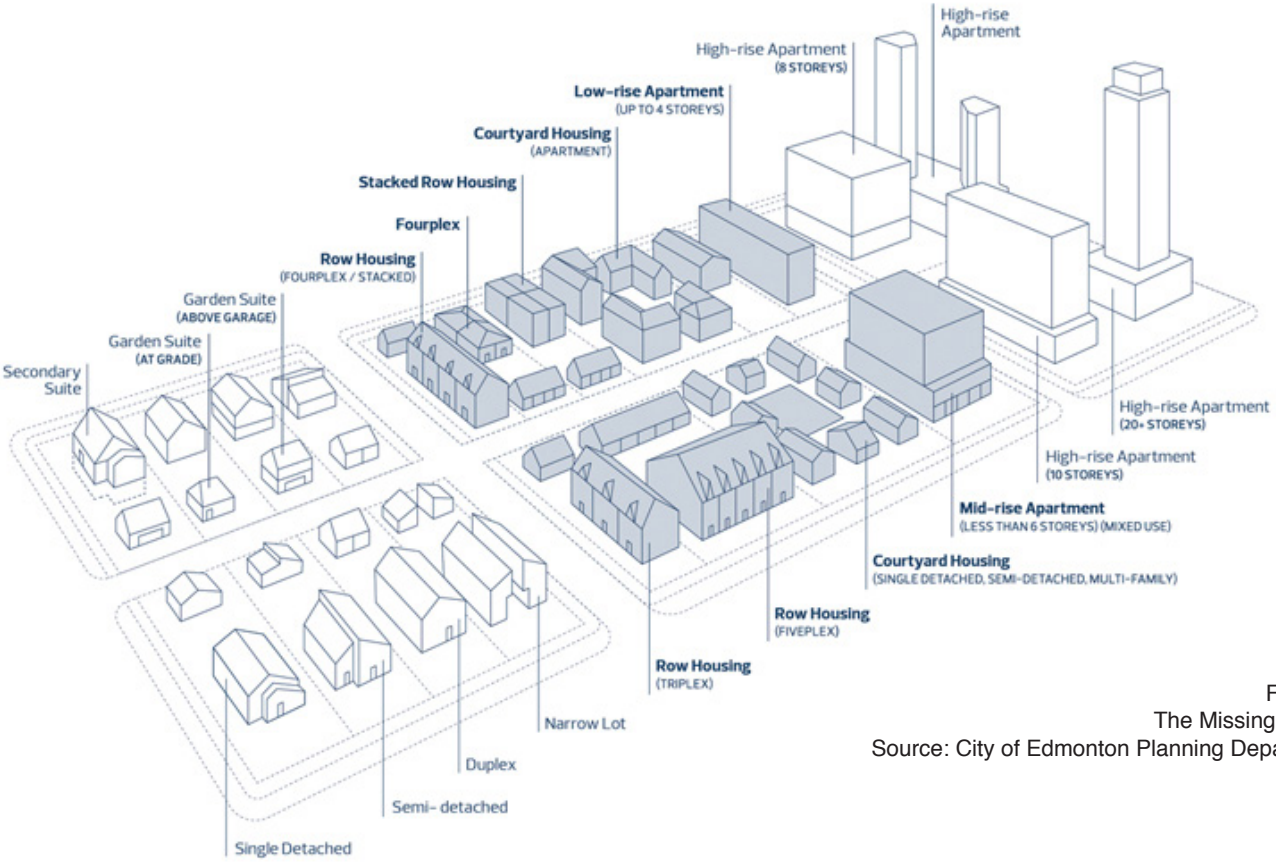


Figure 3
The Missing Middle
Source: City of Edmonton Planning Department

Given the persistence of this issue, there remains questions regarding whether the current range of providers (large, corporate real-estate firms) and the strong market dynamic of the Toronto housing system are capable of effectively delivering housing across the housing continuum (Burda et al., 2017; Kalman-Lamb, 2017; Purdy, 1993; Skaburskis, 2006). However, it is also clear that prevailing preferences towards ground-related housing and norms regarding homeownership remain particularly strong in the City of Toronto (Clayton & Irish, 2017). Therefore, in light of these specific challenges there is an opportunity to evaluate alternative housing deliveries to determine the solutions these can offer while mapping onto existing norms and preferences.

2.2 Alternative housing deliveries

The housing system described above paints a particular image of housing provision in major Canadian city centres. On one side is the State, which regulates construction activity, stimulates demand through targeted subsidies and, to a lesser extent, props up supply through either subsidy or direct construction. On the other is the market, where private firms (or individuals) bring housing products to a consumer base made up of households and investors. While other actors and institutions are clearly involved in housing delivery, oftentimes the relative strength of these two elements is taken for granted. However, singling out the market and the State reveals an underlying assumption inherent in the prevailing public discourse on housing in Canada, namely that a rigid duality exists in the delivery of housing: that the provision of housing is dictated solely by one or both of these components.

The underlying premise of 'alternative housing deliveries' is that other modes of producing and distributing housing exist outside the prevailing State or market driven processes. One example of such deliveries is the practice of collective and resident developed housing. Practices associated with collective and resident delivered housing have a long history tracing back to humanity's earliest modes of habitation. And yet, in most Western countries in the post-war era, many of these practices were supplemented by industrialized process of mass housing production by both the State and private corporations (Burnett, 1986; Eaton, 2002; Hayden, 1981; Wright, 1981).

Over the past several decades several concepts have reemerged that challenge the predominance of State and market driven delivery of housing (Lang, Carriou, & Czischke, 2018; Tummers, 2016). While these concepts are numerous and diverse—with their own historical context, underlying premises and key arguments—three of these are particularly relevant to a study of Baugruppen and sustainable development through their shared focus on the role of residents as actors in the housing delivery process. The notion of Baugruppen being investigated for this report is a practical concept that builds on a framework established by the concepts: (1) cohousing, (2) self-organized housing, and (3) collaborative development.

2.2.1 Cohousing.

Cohousing is perhaps the most established and well-recognized concept of three examined for this report. The formal notion of cohousing originated in Scandinavia in the 1970s based on the idea of communally-initiated, collective living (Vestbro, 2010). In its earliest form, cohousing was proposed as housing typology blending private and public life with an explicit emphasis on family and community. Practical examples of the concept from this time, such as the Skraplanet development in Jonstrup, Denmark, were typically located on the periphery of cities and were made up of several smaller one-family households organized around a larger communal house where activities such as cooking, recreation or entertaining occurred.

Contemporary definitions of the concept can vary but often overlap in several areas. Cohousing is generally though of both as a social process of organization, collaboration and solidarity and as a physical housing type, characterized by extensive 'commoning' elements and shared spaces (Tummers, 2015). Cohousing projects typically involve extensive resident participation in the design of the dwelling and in management of the space after occupation (Chiodelli & Baglione, 2014; Tummers, 2015; Williams, 2008). Participants are said to often self-select future residents of the dwelling and cohousing projects have been described as 'deliberate or intentional' community building exercises (Williams, 2008). There is also the idea that cohousing is organized around a system of shared values amongst the residents. While there are disparate ideas of what constitutes the exact nature of these shared value systems, residents of cohousing projects are often said to value collaborative, inter-dependent lifestyles as well as alternative means of housing delivery that are often non-speculative, more sustainable, and socially inclusive (Chiodelli & Baglione, 2014; Tummers, 2015; Williams, 2008).

While practical examples of cohousing exist with some frequency, particularly in Central and North European countries, the application of the concept overall has remained somewhat limited. Since its introduction to North America in the late 1980s, cohousing has had relatively low rates of adoption and, after an initial uptick, has generally experienced long periods of stagnation or relative decline in many areas (Williams, 2008). To date, there has been little dedicated study on the cohousing focusing on the Canada context (with the notable exception of Gladu, 2019), so determining how closely domestic and local examples of cohousing align with the overall tenants of the concept is often difficult. The national Canadian Cohousing Network ('CCN') has described cohousing as a process of design and communal interaction emphasizing resident-oriented development, common facilities and shared values (Canadian Cohousing Network, 2019b).

Cohousing differs from the other concepts touched on in this section in two ways. First, the concept is clearly linked with a particular housing typology, which produces a clear image of what dwellings associated with the concept look like. Second, it tends to focus more heavily on the internal social process amongst the residents. As a result, cohousing has been strongly linked with a specific lifestyle and target audience.

2.2.2 Self-Organized Housing

Self-organized housing was first introduced in the early 1990s by the housing researchers Duncan and Rowe (1993) as a catch-all term for any act of producing housing where the occupants of the dwelling are directly involved in the process of delivery. In the original conceptualization, self-organized housing was proposed as an alternative mode of housing delivery either by the state or by speculative developers operating on the private market. At the time, Duncan and Rowe (1993) positioned self-organized as a response to housing deregulation and devolution related to housing policy that, in their view, had led to a series of housing issues related to the mismatch of supply and demand. In this sense, self-organization has seen as balancing market or State failures in housing delivery—where these modes of delivery did not provide enough housing, did not provide what was needed, for instance (Crabtree, 2016; Duncan & Rowe, 1993; Mullins & Moore, 2018).

In contrast to cohousing, self-organized housing encompasses a broad range of activities and can produce a wide range of dwelling types. Self-organized housing is not tied to a particular structural type or mode of tenure. It can be realized anywhere from low-rise, single homes to high-rise, multi-building complexes and built for ownership or rental tenure or a mix of both. Similarly, a wide range of organizational, legal and social structures can be considered complementary to the concept. Many familiar and emerging forms—such as cooperatives, social housing, strata ownership, etc.—are all theoretically compatible with self-organized housing. In the broadest interpretation of the concept, a single household that chooses to build their own home using their own manual labour and skill set could fall under the same umbrella of self-organized housing as an organization of hundreds of households who collaborate with external firms and organizations in the process of construction.

Self-organized housing is interesting in that the concept brings this wide variety of activities under an umbrella with a common set objectives targeting the overall health of the housing system. Self-organization is characterized high degree of resident participation where residents are primarily responsible for driving the housing process—typically in the form of a financial stake in the project, material decision making authority or a combination of the two (Parvin et al., 2011). By extension, Duncan & Rowe theorized that promoting this concept for housing delivery would improving long-term efficiency of housing choices and reduce the impact of speculative behaviours on the housing system. As a result, self-organized housing focuses less on particular lifestyles and value systems associated with the concept, arguing that the benefits to the larger housing system are derived from any process that emphasizes resident participation and empowerment (Crabtree, 2016; Duncan & Rowe, 1993; Mullins & Moore, 2018).

2.2.3 Collaborative Development

Collaborative housing development is the most recent of the three concepts to find expression in the literature and, in many ways, it is a synthesis of the previous two. On the one hand, the concept affirms the central role of residents in a collaborative delivery process and reinforces the

central importance of social relations between residents in this process. At the same time, the concept acknowledges that fact that in most cases of self-organized housing, the residents will often rely on some form of external assistance and that this support is an essential component of the delivery process. Similar to self-organized housing, collaborative development focuses on process rather a particular housing typology, serving as an umbrella term covering a broad range of activities in practice. Fundamentally, collaborative development reframes the understanding of resident-led development around the relationship of residents with external partners that facilitate the delivery of housing (Czischke, 2017; Lang, Carriou, & Czischke, 2018).

2.2.4 Conceptual Synthesis

Cohousing, as the most established and most visible of the three, offers the clearest image of the dwellings that may be delivered in resident-led development and sets some of the most ambitious targets in terms of the social performance of housing. Self-organized housing takes a broader, more policy-oriented approach by explaining the rationale and advantages of mainstreaming grassroots, resident-led development. Collaborative development brings together both and sketches out a path to greater recognition for these concepts through a diverse network of stakeholders. Considered together these concepts point to an expanding understanding of resident-led approaches to the production of housing. Proponents of each advocate for resident-led development to be promoted and encouraged as a housing delivery within the housing system at different scales and with different partners. Housing production through these concepts aims to break down the conventional producer-consumer dynamic and to create opportunities for new relationships to be forged in the production of housing.

2.2.5 Key Arguments

Central to these concepts is the idea that housing developed by end users and residents is inherently produced by the group with greatest vested interest in ensuring a high quality of housing. The primary responsibility of residents and end users who provide their own housing is to deliver housing that meets their needs and quality standards (Ministry of Housing Spatial Planning and the Environment, 2001 quoted in Lang & Stoeger, 2018). By contrast, other key providers of housing have other responsibilities in addition to ensuring housing quality. For instance, the primary responsibility of private investors and developers is to manage the financial proforma and to maximize return on investment. As such, there is a considerable incentive to minimize risk and overall cost, which is often achieved through standardization, reduced or limited building and energy standards, smaller unit sizes, less flexibility, etc. (Parvin et al., 2011). Similarly, the primary responsibility of the public and non-profit sectors is to provide housing for all and to leverage land assets to reduce costs to residents. Therefore there is a similar incentive to maximize the quantity at the expense of quality. The motives in this case are inherent political or social—satisfying a need for mass amounts of low-cost housing rather than strictly financial profit motivations—however the outcome in any case remains relatively the same (ibid.). This is not to say that these

other actors are not interested in the quality of their buildings, but simply that they may have other goals or objectives that take precedent. Essentially, the argument put forward by these concepts is that empowering residents to be active and consequential participants in the housing delivery process shifts focus from the exchange value to the use value of housing. (Cerulli & Field, 2011; Turner, 1976) In theory, this shift in focus actively improves the quality of housing from the perspective of sustainability, affordability and inclusivity (Duncan & Rowe, 1993).

Stemming from this core argument, housing delivery via self-organized, collaborative and/or cohousing is generally thought to a offer a set of benefits in contrast to other modes of housing delivery. These benefits are organized under six headings below (For further examples see Czischke, 2017; Lang et al., 2018; Parvin et al., 2011; Tummers, 2016)

1. Increasing individual agency in housing choice
2. Increasing the diversity of actors in the delivery of housing
3. Improving the efficiency of housing
4. Improving individual housing affordability
5. Increasing the likelihood of environmental sustainable practices
6. Promoting the social or communal orientation of housing

2.2.5.1 Increasing Individual Agency

Fundamentally, each concept emphasizes that residents have a material influence on the outcome delivery. Rather than simply participating or providing input, households exercise true control over the process. In this sense, empowering citizens through the delivery process increases the range of choice presented to individuals in need of housing from a narrow set of questions—such as ‘rent vs. buy’ or ‘freehold vs. condo’—to a full menu of inputs and outcomes where the individual household holds true decision making power (Qu & Hasselaar, 2011; Somerville, 1998; Till, 2014; Turner, 1976). From a social perspective, increasing the range of choices offered to households and the agency to act or not act on a particular housing outcome have been theoretically linked to increased feelings of subjective well-being and satisfaction with the function and livability of housing (ÆrØ, 2006; Michelson, 1980; Qu & Hasselaar, 2011).

2.2.5.2 Increasing the diversity of actors in the delivery of housing

Empowering citizens to participate in the delivery of housing is also analogous to promoting an additional sector in the housing system, increasing the diversity of housing providers and complementing—rather than replacing—state or market-driven development. Self-organized housing has been offered as a counterweight aimed at calming the housing system during periods of unstable investments in housing from either private or public sectors. One outcome that this diversity could enable is increased ‘intersectoral’ competition between self-provision and housing provided by private, public or non-profit actors. In a market setting this increased competition would theoretically minimizing price setting as a result of single-source housing delivery (Duncan & Rowe, 1993) as well as encouraging innovation in the homebuilding sector as these professionalized firms are forced to adapt to self-providers’ entrance into the housing system (Ibid.).

2.2.5.3 Improving the efficiency of housing

Increased resident participation may be seen as an opportunity to reduce the perennial mismatch between supply and demand in the housing system. This claim is based on the observation that speculative development is often inefficient in how it responds to demand. Housing, as a product, has several characteristics that make this inefficiency almost inevitable. The construction of housing has a long delivery timeline, there is a relatively high level of risk in residential development due to its lack of liquidity, and housing is highly politicized and susceptible to external conditions—such as interest rates, policy, land availability etc (Glaeser & Gyourko, 2018; Paciorek, 2013). As a result, bringing new housing products to the market is a matter of considerable difficulty and time. Developers are forced to respond either to ongoing demand—which carries the risk of mistiming this demand—or to speculate on perceived demand—which carries the risk of miscalculating actual demand (Nathanson & Zwick, 2018; Rosen, 2017). Consequently, at either end of a housing cycle there is often a delay between when there is an actual need for housing and when the market can respond with what is needed. Conversely, there is also a lag when there is no longer sufficient demand for a particular type of housing yet projects are still built before developers and investors can respond to these demand shifts (Duncan & Rowe, 1993). When such lags occur, there is serious debate regarding whether adequate housing can be obtained through other delivery processes such as filtering (Bier, 2001; Skaburskis, 2006).

John Turner, one of the original prominent proponents of this line of thinking, suggested that a housing system promoting greater participation and control of the housing process by residents would create an 'open services network' where these residents would able to combine the multitudes of services required in the process of producing housing in a number of discreet ways. This approach to housing would promote increased agility and flexibility in the system as a whole (Turner & Fischer, 1972) and would allow for a more fluid alignment between the individual shelter needs of households and their ability to procure a suitable dwelling (Turner, 1976). By extension, enabling residents to take a more proactive role in identifying and acting on their housing needs, reduces the need to speculate. The outcome in this case is a more deliberate development of housing that focuses on real needs rather than perceived demand which in turn limits both a delayed response to increased demand and the lag between a decline in demand and output. At a system-wide level, recent research suggests this form of deliberate development could promote greater efficiency of housing choice which has in turn been theoretically linked to improving affordability at a system-wide level (CANCEA, 2017; Cerulli & Field, 2011; Sharam, Bryant, & Alves, 2015a).

2.2.5.4 Improving individual housing affordability

Alternative modes of housing delivery may also provide opportunities for cost savings in comparison with more conventional modes of housing delivery. First and foremost, these alternative concepts eliminate some fees associated with professional development or builders. Two significant areas where these savings are realized is eliminating the profit that would have been earned by these firms or individuals and removing the need for a targeted marketing effort (Duncan & Rowe, 1993). In certain instances, cost savings can also be put back into the project aimed at increasing

the quality of the building as opposed to being removed from the project in the form of profit. Additional practices can reduce costs even further. Typically cost savings for these projects stem from resident participation in the process. In certain cases, residents can opt to participate in the project management and design of their housing. This allows for what Duncan and Rowe refer to as 'white-collar sweat-equity' (1993). This practice allows residents to realize cost savings by eliminating professional fees, by selecting cost-effective materials or construction methods or by phasing the project in such a way as to minimize financing. Residents may also choose to reduce cost by participation in the physical construction. This practice of 'sweat-equity' can range from limited DIY finishing of individual units to carrying out the full construction from start to finish but cost savings are typically realized again in the reduction of professional fees (Barlow, Jackson, & Meikle, 2001; Benson & Hamiduddin, 2017; Duncan & Rowe, 1993). Additional cost savings can be realized through both the increased suitability of the units and the potential to aggregate costs and risk with multiple parties. At an individual level, these concepts allows residents to have greater control over parameters—such as size of unit, level of finish and amenities—which in allows for a better alignment between budget and needs (Turner, 1976). For example, a household could theoretically choose a smaller dwelling or to leave their unit unfinished in order to to save money and finish this unit incrementally if their income increases. Additional cost-savings can be realized through the shared the costs of land, construction and professional fees as well as reduced individual risk through aggregation (Benson & Hamiduddin, 2017; Duncan & Rowe, 1993; Parvin et al., 2011).

2.2.5.5 Improving the environmentally sustainable properties of housing

AA similar argument can be offered as to why resident participation in housing delivery has a higher likelihood of producing housing with increased energy efficiency or other environmentally sustainable building practices or products. Given that decision making is made by residents, it increases the potential that buildings will be 'built to last,' not only from the perspective of material quality but in the energy and environmental performance (Parvin et al., 2011). Case studies from the UK and Germany have demonstrated how certain instances resident participation in housing delivery has simultaneous introduced environmentally sustainable building practices targeting net zero, passive house or energy-plus standards [For example see (Benson & Hamiduddin, 2017)]. Where other providers of housing are primarily constrained to 3-5 year outlooks, residents are more likely to be invested in the building on the 10-20 year timeframes that are often required to justify the additional upfront cost of certain environmentally sustainable modifications.

2.2.5.6 Promoting the social or communal orientation of housing

Given the fact that residents make intentional and substantive decisions on the location, amenities, communal spaces and orientation of their buildings, there is a greater opportunity for these groups to account for the compatibility of their building with the existing social fabric. Development led by residents may also increase the implementation of true mixed use, where residents retain control of what commercial, retail or office use is integrated into the buildings and therefore increase the likelihood that compatibility and harmony between these uses and the residential use. The benefits from these practices can be realized in a number of ways. In instances where development is

carried out by a group of residents there is an opportunity for internal bonding (Ahn, Tusinski, & Treger, 2018; Benson & Hamiduddin, 2017). These developments may also cater specifically to intergenerational groups or households since units and the built form can be radically adapted to individual needs based on age demographics and accessibility requirements (Ahn et al., 2018). As a result, these forms of development has been proposed as a way to combat social isolation in urban areas, establish a sense of place and strengthen the neighbourhood social network (Benson & Hamiduddin, 2017). Once again, the key argument is that where residents have a vested interest in the social function of their housing there is also the opportunity to act on this interest.

2.3 Concepts in Context

The notion that individuals and households can play an active role in the production of housing is hardly new. The cooperative and cohousing movements of the 1960s and 1970s, the proliferation of urban squatting in the 1980s and the practice of informal housing around the world suggests that the popularity of this mode of housing delivery is not tied to any particular set of events, conditions or contexts (Lang & Stoeger, 2018). It is also true that the concept is not necessarily political in nature and local examples from Toronto (1900-1980) compiled by Richard Harris (Harris, 1996, 1999; Schulist & Harris, 2002) demonstrate that these practices can occur under a variety of political ideologies and regimes in diverse contexts. However, it is interesting to note that the recent resurgence of these concepts has been linked to a renewed interest in practices such as shared living (such as coliving and co-own), community land trusts, cooperatives and crowdfunded real estate [For example see: (Cerulli, 2015; Mullins & Moore, 2018; Tummers, 2016)]. It is also clear that current discussions on the topic of housing are taking place at a time of significant stress (see for example Florida & Schneider, 2018; Kusisto & Grant, 2019; Miller & Lu, 2018). To many, housing is becoming increasingly unaffordable, cramped and difficult to find (King, Orloff, Virsilas, & Pande, 2017; Woetzel, Ram, Mischke, Garemo, & Sankhe, 2014). While these struggles are perhaps most visible in headline grabbing cities such as London, Paris, Singapore or Hong Kong, the impacts of these challenges are becoming increasingly ubiquitous (Wetzstein, 2017). As others have pointed out, the resurgence of these concepts fits comfortably within this narrative (Cerulli, 2015; Mullins & Moore, 2018; Tummers, 2016). In light of the recent intensity of issues related to housing, alternative modes of housing delivery have begun to attract renewed attention from a broad spectrum of actors in academia, government and civil society (Ache & Fedrowitz, 2013; Ahn et al., 2018; Czischke, 2017; LaFond & Tsvetkova, 2017; SPACE10 & Urgent.Agency, 2018; Tummers, 2016).

Various hypotheses have put forward to explain this renewed interest in alternative models of housing. From a strictly political perspective, this resurgence may be viewed as a response to the global financial crisis in 2008 and a reaction to market and state failure (Benson & Hamiduddin, 2017; Cerulli, 2015; Mullins & Moore, 2018). Others have suggested that, in the West specifically, increased state support from entrepreneurialism has encouraged a delivery of housing to

driven by individuals and civil society (Lloyd, Peel, & Janssen-Jansen, 2014). From a social or demographic perspective, the long term trend of increased life expectancy has both highlighted existing weakness in a life cycle approach to housing and prompted new challenges related to housing accessibility and intergenerational living (Ahn et al., 2018). Changes to the average household structure and the breakdown of a rigid life cycle have also destabilized dominant modes of housing delivery (see for example the trend towards an increasing number of single-person households across industrialized nations). Similarly, increasing attention paid to the environmental impact of housing has disrupted conventional distribution patterns and led for a call for alternative solutions. Finally, from a technological perspective the shift towards automation and the knowledge economy have resulted in outcomes—such as new work/life arrangements, increased individual mobility and greater soft infrastructure devoted to the 'sharing economy'—which have the potential to shift attitudes and behaviours related to the delivery of housing. As a way of summary, Tummers (2017) perhaps best explained this resurgence, particularly in urban areas, as a convergence of multiple issues in housing in addition to global forces such as increasing international migration and processes of urbanization.

Regardless of the underlying causes, there appears to be sustained momentum for alternative modes of housing delivery. In this respect, the self-organized, collaborative and cohousing movements—and their entrance into mainstream discourse—can be viewed as a new avenue to organize and formalize a vast array of existing practices at scale. Recent evidence suggests that various applications of these concept have begun to gain traction in dispersed contexts in Australia (Crabtree, 2016; Sharam, Bryant, & Alves, 2014), the UK (Lloyd et al., 2014; Parvin et al., 2011) and the European continent (Bossuyt, Salet, & Majoor, 2018; Lang & Stoeger, 2018; Tummers, 2016). While the exact proportion of housing delivered through these avenues remains low in many of these locations (Dol, Lennartz, & De Decker, 2012), these offers new, interesting and unique opportunities for providing housing in urban areas.

However, while these concepts have been gaining traction in dispersed contexts, there are reasons to be skeptical about the rates of adoption for these in the Canadian context. For instance, cultural or political barriers may exist to new, alternative housing deliveries. For instance, research conducted in the late 1990s and 2000s by David van Vliet found the bureaucratic culture of public sector in many Western contexts (including Canada) was generally conservative in outlook, often taking a stance that was risk adverse rather than innovation supportive (Van Vliet, 2000). Professional developers have also been found to be generally risk adverse in decision making and can be resistant to emerging processes or practices (Landis, 1982; Rosen, 2017). By extension, it stands to reason that in territories where housing delivery is driven to a large extent by professional developers (frequently the case in large urban centres) there will be limited opportunities for new housing deliveries. Therefore, there is a pressing need to ensure that new housing deliveries acknowledge existing housing processes.

2.4 Exchange

It also must be acknowledged that a great deal of the recent momentum behind these concepts comes from the international rather than the national context. Proponents hailing from Australia, the UK, Germany, the Netherlands, Austria, etc. have begun a concentrated effort to study, understand and package the practices and ideas behind these concepts. Growing attention and acclaim for collaborative, self-organized and cohousing practices across the spectrum has increased the likelihood that these ideas will reach new locations and contexts where homegrown movements have failed to gain traction. Indeed, the intended purpose of this report is explore one such example of how international precedent may be useful for current conditions locally. At the same time, a growing body of research suggests that attempting a simple transfer of ideas from one context to another can have wide-ranging implications as these ideas react to and are changed by local conditions. Therefore it issues critical that, before attempting an exchange, a basic understand is established of the process by which ideas and concepts move from one context to another and the implications that this has on their implementation. Here the existing literature on policy mobility provides a useful framework for understanding this process.

2.4.1 History of mobility

Ideas, concepts and policies have always traveled from location to location but increasing globalization and technological advance have profoundly changed this process over the past 60 years. A number of factors—such as the ubiquity and speed of data and the emergence of an increasingly international consultant class—have encouraged a flood of globally mobile concepts such as ‘smart cities’, ‘creative cities’, ‘new cities’. While, there is clear potential to this form of knowledge sharing, it is also clear that the circulation of these ideas do not occur in vacuum devoid of political, cultural, economic and geographic conditions. Operating under the assumption that these conditions continue to have a considerable impact on the ways that ideas are realized in local contexts, the framework for understanding the interface between local conditions and international policy mobility have become critical. Jamie Peck (2011) has proposed that our understanding of this process has evolved in three waves.

The first wave of understanding policy mobility emphasized a straightforward, oneway transfer with little or no modification to the contents or objectives of the policies, ideas or concepts during circulation. Actors operating under this mentality were often concerned with finding international examples of best practice which could be adopted in local context. This simple transfer was often concerned with the relative ‘success’ of the policies in its home context rather than an introspective evaluation of local conditions. For instance, Sweden was considered to have a successful housing policy/model and so many countries attempted to import these policies regardless of whether there was a need for new housing policy or not. As a result, this wave can be characterized by a simple import-export metaphor where a policy imported is roughly equivalent to what was originally exported (Peck, 2011).

By the 1980s, the speed of transfer had increased significantly. Peck (2011) suggests that this was a result not only of increasing access to data and an emerging international consultancy, but also of an increasingly entrepreneurial and professionalized civil service. In this context, policy transfer was understood as a way to form solutions to local issues that closely resembled issues faced in other contexts. Actors operating under this mentality focused on identifying international precedents and case studies and utilizing the lessons learned to shape local policy decisions. In contrast to the previous wave, local conditions form the basis of the transfer informed by the relative successes and failures of the policy in its home context (McCann, 2011; Peck, 2011). However, this form of policy transfer continues to assumed a hegemonic form of global 'best practice' that obfuscated regional and local differences and where impeded a direct translation (Hebbert & Mackillop, 2013).

Recently, more modifications have been proposed regarding our understanding of policy mobility. This final wave emphasizes the complex network of actors and institutions involved in the transfer process and the mutations that can occur in these networks due to the circulation of policy (McCann, 2011). Actors operating under this mentality can be said to focus on a cycle of experiment, observation, reflection and revision in addition to local and international contexts where these policies originate. In contrast with the previous two cycles, policy mobility in this instants is not a static, singular and unidirectional event but a process of near constant negotiation and renegotiation between the conditions, the actors involved and the ideas and concepts themselves (McCann & Ward, 2012). The implications of this perspective is that a broader understanding of the networks and factors inherent in the movement and mutation of ideas must be established before a meaningful exchange can occur (Peck, 2011). As a result, there is necessary focus on the 'origin stories' of concepts and ideas in addition to process of exchange or translation (Healey, 2013).

2.4.1 Pitfalls & Limitations

The shortcomings of previous examples of policy mobility are often cited as the reason for a necessary evolution in our understanding of this process. Some of these case studies address the movement of housing concepts directly. One study by David Clapham & Keith Kintrea (1987) tracked the progression of the Housing Act of 1961—an attempt by policymakers in the United Kingdom to import successful cooperative housing policies from Sweden and Norway—over the a 25-year period. Despite committing over £28 million to develop pilot projects in England, Wales and Scotland, only 40,000 units total were built during this period (0.2% of the total housing stock in the country) and—due to later tenure switching—only 30% of these (12,000) remained co-ownership units by 1985. As a result, the policy was largely considered a failure due to lack of mainstream housing penetration. The authors found that the transfer failed to account for the necessity of a considerable and robust cooperative sector. In Sweden and Norway, this sector was characterized by a diversity of users, a strong network of actors and institutions that actively promoted the industry and a steady stream of financing and subsidy. In other words, both countries had the infrastructure and the sociocultural capital in place to make the system work which were not built up in the United Kingdom (Kintrea, 1987).

While some advances have been made in how we identify and adapt international concepts to local conditions, recent examples continue to demonstrate how this process can have unintended impacts beyond the immediate scope of these policies. Gordon MacLeod (2013) provides a critique on the contemporary form of policy transfer by profiling the case of Tornagrain, near Inverness in the Scottish Highlands. This settlement was designed by Andres Duany based on New Urbanist and Smart Growth principles. Lessons learned from the original New Urbanist project in Seaside, Florida, were packaged as an internationally mobile set of 'coded blueprints for progressive place-making' which were identified as a valuable case study by local Scottish officials and implemented by Duany himself. The risk MacLeod identifies is that, by mobilizing international concepts and experts, these processes effectively supplanted local planning with international methods. While the implementation of this concept relies on an understanding of local conditions and resident participation, MacLeod argues that the new settlement at Tornagrain demonstrates how this type of policy mobility outsources the planning of local neighbourhoods to 'gurus' who move international concepts into these contexts. The elevated reputation that these international concepts confer on a project have the potential to simplify local planning issues and drown out local dissent under the guise of building consensus based on persuasive presentations on the lessons learned in other contexts (MacLeod, 2013).

On one hand, the impact of policy mobility can be relatively neutral. In the case identified by Clapham & Kintrea (1987), the main outcome of this attempted policy transfer was simply the low adoption rates of cooperative housing in the United Kingdom under this programme. However, there are also potentially more serious unintended consequences that can cause direct harm to the housing system. In the case of Tornagrain, MacLeod points out that these processes can stifle local planning and decision making. In effect, global ideas may essentialize local issues, increasing the likelihood that the fixes these ideas propose to offer will be merely superficial or will succeed in one area while creating new issues in others. Similar criticisms have been put forward against the circulation of many well known, globally mobile urban concepts (Peck, 2005). The danger this poses to the delivery of housing is diverting public attention and essential resources away from focusing on root issues and local solutions. In other words, there is a pressing need while participating in international knowledge sharing to reconcile the global and local in a way that does not place undue emphasis on one relative to the other.

2.4.3 Opportunities

The previous section highlights some of the risks associated with international policy mobility. Uncritical movement of policy from location to location can, at times, misread or ignore local conditions and, at worst, can begin to actively subvert local planning. At the same time, it appears that many of these issues stem from an overconfidence in the policy or concept being translated rather than the merits of policy mobility in itself. Searching out successful international case studies as a quick policy fix based on either political expediency or perceived lack of local capacity is unlikely to produce result that adequately address local concerns and target long-term sustainability. This is not the same as saying that there is nothing to be gained from the

international circulation of ideas, concepts and policies. Instead, the questions to ask are under what conditions is policy mobility appropriate and what are the requisite steps to ensure that this process is carried out with full awareness of limitations and complexities of transplanting ideas and strategies. With these questions in mind, there are three main areas where international policy mobility—specifically in regards to alternative modes of housing delivery—can contribute to the framing of local solutions and interventions.

The first area where international knowledge sharing can usefully contribute to local housing solutions is where concepts or ideas highlight differences between the current system and governance models in the local context and alternative systems that exist in other contexts. Where ideas or concepts are related to systematic conditions the exchange of these ideas could remain high level and abstract and, consequently would be useful in stimulating discussion on a particular ideological framework or setting broad objectives or goals. The second area where international knowledge sharing may be useful is where these concepts or ideas help identify different metrics or criteria of 'success' that may be usefully incorporated into existing housing processes. These ideas or concepts could focus on more concrete elements of the enabling frameworks of the housing system such as policy instruments, legal forms or financial programmes and could introduce or expand on the process of evaluating how these deliver on various objectives or goals. The final area where international knowledge sharing may be useful is where these build material for experimental concept development and policymaking. These ideas or concepts could be the result of a particular practice or innovation in the form of a discreet intervention or type.

Summarizing these threads, the goal of international policy mobility and knowledge sharing should be to compliment and advance the discussion on local issues rather than targeting quick policy fixes that subordinate the local process to international procedures. Whether by way of inspiration, modification or augmentation, the exchange of international ideas or concepts should focus on how these have contributed to understanding and improving the conditions of both origin and destination.

2.5 Evaluation

Sustainability is understood as a temporal and societal level measure of whether systems, processes and practices support the capacity of both current and future generations to create healthy, inclusive, viable and responsible communities. In recent years, there has been a growing use of multidimensional 'bottom line' frameworks to evaluate the sustainability of different models and concepts from a series of diverse perspectives. The most common of these is the Triple Bottom Line framework, which has been credited with effectively capturing the multidimensional nature of sustainability (measuring economic, social and environmental components of sustainability. However, some have critiqued the Triple Bottom Line as being too oriented towards compromise, ignoring fundamental tensions between the various components.As a result, multiple alternative frameworks (with more or less the same aim) have been proposed to cover a wide spectrum of

disciplines. Generally, each iteration of this framework map the relationship between the various dimensions of sustainability and explore the tensions and tradeoffs between each. From these, the framework proposed by Bratt (2012) stands out as particular relevant to the evaluation of *Baugruppen*. In its original form, the Quadruple Bottom Line (QBL) framework Bratt proposes is aimed at the non-profit housing sector and seeks to asses how these effectively manage the tension between their targeted social or objectives with the reality of operating in the private market. As a result, the QBL assess the:

- *financial viability of the development;*
- *social and economic needs of the residents living in the housing;*
- *a sensitivity to the way the housing fits into the larger fabric of the neighbourhoods and contributes to neighbourhood viability; and*
- *the housing should be as environmentally sensitive and sustainable as possible, which involves minimizing the use of nonrenewable energy resources and striving to reduce transportation needs (2012, 444)*

This framework has many strengths—including the emphasis placed on neighbourhood viability, the separation of financial viability of the development generally from the specific economic needs of residents and the expanded 'land use' perspective of environmental sustainability— and seems to adequately cover the various dimensions of housing. However, there are tensions that remain unresolved within this framework, particularly as these apply to *Baugruppen*. For instance, while there is undoubtably is overlap between the two dimensions, the grouping of social and economic needs for residents seems problematic since hypothetically housing could fulfill one but not the other. Similarly, while the third component mentions a sensitivity to the fabric of the neighbourhoods as this connects to neighbourhood vitality, it is unclear it is unclear whether this represents is an economic or social dimension. For these reasons, the following translation—with additional modifiers and dimensions—has been used (described below).

1. *Economic Sustainability*
   the impact of the development on the ability of stakeholders to secure essential goods and services in an manner that is efficient from a cost-benefit perspective. For individual households, economic sustainability is related to these households' ability to purchase and maintain housing through a *Baugruppe*-led project. For external stakeholders, this sustainability concerns the bi-directional impact of *Baugruppen* and external economic factors, such as land prices and lending costs.

2. *Environmental Sustainability*
   the impact of the development on the environment. At the scale of individual projects, this sustainability will be measured as the performance of the dwellings against environmental standards as a direct result of design decisions made by participants in *Baugruppen.* Considered as a whole, *Baugruppen* may be considered environmentally sustainable by the degree to which these buildings promote or encourage patterns of behaviour that contribute to environmental sustainability.

3. *Social Sustainability*:
   the impact of the development on the so-called 'social space' describing the relationships and attachments of stakeholders to people or places in a neighbourhood. Within individual projects social sustainability may be the level of social cohesion within individual building groups demonstrated through 'commoning' elements or group dynamics. Social sustainability may also be measured by the volume and quality of connections (bridges and links) of *Baugruppen* to wider scales of society.

4. *Housing quality*
   the impact of the development's built form on residential satisfaction. For participants this will be demonstrated through internal design selection and high levels residential satisfaction, 'customization' and 'personalization.' *Baugruppe* projects may also be measured by degree of neighbourhood integration from an urban design perspective.

The QBL framework attempts to provide a holistic analysis of the concept by incorporating the perspectives of both those within the building communities and those outside. It attempts to acknowledge the fundamental tradeoffs and tensions between each dimension. It also aims to develop metrics for both quantifiable and intangible standards of success. Most importantly, it reframes an analysis of housing concepts around a measure of sustainability that considers both current and future generations. Put simply, the purpose of developing the QBL evaluation framework is to add a comprehensive building block in the process of exchange. Fundamentally, the QBL aims to better understanding the 'origin story' of *Baugruppen* by assessing the impact of the concept in its native context of Berlin.

3.0
BAUGRUPPEN BERLIN
CURRENT CONTEXT ANALYSIS

The challenge presented in previous sections can be summarized quite plainly: innovative, alternative modes of housing delivery have the potential to contribute to the practice of sustainable residential development but they have also generally had limited traction in the North American context. In light of this challenge, consulting international case studies of alternative housing deliveries may provoke dialogue on the role of these deliveries in the housing system or provide a roadmap for how to increase the adoption rate of certain concepts or practices.

The German concept of *Baugruppen*, or 'building groups,' refers to a form of development where groups of individual households take on the role (and responsibilities) of developer. These households pool resources to purchase property, design their own units and, ultimately construct their own multi-household dwellings. While similar forms of collective building are not uncommon or unprecedented in the German context, the *Baugruppen* concept is unique due to the flexibility these groups have in determining the legal and financial structure of the development. Most interestingly, for the purposes of this report, this flexibility has allowed households adopting a *Baugruppe*-type approach to deliver new high-quality, multi-family housing for homeownership. This delivery suggests that there is potential to map the concept on to existing norms of homeownership in the Canadian context, while at the same time targeting high standards of sustainability and quality for housing in urban areas.Therefore, this section analyzes the German concept of *Baugruppen*, as currently practiced in the City-State (Land) of Berlin-Brandenburg ('Berlin'), to evaluate its potential use as a tool promoting sustainable residential development.

In order to carry out this analysis, multiple sources of information were consulted. Data was taken from the CoHousing Berlin database with the intent of developing a high-level understanding of the objectives, variety and distribution of completed and in progress *Baugruppen* projects. Eight interviews were conducted with key stakeholders who have either lived, worked or interacted with *Baugruppen*. Interviewees included architects, planners, researchers, facilitators and residents and were designed to track the evolution and impact of these practices over the past 15 to 20 years (See Appendix). The purpose of these interviews was to better understand the strengths and weakness of the concept focusing on the multidimensional sustainability of these practices. Findings from primary sources were cross-referenced against secondary sources and academic literature to provided additional information or context.

Figure 4 Topping out party R50
Heide & von Beckerath, ifau; Source: German-Architects; image: ifau

Figure 5 Bauherrengemeinschaft GA154
Urbansky Architekten, Image: author

3.1 Observations

3.1.1 Context

Building forms exemplifying the practical application of the concepts described in the previous section have a long history in Germany, and in Berlin specifically. In the post war era, numerous examples—such as the *Genossenschaft* ('cooperative') movement of the 1960s and 1970s or the radical squatting movement of the 1980s—point to a legacy of self-organized, collaborative and cohousing initiatives. In many contemporary accounts, the concept of *Baugruppen* has been offered as a direct continuation of these traditions.

In Berlin, the antecedent to the *Baugruppen* movement has been identified as the process of legalization and 'social integration' of squatting communities in West Berlin during the lead up to the 1984/1987 International Building Exhibition (IBA) (Figure 6). The IBA marked the beginning of a period of roughly 15 years during which the state directly supported the growth of self-organized housing. Under this program, residents and civil-society organizations repaired or built around 350 apartment buildings in the Kreuzberg district of Berlin with total funding of €320 million. In the period following reunification in the 1990s, a number of these small, grassroots examples of cohousing-type projects were developed in both East and West Berlin. However, the 2002 collapse of the state-owned *Bankgesellschaft Berlin* and subsequent austerity measures effectively ended the direct subsidy program that supported this initial wave of projects (Droste, 2015; Ring, 2013).

Baugruppen in Berlin emerged in the early 2000s largely as a result of the vacuum created by the retreat of the state and the lack of private-sector interest. With limited investment flowing towards commissions for housing, local architecture firms began to independently organize and jointly-develop housing projects with groups of future residents. These early projects drew both on local examples of collaborative, self-organized and cohousing-type development and on direct precedent of building groups from other German cities such as Tübingen and Freiburg. The conditions of this initial period appear to have been influential in determining the common understanding of *Baugruppen* in Berlin today. This particular model of *Baugruppen* is said to be primarily self-organized or architect-driven private groups often targeting homeownership and with little to no direct municipal support (Droste, 2015). It is this model of *Baugruppen* has largely integrated into mainstream housing delivery in Berlin. The concept now enjoys official recognition by the Berlin Senate and a local urban development agency (STATTBAU) has been mandated to oversee the support of these groups.

The concept has also begun to attract significant international attention. In 2016, an article in Metropolis magazine on the *R50* Building in Kreuzberg stated that, 'Baugruppen—German for 'building groups'—is one model for constructing housing in [a] future of architect-led, collectively funded, community-based living…[that] embodies a fantastic wish for cohousing to ease some of the problems of the housing market' (Figure 4, Bridger, 2015, 1). This enthusiasm is indicative of how the idea of *Baugruppen* has proliferated in English-language commentary in recent years, with several projects—such as the R50 building—attracting international attention to the opportunities that this concept can offer (Hamiduddin & Gallent, 2015; Raynor & Kotler, 2017; Wang & Benjamin, 2017). However, even as the concept has begun to move into the mainstream spotlight, the production of *Baugruppen* in Berlin, both conceptually and practically, appears to be stagnating. Berlin is currently in the midst of a housing crisis with costs having escalated rapidly in the past decade and affordable land for residential development increasingly scarce (Chazan, 2019; Kersting & Gray, 2018; Schultheis, 2019). According to some reports, the average cost of rent in Berlin have doubled over the past 10 years (currently over €11 / m^2) (Schultheis, 2019) while the cost of homeownership rose 129% (€ 3.710 / m^2) over the same period with a year-over-year average price growth (2016 to 2017) of 20.5%, the greatest increase of any global city surveyed (Knight Frank Global Residential Cities Index, 2018). In light of these issues, some have recently challenged the usefulness of *Baugruppen* in response to this crisis and have called for greater scrutiny regarding the support and resources that these group receive. As a result, Droste (2015) has proposed the exercise of a conceptual SWOT analysis (such as the one conducted in 3.3 of this report) to determine the placement of *Baugruppen* with the Berlin housing system.

Figure 6
Admiralstrasse 16, Berlin-Kreuzberg
© Landesarchiv Berlin, F Rep. 290 Nr. 0016908 / Foto: Edmund Kasperski

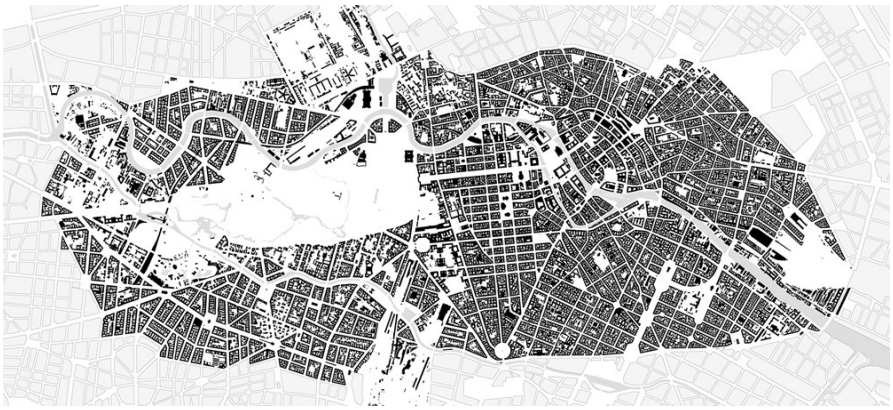


Figure 7a
Central Berlin Figure Ground, 1944
Senatsverwaltung für Stadtentwicklung und Wohnen

Figure 7b
Central Berlin Figure Ground,1958
Senatsverwaltung für Stadtentwicklung und Wohnen

Berlin-Brandenburg

Figure 8
Map of Berlin-Brandenburg
Administrative Distrcts

land area 892 km²

3.5 million inhabitants **population**

1,917,000 housing units **housing stock**

living space per unit **73 m² / unit**

Sorce: Amt für Statistik Berlin-Brandenburg
kleine berlin-statistik

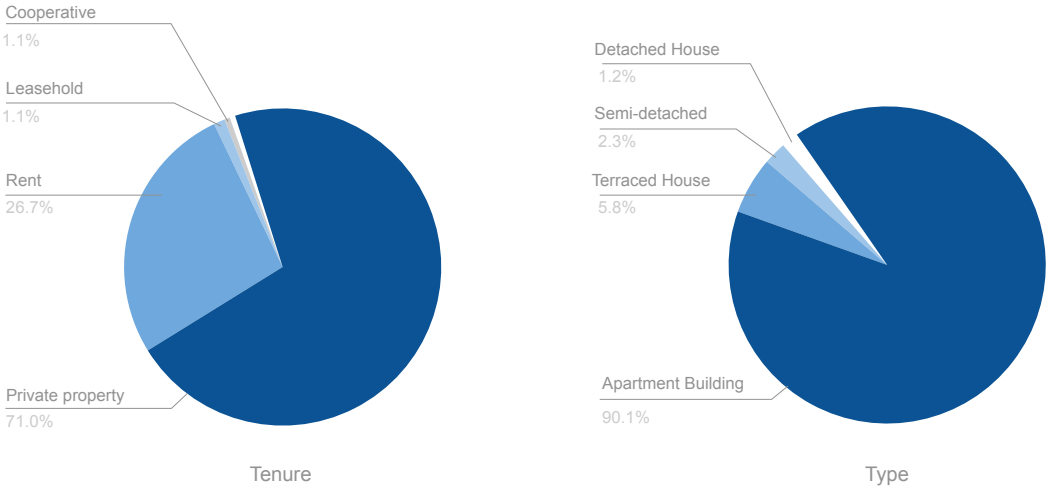
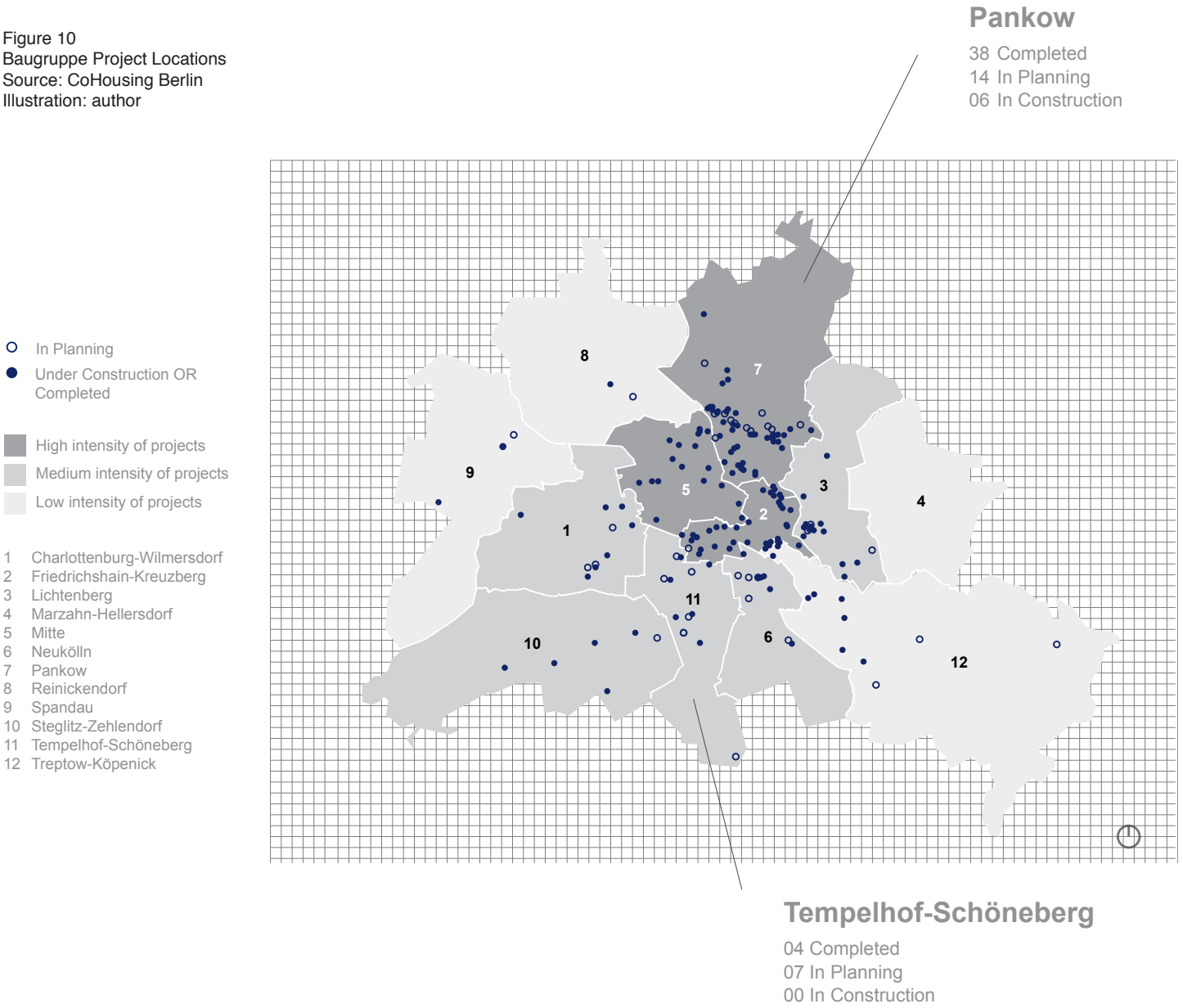


Figure 9
Housing Type and Tenure
Source: CoHousing Berlin
Illustration: author

Figure 10
Baugruppe Project Locations
Source: CoHousing Berlin
Illustration: author



3.1.2 Application

A total of 195 *Baugruppe* projects are listed on the CoHousing database platform for the City State of Berlin-Brandenburg administrative area (128 completed, 47 in planning and 20 currently under construction). These projects overwhelmingly target the delivery of multi-household apartment buildings (90% of all projects recorded on the site) and housing for individual ownership tenure (71%) (Figure 9). Completed projects are heavily concentrated in the central districts of Pankow, Friedrichshain-Kreuzberg, and Mitte. Pankow is also the district with the most projects currently either in planning or under construction (14 total 'in progress'), however it is interesting to note that districts of Treptow-Köpenick, Tempelhof-Schöneberg and Lichtenberg account for a third (32%) of projects in progress suggesting that a trend towards the periphery of the city may be underway (Figure 10). Projects listed on the platform also list targets or objectives, which shed a light on implementation. Around 44% of all projects listed on the platform are also intended to target various goals related to energy efficiency with other popular structural features included enhanced accessibility/mobility features (24%) and space-saving construction elements (12%) (Figure 11).[1] Based on a detailed survey of 15 projects selected at random, these *Baugruppen* complexes were typically comprised of between seven and 70 units, with an average of 23 units (See Appendix). The average floor area in these units is 111 m^2.[2] Projects were predominately six storeys, with an average lot size of 2,350 m^2 and a floor-area ratio (FAR) of 0.6 (See Appendix, also Figure 14). These larger lot sizes, found to be typical of blocks in central Berlin compared to work done by Firley and Stahl (2008), have allowed for the predominant use of a courtyard typology with minimal front setbacks and rear access ways and gardens (see section 3.1.3 Project Profiles, also Figure 7a, 7b].

3.1.2.1 Project Intiation and Group Formation

In Berlin, four groups are typically involved in initiating the assembly process: (1) design or construction professionals (architects, project managers, design / build firms, etc.), (2) non-governmental organizations ('NGOs') such as cooperatives or non-profits, (3) municipal housing or land agencies and (4) the individual households themselves. In projects where professionals initiates the process, groups are brought together through an initial advertising period, often on one of the cohousing platforms or through personal networks. Land may be purchased before the group of participants is finalized with households joining throughout the process. In the literature, this process of initiation and formation is referred to as 'professionally-organized' (Hamiduddin & Gallent, 2015). Several commentators have noted that, in comparison with other cities (such as Tübingen, Freiburg, Hamburg and Munich)—where the state or non-governmental organizations play a large role in the implementation of *Baugruppen* (Hamiduddin & Gallent, 2015; Ring, 2013)—the key initiators of *Baugruppe* projects in Berlin are often local architecture firms. Key-informant interviews suggest that several firms have become specialized in the delivery of this form of development, the employees of which, with some frequency, themselves end up living in the completed projects.[3]

NGOs, and large cooperatives in particular, can also play a role in project initiation and group formation. While this role is typically to provide support or information to resident groups who are interested in either non-profit or cooperative legal structures (discussed in section 3.1.2.4 *legal structures*), certain examples such as the *IBeB* project (discussed in section 3.1.3 *project profiles*) demonstrate the more active role these organizations can play in attracting participants or investing equity in the project.

Municipal agencies may also participate directly in initiating these projects through the distribution of land. This process is well established in other German jurisdictions and practical examples of this process include seminal projects, such as the *Vaubaun* district in Freiburg or the *Französisches Viertel* in Tübingen. In Berlin, the outright sale of land was broadly curtailed in 2013 under the *Transparenten Liegenschaftspolitik* ('Transparent Real Estate Policy') (Senatsverwaltung für Finanzen, 2019). However, land continues to be distributed to these groups under this policy according to a *Konzeptverfahren* ('conceptual procedure') process. Through this process, land is award based on alignment with a rating matrix balancing economic, environmental, social and urban design objectives (BIM, 2019).

Of course, the key group involved in the process of project initiation and group formation is the individual households interested in participating in *Baugruppen*. So called 'organic' group formation occurs when groups of households with existing social ties (family, friends, colleagues) organize and initiate a group build project (Hamiduddin & Gallent, 2015). While the sources available did not allow for confirmation of how many projects were organized through organic means (versus platform based), practitioners suggested that professionally organized groups were becoming more commonplace. In practice, interview subjects acknowledged that it was rare for projects to come together exclusively through organic means and that some combination of organic (word of mouth) and professional organization (platform based) was the most common start for *Baugruppen*.

3.1.2.2 Delivery Process

The timeline of these projects tends to follow a six-phase pattern: (1) group formation, (2) land purchase (3) financing, (4) planning approvals, (5) design and (6) construction (See Figure 13). The exact order of these, especially the first two phases, is highly dependent on the specific site as well as factors such as which party initiates the project or how the group is formed. In professionally organized projects, land purchase can (and often does) occur before the group formation phase while for organic groups the order of these phases may be reversed. Land is typically either purchased on the market or obtained through municipal procedures. When purchased on the market, the initiating party (either the professional firm or an initial group of residents) will typically put down a proportional amount of the equity and receive an initial round of financing for the land. In certain instances, local investors may brought in to bolster the equity offering before being bought out at later stages of the development. Financing for both land acquisition and construction is increasingly being done through a select number of specialized lending and financial institutions. The largest of these, *Umwelt* and *GLS Bank*, are full banking

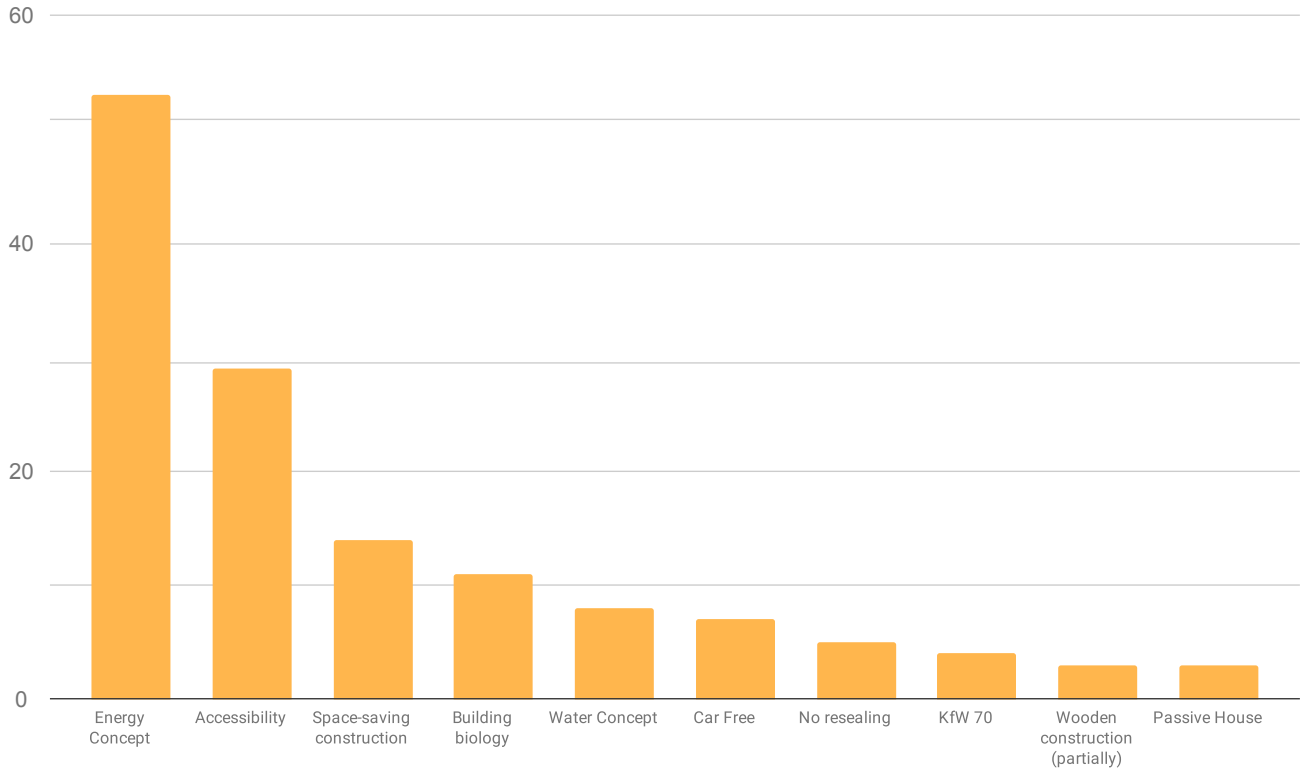


Figure 11
Project Tag by Structural Feature
Source: CoHousing Berlin
Illustration: author

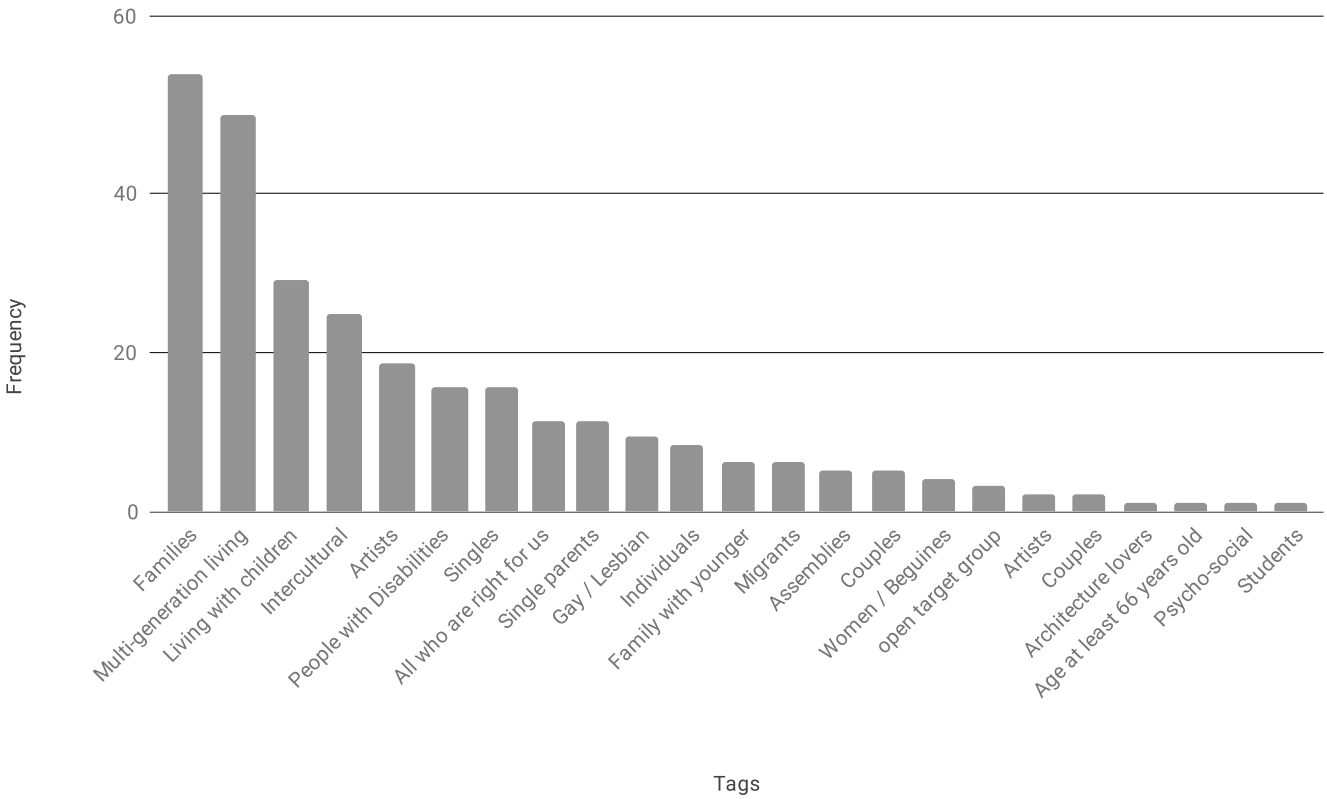


Figure 12
Project Tag by Target Audience
Source: CoHousing Berlin
Illustration: author

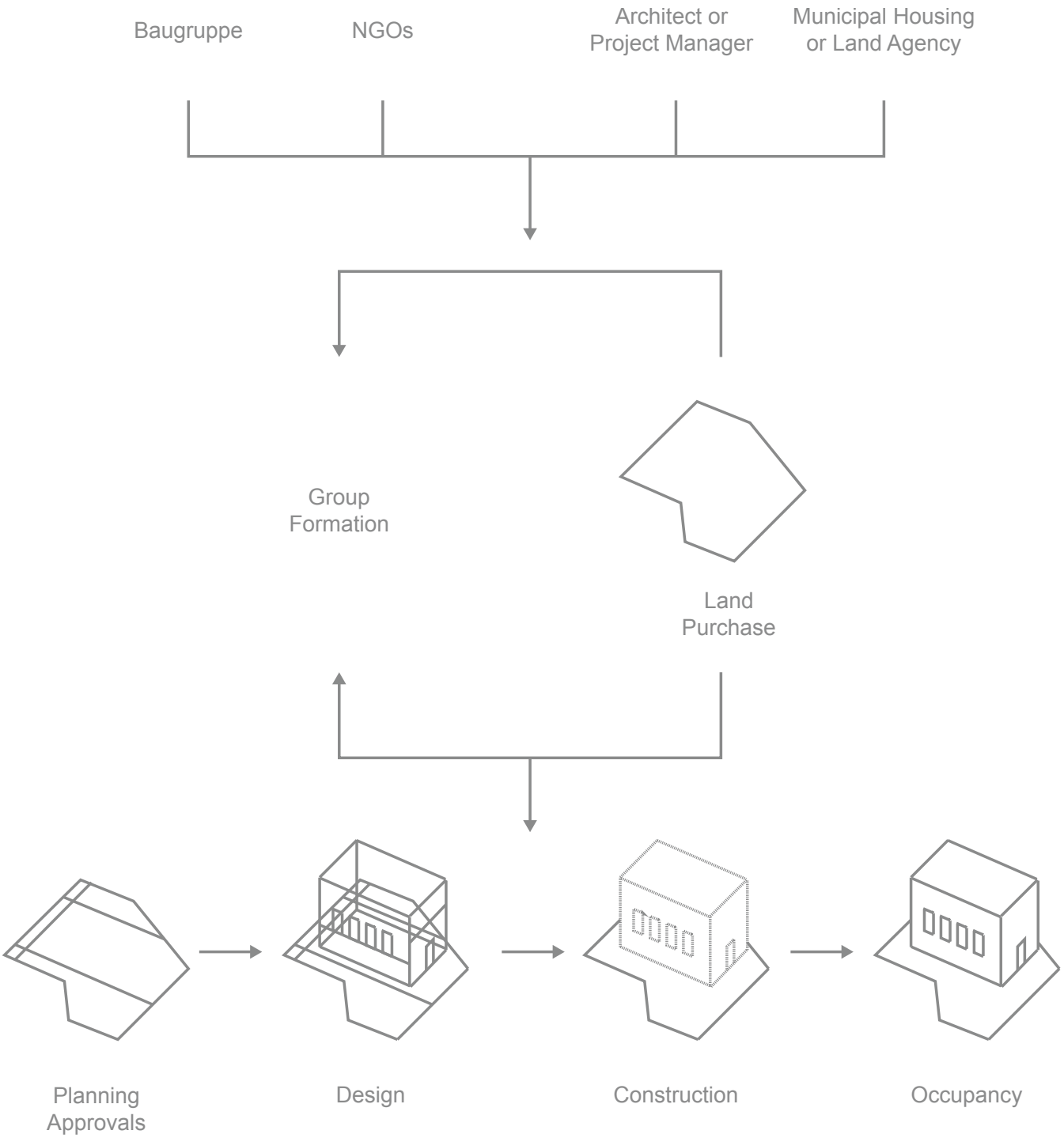
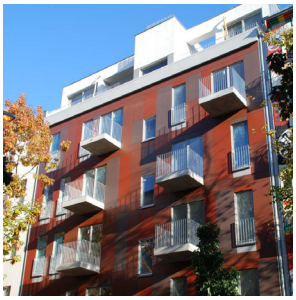


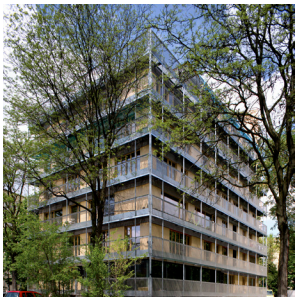
Figure 13
Baugruppe Delivery Process
Source: CoHousing Berlin
Illustration: author

Ausbauhaus Neukölln

Bluecher24



Kreutzigerstrasse 20



r50

cb19

Florastrasse 81

Baugruppenprojekt
Görschstraße 17

IBeB

Shared Space Malmöer

Simplus

e3

Simplonstrasse

Figure 14
Project Survey
Source: CoHousing Berlin
See Appendix D

institutions (and in the case of Umwelt, publicly listed) with dedicated social and environmental missions. Smaller agencies offering financing services to *Baugruppen* have developed specific niches or partnerships within the for-profit and non-profit sectors focusing on land acquisition,[4] brokerage,[5] or integrated finance and project management[6] (CoHousing Berlin, 2019).

The physical design process and the degree of resident participation can also vary depending on how the group is organized. Where land has been purchased prior to group formation or where professionals have played a central role in initiating the project, building features—such building footprint, unit size, or utilities location, may be established prior to resident participation. This initial exercise allows for preliminary costing that may be required by financing institutions and can be used in advertising material when attracting potential participants. Where residents have relevant technical expertise or in instances of organic group formation, the overall design of the dwelling may be more open to customization and personalization. Design workshops and seminars were identified as common tools for facilitating resident input during the design phase. Examples of these workshops included public space design, materials or unit configuration. During the construction phase update meetings were held with resident groups. At this stage, residents may nominate a committee or single member to act as 'project manager' for the group, often someone with preexisting technical capabilities. Experts noted that the process of delivering *Baugruppe* style developments has become increasingly professionalized in recent years at all stages of the process. Beyond the previously mentioned process of group formation, a well established ecosystem of professional services has been built up around the delivery of this form of development. Actors from both the non-profit and for-profit sectors have become particularly involved in the procurement of land, financing and project management of these projects, in addition to the conventionally professional roles of design and construction.

On average, practitioners suggested that design and construction for a typical group build project (small-to medium projects up to 30 units) was relatively short, anecdotally about 12-24 months in duration. However, factoring in time for land acquisition and group formation was said to distort these timelines, in some cases considerably. This was especially true for projects with complicated partnership agreements or land acquisition strategies (see IBeB below). Unsurprisingly, professionally-organized projects were said to be more apt to respect the proposed schedule throughout all phases. The sale of units is generally not considered part of the delivery process for *Baugruppen*. This is due to the fact that sales (either of individual units or of the property as a whole) generally occurred did not occur until many years after completion. For instance, experts mentioned that resident turnover in the first five years after completion was relatively low despite the fact that many of these projects did target individual ownership (opening up the possibility of immediate sale). Additionally, experts noted that while in certain cases professional investors may purchase units for immediate sale or rent, this was rare and typically limited to a small portion of the overall project (often a single unit). Practitioners speculated that this was due to the intensive time and resource requirements of participating in *Baugruppen*, which acted as a deterrent to professional investors and developers.

3.1.2.3 Legal Organization

One of the defining features of *Baugruppen* in Germany is the robust legal framework supporting this approach to housing production. While groups interested in the concept have some flexibility in regards to legal configuration, there are also clear options available, helping to simplify and streamline the legal process (Cremer, Nikolaus, Pfander, & Praum, 2012). The most commonly used legal entity during the planning and construction phases of a *Baugruppe* project is the *Gesellschaft bürgerlichen Rechts* (GbR). The GbR resembles a limited liability corporation where individuals hold equal share in the corporation's assets and are liable for all debt or loss as a result of incompletion or default. Similar to a limited liability corporation, the GbR prevents creditors from pursuing an individual household in the case of default. After completion and occupancy, these groups adopt one of several forms of legal ownership. The most common of these forms is the *Wohnungseigentümergemeinschaft* (WEG), which WEG closely resembles a condominium corporation in that it creates individual property ownership where households are exclusively liable for their own units unless otherwise stated in a sharing or joint-management agreement. A GbR is often formed for the planning and construction phases with a WEG agreement used to separate the units at the end of construction. This action is what allows for the downstream sale of units by individual households.

Baugruppen may also elect to form their own cooperative through the *Genossenschaft* (eG) legal structure. The eG is formed by legal statue which establishes a constitution and is governed by an elected board of directors, a supervisory committee and the voting rights of individual members. In this case, the property is owned by the cooperative rather than individual households. This form of ownership typical establishes a more comprehensive set of standards for the joint management of the community including the sale of individual units. Essentially, the eG formalizes the communal structure of the group and often finds expression in dedicated communal spaces and/or group programming. The organization of an eG is generally considered to be a more time- and resource-intensive process relative to simplified forms of individual ownership but it has enjoyed greater success in terms of ensuring the long-term affordability, environmental sustainability and/or social cohesiveness of the housing that is produced.

3.1.2.4 Participants

Several experts underlined that while there is no 'typical' *Baugruppe* participant, there is a general consensus—evident in the targeting of particular groups described above and echoed in the existing literature —that this form of development has a particular attraction to younger families and downsizing seniors (Ache & Fedrowitz, 2013; Hamiduddin & Gallent, 2015; Suckow, 2009). Referring to projects on the CoHousing platform, a significant proportion of *Baugruppe* projects explicitly aim to attract certain groups or living arrangement with the most common target audience being families or those living with children as well as those pursuing social mixing in the form of dedicated multi-generational living (Figure 12). The literature has also suggested that these participants also tend to be middle-or upper income-earners and often already residents of Berlin (Droste, 2015; Holm, 2010; Suckow, 2009). Experts generally agreed with this overview. One commentator suggested that this portrayal overly focuses on the historic

(perhaps even stereotypical) composition of these groups and may obscure the relative diversity of recent projects.

Practitioners speculated further on the motivations of the households involved and the objectives they hope to achieve. Attempting to balance a desire to live in the 'urban' areas of the city with the cost of this form of living was commonly cited as a key motivator for participants. Experts also suggested that this form of development leads to elevated experiences of pride or accomplishment and that *Baugruppe* projects promote a greater sense of 'ownership' beyond a strictly legal or financial definition of the term. Some offered that participating in a *Baugruppe* allowed residents to secure housing that aligned with certain social, environmental or economic ideologies. Other reasons mentioned in these conversations include the possibility to secure higher-quality housing at a lower price as well as the unique opportunities these models present related to the development of personal skills, such as project management or light carpentry, or community building, brought about by the collective design process. At the same time, it was frequently stressed that these reasons often overlapped and that a great diversity of motivations exist beyond what was mentioned in these conversations.

3.1.3 Project Profiles

While a comprehensive case study review of completed projects is beyond the scope of this report, the work of three architecture firms involved in the delivery of Baugruppe was profiled in order to compliment this survey and gain ground-level observations of the concept in practice.

Urbansky Architekten

Urbansky Architekten is an architecture firm founded in 2017 with a primary focus on residential construction. Prior to founding Urbansky, the firm's principals had previously collaborated on a number of projects including the architects' residence, the P15 Baugruppe. Cumulatively (including previous collaborations), the firm has completed two Baugruppe projects with three currently in progress. These projects are concentrated in the central Pankow district of Berlin, in close proximity to the firm's office location. The size of these projects range from 7 to 28 units and target individual ownership tenure (WEG). The firm maintains a network of frequently collaborators who are involved in land acquisition, financing and mediation for Baugruppen. Subsidiaries of the firm, urbanplaces GbR and kd2s Projektentwicklung GbR, also offers project management services. The firm makes use of the CoHousing Berlin platform, advertising openings for potential participants on current and upcoming project.

Project Profile: Charlottenburger Strasse 24/25 (CH24)

The CH24 project is the firm's most recently completed (February 2019) Baugruppe dwelling located in the Weißensee (Pankow) area of Berlin. CH24 is the largest project completed by the firm to date with 28 individual, ownership tenure units ranging from in size from 2 to 5 rooms. The project was professionally organized by Urbansky and its affiliated partners and targeted a multi-generational audience predominately made up of families with young children and seniors. Promotional material for the project outlines seven benefits of the development for interested parties: (1) intentional community, (2) cost savings, (3) participation opportunities, (4) social approach, (5) energy efficient building, (6) high quality construction and architecture, and (7) project control. While floor plans and unit configurations were determined prior to group formation, residents were said to exercise considerable influence over the planning and design of their own dwellings. Design decision making was by group consensus, facilitated by workshops led by the architect. Due to cost constraints and plot size, communal space at CH24 is limited to a shared garden courtyard at the rear of the building with no interior space allocated to group use.

	CH24
Initiator	Architect
Address	Charlottenburger Straße 24/25
District	Pankow
Area	Weißensee
Completion Date	2019
Planning Date	2015
Architects	Urbansky / SPAR * K
Baugruppe	Bauherrengemeinschaft CH24
Financing	das finanzkontor GmbH & Co KG / Anne Wulf Immobilien
Plot size	1250 m²
Building Footprint	
Net Living Area	3500 m²
Gross Construction Cost	€9,800,000
Cost / net m²	3100
Tenure Structure	Ownership
Building Type	Apartment
Storeys	1+5
Total Units	28
Residential Units	28
Commercial Units	-
Avg Size / residential unit	115
Energy Standard	KfW 70
Efficiency Standard	EnEV2009
Common Areas	communal garden
Other elements	underground car park

Tbale 1
Project Profile CH24

büro 1.0 architektur

Büro 1.0 architektur is an integrated architecture and project management firm founded in 2005. The firm's first project was the Jablonskistrasse Baugruppe where the architects current reside. Büro 1.0 specializes in Baugruppen and has participated in diverse range of projects including the implementation of Baugruppen for master planned new districts. In total, the firm has a portfolio of 29 projects completed and in progress (20 on the architecture side, from project management) and ranging in size from 8 to 173 units. While the majority of the firm's projects have been residential use for ownership tenure, some have also delivered mixed-use or mixed-tenure buildings. The Flottwellstrasse initiative, for instance, was a joint-venture project comprising eight firms specialized in architecture, landscape architecture and project management. The project delivered 173 residential units spread over 11 buildings and included 12 commercial units in addition to a hotel. Subsidized rental tenure housing has also been introduced into some of Büro 1.0 projects, such as the BG Haasestrasse complex where 19% of units have been set aside for this purpose. The firm has also recently begun to branch out into the delivery of dedicated social housing in Tübingen and Potsdam-Michendorf.

Project Profile: Simplon Haus A (SHA)

The SHA building is part of the larger XXL Ostkreuz district plan located in the Friedrichshain area of Berlin. The Simplonstrasse—comprised of 3 separate Baugruppe projects including SHA—is a residential area of the site comprised of 75 flats, a kindergarten and 3 commercial units on the ground floor. The XXL Ostkreuz district plan is advertised as a response to rising rents in Berlin, offering both ownership and subsidized rental tenures (at a fixed proportion) to participants however, units within SHA itself are individual ownership tenure. The SHA project is notable as one of the first projects to be completed in the development. Given both the number of firms involved and the different planning and construction dates of the various buildings in the district, there is a high level of coordination between the individual buildings. SHA shares an underground car/bicycle parking, ground-level courtyard and garden roof terrace with the adjacent buildings.

	Simplon
Initiator	Architect
Address	Matkowskystraße
District	Freidrichschain-Kreuzberg
Area	Freidrichschain
Completion Date	2011
Planning Date	2009
Architects	büro 1.0 / steel denninger architects / FAT KOEHL ARCHITECTS
Baugruppe	pro.b Projektentwicklung & Projektsteuerung
Financing	UmweltBank
Plot size	1280 m²
Building Footprint	
Net Living Area	3222 m²
Gross Construction Cost	€7,835,000
Cost / net m²	€2,432
Tenure Structure	Ownership
Building Type	Apartment
Storeys	1+5
Total Units	31
Residential Units	29
Commercial Units	2
Avg Size / residential unit	90
Energy Standard	KfW 70
Efficiency Standard	EnEV2009
Common Areas	Courtyard, Roof Terrace
Other elements	underground car / bicycle park

Tbale 2
Project Profile Simplon

Heide & von Beckerath

Heide & von Beckerath is an architecture firm founded in 1996 with a diverse portfolio of projects for residential, commercial, institutional and cultural use. Baugruppen make up only a small part of the firm's work but the architects have become specialized in projects involving the municipal conceptual procedure process. Two prominent examples of the firm's work with Baugruppen, the R50 project and IBeB (both completed in collaboration with ifau and Jesko Fezer), were each the result of separate concept-based processes led by the District of Friedrichshain-Kreuzberg.

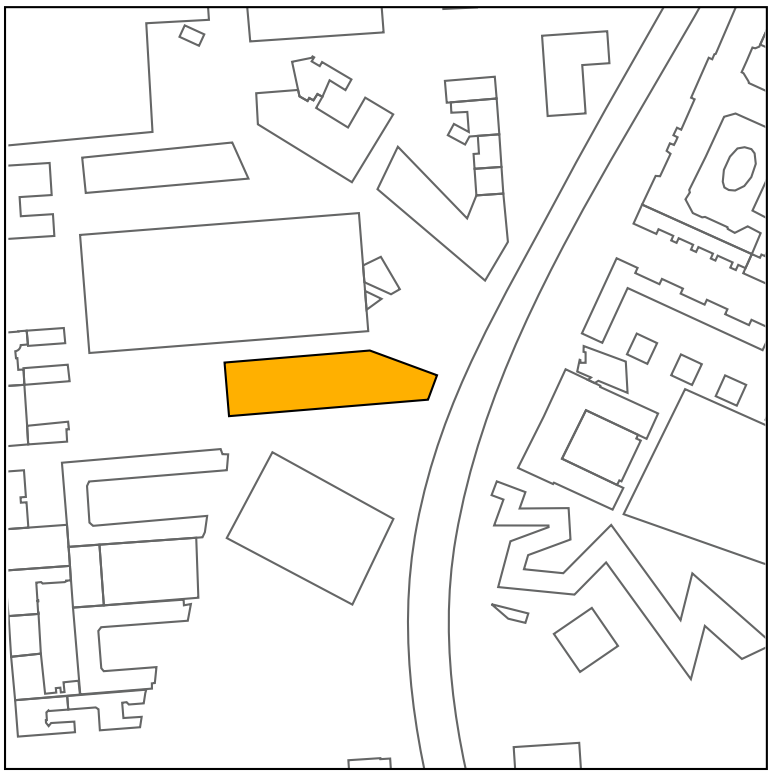
Project Profile: Integratives Bauprojekt am ehemaligen Blumengrossmarkt (IBeB)

IBeB is located on a prominent site at the former Blumengroßmarkthalle in the Kreuzberg neighbourhood of Berlin and adjacent to Daniel Libeskind's Jüdisches Museum Berlin. The IBeB site was one of three allocated by the District of Friedrichshain-Kreuzberg and the Berlin Senate as part of conceptual bidding process targeting the development of a cohesive 'Art and Creative Quarter (KuKQ)' (Munoz, Schmidt, Waffel, & Raschke, 2012). The project was initiated by the Selbstbaugenossenschaft eG (cooperative), which engaged the architects Heide & von Beckerath and ifau to design the building and to support efforts to organize the Baugruppe. Through this collaboration, the project team was able to work with three different financing models using an innovative cross-subsidy model, mixing individual ownership and cooperative tenures by passing savings on the land costs realized through the conceptual procedure process were directly to units allocated for below market rents (Selbstbaugenossenschaft eG, 2017). At the same time, the complexity of negotiating a compromise between the various interests had a significant impact on the timeline of the project, which took more than seven years to implement (from the initial planning period carried out by the District).

Promotional material for the commercial area of the building states that the central idea of the project was the participation of all stakeholders in the process. In total, 64 meetings were conducted with residents during the design and construction phases and the impact of resident input was said to be considerable. The building footprint was maximized to the planning of the site but unit layout and size was not predetermined from the outset. The result was a skeletal framework of two main staircases connected by a communal 'interior street,' which doubles as a common space, with unit configuration being arranged and modified according to resident interests. The desire of local officials to promote mixed-use, conceptual-driven development is also reflected in both the use and mission of the IBeB project with emphasis placed on the harmonious relationship between residential, studio and commercial units.

	IBeB
Initiator	Cooperative / Architect
Address	Lindenstraße 90/91
District	Freidrichschain-Kreuzberg
Area	Kreuzberg
Completion Date	2017
Planning Date	2012
Architects	ifau / Heide + von Beckerath
Baugruppe	IBeB GbR (Selbstbaugenossenschaft Berlin eG | Ev. Gemeindeverein der Gehörlosen in Berlin e.V. | Private Owners)
Financing	
Plot size	2798 m²
Building Footprint	1817 m²
Net Living Area	5530 m²
Gross Construction Cost	
Cost / net sq. m	
Tenure Structure	Ownership / Cooperative
Building Type	Apartment
Storeys	2+4
Total Units	87
Residential Units	66
Commercial Units	21
Avg Size / residential unit	84
Energy Standard	KfW 70
Efficiency Standard	EnEV2014
Common Areas	inner street (rue intérieur Le Corbusier) communal roof terrace communal event room
Other elements	bike parking

Tbale 3
Project Profile IBeB



3.2 Sustainability Analysis

The following subsection evaluates case-study findings on the application of Baugruppen in its current form in Berlin against a variation of Bratt's (2012) Quadruple Bottom Line framework (as outlined in section 2.4 Evaluation).

3.2.1 Economic Sustainability

The measure of economic sustainability questions the impact of Baugruppen on the ability of stakeholders to secure essential goods and services in an manner that is efficient from a cost-benefit perspective. This measure weighs both the ability of individual households to purchase and maintain housing (in relation to other costs of living) and the the bi-directional impact of Baugruppen on the broader economy at the neighbourhood or city-wide scale. In other words, does participating in a Baugruppe lead to more long-term affordability for the households involved? Do Baugruppen have wider impacts on the economy of the surrounding area?

Historically, Baugruppen have been considered a form of development capable of delivering cost savings and relatively cost-efficient housing for homeownership. The measurement typically used in this assessment is a comparison between the cost per square metre of completed Baugruppe built dwellings to the average cost per square metre of ownership housing in the surrounding area.[7] Based on this assessment, it has been estimated that Baugruppe built dwellings were about 15-30% less expensive on average than other modes of delivery.

Several factors contribute to the general viability of the concept. First and foremost, Baugruppen remove both the profit margin required in venture-driven projects as well as the need for dedicated marketing and sales budget often seen in speculative developments. Residents also invest equity into these projects, allowing for Baugruppen to forego the need for external investors and to receive lower risk premiums from lenders and financial institutions. The increased equity stake in the project means that overall carrying costs of financing are low and, while the risk of individual default is elevated, the risk of project default is adequately mitigated by the GbR structure. These projects also deliver owner-occupied dwellings, allowing the completed units (especially in projects with a WEG) to act as collateral on loans as well as an investment for individual households. As a result of these factors, Baugruppen are generally considered low-risk investments by lending institutions, practitioners and policymakers.

The concept also creates additional options and opportunities for further reducing final housing costs. One prominent example has been to incorporate lifecycle thinking into the residents' decision-making. This type of thinking encourages groups to reduce transportation costs by selecting locations on transit arteries and/or in close proximity to employment or social opportunities. Maintenance and utility costs have also been reduced through initial investments in material durability or higher efficiency energy utility systems. Residents with specific technical expertise may also save on professional fees by adopting roles typically filled by external agents. A common

example is the 'DIY' finishing of individual units—so-called 'sweat-equity'—particularly on items such as cabinetry, interior dividing walls or finishes. This DIY finishing has the added benefit of allowing residents to defer these costs in order to reduce amounts paid upfront. Residents with professional 'white-collar' skills have also reduced costs by adopting a greater role in the design or project management of the development.

In one example, the CH24 project targeted a final cost per square metre (€3,100 including communal space and land costs) that was 27% lower than the neighbourhood-level median cost (Prenzlauer Berg, estimated to be €4,250 / m^2),[8] while competing on the private market. The project expose specifically cites both the elimination of a speculative profit margin and the reduction of risk premiums as cost saving measures, which allow for building to be developed 'at cost.' Professional fees were estimated to be 15% of total project costs and a transparent disclosure of fees was credited as allowing residents to tailor project costs to their budgets. The project was also advertised as ensuring the long-term affordability of housing for individual households through the use of near Passive House energy standards (EnEV2013 KfW70 standard) to reduce heating and utilities costs over the life of the building (Hömberg, 2015).

While this example suggests that Baugruppen offer intrinsic advantages, allowing for the delivery of ownership tenure housing at or below market prices, the concept is also inherently riskier and less accessible than other housing delivery models. Experts estimated that between 25-40% of project (land + construction) costs were required upfront for Baugruppe projects. At this figure, participants in the CH24 project would have to commit an estimated €90,000 on average (approximately $131,500 CAD) in upfront instalments, a figure roughly 2.2x the average annual household income in Berlin. This investment is proportionally in excess of the 20% typically required as a downpayment in venture led development and is entirely equity held by the individual members of the group. The equity stake in the project introduces additional levels of individual risk only partially mitigated by the limited liability legal structure (GbR). In instances where individual households can no longer make payments into the Baugruppe, the remaining households have historically been required to cover this portion of the costs. Beyond financial resources, Baugruppen also require significant investments of time and social capital to navigate the inherent complexity of the delivery.

Evolving external conditions have also challenged the viability of the concept in recent years. Operating under market conditions, the costs associated with Baugruppen are strongly determined by the availability and affordability of land. To date, most Baugruppe-led projects have purchased land on the private market and these up-front costs have been rising steadily over the past decade (Deutsche Bundesbank, 2019). This cost has begun to have impacts on the general cost-effectiveness of the concept in the city centre, which may partially explain the trend of Baugruppen projects moving toward the periphery. Similarly, increasing competition for land has become an influential factor as more institutional investors enter the market (CBRE & BerlinHyp, 2018). One expert mentioned that Baugruppen operating in 'hot' property markets now need to move more quickly, often placing bids above the asking price in order to secure land before it attracts other competitors.

In effect, increasing competition and rising land costs have amplified practical limitations to some of the cost-saving measures and options presented above. Increasing competition has coincided with the professionalization of 'Baugruppe providers' (architecture, project management or financial services firms) and greater efforts to streamline the process of purchasing land. Some firms have begun staffing dedicated personnel responsible for scouting available land or for mediating group formation. Others have partnered with local investors to purchase the land before assembling a group for the construction phase. Such measures are considered necessary to remain competitive and to simplify the delivery process. However, tradeoffs of this evolution may effectively dilute the participation of residents or introduce overtly speculative behaviours into the concept. Rising land costs have also begun to threaten the general viability of the concept by pushing upfront project costs higher. Besides immediately compromising the cost-effectiveness of the approach, these costs could discourage households from adopting lifecycle designs or products and, therefore, raise the long-term costs of housing.

Baugruppen may also have an impact on increasing the cost of land for the surrounding area and can act as a contributor to the process of economic gentrification. This argument stems from the fact that Baugruppen appear to thrive in areas with initially low levels of interest or investment, where land costs are relatively low due to less demand (i.e., the lack of competition for sites). As a result, many projects end up being accused of signalling the attractiveness of these areas to outside investment and ultimately facilitating a spike in the cost of land. In the Berlin context, this is an area of significant concern. Roughly 85% of Berliners are renters and are therefore particularly susceptible to rapid fluctuations in ground rent. Baugruppen projects have thus often become a 'lighting-rod issue' for social activists and researchers (Holm, 2010). At the same time, it must be said that it is difficult to attribute the rising cost of land to a single form of development and there are a variety of other factors (such as population increases, low interest rates encouraging homeownership, international investment, etc.) that could similarly account for price increases. While the logic of this argument appears sound, a longer-term study on the impact of Baugruppen on surrounding land prices would likely be required to definitively make the argument that they contribute to gentrification in direct ways.

Baugruppen may have wider positive impacts on the ecosystem of housing delivery from the perspective of increasing the diversity of housing actors, reducing speculative behaviours, or introducing new methods or process and there are limited practical examples that illustrate this potential. One area where this dynamic is observable is the networks of knowledge exchange and capacity building that have been established through the Baugruppen concept. Formal examples of these networks include platforms such as CoHousing Berlin, which circulate connections and information to diverse parties. Less tangible examples exist beyond these explicit knowledge transfer networks. The exchange or creation of expertise, such as Büro 1.0's cross over into the delivery of social housing or Heide & von Beckerath's participation in an integrated project utilizing both cooperative and ownership models, could be theoretically linked to innovations like the IBeB cross-over model. Such innovations may, in turn, make often intangible contributions to the economic sustainability of the housing system as a whole.

The limited application of the Baugruppe concept to date somewhat diminishes these claims and prevents them from being considered central benefits of the concept. In Berlin, the number of housing units currently delivered by Baugruppen is quite low (roughly 3,000-4,000 units since 2000),[9] particularly in comparison with projected housing needs, which were estimated (in 2015) to be around 137,000 new units by 2025. As a result, an argument for the systemic impact of the concept is relatively limited. Moreover, questions remain whether such innovations could occur under market conditions given threats to the viability of the concept.

Economic Sustainability Summary

Inherent Strengths

- Cost savings by eliminating profit (in comparison to investor-led development)
- Consolidates financing costs by pooling mortgages and/or increasing equity
- Mitigates project default risk through incorporation

Opportunities and Options

- Encourages consolidating building costs for individual households by stacking units, streamlining services, etc.
- Encourages incorporating lifecycle energy efficiency
- Allows participation in ‘blue-collar’ sweat equity (DIY finishing of units) resulting in further cost savings as well as skills acquisition.
- Allows participation in ‘white-collar’ sweat equity (project management, design, etc.) resulting in further cost savings as well as skills acquisition
- May contribute to the health of the housing delivery ecosystem

Weaknesses

- Selective targeting of low land-value areas increases risk of economic gentrification
- Upfront costs are significant barrier to entry especially when tied to land price
- Increased personal financial risk due to equity stake

Threats

- Declining viability of the concept due to increasing land price and institutional competition
- May deplete resources from other models

3.2.2 Social Sustainability

The measure of social sustainability considers the impact of Baugruppen on the so-called 'social space,' describing the relationships and attachments of stakeholders to people or places. This measure examines both the level of social cohesion within individual building groups and the volume and quality of connections (bridges and links) of Baugruppen to wider scales of society. Does participating in a Baugruppe contribute to social life? Who can participate in Baugruppen? How do the residents of these buildings interact with and integrate themselves into the surrounding contexts?

The social benefits of Baugruppen are mentioned frequently on project websites and in the literature on the concept. Coverage of the IBeB project cites the assembly process as creating a 'social infrastructure' that connected residents to one another (Bridger, 2015). The CH24 project also promotes the building as a 'living household,' complimenting diverse lifestyles and multigenerational living. These assertions have been reinforced by messaging from the Berlin Senate and STATTBAU, which make the connection between Baugruppen (and Baugemeinschaften) and community living.

Several practical examples suggest that Baugruppen do facilitate social cohesion at the project scale and within individual building groups. The IBeB project, for instance, held over 60 meetings between group members—both with the architect and contractors and without. Both the CH24 and Simplon Strasse projects mobilized design workshops and seminars to facilitate group decision-making and to build consensus. In this sense, Baugruppen may be seen as facilitating networks of mutual support amongst group members. Practitioners frequently cited the intensive and sustained process of interaction during the design and construction phases as contributing to an overall spirit of collaboration and support. Anecdotal evidence collected from each of the projects profiled also suggests that there has been relatively limited resident turnover in these projects to date. In the Simplon Strasse project only one family had relocated, while the R50 and Baugemeinschaft Jablonskistrasse projects have experienced no resident turnover whatsoever. While external factors (different cultural attitudes towards ownership, unfavourable sale conditions, etc.) could also explain this rate, interview subjects credited the high degree of satisfaction derived from both the physical performance of the building as well as the quality of the social interactions and community identity that had been established. There was speculation that participation in the process of delivery may contribute to increased feelings of group loyalty reinforced by an elevated sense of 'pride,' 'ownership' and 'belonging.'

In terms of social participation, the design of the building—often driven jointly by the architects and the residents—has provided new options for social interaction. In this respect, the IBeB project and the Simplon Strasse projects stand out for creating a clever balance of private and public space that maximizes the quality of interactions. In each project, a prominent building feature was explicitly designed to facilitate face-to-face exchanges amongst residents. In the IBeB, the interior common 'street' spanning the entire building encourages neighbourly interactions. At the Simplon Strasse project, a shared roof terrace is used by residents as an outdoor viewing area

for things like football matches and movie nights. Again, respondents speculated that the co-design process of the communal areas resulted in greater use and collective management of these spaces.

The strength of these claims can be (and has been) questioned. For example, an in-depth study of the social function of two Baugruppe projects in Tübingen and Freiburg identified at least three areas that the concept of Baugruppen does not adequately address from a social perspective (Hamiduddin & Gallent, 2015). First and foremost, the social impact of these projects may depend more on group formation and the individual motivations of group members rather than emerging as a 'natural' outcome of the building process. For instance, groups with existing social ties—so-called 'organic' groups—may experience elevated feelings of social cohesion more acutely when compared with 'professionally-organized' groups with no pre-existing social connections. All three projects profiled were professionally-organized groups and, while respondents suggested that these projects did contribute to a process of 'getting to know the neighbours', there was no clear indication that a feeling of social cohesion went beyond typical neighbour relationships. Second, while the Baugruppe process may 'incubate' or strengthen social ties, the process is also an 'intense social experience' with the potential of increasing social fragmentation, 'clique' formation or other socially-selective experiences. In other words, the social benefits of participating in a Baugruppe may be derived from a process of self-selection, where group members chose other members based on possessing similar values, personalities or lifestyles and actively excluding those who do not fit a determined set of criteria. Finally, the actual output of Baugruppen in terms of space and opportunity for social participation may be somewhat limited. While some examples of completed projects certainly suggest that Baugruppen may incorporate high quality social spaces, there remain practical cost considerations. Operating in the market, pressure to cut communal space to save costs or to allow for greater customization of individual units could adversely effect the social benefits of this form of development. These findings generally align with the view of interview subjects who stated that, because Baugruppen can differ greatly on a case-to-case basis, it was likely an exaggeration to assign a set of social benefits to the concept as a whole. However, from the viewpoint of practitioners much of the substance of these critiques could be mitigated through active professional support, in areas such as mediation, project management or design, a view that was acknowledged by the authors of the study mentioned above.

There also remains considerable debate—both in academia (see for example Chiodelli, 2015; Ruiu, 2014b) and in the practical example of Baugruppe projects in Berlin—regarding how well cohousing projects can be positively integrated at the broader ('neighbourhood') scale. Referring back to the survey of current practices presented above, there are strong indications that Baugruppen facilitate inclusive practices that promote social mixing and integration. Despite this, commentators were generally skeptical about the broader social objectives of this concept. An area of primary concern was the demographic make up of these groups. Droste (2015) points out that divergent studies have found that Baugruppen are either fairly heterogeneous (Hamiduddin & Gallent, 2015) or homogenous (Suckow, 2009) in composition.

However, both anecdotal evidence and expert perspectives suggest that Baugruppen participants in Berlin are generally similar in demographic characteristics and cultural backgrounds. This dynamic has been explained from various angles. One expert suggested that the appeal of homeownership in Baugruppen mapped onto existing German lifestyles and lifecycle patterns and could perhaps explain the particular appeal of the concept to young families and downsizing seniors. The availability of resources necessary to participate in Baugruppen—financial as well as time, expertise and support networks—was also identified as a crucial factor, explaining the demographics, the relative affluence and the concentration of residents with related professional backgrounds. Practitioners suggested that this homogeneity was not inherently negative from a practical standpoint and that common backgrounds amongst residents streamlined decision making and contributed to group cohesion. All experts, however, acknowledged that these factors effectively limited the inclusivity of the concept as a whole to a relatively narrow, 'niche' segment of Berlin's population. Carried further, some have argued that, given this homogeneity, Baugruppen may have difficulty social integrating into the prevailing neighbourhood characteristics of many areas in Berlin (Holm, 2010). Understood from this perspective, these groups have introduced both ownership tenure and certain lifestyles, which are foreign to these existing neighbourhoods, communities or networks. This has led to the claim that Baugruppen may facilitate an ongoing process of social gentrification, where services, supports or social opportunities essential to the healthy function of existing communities are displaced in favour of options more amenable to incoming residents.

As with the case of economic gentrification, this phenomenon is not well understood as it relates to Baugruppen. It is not immediately clear whether this process may be more prevalent or pressing in Berlin, where social change has been rapid and the proportion of renters is considerably higher than in other centres. It is also not entirely convincing, given the proportionally small number of buildings across the city, that Baugruppen be considered a major contributor to social gentrification. This is particularly so when other shifts, such as increased migration, changing employment patterns, or processes of reurbanization, may better explain this process at a city-wide level. Some of these claims may be also disputed by limited, anecdotal evidence that Baugruppe participants are typically already residents of Berlin and often already residents of the neighbourhood.

It should also be acknowledged that practical examples of direct, positive contributions by Baugruppen to the social fabric at neighbourhood and city-wide scales are limited. The Spreefeld project stands out as actively pursuing ambitious objectives related to neighbourhood engagement, renting space to local initiatives, maintaining ongoing dialogue with an adjacent squatting community and preserving public access to the waterfront. The IBeB project also incorporated a social mission—driven by the participation of both the District of Friedrichshain-Kreuzberg and the Selbstbaugenossenschaft—that ensured that participants in the project came from diverse demographic backgrounds. Beyond these cases, many completed projects closely resemble standard multi-family residential buildings in terms of neighbourhood integration. Some

practitioners argued that the concept offered certain social benefits beyond the tangible interface and interaction between building groups and the wider public. The premise of this argument is that Baugruppen are a ‘deliberate’ process of delivering housing, which promotes ‘rootedness’ or ‘embeddedness’ of residents in the neighbourhood. The notion of deliberate development proposes that because residents are invested in the delivery process there is less alienation from the surrounding context than is often observed in more speculative development practices. The balance suggested by this notion weighs a potential, initial risk of higher rates of neighbourhood turnover against longer-term stability facilitated by local ownership. Again however, there is limited evidence to support the claim that Baugruppen contribute to social benefits in broader terms

Social Sustainability Summary

Inherent Strengths

- Facilitates face-to-face interactions and decision-making amongst group members
- Promotes a common vision, common goals, common values amongst group members
- Encourages social participation and group loyalty amongst group members

Opportunities and Options

- May encourage high-quality common spaces within individual dwellings
- May instill elevated feelings of ‘belonging,’ ‘pride’ and ‘ownership’ amongst group members
- May promote ‘rooted’ or imbedded communities both within individual groups and at the wider neighbourhood scale

Weaknesses

- Requires ‘intense’ social interaction during the building
- Possibilities of insularity

Threats

- May be too dependent on group formation and individual ideology
- May be considered an ‘alien’ lifestyle to existing neighbourhoods

3.2.3 Environmental Sustainability

The measure of environmental sustainability evaluates the impacts of the concept on the local ecology of the site and the wider environmental ecosystem. This section considers both the performance of individual buildings as a direct result of design decisions made by participants in Baugruppen and the degree to which these buildings promote or encourage patterns of behaviour that contribute to environmental sustainability. The key question in this section concerns how Baugruppen encourage individual households to make environmentally conscious decisions.

The survey of Baugruppe projects reveals that many of these projects do have explicit environmental targets and this observation generally aligns with findings from the interview process. One of the great strengths of the concept, from an environmental perspective, appears to be the direct financial incentives for adopting certain environmentally-sustainable practices. First and foremost, participating in Baugruppen also created both direct incentives and additional options to select building materials or construction methods that were environmentally friendly. From this perspective, because residents were involved in the delivery process, were aware of the financial implications and held final decision-making authority, there were more opportunities to incorporate 'environmentally-friendly' designs into the final building where this aligned with residents' environmental ideology. One practitioner specifically cited the residents' involvement in the design, planning and construction phases as contributing to the increased likelihood of positive environmental outcomes. Some of these features—such as energy efficient shading strategies, water recycling or geothermal heating—represent lifecycle cost savings, and therefore created a direct financial incentive to invest despite potentially increasing the upfront cost. This argument was put forward both in the CH24 project expose explaining the project's environmental standard and by other practitioners who mentioned that this reasoning was a primary reason for Baugruppen to pursue high environmental standards. Resident involvement in the design process also allowed for greater choice in selecting certain features—such as solar heating, biologically sensitive building materials or wood construction—that improve the performance of the building from an environmental standpoint. These arguments suggest that Baugruppen may contribute to dwellings that perform better from an environmental perspective by introducing more choice and better incentives especially when compared to conventional venture-driven development.

The structure of Baugruppen may also indirectly contribute to environmental sustainability by making densification and transit oriented development more palatable to residents with specific lifestyle preferences and expectations. In Berlin, completed and in-progress Baugruppen projects have overwhelming been higher-density, multi-family apartments in existing urban areas. Experts suggest that this reflected a general trend of reurbanization driven by a particular demographic of highly-trained, 'creative' individuals who tend to favour 'urban' lifestyles and were generally already living within these central areas. From this perspective, Baugruppen have allowed households seeking to live in these contexts the option of balancing overall satisfaction with their dwelling unit with the higher housing costs typically associated with living in these areas. In other words, because they create economies by working with smaller plots and stacking units into apartment-type housing, Baugruppen have remained a viable option in central city areas where a single household have been unable to purchase a satisfactory dwelling through other avenues.

Completed Baugruppe dwellings are typically located in 'walkable' neighbourhoods with high levels of block permeability, better connectivity by public transit and the presence of protected bicycle paths. Some projects explicitly target 'car-free' living and/or incorporate bicycle parking into the final design. While there is limited data on the everyday travel behaviour of Baugruppe participants, there would be direct cost savings associated with these features in the form of lower household transportation costs and lower construction costs (in areas where parking regulations make car-free development permissible). On both points, Baugruppen could help with efforts to curb sprawl and promote more sustainable land use patterns. The concept is broadly supportive of 'urban' lifestyles that generally incorporate these elements. Baugruppen can therefore be seen as providing a viable and attractive alternative to other housing options such as lower-density suburban dwellings and, therefore, reducing the appeal of more dispersed patterns of urban form. Furthermore, the proximity of Baugruppe projects to these forms of transit suggests that this mode of development could support environmentally sustainable mobility. Beyond the benefits of promoting higher densities within existing transit networks, some research has linked this form of compact development to additional emission reductions (Pitt, 2013; Senbel, Giratalla, Zhang, & Kissinger, 2014).

These arguments generally align with some of the existing literature on cohousing more broadly, which has concluded that these types of development typically deliver buildings that are more environmentally sustainable when compared to venture-driven speculative projects (Benson & Hamiduddin, 2017). However, as with social sustainability, commentators remain skeptical on the point of environmental sustainability. The main argument was that environmentally-friendly building upgrades were primarily the result of a self-selection bias amongst participants. From this perspective, households interested in this form of housing delivery were already more inclined to be early adopters of environmentally sustainable practices. Therefore, any upgrades were more attributable to the ideology of individual build groups rather than any inherent features of the Baugruppen concept.

Additionally, where Baugruppen were operating under (near) market conditions, there remained similar cost restrictions to venture-driven development when targeting environmental objectives. Upfront costs were a significant concern and some commentators suggested that these costs reduce the incentive to pursue lifecycle cost savings and ultimately hampered the ability to follow through on these features in individual projects. Environmental performance of these dwellings also requires that the group agree on environmental priorities. For example, participants had to reach consensus on the tradeoffs associated with this, such as higher up-front costs for environmental upgrades. As the up-front costs of this form of development can be considerable, one would expect that the number of households willing and able to implement these would be relatively limited. For instance, one practitioner stated that while early Baugruppen projects often exceeded German energy-efficiency standards, increased energy standards across the country and increasing costs have meant that current projects no longer do so. Generally, while the concept creates incentives or allows for more choice, the sentiment was that substantial environmental features were implemented only if the group was both willing to pay for these modifications up-front and ideologically inclined to pursue higher environmental performance.

Evironmental Sustainability Summary

Inherent Strengths

- Creates direct, financial incentives for implementing energy efficiency and material durability
- Creates indirect, cost-benefit incentives for densification and transit-oriented development

Opportunities and Options

- May promote environmental education of residents by project design and construction professionals
- Creates opportunities for building design to better align with environmental ideology of residents
- Receptive to state subsidy of environmental upgrades

Weaknesses

- Highly dependent on group formation and individual ideology
- Market delivery severely limits the viability of lifecycle thinking

Threats

- Market delivery may discourage environmentally sustainable development patterns

3.2.3 Built Quaity

The measure of quality, as it relates to sustainability and housing, analyzes the usefulness of the concept in delivering housing that satisfies overlapping standards of architectural, design and technical performance. This section considers the ways Baugruppen may contribute positively both to the well-being and subjective satisfaction of residents and to the integration of the dwelling into the neighbourhood context.

One of the most frequent arguments in favour of Baugruppen has been that the concept has historically delivered 'high-quality' dwellings from an architectural and urban design perspective. A detailed survey of completed Baugruppe projects in Berlin, carried out by Ring (2013), concluded that many of the buildings were of above average quality in terms of communal space design, architectural expression and urban and neighbourhood integration. Experts also acknowledged that Baugruppe-built dwellings were typically considered to be of high quality from this perspective and practitioners reported high degrees of satisfaction amongst Baugruppe participants.

The potential for Baugruppen to deliver high-quality housing from this perspective stems from the unique process of participatory (co)design, where both residents and architects have a material impact on the final design of the dwelling. This view is reflected in the literature which found the groups were often drawn to the number options for customization and personalization that the concept offers (Hamiduddin & Gallent, 2015). One expert even offered that this process of participatory design was primary motivation for participation, where residents were able to receive a 'better product' even if the cost was comparable to units obtained through other methods of delivery.

Customization and personalization have often benefited the quality of individual units. In one example, a unit at the Simplon Strasse project physically wraps around the exterior of an elevator core in order to grant a resident a panoramic view. However, many examples exist where these processes have been translated into the overall quality of the entire building. In the IBeB project, the light well / communal garden combination represents a group decision to carve space away from commercial or residential use in order to create a 'nook' for residents and, at CH24, a bookcase was installed in the entrance foyer to allow residents to share a common library.

While the relative quality of these features remains subjective, one expert mentioned that process of resident participation in Baugruppen encouraged these groups to integrate features that moved beyond a purely economic interpretation of the building process. This thinking reflects the argument that this focus on the livability and use value of housing contributes to a form of economically 'irrational' decision making by residents that is absent in other modes of housing delivery (Parvin et al., 2011). As illustrated by the examples above, this sort of thinking is apparent in building upgrades or features that occupy floor space that might otherwise be put to private use but nevertheless express the personalities and preferences of the residents. One practitioner summarized this sentiment by stating that Baugruppen delivered housing that 'reflected the people who live there.'

On the one hand, the high levels of personalization and customization inherent to the concept amplified the distinct characteristics of the buildings being produced. Practitioners and a resident of the Simplon Strasse project agreed that Baugruppe projects could often act as a landmark in the neighbourhood and could be easily be identified, particularly in comparison to volume built or venture led developments. At the same time, professional input was also credited as ensuring that dwellings created careful balance of individual expression and integration into the existing urban fabric. There was consensus among practitioners that architects typically managed decision making on items such as the facade and interface with the public domain. This arrangement ensured that prevailing characteristics of the neighbourhood were respected while, at the same time, allowing for architecture firms to also make 'their mark on the city.' As a result, Baugruppe built dwellings can be seen as balancing distinct expression with a respectful approach to physical integration with the existing urban fabric.

There was also a general consensus among those interviewed that Baugruppen generally contributed positively to the built form and character of the existing neighbourhood. However, there were some critiques of Baugruppen from a quality perspective. As in previous sections, there was a concern that market conditions and viability play a critical role in the overall quality of the building. Some commentators are skeptical of the presumed link between the high-quality urban design facilitated by Baugruppen and the positive impacts of this design for social integration into the neighbourhood. As mentioned previously, evidence of social integration remains limited and some elements in particular projects, such as the limited public-private interface, lack of openings or public pathways, etc., could suggest that these projects do not necessarily make border contributions beyond aesthetic or cosmetic upgrades. Some of the literature has even argued that in certain cases the quality of these buildings could reinforce insularity or signal gentrification (Holm, 2010). The strength of these claims can differ greatly on a case-by-case basis and a visual analysis of the projects examined in this study found that while the buildings did stand out as distinct, they did not differ from the existing fabric in ways that would suggest a greater degree of affluence than in the general vicinity.

Finally, there are additional areas where one could speculate that Baugruppen may contribute to the quality of housing under certain conditions. For instance, practitioners agreed that, under specific circumstances, Baugruppen have been receptive to architectural innovations. One example of this potential was found in attempts by architecture firms to mainstream structural wood in residential construction. One practitioner mentioned that the Baugruppe process allowed architects to introduce new products or methods to the residents through workshops and seminars and offered that this may create opportunities to experiment and showcase architectural innovations. At the same time, evidence of these types of innovations has been limited and commentators remained skeptical that a desire to implement such innovations would consistently override concerns about the uncertainty of these elements or the practical cost considerations of them. As such, the value of the concept in terms of elevating the quality of housing through innovation is likely found in educating participants rather than in more substantial mainstreaming.

Built Quality Summary

Inherent Strengths

- Enables a high degree of customization and personalization
- Creates opportunities for ‘irrational’ design decisions
- Offers clear financial incentives for material durability

Opportunities and Options

- May promote architectural and urban design education of residents by project design and construction professionals
- May encourage distinctiveness from an urban design perspective
- May promote integration from an urban design perspective
- May foster architectural innovations

Weakness

- Highly dependent on group formation and individual ideology

Threats

- May promote insularity
- Market conditions and viability

3.3 Conceptual SWOT

3.3.1 For Individual Households

Strengths and opportunities

From the perspective of potential participants, the strengths and opportunities associated with Baugruppen can be summarized as increased choice, flexibility and ownership. A wider range of options help to reduce the cost of high-quality housing when compared to other modes of housing production. Some of these options include additional benefits such as skills training or enhanced environmental performance. Similarly, residents have the option of selecting features that align with a personal ideology regarding the social, environmental or built quality performance of housing. Baugruppen also offer extensive opportunities for customization and personalization, even when located in multi-unit, apartment style housing. The combination of choice and flexibility in selecting these options can be linked to high levels of residential satisfaction or contributing to feelings of pride or ownership that transcend a purely financial understanding. As a result, participating in a Baugruppe can be seen as a way to tailor building features and processes to satisfy budgets, preferences and personal ideologies.

Weakness and threats

The time and resources required to participate in these groups is the most serious drawbacks of the concept for individual households. Up-front costs have direct impacts on the ability of the individual households to realize the benefits mentioned above. Beyond the financial constraints, the concept appears to function best when participants have preexisting technical expertise or the time required to learn these skills. Given the market delivery of Baugruppen, external factors such as increased competition or rising land prices could further erode the accessibility and viability of the concept for individual households'.

	Economic	Social	Environmental	Quality
Stength	Offers cost savigns by eliminating profit (in comparison to venture-led development) Consolidates financing costs by pooling mortgages and/or increasing equity Consolidates building cost through stacking units and shared utilities Mitigates project default risk through incorporation	Facilitates face-to-face interactions and decision making amongst group members Promotes a common vision, common goals, common values amongst group members Encourages social participation and group loyalty amongst group members	Creates opportunities for building design to better align with environmental ideology of residents	High degree of customization and personalization Create opportunities for 'irrational' design decisions Direct access to architect
Opportunitiy	Allows participation in 'blue-collar' sweat equity (DIY finishing of units) resulting in further cost savings as well as skills acquisition Allows participation in 'white-collar' sweat equity (project management, design, etc.) resulting in further cost savings as well as skills acquisition Incorporate lifecycle thinking to reduce costs for transporation or energy	May encourage high-quality common spaces within individual dwellings May instil elevated feelings of 'belonging,' 'pride' and 'ownership' amongst group members May promote 'rooted' or imbedded communities both within individual groups	Incorporate lifecycle thinking	
Weakness	Upfront costs are significant barrier to entry especially when tied to land price Increased personal financial risk due to equity stake	Requires 'intense' social interaction during the building	Upfront costs	Upfront costs
Threat	Declining viability of the concept due to increasing land price and institutional competition		Market conditions and viability	Market conditions and viability

Table 4: Baugruppen Conceptual SWOT for Individual Households

3.3.1 For Policymakers

Strengths and opportunities

Baugruppen have several elements that make the concept attractive from a policy perspective. First and foremost, the concept creates both direct and indirect cost incentives that encourage environmentally sustainable practices. Inherent strengths of Baugruppen promote both unique contributions to the urban fabric of the city and social cohesion within internal communities. Both of these components have the potential to create positive ripple effects in the built form and social makeup of wider society. There is also the potential of the concept to create less tangible benefits. Participation in Baugruppen may offer residents the opportunity to learn new skills or to receive education and training on the environmental and social impacts of housing. The concept may also act as catalyst for introducing new methods, processes or ideas or stimulate civil society to more actively participate in housing delivery. Baugruppen may also help to make higher-density housing exciting and alluring to a wider population because they provide opportunities for personalization of a substantive nature rather than having to take an 'off-the-shelf' model (Shlay, 1985).

Weakness and threats

The main concern from a policy perspective is that, while the concept creates options or incentives to act in a sustainable manner, there are few mechanisms that guarantee this behaviour. Claims that Baugruppen contribute broadly to social or environmental sustainability are particularly exposed to this critique. While individual projects may set ambitious targets, examples suggests that projects without these explicit objectives are just as common. There are further claims that Baugruppen may actually create disbenefits for certain communities and that, if unchecked, these groups may facilitate processes of social and economic gentrification. An additional concern is that that allocating resources to support these projects may drain support from other modes of delivery with more explicit sustainability objectives. At the same time, under current market conditions, Baugruppen likely need municipal support if the concept were to continue the momentum it has had over the past decade.

	Economic	Social	Environmental	Quality
Stength		Facilitates social cohesion and community identity for building groups	Creates direct, financial incentives for implementing energy efficiency and material durability	Distinctive from an urban design perspective
			Creates indirect, cost-benefit incentives for densification and transit-oriented development	
Opportunitiy	Economic innovation	May promote 'rooted' or imbedded communities at the wider neighbourhood scale	May promote environmental education of residents by project design and construction professionals	May promote architectural and urban design education of residents by project design and construction professionals
	Wider system benefits (increasing the diversity of housing actors or reducing speculative behaviours)		Receptive to state subsidy of environmental upgrades	May promote integration from an urban design perspective
				May foster architectural innovations
Weakness	Selective targeting of low land-value areas increases risk of economic gentrification	Upfront costs are a barrier to the inclusivity of the concept	Highly dependent on group formation and individual ideology	Highly dependent on group formation and individual ideology
			Market delivery severe limits the viability and affordability of lifecycle thinking	
Threat	Declining viability of the concept due to increasing land price and institutional competition	May be to dependent on group formation and individual ideology	Market delivery may discourage environmentally sustainable development patterns	May promote insularity
		May be considered an 'alien' lifestyle to existing neighbourhoods		Market conditions and viability
		May promote gentrification		

Table 4: Baugruppen Conceptual SWOT forPolicymakers

Section 3 Notes

[1] Structural feature tags are self-assigned by the individual posting the project and multiple tags may be assigned to a single project.

[2] By Canadian standards, this size is below the average dwelling size of 134 m2, but it falls between the average floor area for apartments (94 m2) and semi-detached dwellings (129 m2) across the country (NRCan, 2018).

[3] Anecdotally, all of the practitioners interviewed (or one of their collaborators or colleagues) were current residents of a completed Baugruppe built dwelling.

[4] for example the Stiftung trias foundation, https://www.stiftung-trias.de/home/

[5] for example das Finanzkontor, https://www.dasfinanzkontor.de/

[6] for example Winfried Härtel, https://www.winfriedhaertel.de/index_eng.html

[7] There does not appear to a standard method for establishing the limits of this area.

[8] Analysis based on area valuations by CBRE and Guthmann Estate

[9] Based on an average 15-30 units per building at 121 projects completed, in planning or under construction

4.0
BAUGRUPPEN TORONTO POTENTIAL EXCHANGE

Analysis of Baugruppen in the Berlin context suggests that as an alternative mode of housing delivery, it is best used when strategically deployed. In other words, Baugruppen offer certain benefits and opportunities with regard to sustainability that make the concept a viable option for certain situations, but not necessarily for general deployment. What defines a critical framework of exchange to transpose the Baugruppen approach into the Canadian context? The following section explores this question, suggesting ways in which the concept might fit, focusing on the Greater Toronto Area ('GTA') and the specific legal and planning mechanisms that now exist in the City of Toronto. This analysis of exchange potential was framed by four insights concerning the pitfalls, limitations and opportunities of an 'exchange' process, based on the material reviewed in Section 2:

1. Concepts should be malleable to local conditions and should be informed by local actors and stakeholders (MacLeod, 2013)
2. Proponents of exchange should focus on building strong stakeholder support networks prior to introduction (Kintrea, 1987)
3. Exchange is necessarily a process of mutation and should encourage iteration and experimentation (Temenos & McCann, 2012)
4. Exchange of ideas and concepts can be used to generate dialogue on housing delivery in the GTA or to introduce a foreign perspective on new processes or methods where local systems have stalled (Couch et al., 2011)

Framed by these lessons, this section addresses three key questions:

1. Diffusion: how does the Baugruppen concept map onto existing systems in the Toronto context and what conditions will aid or detract from adoption rates?
2. Application: under which conditions might the concept be usefully applied to amplify positive effects, and how should negative impacts be mitigated?
3. Next steps: what can be done to accelerate uptake and to support the concept in the process of exchange?

4.1 Diffusion

The process of exchange is predicated on the concept gaining traction amongst key stakeholders. In many cases, it can be difficult to determine if a concept will resonate with the local audience, if it will be a good fit and if it will be well suited to achieve its intended objectives. As mentioned in Section 2, this is perhaps particularly true with regards to alternative housing given the relative conservatism towards housing delivery in the Canadian context (Van Vliet, 2000). Therefore, it follows that the concept of Baugruppen may face resistance in terms of cultural and political acceptance.

This first subsection adopts a framework developed by Williams (2008) on innovation-diffusion theory to evaluate the dynamics and conditions that encourage adoption of niche or alternative processes in housing delivery. Under this framework, diffusion is understood as a process by which an innovation is digested, implemented and distributed throughout the social system (Williams, 2008). The trajectory of a concept undergoing this process can be evaluated in five areas: relative advantage, compatibility, trialability, complexity and observability.

4.1.1 Relative Advantage

Following Williams (2008), an innovation in housing delivery is more likely to be adopted if the product or concept being introduced has a relative advantage over other modes of delivery from the perspective of individual households. The greater the perceived advantage that Baugruppen can offer in comparison to these forms of development, the greater the chance that the concept will be adopted by interested participants. The degree of advantage can be determined by the relative benefits of Baugruppen, as seen by individual households, in terms of: (1) satisfaction, and (2) cost-benefit (analysis of time and resources).

One factor not addressed in Williams' original evaluation is other modes of delivery against which the concept is being compared. It is implied that the comparison is being made with 'standard' housing delivered by the market, whether through resale, speculative development or single-household owner-builders. In Berlin, Droste (2015) has proposed that the relative advantage of Baugruppen should be evaluated across the cohousing housing spectrum (including more conventional forms of cohousing, housing with dedicated social missions and co-designed housing subsidized through nonprofit or state instruments). Others have focused exclusively on a comparison with high-volume corporate builders (Cerulli & Field, 2011; Hamiduddin & Gallent, 2015; Parvin et al., 2011). This last comparison is particularly relevant to GTA, where the delivery of housing has become increasingly corporatized in the post-war era (Harris, 1996; Sewell, 1993). However, the concept may have the most direct competition from similar forms of cohousing development. Therefore a brief examination of all three is presented below.

4.1.1.1 Compared to the single household resale or owner-build market

Satisfaction in this case is largely relative to the personality and preference of the participating household. While single-household ownership, and ground-related ownership in particular, holds significant cultural cache in Toronto (Clayton & Irish, 2017), this may be partially explained by the lack of an attractive supply of so-called 'Missing Middle' housing and/or family-oriented strata ownership. It could be argued that opportunities to customize and personalize both individual units and communal space could lead to elevated levels of satisfaction amongst Baugruppe participants . The social experience of participating in these groups could also contribute positively to satisfaction. Moreover, Baugruppen maintain the option of creating highly-personalized dwellings in higher-density projects, including opportunities for satisfying household expectations of privacy or security. While some households may still derive greater satisfaction from simple ownership in either of the forms mentioned previously, it is plausible that, in the future, households in Toronto would not on average give preference to this form over housing delivered by Baugruppen.

From a cost-benefit perspective, Baugruppen are more time-consuming and risker to execute than most other forms of housing delivery. Put explicitly, Baugruppen have higher soft costs and require a significant time/resource commitment from all stakeholders involved in the delivery. When specifically compared with the single-household resale or owner-build markets, housing delivered by building groups can require significant investments of time and effort to coordinate the input of multiple households. As a result, delivery timelines for Baugruppen are likely to exceed those for single-household deliveries on average. Multiple households can also introduce new risks by comparison to single household modes of delivery. As is the case with Baugruppen, single-household modes of delivery require each household to invest equity; the need to enter into partnership or corporate agreements with other participants exposes this investment to additional risks associated with the financial strength of the other group members. At the same, Baugruppen also offer several economic advantages relative to single household delivery. Compared to resale units, Baugruppen offer opportunities to promote long-term affordability by reinforcing material durability and lifecycle energy-efficiency. The most significant benefit is the opportunity to aggregate costs on land, development (hard and soft) and services and on-site facilities such as management, recreation space and childcare.

4.1.1.2 Compared to venture-driven or volume build development

The relative advantage of Baugruppen from an economic or financial perspective largely depends on the risk profile and available resources of interested households. Baugruppen projects have historically been able to consistently deliver housing at a lower final construction cost than speculative modes of delivery. Additionally, the concept also affords participants greater transparency in costs, allowing households to tailor build these to personal budgets, and creates more opportunities to target life-cycle affordability. All these features suggest that households capable of participating in a building group can structure their projects so that they procure housing in ways that are cost-efficient (in terms of investment and yield).

These advantages must be weighed against the security and simplicity that is offered by speculative or venture-driven development. One of the most significant disbenefits of Baugruppen is the equity investment that is required to make the concept viable. Despite the corporate legal structure, equity invested in one of these groups is largely unsecured from a legal standpoint if unforeseeable circumstances arise. By comparison, a deposit on a pre-construction condominium, or similar forms of upfront costs, are generally protected to an extent if the developer is unable to move forward with the project. Again, we see how greater investments of time and resources are required to participate in Baugruppen when compared to venture-driven or volume-built corporate housing development. In other words, obtaining housing from a professional builder or developer is likely to be the least time and resource intensive mode of delivery from the perspective of individual households.

For individual households, the main benefits of participating in Baugruppen—when compared to corporate-driven, speculative, volume-built development—appear to be derived from greater control over both the process (including costs) and the final product relative to volume build or venture driven development modes. This control allows the concept to offer more options for personalization, community building and cost savings as well as more opportunities to invest in housing quality. A by-product of the control exercised by individual households is the opportunity to produce bespoke housing with greater flexibility to align with social or environmental ideology. The combination of personalization and flexibility has been considered instrumental to producing 'housing that reflects the people who live there,' and can be convincing linked to relatively higher levels of 'ownership' or 'pride' as well as a sense of belonging and communal identity. In other words, while the process of producing these dwellings is intensive in terms of time, resources and social experience, ultimately Baugruppen may deliver levels of satisfaction that compare favourably with speculative, volume-built, venture-driven development.

4.1.1.3 Compared to other cohousing or collaborative development modes

Similar structure means relative levels of satisfaction are likely to similar for households participating in Baugruppen relative to other cohousing or collaborative development modes. While the argument may be made that due to the explicit social objectives related to 'commoning,' accessibility or inclusivity targets present in these other forms of development there may be more satisfaction in these from a social perspective. These objectives may also lead to greater opportunities for ideological alignment, solidarity and mutual help amongst residents. However, these elements are not necessarily absent from Baugruppen and, where certain groups allow, extensive communal networks may be established. Furthermore, satisfaction from these elements largely comes down to personality and preference. In contrast to conventional models of cohousing with more emphasis on communal space, Baugruppen offer the opportunity to maintain the privacy of individual units, which may afford greater satisfaction for certain households. Whereas one form or another may yield higher levels of satisfaction than Baugruppen for individual households, it cannot be definitively concluded that either Baugruppen or any other form of cohousing offer a distinct advantage over other forms.

The relative advantage of the concept when compared with other forms of development within the collaborative and cohousing spectrum is largely in terms of financial ownership. A defining feature of Baugruppen is that the group retains ownership of the property in one form or another. In the Canadian context, this model of ownership creates an asset that can generate a return when sold. The appreciation of this asset has obvious implications for the wealth of individual households (where the unit is their primary dwelling). However, even if not considered an asset or an investment, there is a financial value of ownership as a hedge against rising land prices and rent. Indeed, Holm (2010) identifies this factor as a critical motivation for participants in Baugruppen in Berlin. In this sense, ownership offers an advantage over renting, at least where rents are allowed to rise in tandem with land prices. Even for modes where housing is removed from the market or where housing costs are fixed at or below market rates, there is limited flexibility if an individual household decides to leave its unit or re-enter the market. By comparison, ownership, and strata ownership (WEG) specifically, provides flexibility in the sense that a household can re-enter the housing market with capital from a sale of their individual unit.

4.1.2 Compatibility

The notion of compatibility measures how well an innovation aligns with existing societal, civic or personal norms based on the local cultural context. Again following Williams (2008), a concept is more likely to gain traction and spread if it maps onto the experiences and expectations of individual households in terms of: (1) past experiences, (2) existing values, and (3) existing needs.

Compatibility on these three factors can be seen as a precursor to adoption in the case study of Berlin. As mentioned in previous sections (context), various links have been identified between Baugruppen and early forms of collaborative and cohousing initiatives. Berlin in particular has strong tradition of community driven housing that has allowed for a diversity of cohousing initiatives to flourish to this day. Some commentators have suggested a direct lineage, with Baugruppen considered a 'revival' of the early Genossenschaften movement (Ache & Fedrowitz, 2013; Hamiduddin & Gallent, 2015; Tummers, 2015). One expert offered that, regardless of whether or not a direct link exists, Baugruppen largely maps onto past cultural experiences with collaborative housing and generally conforms to German attitudes towards housing attitudes and perspectives of those who participated.

Baugruppen in Berlin have also been aligned with contemporary values and needs of those who have participated in these groups. Despite low rates of homeownership in Germany, experts suggested that homeownership in Germany still overlaps with certain periods in the cultural lifecycle, specifically for families with young children and retiring seniors. According to commentators, these groups have historically moved to the edges of the city to find homeownership opportunities. However, a new cultural affinity for city life has emerged over the past two decades while the existing desire for homeownership at these stages has been retained (Colomb, 2012; Couch et al., 2011; Hierse, Nuissl, Beran, & Czarnetzki, 2017). In conversations, Baugruppen have been theorized as bridging otherwise competing values on the stability in homeownership and the

enjoyment of urban lifestyles in central locations. With respect to current needs, the concept has proven adept at providing ownership in a manner that is cost-efficient while supporting social needs such as community based, multi-generational or family-oriented living.

In Toronto, collaborative or cohousing practices have historically struggled to gain a foothold in housing production and delivery and generally there is a lack mainstream visibility or public understanding of these forms of development. As of 2011, cooperative housing (as the most common form of collaborative development) represented just 0.9% of the housing stock in Ontario, while the Canadian Cohousing Network lists a total of seven cohousing projects nationally with two in planning locally in Toronto (Canadian Cohousing Network, 2019a). The low adoption rate of either cooperative or cohousing has meant that Canadians generally have limited past experiences with collective or collaborative living.

As mentioned previously, recent surveys on attitudes towards housing suggest that Torontonians, and the younger 'millennial' generation most notably, continue to place value on homeownership, single-household living (individual lifestyles) and lifecycle events such as marriage and children (Burda et al., 2017; Clayton & Irish, 2017; Petramala & Clayton, 2018). The younger generations have also shown a gravitation towards urban centres, similar to what was observed in Berlin, as well as an affinity for ground-related housing. At the same, this same research suggests that these values are not in line with current needs and capabilities. Income expectations for these groups often do not support the purchase of ground-related housing for single household ownership under current conditions. As a result, one or more of these aspirations must be compromised. For instance, one report suggests that millennials are delaying life milestones until they are more established and that there may be migration towards the outer suburbs as the 'appeal of the City of Toronto fades' and individual households search out affordable and suitable housing (Petramala & Clayton, 2018).

Cohousing and collaborative housing do offer limited solutions to some of these challenges but generally do not comfortably fit within the prevailing cultural norms and values. Williams (2008) assessment of the national conversation on cohousing in the United States found that these forms of development were found to be largely inconsistent with the value of 'individual freedom' and 'privacy,' values generally reflected in the Canadian context. While current pressures of housing affordability and suitability have generate some conversation on the application of these forms of development in certain instances, it appears that the existing values toward housing in Toronto on average remain in opposition to more collective or collaborative living arrangements. From this perspective, one argument in favour of Baugruppen is that the concept offers certain benefits over single-household and speculative developments while remaining compatible with existing Canadian cultural and lifestyle attitudes toward housing. The concept is more capable (when compared to other forms of cohousing) of delivering both privacy tailored to the preferences of the participating households and personal freedom (understood in the Canadian sense) through the flexibility offered by ownership tenure. The most common legal forms of Baugruppen (GbR and WEG) also closely resemble familiar structures in the Canadian system. Both a limited liability corporation (roughly analogous to the GbR legal form) and the notion of a condominium

corporation (similar to the WEG) are relatively well established and well understood by policymakers, practitioners and the general public in the Canadian context. Therefore, there is reason to be optimistic that the concept can be easily communicated in a manner that can reassure interested parties that Baugruppen does not conflict with closely held values or aspirations.

Baugruppen are also generally compatible with the current needs of households in the GTA, particularly the younger millennial generation. The concept is well suited to provide centrally located housing that makes efficient use of space while at the same time offering potential cost savings and the ability to match household and housing size. Extensive opportunities for customization and personalization could make this type of compact, multi-household development more palatable to Canadian households who previously would have preferred ground-related, single-household dwellings. In essence, the overlap of Baugruppen with prevailing attitudes towards housing in the Toronto context means that the concept may offer an opportunity to introduce cohousing to mainstream Canadian society while retaining familiar structures such as individual ownership and private units. As demonstrated in previous cases of exchange—such as those described by Clapham and Kintrea (1987, see section 2.4 Exchange)—this compatibility is crucially important to diffusion during transfer.

4.1.3 Trialability

Trialability acknowledges that fact that individual households are more likely to be interested in an innovation if there are opportunities to trial the new concept with reduced or limited risk. If the relative trialability of a concept is high, early adopters will be able to test the concept, establishing concrete practical examples that bolster credibility and encourage replication. Essentially, trialability is a means to demonstrate the benefits of Baugruppen in each both the two areas mentioned previously. In other words, implementing a Baugruppe project on a trial basis creates the opportunity to demonstrate both the relative advantage that Baugruppen offers in comparison with other delivery modes and the compatibility of the concept with existing needs and values. In practice, there are two ways that a concept can be implemented on a trial basis. The first is if the concept can be adopted quickly and easily with limited long-term commitments. For example, Williams argues that, in the case of cohousing, rental tenure units in cohousing dwellings would allow interested parties to test the lifestyle without having to commit to living there for an extended period. In Berlin, there appear to be several avenues through which households could trial the lifestyle associated with participating in a building group. For instance, previous experiences with cooperatives (Genossenschaften) would illustrate some of the lifestyle aspects of being a part of community linked through a shared dwelling. One expert noted that participation in one of these cooperative communities by a parent or relative from an older generation could provide an illustration of this lifestyle to the next generation without the need to participate directly. Additionally, some Baugruppen offer rental units, which again may allow interested households to trial the concept before proceeding with their own project as Williams (2008) had suggested. However, in other contexts, such examples have limited application. Most significantly, interaction with the lifestyle only works where previous examples have been established. In other words, it does not

explain how early adopters may trial the concept where no completed projects exist. Given the relative length and structure of Baugruppen, other opportunities to test living in a completed project prior to adoption are likely limited in the Toronto context.

A second way to improve trialability is to reduce risks or barriers to entry to the extent that these are tolerable to interested parties. From observation state actors and professional networks have been effective at performing this role in Berlin. Funding for these groups during the IBA period allowed groups to trial self-organized housing with limited upfront costs. In later years, the market conditions in Berlin, and the availability and affordability of land in particular, effectively limited barriers to entry for these groups. Architects, already in possession of the technical capacity to asses and mitigate the risks of the building process, could enter the land development sector with reduced upfront costs and less competition than might otherwise exist. Even today, the state's role in the distribution of land to these groups through the concept-based process has been instrumental to maintaining the momentum the concept experienced in recent years. In essence, affiliation with industry professionals and state agencies has in some cases (in)directly guaranteed portions of these project and, in others, helped assure interested parties that the risk and barriers were within reason. Market conditions also allowed for initial experiments with concept. These 'trials' allowed the concept to build credibility and gain traction without individual households having to absorb excessive levels of personal risk.

Many of the ways in which the concept of Baugruppen was allowed to function on a 'trial' basis are not present in the Canadian context. As mentioned previously, there are limited analogous examples of cohousing or self-organized housing, which an interested party could study or participate in indirectly in order to familiarize themselves with the process. Additionally, forms of cooperative housing in the GTA often have long waiting lists and their organizational structures do not closely resemble Baugruppen (as outlined in the previous section). Another drawback to the trialability of Baugruppen in the Toronto context is current market conditions in these areas. While viability can be expected to vary on a site-by-site basis, the Toronto market is generally characterized by high property prices and high levels of competition from institutional investors and large corporate developers. As a result, the context provides relatively few opportunities for experiments or trials, particularly when such trials are driven by non-professionals. This is an issue of significant concern, but not one that is unfamiliar; Canadians tend to have a conservative outlook on housing and have historically displayed a strong inclination toward conventional models of housing delivery (Van Vliet, 1994, 2000). Given the low rates of adoption for past iterations of collaborative, self-organized or cohousing in the Canadian context, there is reason to believe that without opportunities to showcase the unique features of Baugruppen in the local context the concept will follow a similar trajectory (see for example Williams, 2008).

4.1.4 Complexity

Rates of adoption are also highly contingent on a relative measure of complexity. A concept must be easy to understand and to use from the perspective of interested parties when compared

against other modes of housing delivery. This is a difficult task for many housing innovations (see for example Landis, 1982). Housing delivery is, in itself, a complex process with understanding and implementation influenced by a variety of factors operating within the housing system and, put simply, Baugruppen are complex. The investment of time and effort required to understand and participate in Baugruppen is both an impediment and a deterrent for many households. The productive execution of Baugruppen projects require a varied skill set and a sustained learning process throughout delivery. As a result, implementation has historically favoured participants who have existing technical skills and expertise or the social capital and resources to obtain training.

At the same time, experts mentioned that the concept is well understood by stakeholders in Berlin. The relative complexity has been effectively mitigated by a robust professional network including experts and specialists in construction, design, finance, mediation, project management and legal matters. Government too plays a role in simplifying the complexity of Baugruppen by sponsoring research on the subject, disseminating resources and providing a clear and well defined legal framework. Perhaps most significantly, interested parties appear to have an existing cultural understanding of collaborative or self-organized housing initiatives that acts to simplify the concept (i.e. Baugruppen builds on previous examples rather than needing to be introduced as a new concept).

In this respect, the greatest obstacle to breaking down the complexity of Baugruppen may be translating the concept in a manner that is digestible in the local context. Given that a general understanding of housing delivery is often based on readily-available knowledge in the local context—and underpinned by specific cultural values and reference points—Baugruppen, as a foreign concept (both literally and metaphorically), is disadvantaged vis-à-vis prevailing local modes of delivery. Both the single-household (resale and owner-built) and the speculative (volume-built) sectors are well established and well understood, with extensive networks of experts, brokers and information sources that lubricate the delivery of housing via these modes. These networks and support infrastructure allow residents with little previous knowledge to easily understand and participate in these forms of development. Widespread grasp of these forms of delivery in the mainstream discourse contrasts with concepts that are often misunderstood or misrepresented, such as cooperative or cohousing, which share similarities with Baugruppen. While examples from the Berlin context suggest that there are potential avenues to breaking down the complexity of Baugruppen, the complexity of the concept (in both practical and cultural terms) remains a key challenge to a potential exchange.

4.1.5 Observability

Measuring observability evaluates the degree to which interested parties are able to see and hear about an innovation. To date, Baugruppen have proven to be highly visible both in the Berlin context and internationally. Several factors have helped promoted the image of the concept. First and foremost, the combination of location and distinctiveness for completed Baugruppen

has effectively increased the likelihood that interested parties may encounter the concept simply through contact alone. Most significantly, Baugruppen have had a particular prevalence in the central urban areas of large, global cities such as Berlin, Munich and Vienna, perhaps partially accounting for the global reach of the concept.

In contrast to Williams' evaluation on the insularity of cohousing projects in the US, residents of completed Baugruppe projects appear, at least anecdotally, to be relatively outward facing. As past participants in Baugruppen have generally possessed relatively high levels of social capital, they have proven to be effective in circulating the concept, through both formal exercises (such as tours, info sessions) and informal channels (e.g. 'word of mouth'). The professionalization of Baugruppe providers has also contributed to the visibility of the concept. Knowledge sharing has increasing taken place through formal networking events and seminars such as the 'EXPERIMENTDAYS' event hosted by the id22: Institute for Creative Sustainability. Local architecture firms have also driven the visibility of the concept through associations such as the Netzwerk Berliner Baugruppen Architekten e.V. These organizations and agencies have also contributed to the dedicated marketing of Baugruppe projects.

Considered together, these factors have both reinforced a positive image of the concept and raised the profile of the concept in public and professional spheres in Berlin and across Germany. A similar evaluation in the Canadian context shows some promising signs regarding the observability of related concepts (and Baugruppen by proxy). For example, while past examples remain relatively limited, cohousing generally has been gaining momentum and visibility in the North American context. To date, the most visible drivers of this push towards the mainstream have been largely grassroots (made up of individual households or small, specialized organizations) and academic sources. In Canada, the dissemination of information related to cohousing, collaborative housing or analogous concepts (such as cooperatives) seems largely driven by media coverage (see for example Aaron, 2019; Kalinowski, 2017; Roussy, 2018). Interestingly, proponents of these concepts have come from across the political spectrum and a wide variety of initiatives have begun to enter the mainstream discourse (Saiz & Salazar, 2018). Considering these trends, there is reason to believe that Baugruppen may be able to generate a profile that reaches an interested audience. However, significant challenges remain to positioning the concept where it can be highly visible to interested parties. Compared to Berlin, this effort has been largely uncoordinated, with limited apparent overlap between actors and agencies advocating for these concepts. Similarly, the observability of Baugruppen in Berlin does appear to be driven in part by the relative prevalence of comparable models and concepts that have elevated the profile of collaborative, self-organized and cohousing initiatives in general. These factors point to a general awareness of alternative modes of housing delivery that the general public posses in Berlin. As discussed in Section 2, this awareness is typically lacking in Canadian society. Therefore, there is a critical need to tie together the concept of Baugruppen with the broader objective of increasing public literacy on alternative housing deliveries.

4.2 Application

Various benefits are offered by Baugruppen due to the relative advantage and observability of the concept over other forms of housing delivery, and this suggests that there are opportunities to introduce Baugruppen to the GTA based on the perceived compatibility with existing housing systems. At the same time, the application of Baugruppen must be strategic and targeted both to amplify the profile of the concept with interested stakeholders and to avoid areas where increased competition may threaten viability. In this subsection, application, examples of these models are explored through three scenarios: least change, medium change and high change.

4.2.1 Least Change: Existing Frameworks and Processes

The least change scenario would see the introduction of Baugruppen to the GTA with little or no change to existing policy frameworks and delivery processes. In practice, this would mean that Baugruppen would receive no state support (in terms of case-by-case staff time, land distribution or direct subsidy) and would not seek out partnerships with other external agencies or non-profit organizations. The key players in this scenario would be grassroots actors (consisting of the individual households themselves) or 'activist' professionals in a residential building related field (or some combination of the two). Projects would be delivered through a market process where groups would purchase land directly through the private market. Consequently, a primary obstacle to introducing Baugruppen under current conditions would likely be land acquisition. The pattern established in Berlin suggests that the ideal conditions for a Baugruppe involve sites for which competition from institutional investors is minimal and where the purchase cost of the land as well as fixed costs for site preparation (such as demolition and soil remediation) are relatively low. In other words, Baugruppen work well where development by conventional modes of delivery is unlikely or unattractive.

Forgoing profitability is not an option for speculative private-sector housing producers for obvious reasons. The Baugruppen approach might have a competitive advantage in targeting sites that fail to meet basic profit requirements for conventional development firms. One strategy for locating sites that satisfy this criterion is to identify areas where the market is fairly quiet and where land-use controls such as zoning are (or can be made) permissive enough to render a group-built project viable. A wide range of regulatory factors define the attractiveness of a site from the perspective of professional developers and investors, but one of the most salient is where as-of-right conditions do not allow for sufficient building height and/or density to render a project feasible. Market delivery for Baugruppen might therefore be made possible if local governments encourage projects on sites (or in certain areas) where change—notably intensification—is desired, but where conventional for-profit projects cannot be made viable without significant changes to the regulatory framework. Such a strategy would not be plausible at the city-wide scale, but there are opportunities to target specific sets of condition. Three examples from Toronto's existing planning framework help to illustrate this proposition.

4.2.1.1 Avenues

The Avenues are an Urban Structure in the City of Toronto's Official Plan used to designate significant corridors and major streets where processes of reurbanization are expected to occur (Section 2.2.3 of the Official Plan, 'City of Toronto Official Plan,' 2015). As zones of strategic densification, the Avenues present an opportunity for Baugruppen as collections of sites that are ideal for gentler forms of reurbanization than the tall buildings and larger land-assembly projects that have been cause for concern in the last 15 years (Figure, 15; Hess, 2009). This is especially important given Toronto's stated desire for steady, context-appropriate, incremental residential growth in close proximity to transit (Section 2.2 of the Official Plan, 'City of Toronto Official Plan,' 2015), balancing height and density allowances with the surrounding (low-rise) neighbourhood fabrics. The Avenues combine restrictive and permissive policies in a manner that parallels strategic approaches reported in the literature in the U.S. Midwest (Forsyth, Nicholls, & Raye, 2010) and Australia (Sharam, Bryant, & Alves, 2015b) for mainstreaming affordable, mid-rise housing on major corridors targeted for densification.

There are drawbacks to targeting the Avenues for Baugruppe-type projects. The requirements for minimum transit-supportive densities may require a very high number of units in each project, which might create diseconomies of scale in terms of the intensive joint-design processes involved in Baugruppen or pushing these projects beyond what might be considered reasonable for a prototype in the Canadian context. Toronto's Avenues are also not overlooked by for-profit development firms and investors, particularly as land becomes increasingly scarce in prime locations in the Downtown and the Centres. Despite challenges to profitability on on the Avenues, competition for land in these areas is likely to increase even in areas where competition has not historically been high. Therefore, the potential for Baugruppen to compete in areas where as-of-right zoning is generally permissive to development may be limited, particularly in the early stages of implementation.

4.2.1.2 Regeneration Areas

The Regeneration areas are a land use designation applied to areas of vacant or underused land where the current land use in 'no longer productive to urban life' (Section 4.7 of the Official Plan, 'City of Toronto Official Plan,' 2015, 4-2, 4-14). These zones are characterized by a flexible mix of uses (in close proximity to one another) with the intention of attracting investment that facilities the revitalization of these areas (Ibid.). Most of these zones are located in the 'high-profile' Downtown Waterfront area and, therefore, land costs are likely to expensive to be suitable for Baugruppen. However, when found outside the Downtown Core or Waterfront areas (former City of Toronto boundaries), Regeneration zones may be considered 'B-location sites' by development firms and investors (Rosen 2017). As a result, Baugruppen may be able operate in these areas where interest is relatively low but where official policies favour densification and investment. An approximation of sorts can be seen in the Nightingale Village project in Melbourne where the group obtained land in former manufacturing district immediately adjacent a commuter rail line (Figure 16a & 16b;

Figure 15
Sreet Render
City of Toronto Mid-Rise Building Study
Source: City of Toronto
Illustration: Brook McIlroy, PACE

Figure 16a
Nightingale Village
Existing Conditions
Source: Hayball Architects

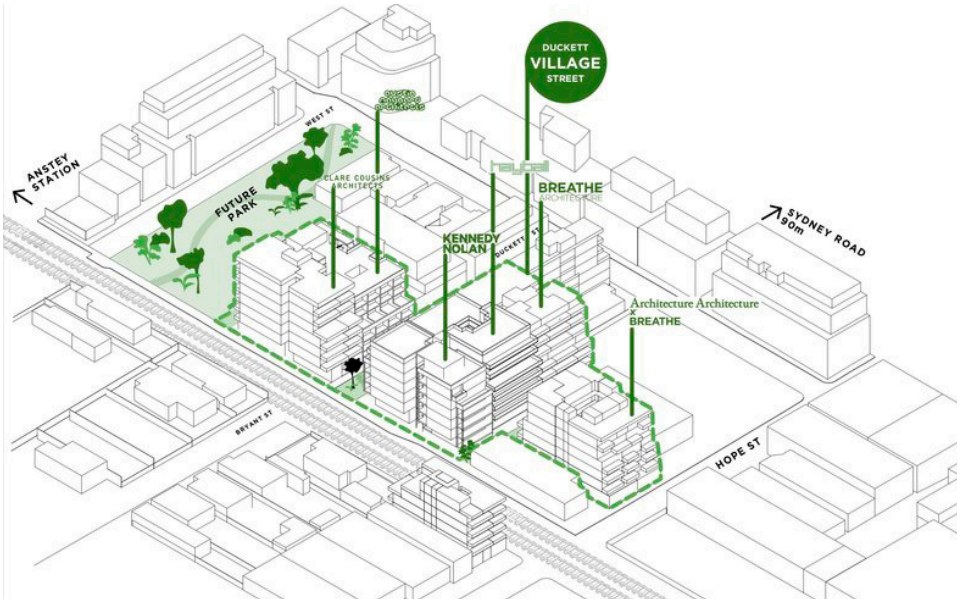


Figure 16b
Nightingale Village Iso
Source: Nightingale VIllage

Ward, 2019). Operating within Regeneration Areas may also provide Baugruppen with access to Community Improvement Project (CIP) incentives (s. 28(2) of the Planning Act 'Planning Act,' 1990); 5.2.2 of the Official Plan).

The major drawback to development within Regeneration Zones is that there are simply not that many of them within the City outside central locations in the Downtown Core or Waterfront areas. According to a study conducted by city officials in 2014 plans for Regeneration areas cover only 0.51 ha (approx. 0.08% of land area in the City of Toronto) outside the Downtown Core (Voumvakis & Cantos, 2014). Additionally, an increase in how much City land is designated for this purpose is not anticipated since the Official Plan requires that each zone be introduced through the lengthy process of organizing a 'tailor-made' Secondary Plan (Section 4.7 of the Official Plan, 'City of Toronto Official Plan,' 2015, 4-5). Any change to this position where restrictions or processes were relaxed could potentially open an opportunity for Baugruppen in these areas.

4.2.1.3 Neighbourhoods

The City of Toronto's Neighbourhoods are 'stable' residential areas of the City and make up the largest area coverage proportionally of any land use designation, covering roughly 70-75% of all land in the City. Development in these areas is tightly controlled with new developments required to respect and reinforce the existing neighbourhood character. As-of-right zoning in these areas is quite restrictive with only one zoning category ('R'), allowing the full range of housing types (Detached House, Semi-Detached House, Townhouses, Duplex,Triplex, Fourplex, Apartment Building as well as Rooming houses and secondary suites under certain conditions). Few areas are zoned for heights greater than 12m (roughly four storeys).

There are potential opportunities within Neighbourhoods areas and Baugruppen may actually be uniquely suited to development in these areas. First and foremost, Baugruppen can operate with lower heights and densities then venture driven models, which allow these groups to deliver small-mid size apartment type housing. Inspiration for this type of development can be found in limited examples of small prewar/interwar apartment houses in Toronto, which demonstrate that the Neighbourhoods are often compatible with a 'soft densification' using these housing types (Dennis, 1998; Harris, 1996). Additionally, the process of delivery creates more opportunities for these groups to cultivate positive relationships with existing neighbourhood residents. This last point is significant given that the Neighbourhoods have been a NIMBY battleground for densification. The drawback in targeting the Neighbourhoods is that development is currently confined by a narrow interpretation of the 'prevailing neighbourhood character.' It is unclear whether Baugruppen, as a rule, would fall within this classification or that the interpretation would allow for the height and density required to make these projects viable.

4.2.1.4 Summary

Of the three scenarios presented, the least change scenario is also the most likely as the concept could touch down immediately with no need to build prior institutional support. Projects introduced

in one of these three 'as-of-right' locations would also the most flexible in terms of matching the preferences and needs of interested households, with no additional conditions placed on the development by external agencies or institutions. However, exchange under this scenario also faces the most direct competition from other forms of development and it is likely that interested groups would find limited suitable land and/or high property acquisition costs. As a result, the scalability and overall sustainability of Baugruppe projects under the least change scenario would likely be limited. As in Berlin, without new partnerships or institutional reform, the concept would be largely accessible only to a relatively limited segment of the population.

4.2.2 Medium Change: New Partnerships and Crossover Strategies

The medium-change scenario would see Baugruppen introduced within existing policy frameworks but through new delivery processes facilitated by partnerships with external institutions and agencies. This scenario still avoids the need for direct subsidies or broad institutional reform but acknowledges that obtaining land through market processes is a significant obstacle to introducing Baugruppen to the GTA. Therefore, if competition or cost proves to be too great for Baugruppen to participate directly in market processes, partnerships and crossovers may be formed that at least partially address these challenges. Partnership opportunities in the GTA are diverse and interested building groups may find willing collaborators in both non-profit and private sector actors.

4.2.2.1 Non-Profit Crossover

In the GTA, there are several potential avenues through which building groups could coordinate implementation with existing non-profit or NGO initiatives. A non-profit crossover would see Baugruppen align with these organizations to jointly develop sites with a mix of private ownership and rental, cooperative or subsidized (e.g Rent-Geared-to-Income) tenures. The framework for this scenario is modelled off the cross-subsidy model used for the IBeB project (discussed previously) where the non-profit organization provides a portion of the upfront capital for land purchase in return for a discounted final unit price (see Figure 17). As a result, individual households would be able to defer some upfront costs and enter the project with less equity invested while the non-profit would be able to secure long-term affordability for its residents through the arrangement. A local example of where a crossover may be realized is the Parkdale Neighbourhood Land Trust ('PNLT'). The PNLT is an organization whose mission is to remove land from the private market and who recently secured their first site, a 15-unit rooming housing jointly managed with the Parkdale Activity Recreation Centre (PARC), a United Way Anchor Agency whose stated mission is to facilitate a 'community where people rebuild their lives' (Figure 18; PNLT, 2019). A collaborative project between a building group and the PNLT may be arranged in the form of a long-term leasehold agreement where the group receives land at a discounted rate in return for public programming or deep affordable housing units in the same development.

This crossover may be difficult to implement. The financial viability of this model is unproven under market conditions. As with the IBeB project in Berlin, the most straightforward application a non-profit crossover would likely rely, to some extent, on some form of grant or transfer by the

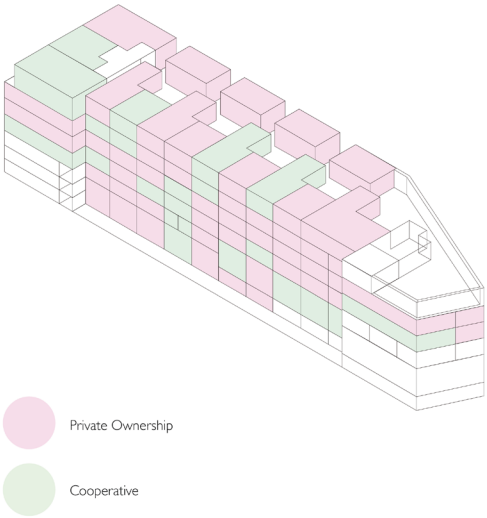
state or private institutions. Models involving direct forms of subsidy or support would likely require institutional reforms (as explored in the following subsection), adding additional layers of oversight and regulation and further complicating the delivery of projects. Therefore, non-profit crossover in a medium change scenario would need to look for other ways of financing property acquisition without restoring to direct state support. While other funding sources exist—such as the use of community bonds (Surman, 2015) or impact investing (Harji, Reynolds, Best, & Jeyaloganathan, 2014)—which could provide capital for these crossovers, use of these sources requires additional technical expertise and resources not immediately available to all organizations. It is also not immediately clear if a compatible ideological alignment between the individual households (targeting single unit ownership) and non-profit organizations (targeting social or environmental objectives) could be cultivated to the extent required to facilitate a partnership.

Despite these challenges, a non-profit crossover has the potential to directly address issues of accessibility and sustainability. In comparison to models introduced through market processes,, the crossover model may better integrate single unit homeownership with other housing tenures in comparison to mixing mandated through inclusionary zoning or other regulatory measures. Baugruppen, introduced through this model, would also align with organizations with specific social or environmental objectives. Therefore, this model of exchange is generally attractive because cooperation with a non-profit or NGO would create a clear connection between Baugruppen and the sustainability metrics mentioned in the previous section.

4.2.2.2 For-Profit Partnerships

Baugruppen may also partner with other actors in the private sector. In Canada, the private sector associated with housing delivery is expansive and these groups could target actors in a variety of fields such as venture capital, lending institutions, property technology companies, construction firms, etc. However, one of the most likely partners would be professional development companies. One example of where Baugruppen may be a useful partner for professional developers is through Transferable Development Rights ('TDR'). In this example, a building group would purchase land with existing air rights but with other restrictions that would otherwise make the land unattractive to for-profit developers. These air rights would then be bundled and sold to a developer to increase the density allowance for an adjacent (or proximate) property. This symbiotic relationship would generate revenue for Baugruppen to offset the upfront land acquisition cost while allowing the development partner to add additional units and ultimately increase profits. Agreements to execute these types of partnerships may be drawn up before the building group purchases property, reducing the equity required of individual households and eliminating some risk for the project as a whole.

These types of partnerships map onto existing delivery processes but introduce modifications that could generate an interesting mix of housing types and tenures. In the TDR example, a partnership between a professional developer and one of these building groups could create opportunities to produce a mix of housing types, specifically those in the 'Missing Middle.' Where



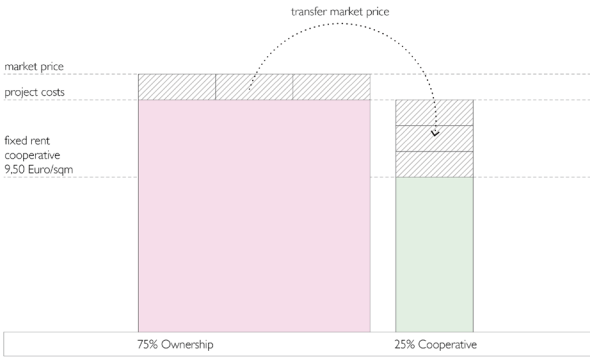


Figure 17
IBeB Cross-subsidy Model
Heide & von Beckerath + ifau

Figure 18
Parkdale Neighbourhood Land Trust at Maynard House, Toronto
Source: pnlt.ca

the development partner would continue to produce high-rise apartment-type housing, a building group could deliver the 3-8 storey, mid-rise housing that remains largely unfeasible for for-profit developers. However, as with market delivery in the least change scenario, external pressures would likely push these groups towards more conventional development practices. Therefore, beyond a diversity a housing types, there is little guarantee that a for-profit partnership with Baugruppen would lead to sustainable residential development.

4.2.2.3 Summary

Fundamentally, new partnerships and crossovers for Baugruppen could address the issue of competition and land availability, increasing access to properties across the GTA. Groups operating in a median change scenario would also remain less reliant on state support or institutional reform. Based on these factors, the medium change scenario appears to balance the need for agile and flexible application with the benefits of drawing on network of stakeholders. Baugruppe models under this scenario would not be subject to weighty regulatory or administrative oversight but would still be able to bolster viability through revenue generating and/or risk mitigating partnerships. These partnerships would potential contribute to the diversity of projects that could be realized in the GTA both in terms of the forms of housing that would be delivered and the stakeholders who would be involved in this process. At the same time, the inclusion of additional parties undoubtedly complicates the delivery process. Actors in both the non-profit and private sectors are likely to be unfamiliar with the process of participatory design that is characteristic of Baugruppen and a lengthy process of negotiation and pre-design work would likely be required to form a productive partnership. This added complexity is an area of concern especially given the lack of professionals with expertise in this form of delivery in the Canadian context.

4.2.3 High Change: New Special Planning Districts

A high change scenario would see the municipality take a more active role in promoting Baugruppen in the City of Toronto. This scenario would involve policy changes or institutional reform and, consequently, would take significant time and effort on the part of all stakeholders to achieve. However, one salient insight from Berlin is that the rising cost of land will eventually drive a fundamental mutation in how these projects are implemented and there is likely a need for a transformation or evolution in practice to match these shifting conditions. These conditions may actually create opportunities for municipalities, in the form of increased leverage, to push these groups towards more social or civic obligations. Therefore, municipal support could ensure the viability of the concept while simultaneously increasing the diffusion and sustainability potential of Baugruppen in the GTA.

4.2.3.1 'Neighbourhood' Reform

One area where moderate changes could be implemented to assist in the introduction of the concept is in amendments to the City's Official Plan regarding the 'Neighbourhoods' designation. As mentioned previously, the Neighbourhoods are particularly well suited to Baugruppen given

the design-intensive process and emphasis placed on 'fit'. However, the current framework, specifically regarding 'existing neighbourhood character,' generally discourages the types of development that would be most suitable to a typical building group.

Policy change could be implemented that would open these areas to new forms of development. Of particular relevance to Baugruppen, the recent movement against 'Yellowbelt' residential zoning in the Neighbourhoods has been building momentum and support across the political spectrum (see for example Bozikovic, 2019). So far concrete changes to these policies have been limited (with notable exceptions including the Laneway Housing project and recent proposed amendments to secondary suites by-laws) but a recent proposal for 'Density Transition Zones', authored by Blair Scorgie and Sean Hertel, illustrates a potential avenue towards policies that would be supportive of gentle densification in the Neighbourhoods (Scorgie & Hertel, 2019). If adopted these Transition Zones would be a considerable opportunity for the Baugruppen concept.

A road map for this process of policy reform may modelled on the concept of Laneway Housing, which was recently ushered through the political process in Toronto by a coalition of architects,[3] advocate groups,[4] and local officials (after successful pilots in Vancouver). Passed in August 2018, the new City of Toronto by-law on secondary dwelling units now permits the construction of laneway suites in eligible areas of the City with the aim of increasing the supply of housing in existing urban areas. The process leading to these amendments was driven by grassroots interests as well as significant attention from the architectural profession and advocacy groups and was characterized by a high degree of coordination on the part of this network (Evergreen, 2019). The focus of this movement was on resident-driven, small scale development targeting the incremental and contextually sensitive densification of the Neighbourhoods. Establishing a similar trajectory and set of objectives for Baugruppen and Density Transition Zones could open new pathways for these groups and create a viable and sustainable option for neighbourhood infill.

Based on the idea of self-build zones (Parvin et al., 2011), areas in the city could be identified where positive contributions by Baugruppen would be maximized and negative impacts mitigated. Areas that are determined to be a high risk area for gentrification could develop a community benefits framework where limited Baugruppen activity would be allowed and only with certain guarantees of reciprocal community benefits. Conversely, areas with a strategic need for investment could be designated Baugruppen zones in order to better direct the flow of these groups. These areas would need to be carefully study in order to determine locations that suit the concept while balancing the needs of the existing neighbourhood residents. Pairing Baugruppen with Density Transition Zones would be one method that would create an overlap in these studies and allow for a streamlined process of densification and infill by these groups. From a policy perspective, Baugruppen could be channeled towards these zones by labelling these groups a 'permitted use' allowing for as-of-right development if operating within this model.

4.2.3.1 Existing Property Portfolio

Beyond amendments to the Official Plan, the City may take a more proactive stance by distributing land to these groups. The use of municipally owned land to promote Baugruppen draws inspiration

from the Konzeptverfarhen (discussed previously) implemented in German cities to distribute land based on sustainability metics. This process would see the City of Toronto, through the CreateTO agency, distribute land to building groups through concept-based bidding process. The opportunity to access to the City of Toronto's real estate portfolio, containing nearly 8,500 properties and covering 28,823 acres (Scioli, Notaro, & Walberg, 2017), would undoubtably considerably improve the viability of Baugruppen. Assuming that political support could be built for this concept (hardly a given), the major drawback of this scenario is clearly the considerable investment in time and resources that would be required to execute this form of bid process. The use of the City's existing property portfolio likely requires the greatest degree of professionalization both on the part of City officials and the experts involved x supporting these groups given the sophistication required to coordinate this model of development. Movement on these properties has also been necessarily slow and deliberate. For instance, to date CreateTO has organized the sale of 27 properties, with an additional 24 properties at various stages of release. At the same time, there is a rough local precedent for this type of process in the Housing Now initiative (Figure 21). This project, recently approved by Council, is targeting the development of 11 City-owned sites with the intent of providing 3,700 affordable housing units. Housing Now is being driven by the City of Toronto through the CreateTO agency and with the support of a network of construction and design professionals (City of Toronto, 2019).

From the perspective of the City (including CreateTO), a rationale would need be developed with regard to distributing land to Baugruppen and there are several benefits that could be built into this argument. For example, encouraging Baugruppen to bid on City-owned land may allow the City hold onto its properties while generating a consistent cashflow since these groups would likely be more open to leasehold arrangements than professional developer. With no need to return profits to investors, these groups could be incentivized to forgo a portion of the future value of their unit (due to the appreciation of land) in exchange for a reduction in upfront costs (as a result of not having to purchase the land on the private market. The City would therefore be able to offer land to these groups for a nominal fee while collecting land rent over the course of a fixed lease term. In addition to the potential financial benefit of this scenario, there is an opportunity to capitalize on some of the environmental or social advantages of Baugruppen. The ability of the City to extract these benefits from Baugruppen would largely depend on the structure of the bid as well as the latent demand for the concept with higher demand creating more leverage to enforce sustainability targets. However, the general argument, as stated previously, is that these groups would be better suited to act on towards these targets, requiring less onerous regulatory oversight or direct financial incentives than conventional volume build or speculative models.

4.2.3.2 New Property Acquisition

Should city officials determine that these groups offer significant benefits towards the accessibility or sustainability of housing, the municipality could facilitate the distribution of land by acquiring or expropriating property to create 'group-build districts.' In this case, the City would play an active development role, assembling properties and negotiating agreements with interested participants. This model would require the greatest change to conventional process of housing delivery in the

GTA and the process of institutional and political reform necessary to support this initiative is likely to be onerous. In the GTA, an active role for the public sector in the development would reverse the prevailing trends in policy towards the delegation (offloading of public housing to non-profits and cooperatives) and privatization of housing delivery (Fields & Hodkinson, 2018; Lawson & Milligan, 2007; Suttor, 2011). Support for this model would require city officials be equipped with new funding streams and adequate personnel as well robust tools and mechanism for conducting studies, carrying out negotiations and resolving compensation. As the purchase would be done with public funds, the accessibility, sustainability and affordability objectives for these projects would need to be clearly defined. As in the previous section, an unambiguous rationale would need be developed with regard to distributing land to Baugruppen. Consequently, the credibility of these 'group build districts' may be bolster if they were designed in such a way as to target a range of housing types and tenures across the housing continuum.

The need for wide-reaching institutional reform may act as a deterrent to pursuing this model of Baugruppen for the GTA. If led by the public sector, an integrated approach to property acquisition and distribution also offers potential benefit to the municipality in terms of agency over urban development and opportunities for new revenue streams. Such an approach remains radical, relative to conservatism displayed by Canadian practitioners and policymakers, but has been implemented in other contexts. Dutch city plans in particular have embraced this approach of securing land for self-organized, collaborative or cohousing initiatives. The Dutch city of Almere is perhaps the most famous example of this approach (Figure 19). Located in the Flevoland province of the Netherlands, Almere was a 'new town' plan that was designed to support an incremental growth through resident-led housing projects (Commandeur & Zhou, 2009). Recent examples—such as the Centrumeiland Ijburg project in Amsterdam (O'Sullivan, 2018)—have gone further. The Centrumeiland Plan has adopted an integrated approach that promotes Baugrup (the Dutch iteration of Baugruppen) as the dominant development model (for over 70% of the project area zoned for residential use) while simultaneously tacking issues such as climate change, sustainable building and housing affordability (Figure 20). While there is a need to be cautious of attempting to adopt this approach (see for example Van der Krabben & Jacobs, 2013) this model—if implemented in the City of Toronto—could be used to open new areas of the city for residential development that are design to accommodate incremental growth and target high levels of sustainability.

4.2.3.4 Summary

Each of the models explored under the high-change scenario require further study and evaluation. Even the relatively moderate Neighbourhood Reform model would likely face substantial political and cultural resistance to implementation in the GTA. Moreover, application of Baugruppen in a high change scenario would be decidedly more 'top-down' than grassroots in approach and individual projects would necessarily be subject to additional layers of administrative and regulatory oversight. At the same time, the high change scenario provides the greatest

Figure 19
Almere Poort, Amsterdam, Netherlands
Source: amsterdamwoont.nl

Figure 20
Centrumeiland, Amsterdam, Netherlands
Source: CityLab
Render: Atelier Puuur IJCE

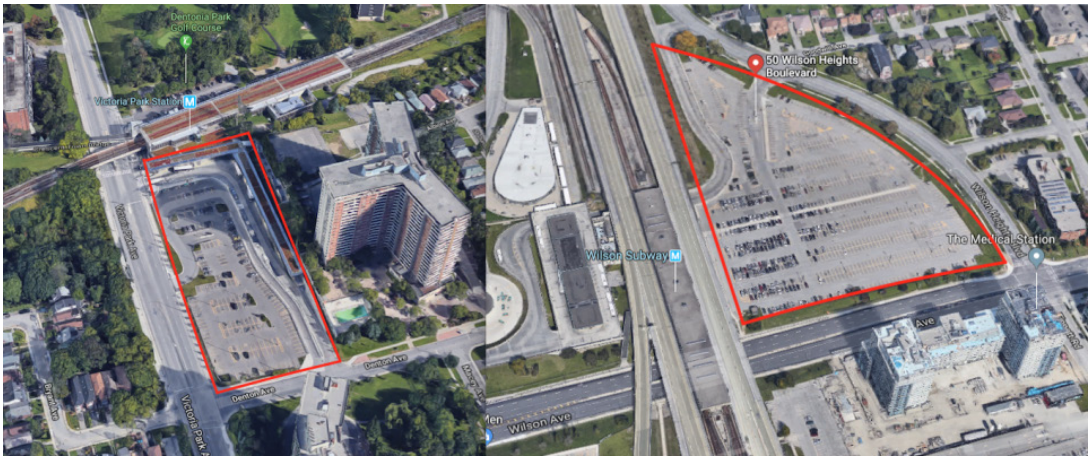


Figure 21
Housing Now Intiative
50 Wilson Site
Source: UrbanToronto

opportunities in terms of maximizing the positive impact of Baugruppen. The increased leverage that city officials could exercise over development with these models could well be translated into a more integrated, multifaceted approach to residential planning and perhaps ultimately more sustainable development practices. In other words, institutional reform in some capacity is likely the best possible avenue to ensuring an alignment between private building groups and the public good.

4.3 Moving Forward

4.3.1 Stakeholder Coordination

Regardless of the scenario under which Baugruppen may be introduced to the GTA, there is a need to identify, acknowledge and strengthen areas of overlap between the various agencies, organizations and individuals that would be involved in the delivery of this concept. Baugruppen in Berlin have benefited from an extensive network of agencies, organizations and individuals who promote and support a broad range of cohousing initiatives. Most significantly, stakeholders in Berlin have been incredibly successful at bringing together state officials, institutional partners, non-profit organizations, grassroots community agencies and individual households under the umbrella of sustainable housing and have created an environment where each seat of the table has tangible and material influence on the direction of policy and implementation.

Currently, there is relatively little evidence that there is a coherent or organized cohousing network operating in Toronto (outside of the nationally focused Canadian Cohousing Network). Where these networks do exist, they appear to focus on projects falling within the dominant, narrow interpretation of cohousing. This somewhat insular approach may in part explain the relatively limited visibility of the concept in mainstream discourse and the low adoption rates for cohousing in the Canadian context. With regards to Baugruppen, expanding this network to include broad spectrum of actors would help build the political traction and public attention necessary to ensure the diffusion of the concept. Follow up exercises, such as detailed stakeholder mapping across the various sectors related to housing delivery, would reveal areas of strength as well as gaps where actors are not yet integrated into the broader network. Design and construction professionals as well as actors currently participating in the cohousing sector are obviously key members within this mapping exercise. However, almost more critical to this process are professional networks within the broader ecosystem of housing delivery such as experts in the legal and financing sectors.

Building a similarly broad coalition of stakeholders in the GTA may also better integrate Baugruppen into efforts to provide housing in gaps along the Housing Continuum and in the Missing Middle. In other words, by coordinating the delivery of housing by private building groups with other providers, practitioners and policymakers there is the potential to direct these groups toward suitable areas, types and tenures. While Baugruppen are perhaps best suited to the delivery of mid-rise type, market homeownership or rental tenure, particular models may be able to intersect

with other deliveries in order to provide an essential mix that better. This argument, derived from the core arguments for self-organized, collaborative and cohousing, suggests that Baugruppen in the GTA could contribute to the diversity of housing providers and, therefore, the resilience of the housing system as a whole.

4.3.2 Experiment Tolerance and Frameworks

The introduction of Baugruppen to the GTA would undoubtably be an experiment with an unpredictable trajectory. While the concept is theoretically compatible with existing systems and processes, there are elements of Baugruppen that would drive mutations in housing delivery. This is especially true for models under the medium- to high-change scenarios, particularly where city officials would play a more active development role. Experiments in housing delivery are not unprecedented in the GTA and several previous local examples can be found that have been introduced with varying levels of success. High profile cases such as the St. Lawrence Neighbourhood plan in the 1970s, Ataratiri in the late 1990s and early 2000s and, recently, the Quayside project by Sidewalk Labs, can provide critical lessons for the introduction of alternative housing deliveries such as Baugruppen.

Lessons learned from these cases suggest that such experiments often coincide with periods of housing stress and rely on a willingness on the part of practitioners, policymakers and the public to explore new models and new processes. However, this receptiveness to experimentation can also lead to an overenthusiasm towards the concepts being introduced. Therefore, these experiments also requires clearly defined and transparent objectives and frameworks prior to implementation. As mentioned in previous sections, particularly where municipal agencies become involved in the application of Baugruppen, there is a need to establish a rationale based on the model that is being applied. Where appropriate, this rationale can be based on a sustainability analysis such as the one conducted in Section 3.3 (Conceptual SWOT). Input from all stakeholders can help refine this analysis and inform a set clear objectives that guide concept development, as demonstrated in the St. Lawrence Neighbourhood Plan (Gordon, 2001).

4.3.3 Current Demonstration Projects in the GTA

The delivery process of Baugruppen will undoubtably remain complex given the inherent nature of the concept. However, the objective of simplifying the housing delivery process is currently an area of significant interest and several emerging products and practices could dovetail with the introduction of Baugruppen with the potential to drastically streamline this process. While there are an abundance of ideas related to how this may be achieved, there are many examples in the local context, which could be studied in further detail. The set of projects presented below, while not intended to be exhaustive, are examples of where Baugruppen may intersect with emerging technologies or ideas.

4.3.3.1 Modular Construction

The notion of introducing 'plug and play', modular solutions to the housing delivery process would obviously contribute to the overall simplicity of Baugruppen. One example from the local context, the R-Hauz V6 'On the Avenues', offers a template 6,100 sq. ft., 6 storey mass timber housing product pre-designed to meet the City of Toronto Mid Rise Avenue urban design guidelines. This product offers a flexible interior configuration which enables residents to select from a range of floor plans with varying unit density and size. Construction timelines for this product are reduced compared to conventional methods (the company' estimates a four month delivery for the mass timber elements of the building) and products can be stitched together for sites that allow a larger building footprint (R-Hauz).

The V6, or similar products, adequately balance a simplified delivery process with the ability to cater to the customization needs of individual households. Reducing construction timelines not only simplifies the building process for inexperienced households but comes with significant savings in labour, waste material and project management costs. The trade off is that while modularity may allow more households to participate in building groups, it erodes the ability of these groups to set individual objectives for building performance, such as aggressive targets with regards to environmental sustainability or a distinctive identity from an urban design perspective.

4.3.3.2 Flexible Housing Processes

While the notion of 'flexible housing' or housing that adapts to lifestyle needs is not a new concept (Friedman & Krawitz, 1998), expanding the use of this concept to condominium style development has incredible potential if implemented by building groups. This process is currently being explored through the work of Parcel Developments in Hamilton. Parcel's project, 468 James St. N., use a flexible floor plan that allow residents to select the size of their unit in 23 m^2 (250 $ft^{2)}$) increments. These 'lots' come in varying degree of completion from basic (no finish) to turnkey (full interior fit-out), allowing units to be customized to the budget of individual households with the objective of providing affordable options for homeownership.

While the building's design is itself innovative, the groundbreaking aspect of the development is Parcel's approach to lifecycle thinking and education. The firm provides seminars on homeownership and instructs potential residents on how to adapt housing to meet current and future needs. This process not only provides participants with the opportunity to adapt their housing to their needs but with tools to act on these. Pairing this process of education and flexible building with Baugruppen has the potential to extend the concept to a wider range of households from both a financial and technical capacity perspective.

4.3.3.3 Digital Platforms

Advances in digital platforms has expanded to cohousing and offers a streamlined and simple way to participate in these projects without relying on existing social ties or word of mouth. WeOwn is a local example of a platform that matches households interested in jointly owning property together based on a compatibility of interest and expectations. This platform is partnered with

GoCo Solutions to provide interested parties with information, resources and contacts targeting the successful co-ownership of property. A platform similar to WeOwn suited to Baugruppen could include criteria on design, life goals or would introduce the potential to evaluate the compatibility of potential groups and may save time or resources in early design meetings.

4.4 Conclusion

While there are drawbacks and areas of elevated risk, the concept is largely more sustainable if considered in contrast with many of the prevailing conventional forms of development in the Canadian context. Moreover, areas exist under least, medium and high change scenarios where an exchange of Baugruppen is more likely to satisfy these objectives. Therefore, introducing the concept to the Canadian context offers opportunities that could drive reforms and improvements to the process of housing delivery.

There remain barriers to this process. Land acquisition in the Toronto property market is a significant obstacle to housing delivery in the GTA, regardless of its form or mode of production. While the least-change scenario explores models that could be introduce through market processes, these would be under considerable pressure to forego sustainability objectives in order to achieve cost savings and would likely remain accessible to only the wealthier segments of Canadian society. Second, the technical capacity of actors from the state, the private and non-profit sectors and the general public to carry out these types of small-to-mid scale, participatory design projects remains largely unproven in the Canadian context. While limited (and emerging) examples exist that could promote knowledge sharing and capacity building, this is likely to remain an issue if these efforts are not adequately coordinated. Finally, cultural recognition for new forms of housing delivery is not guaranteed and a deliberate process of educating the spectrum of stakeholders on these deliveries is required to build political and social acceptance.

However, there are potential bridges that could facilitate a successful exchange that balances viability with the accessibility and sustainability of the concept in the GTA. Partnerships with actors across the private and non-profit sectors would allow for interested parties to draw on latent resources. Further collaboration with officials at the local and provincial level could also generate policy and institutional reform with the potential to maximize the positive impact of building groups. Finally, dedicated study of current demonstration projects in the GTA could identify innovative products or processes with the potential to dovetail with the application of Baugruppen to improve the trialability, complexity and observability of the concept.

To conclude, there are clear opportunities associated with this exchange. If introduced to the GTA, the concept of Baugruppen can further provoke meaningful dialogue on the nature of housing delivery in the GTA. With further study, coordination and capacity building, these groups may also contribute to the practice of sustainable residential development through modifications to this process of delivery.

Section 4 Notes

[1] Although there remains the question of whether development in these areas are financially viable under conventional speculative, for-profit modes of delivery due challenges such as those identified in Avenues and Mid-Rise Buildings Study conducted for the City of Toronto (2010, 110). See also for example: https://www.thestar.com/news/gta/2019/04/16/developer-says-city-should-rethink-missing-middle-restrictions.html.

[2] An additional example in the Canadian context are the Groupes de resource technique en habitation (GRT) that have been active in Quebec since the 1980s. GRTs are non-governmental organizations that provide professional assistance to nonprofit housing agencies. For more information see: http://www.batirsonquartier.com/grt/ or http://agrtq.qc.ca/lagrtq/les-grt/

[3] Prominent early proponents for laneway housing in Toronto include Jeffery Stinson, Terence Van Elslander and Brigitte Shim

[4] Evergreen and Landscape are notable as the organizations jointly authored *Laneway Suites: A New Housing Typology for Toronto*, which was ultimately entered as background to by-law permitting laneway suites

References

Aalbers, M. B., & Christophers, B. (2014). Centring Housing in Political Economy. *Housing, Theory and Society*, 31(4), 373-394. doi:10.1080/14036096.2014.947082

Aaron, B. (2019). A co-housing agreement can make living arrangements easier for homeowners. *Toronto Star*. Retrieved from https://www.thestar.com/life/homes/2019/03/15/a-co-housing-agreement-can-make-living-arrangements-easier-for-homeowners.html

Ache, P., & Fedrowitz, M. (2013). The Development of Co-Housing Initiatives in Germany. *Built Environment*, 37(3), 395-412.

ÆrØ, T. (2006). Residential Choice from a Lifestyle Perspective. *Housing, Theory and Society*, 23(2), 109-130. doi:10.1080/14036090600773139

Ahn, J., Tusinski, O., & Treger, C. (2018). *Living Closer: The Many Faces of Co-housing*: Studio Wave in collaboration with the Royal Institute of British Architects.

Amt für Statistik Berlin-Brandenburg. (2017). Berlin-Brandenburg Demographic Profile.

Baker, T., & Temenos, C. (2015). Urban Policy Mobilities Research: Introduction to a Debate. *International Journal of Urban and Regional Research*, 39(4), 824-827. doi:doi:10.1111/1468-2427.12252

Barlow, J., Jackson, R., & Meikle, J. (Eds.). (2001). *Homes to DIY for: The UK's self-build housing market in the twenty-first century*. York UK: York Publishing Services.

Benson, M., & Hamiduddin, I. (Eds.). (2017). *Self-Build Homes: Social Discourse, Experiences and Directions*. London: UCL Press.

Bier, T. (2001). *Moving Up, Filtering Down: Metropolitan Housing Dynamics and Public Policy*.

BIM. (2019). Warum machen wir Konzeptverfahren. Retrieved from https://www.bim-berlin.de/immobilien/verkauf/konzeptverfahren/

Bossuyt, D., Salet, W., & Majoor, S. (2018). Commissioning as the cornerstone of self-build. Assessing the constraints and opportunities of self-build housing in the Netherlands. *Land Use Policy*, 77, 524-533. doi:10.1016/j.landusepol.2018.06.003

Bozikovic, A. (2019). We need good ideas on housing - even if they come from Doug Ford. The Globe and Mail. Retrieved from https://www.theglobeandmail.com/canada/article-we-need-good-ideas-on-housing-even-if-they-come-from-doug-ford/

Bratt, R. G. (2012). The Quadruple Bottom Line and Nonprofit Housing Organizations in the United States. *Housing Studies*, 27(4), 438-456. doi:10.1080/02673037.2012.677016

Bridger, J. (2015). Don't Call It A Commune: Inside Berlin's Radical Cohousing Project. *Metropolis*.

Brook MacIlroy, & PACE. (2010). *Avenues & Mid-Rise Buildings Study.* Retrieved from https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/design-guidelines/mid-rise-buildings/

Burda, C., Haines, G., & Hildebrand, S. (2017). *Bedrooms in the Sky: Is Toronto Building the Right Condo Supply.* Retrieved from

Burnett, J. (1986). *A social history of housing,* 1815-198. London: Routledge.

Canada Mortgage and Housing Corporation. (2018). *About Affordable Housing in Canada.* Retrieved from https://www.cmhc-schl.gc.ca/en/developing-and-renovating/develop-new-affordable-housing/programs-and-information/about-affordable-housing-in-canada

Canadian Cohousing Network. (2019a). Communities. Retrieved from https://www.cohousing.ca/communities/

Canadian Cohousing Network. (2019b). What is CoHousing. Retrieved from https://cohousing.ca/resources/articles-brochures-links/

CANCEA. (2017). *Understanding the forces driving the shelter affordability issue: A linked path assessment of housing market dynamics in Ontario and the GTHA.*

CANCEA, & CUI. (2019). *Toronto Housing Market Analysis.*

CBRE, & BerlinHyp. (2018). *Housing Market Report.* Retrieved from https://www.berlinhyp.de/medias/sys_master/pdf/h1e/hbd/8812119097374.pdf

Cerulli, C. (2015). A Social Ecology of Collective 'DIY' Approaches to Housing in the UK. Paper presented at the *Housing - Criticial Futures.* UK Conference.

Cerulli, C., & Field, M. (2011). Deconstructing the UK's housing speculation: finding a blueprint for a greener future in models of 'mutual housing'.

Chazan, G. (2019). Germany's home front: Berlin revolts against big private landlord. *Financial Times*. Retrieved from https://www.ft.com/content/9afdc6b4-4bd8-11e9-bbc9-6917dce3dc62

Chiodelli, F. (2015). Differences and Similarities Among Cohousing, Gated Communities and Other Kinds of Homeowners Associations: A Reply to Ruiu. *GSSI Urban Studies Working Papers*, 22.

Chiodelli, F., & Baglione, V. (2014). Living together privately: for a cautious reading of cohousing. *Urban Research Practice*, 7(1), 20-34. doi:10.1080/17535069.2013.827905

City of Toronto. (2019). City Council Decision: Implementing the "Housing Now" Initiative. Retrieved from http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EX1.1.

City of Toronto Official Plan, (2015).

Clayton, F., & Irish, K. (2017). *Overriding Preference for Ground-Related Housing by GTA MIllennials and Other Recent and Perspective Buyers.*

CMHC. (2018). *Examining Escalating House Prices in Large Canadian Metropolitan Centers.*

CoHousing Berlin. (2019). Financing. Retrieved from http://www.cohousing-berlin.de/de/menschen/finanzen

Colomb, C. (2012). Pushing the Urban Frontier: Temporary Uses of Space, City Marketing, and the Creative City Discourse in 2000S Berlin. *Journal of Urban Affairs*, 34(2), 131-152. doi:10.1111/j.1467-9906.2012.00607.x

Commandeur, S. E., & Zhou, J. (2009). Urban Culture in the New Town Almere. Paper presented at the *The 4th International Conference of the International Forum on Urbanism (IFoU)*, Delft.

Cooper, S., & Skelton, I. (2015). *Addressing Core Housing Need in Canada*.

Couch, C., Sykes, O., & Börstinghaus, W. (2011). Thirty years of urban regeneration in Britain, Germany and France: The importance of context and path dependency. *Progress in Planning*, 75(1), 1-52. doi:https://doi.org/10.1016/j.progress.2010.12.001

Crabtree, L. (2016). Self-organised housing in Australia: housing diversity in an age of market heat. *International Journal of Housing Policy*, 18(1), 15-34. doi:10.1080/14616718.2016.1198083

Cremer, C., Nikolaus, M., Pfander, H., & Praum, C. (2012). *Living in a Community: From the Idea to the Joint Home.* Retrieved from https://www.stadtentwicklung.berlin.de/wohnen/wohnungsbau/download/wohnen_in_gemeinschaft.pdf

Czischke, D. (2017). Collaborative housing and housing providers: towards an analytical framework of multi-stakeholder collaboration in housing co-production. *International Journal of Housing Policy*, 18(1), 55-81. doi:10.1080/19491247.2017.1331593

Dalton, T. (2009). Housing Policy Retrenchment: Australia and Canada Compared. *Urban Studies*, 46(1), 63-91. doi:10.1177/0042098008098637

Dennis, R. (1998). Apartment Housing in Canadian Cities, 1900–1940. *Urban History review*, 26(2), 17-31.

Denzin, N. (2017). *Sociological Methods: A Source Book*. New York: Routledge.

Deutsche Bundesbank. (2019). Enterprise and Household Statistics: Prices. Retrieved from https://www.bundesbank.de/en/statistics/enterprises-and-households/prices/prices-622078#tar-6

Dol, K., Lennartz, C., & De Decker, P. (2012). Self-Provided Housing in Developed Societies. 310-315. doi:10.1016/b978-0-08-047163-1.00484-7

Droste, C. (2015). German co-housing: an opportunity for municipalities to foster socially inclusive urban development? *Urban Research & Practice*, 8(1), 79-92. doi:10.1080/17535069.2015.1011428

Duncan, S. S., & Rowe, A. (1993). Self-Provided Housing: The First World's Hidden Housing Arm. *Urban Studies*, 30(8), 1331-1354.

Eaton, R. (2002). *Ideal cities: utopianism and the (un)built environment.* London: Thames & Hudson.

Evergreen. (2019). *Laneway Suites.* Retrieved from https://www.evergreen.ca/our-projects/laneway-suites/

Evergreen, & CUI. (2018). *What is the Missing Middle? A Toronto Housing Challenge Demystified.* Retrieved from https://www.evergreen.ca/downloads/pdfs/2018/What_is_the_Missing_Middle_Evergreen_CUI_s2.pdf

Fields, D. J., & Hodkinson, S. N. (2018). Housing Policy in Crisis: An International Perspective. *Housing Policy Debate,* 28(1), 1-5. doi:10.1080/10511482.2018.1395988

Firley, E., & Stahl, C. (2008). *The Urban Housing Handbook.* Chichester: Wiley.

Florida, R., & Schneider, B. (2018). The Global Housing Crisis. *CityLab.*

Forsyth, A., Nicholls, G., & Raye, B. (2010). Higher Density and Affordable Housing: Lessons from the Corridor Housing Initiative. *Journal of Urban Design*, 15(2), 269-284. doi:10.1080/13574801003638079

Friedman, A., & Krawitz, D. (1998). The Next Home: Affordability through Flexibility and Choice. *Housing and Society*, 25(1-2), 103-116. doi:10.1080/08882746.1998.11430288

Gladu, C. (2019). Cohousing Research. Retrieved from http://cgladu.com/category/research/

Glaeser, E., & Gyourko, J. (2018). The Economic Implications of Housing Supply. *Journal of Economic Perspectives*, 32(1), 3-30. doi:10.1257/jep.32.1.3

Global Residential Cities Index. (2018). Retrieved from https://content.knightfrank.com/research/1026/documents/en/global-residential-cities-index-q4-2017-5413.pdf

Gordon, D. L. A. (2001). *Directions for New Urban Neighbourhoods: Learning from St. Lawrence*. Retrieved from https://www.ucalgary.ca/ev/designresearch/projects/2001/CEDRO/cedro/cip_acupp_css/pdf/st_lawrence.pdf

Hamiduddin, I., & Gallent, N. (2015). Self-build communities: the rationale and experiences of group-build (Baugruppen) housing development in Germany. *Housing Studies*, 31(4), 365-383. doi:10.1080/02673037.2015.1091920

Harji, K., Reynolds, J., Best, H., & Jeyaloganathan, M. (2014). *State of the Nation: Impact Investing in Canada.* Retrieved from https://www.marsdd.com/wp-content/uploads/2014/09/Impact-Investing-in-Canada-State-of-the-Nation-2014-EN.pdf

Harris, R. (1996). *Unplanned Suburbs: Toronto's American Tragedy.* Baltimore: Johns Hopkins University Press.

Harris, R. (1999). Slipping through the Cracks: The Origins of Aided Self-help Housing, 1918-53. *Housing Studies,* 14(3), 281-309. doi:10.1080/02673039982803

Harris, R. (2004). *Creeping Conformity: how Canada became suburban, 1900-1960.* Toronto: University of Toronto Press.

Hayden, D. (1981). The grand domestic revolution: a history of feminist designs for homes, neighborhoods, and cities. Cambridge MA: MIT Press.

Healey, P. (2013). Circuits of Knowledge and Techniques: The Transnational Flow of Planning Ideas and Practices. *International Journal of Urban and Regional Research*, 37(5), 1510-1526. doi:10.1111/1468-2427.12044

Hebbert, M., & Mackillop, F. (2013). Urban Climatology Applied to Urban Planning: A Postwar Knowledge Circulation Failure. *International Journal of Urban and Regional Research*, 37(5), 1542-1558. doi:10.1111/1468-2427.12046

Hess, P. M. (2009). Avenues or Arterials: The Struggle to Change Street Building Practices in Toronto, Canada. *Journal of Urban Design*, 14(1), 1-28. doi:10.1080/13574800802451049

Hierse, L., Nuissl, H., Beran, F., & Czarnetzki, F. (2017). Concurring urbanizations? Understanding the simultaneity of sub- and re-urbanization trends with the help of migration figures in Berlin. *Regional Science*, 4(1), 189-201. doi :10.1080/21681376.2017.1351886

Holm, A. (Producer). (2010). Berlin: Baugruppen mit Gentrification-Garantie. Retrieved from https://gentrificationblog.wordpress.com/2010/09/18/berlin-baugruppen-mit-gentrification-garantie/

Hömberg, S. (2015). CH 24/25 Berlin - Weißensee. Retrieved from http://www.cohousing-berlin.de/sites/default/files/assets/Projekte/1201/150429bgch24expose.pdf

Hulchanski, D. (2006). *What Factors Shape Canadian Housing Policy? The Intergovernmental Role in Canada's Housing System.*

Kalinowski, T. (2017). Twelve's company: Two couples want to make High Park co-housing dream a reality. The *Toronto Star.* Retrieved from https://www.thestar.com/business/2018/10/27/twelves-company-two-couples-want-to-make-high-park-co-housing-dream-a-reality.html

Kalman-Lamb, G. (2017). The financialization of housing in Canada: intensifying contradictions of neoliberal accumulation. *Studies in Political Economy*, 98(3), 298-323. doi:10.1080/07078552.2017.1393911

Kersting, S., & Gray, J. (2018). As property booms, Berlin is a victim of its own success. *Handelsblatt Today*. Retrieved from https://www.handelsblatt.com/today/finance/room-wanted-as-property-booms-berlin-is-a-victim-of-its-own-success/23583224.html?ticket=ST-2664382-mVBeomMXaSOOqSldW7g9-ap1

King, R., Orloff, M., Virsilas, T., & Pande, T. (2017). *Confronting the Urban Housing Crisis in the Global South: Adequate, Secure, and Affordable Housing.*

Kintrea, K. & Clapham, D., (1987). Importing housing policy: Housing co-operatives in Britain and Scandinavia. *Housing Studies,* 2(3), 157-169. doi:10.1080/02673038708720597

Kusisto, L., & Grant, P. (2019). Affordable Housing Crisis Spreads Throughout World. *Wall Street Journal*.

LaFond, M., & Tsvetkova, L. (Eds.). (2017). *CoHousing Inclusive: Self-Organized, Commmunity-Led Housing for All.* Berlin: Jovis Verlag.

Landis, J. (1982). Why Homebuilders Don't Innovate. *Built Environment*, 8(1).

Lang, R., Carriou, C., & Czischke, D. (2018). Collaborative Housing Research (1990–2017): A Systematic Review and Thematic Analysis of the Field. *Housing, Theory and Society*, 1-30. doi:10.1080/14036096.2018.1536077

Lang, R., & Stoeger, H. (2018). The role of the local institutional context in understanding collaborative housing models: empirical evidence from Austria. *International Journal of Housing Policy*, 18(1), 35-54. doi:10.1080/19491247.2016.1265265

Lawson, J., & Milligan, V. (2007). *International Trends in housing and policy responses.* Retrieved from Sydney Research Centre:

Lehrer, U., Keil, R., & Kipfer, S. (2010). Reurbanization in Toronto: Condominium boom and social housing revitalization. disP - *The Planning Review*, 46(180), 81-90. doi:10.1080/02513625.2010.10557065

Lloyd, M. G., Peel, D., & Janssen-Jansen, L. B. (2014). Self-build in the UK and Netherlands: mainstreaming self-development to address housing shortages? *Urban, Planning and Transport Research*, 3(1), 19-31. doi:10.1080/21650020.2014.987403

MacLeod, G. (2013). New Urbanism/Smart Growth in the Scottish Highlands: Mobile Policies and Post-politics in Local Development Planning. *Urban Studies*, 50(11), 2196-2221. doi:10.1177/0042098013491164

McCann, E. (2011). Urban Policy Mobilities and Global Circuits of Knowledge: Toward a Research Agenda AU - McCann, Eugene. *Annals of the Association of American Geographers*, 101(1), 107-130. doi:10.1080/00045608.2010.520219

McCann, E., & Ward, K. (2012). Assembling Urbanism: Following Policies and 'Studying Through' the Sites and Situations of Policy Making. *Environment and Planning A: Economy and Space*, 44(1), 42-51. doi:10.1068/a44178

Michelson, W. (1980). Long and short term criteria for housing choice and environmental behaviour. *Social Issues*, 36(3).

Miller, L. J., & Lu, W. (2018). Housing Prices Are Through the Roof in These 10 Cities. *Bloomberg*.

Mullins, D., & Moore, T. (2018). Self-organised and civil society participation in housing provision. *International Journal of Housing Policy*, 18(1), 1-14. doi:10.1080/19491247.2018.1422320

Munoz, M., Schmidt, F., Waffel, C., & Raschke, N. (2012). KUKQ - Ein neues Kunst- und Kreativquartier im Herzen Berlins. Retrieved from

Nathanson, C. G., & Zwick, E. (2018). Arrested Development: Theory and Evidence of Supply-Side Speculation in the Housing Market. *The Journal of Finance*, 73(6), 2587-2633. doi:10.1111/jofi.12719

Noy, C. (2008). Sampling Knowledge: The Hermeneutics of Snowball Sampling in Qualitative Research. *International Journal of Social Research Methodology,* 11(4), 327-344. doi:10.1080/13645570701401305

NRCan. (2018). *Residential End-Use Model.* Ottawa.

O'Sullivan, F. (2018). Here Comes Amsterdam's Man-Made Island for Sustainable, Affordable Housing. *CityLab.*

Paciorek, A. (2013). Supply constraints and housing market dynamics. *Journal of Urban Economics,* 77, 11-26. doi:https://doi.org/10.1016/j.jue.2013.04.001

Parvin, A., Saxby, D., Cerulli, C., & Scheider, T. (2011). *A Right to Build: The Next Mass-Housebuilding Industry*: University of Sheffield School of Architecture.

Peck, J. (2005). Struggling with the Creative Class. *International Journal of Urban and Regional Research*, 49(4), 740-770.

Peck, J. (2011). Geographies of policy:From transfer-diffusion to mobility-mutation. *Progress in Human Geography*, 35(6), 773-797. doi:10.1177/0309132510394010

Petramala, D., & Clayton, F. (2018). *Millennials in the Greater Toronto and Hamilton Area: A Generation Stuck in Apartments?*

Piketty, T. (2013). *Capital in the Twenty-First Century.* Cambridge: Harvard University Press.

Pitt, D. (2013). Evaluating the greenhouse gas reduction benefits of compact housing development. *Journal of Environmental Planning and Management,* 56(4), 588-606. doi:10.1080/09640568.2012.692894

Planning Act, § 28(2), P.13 Stat. (1990).

PNLT. (2019). Parkdale Neighbourhood Land Trust. Retrieved from http://www.pnlt.ca/

Pomeroy, S. (2016). *Optimizing Demand and Supply Side Housing Assistance Programs: A Background Brie*f.

Pomeroy, S., & Lampert, G. (2017). *Examining the dynamics of Canada's housing tenure system: implications for a national housing strategy.* Retrieved from https://chra-achru.ca/sites/default/files/Research/Dynamics-Canada-housing-tenure-system/2017-12_backgrounder_dynamics-tenure-system_implications-nhs.pdf

Purdy, S. (1993). A property-owning democracy?? Home ownership and the working class in Canada. *Labour / le Travail*, 31, 341-353.

Qu, L., & Hasselaar, E. (Eds.). (2011). *Making Room for People: Choice, Voice and Livability in Residential Places*: Techne Press.

R-Hauz. (2019). Products. Retrieved from https://www.r-hauz.ca/products.html#v6

Raynor, K., & Kotler, A. (2017). Building with the People. *Pursuit by the University of Melbourne*.

Ring, K. (2013). *Selfmade City Berlin: Self-Intiated Urban Living and Architectural Interventions.* Berlin: Jovis.

Robinson, O. C. (2014). Sampling in Interview-Based Qualitative Research: A Theoretical and Practical Guide. *Qualitative Research in Psychology*, 11(1), 25-41. doi:10.1080/14780887.2013.801543

Rosen, G. (2017). Toronto's condo-builders: development approaches and spatial preferences. *Urban Geography*, 38(4), 606-625. doi:10.1080/02723638.2016.1179426

Rosen, G., & Walks, A. (2015). Castles in Toronto's Sky: Condo-Ism as Urban Transformation. *Journal of Urban Affairs,* 37(3), 289-310. doi:10.1111/juaf.12140

Roussy, K. (2018). How these 'Golden Girls' beat the odds of loneliness. *CBC.* Retrieved from https://www.cbc.ca/news/health/seniors-cohousing-baby-boomers-loneliness-mental-health-1.4952142

Ruiu, M. L. (2014). Differences between Cohousing and Gated Communities. A Literature Review. *Sociological Inquiry,* 84(2), 316-335. doi:10.1111/soin.12031

Saiz, A., & Salazar, A. (2018). *Real Trends: The Future of Real Estate in the United States.*

Schulist, T., & Harris, R. (2002). 'Build Your Own Home': state-assisted self-help housing in Canada, 1942–75. *Planning Perspectives*, 17(4), 345-372. doi:10.1080/02665430210154759

Schultheis, E. (2019). Berlin's Radical Plan to stop skyrocketing rents. *BBC.* Retrieved from http://www.bbc.com/capital/story/20190226-berlins-radical-plan-to-stop-rocketing-rents

Scioli, J., Notaro, P., & Walberg, W. (2017). City-Wide Real Estate Transformation. City of Toronto Retrieved from https://www.toronto.ca/legdocs/mmis/2017/ex/bgrd/backgroundfile-103511.pdf.

Scorgie, B., & Hertel, S. (2019). Density Transition Zones. Retrieved from https://www.transitionzones.com/about.html

Selbstbaugenossenschaft eG. (2017). Integratives Bauprojekt am ehemaligen Blumengrossmarkt – IBeB. Retrieved from http://selbstbaugenossenschaft.de/?page_id=129

Senatsverwaltung für Finanzen. (2019). Transparente Liegenschaftspolitik. Retrieved from https://www.berlin.de/sen/finanzen/vermoegen/liegenschaften/transparente-liegenschaftspolitik/artikel.702602.php

Senbel, M., Giratalla, W., Zhang, K., & Kissinger, M. (2014). Compact Development without Transit: Life-Cycle GHG Emissions from Four Variations of Residential Density in Vancouver. *Environment and Planning A: Economy and Space*, 46(5), 1226-1243. doi:10.1068/a46203

Sewell, J. (1993). *The Shape of the City Toronto Struggles with Modern Planning*: University of Toronto Press.

Sharam, A., Bryant, L. E., & Alves, T. (2014). De-risking development of medium density housing to improve housing affordability and boost supply. Paper presented at the *Senate Economics References Committee Inquiry into Affordable Housing.*

Sharam, A., Bryant, L. E., & Alves, T. (2015a). Identifying the financial barriers to deliberative, affordable apartment development in Australia. *International Journal of Housing Markets and Analysis*, 8(4), 471-483. doi:10.1108/ijhma-10-2014-0041

Sharam, A., Bryant, L. E., & Alves, T. (2015b). *Making Apartments Affordable: Moving from Speculative to Deliberative Development.*

Shlay, A. B. (1985). Castles in the Sky: Measuring Housing and Neighborhood Ideology. *Environment and Behavior*, 17(5), 593-626. doi:10.1177/0013916585175003

Skaburskis, A. (2006). Filtering, City Change and the Supply of Low-priced Housing in Canada. *Urban Studies*, 43(3), 533-558. doi:10.1080/00420980500533612

Somerville, P. (1998). Empowerment through Residence. *Housing Studies*, 13(2), 233-257. doi:10.1080/02673039883425

SPACE10, & Urgent.Agency. (2018). Exploring the Brave New World of Shared Living. Imagine.

Statistics Canada. (2019). Table 34-10-0143-01 Canada Mortgage and Housing Corporation, housing starts, under construction and completions in centres 10,000 and over, Canada, provinces, selected census metropolitan areas.

Stoeger, H., & Lang, R. (2018). The role of the local institutional context in understanding collaborative housing models: empirical evidence from Austria. *International Journal of Housing Policy*, 18(1), 35-54. doi:10.1080/19491247.2016.1265265

Suckow, C. (2009). Baugemeinschaften in Berlin: Wohnwünsche, Haushaltseinkommen und Finanzierung, Haushalts- und Sozialstruktur. Retrieved from https://digital.zlb.de/viewer/rest/image/33349595/baugemeinschaften.pdf/full/max/0/baugemeinschaften.pdf

Surman, T. (2015). The Community Bond: An Innovation in Social Finance. Retrieved from https://communitybonds.ca/

Suttor, G. (2011). Canadian Social Housing Policy, Evolution and Impacts on the Housing System and Urban Space. (Doctor of Philosophy), University of Toronto.

Temenos, C., & McCann, E. (2012). The Local Politics of Policy Mobility: Learning, Persuasion, and the Production of a Municipal Sustainability Fix. *Environment and Planning A: Economy and Space*, 44(6), 1389-1406. doi:10.1068/a44314

Till, J. (2014). Scarcity and Agency. *Journal of Architectural Education*, 68(1), 9-11. doi:10.1080/10464883.2014.864894

Tummers, L. (2015a). Understanding co-housing from a planning perspective: why and how? *Urban Research & Practice*, 8(1), 64-78. doi:10.1080/17535069.2015.1011427

Tummers, L. (2015b). Understanding co-housing from a planning perspective: why and how? *Urban Research Practice*, 8(1), 64-78. doi:10.1080/17535069.2015.1011427

Tummers, L. (2016). The re-emergence of self-managed co-housing in Europe: A critical revie of co-housing research. *Urban Studies*, 2016(5), 2023-2040. doi:0.1177/0042098015586696

Tummers, L. (2017). Learning from co-housing initiatives: Between Passivhaus engineers and active inhabitants. Delft University of Technology. Retrieved from https://journals.open.tudelft.nl/index.php/abe/article/view/1858/1978

Turner, J. (1976). *Housing by People: Towards Autonomy in Building Environments.* New York: Pantheon.

Turner, J., & Fischer, R. (1972). *Freedom to Build: Dweller Control of the Housing Process.* New York: Collier Macmillian.

Van der Krabben, E., & Jacobs, H. M. (2013). Public land development as a strategic tool for redevelopment: Reflections on the Dutch experience (Vol. 30).

Van Vliet, D. (1994). *Sustainable subdivision planning and design: analysis, literature review, and annotated bibliography.* Winnipeg: Institute of Urban Studies, Unversity of Manitoba.

Van Vliet, D. (2000). Development / demonstration: an adaptive strategy. In K. Williams, E. Burton, & M. Jenks (Eds.), *Achieving sustainable urban form* (pp. 189-201). London: Spon.

Vestbro, D. U. (2010). Living Together: Cohousing Ideas and Realities Around the World. Paper presented at the *International Collaborative Housing Conference*, Stockholm.

Voumvakis, K., & Cantos, J. (2014). *Official Plan and Municipal Comprehensive Reviews: Regeneration Area Studies Status Report.* Toronto Retrieved from https://www.toronto.ca/legdocs/mmis/2014/pg/bgrd/backgroundfile-71944.pdf.

Wang, K., & Benjamin, G. (2017). Could Germany's Co-Developed Urban Housing Be a Model for the Bay Area? *SPUR*.

Ward, M. (2019). In Melbourne, collaborative development is turning grey streets green. *Foreground.* Retrieved from https://www.foreground.com.au/planning/melbourne-collaborative-development-turning-grey-streets-green/

Wetzstein, S. (2017). The global urban housing affordability crisis. *Urban Studies*, 54(14), 3159-3177. doi:10.1177/0042098017711649

Williams, J. (2008). Predicting an American future for cohousing. *Futures*, 40(3), 268-286. doi:https://doi.org/10.1016/j.futures.2007.08.022

Woetzel, J., Ram, S., Mischke, J., Garemo, N., & Sankhe, S. (2014). *A blueprint for addressing the global affordable housing challenge.*

Wright, G. (1981). *Building the dream: a social history of housing in America.* Cambridge MA: MIT Press.

APPENDICIES

Appendix A: List of Interviews

Anonymous, resident (April 2019)
Kästle, U., büro 1.0 (March 2019)
Kuczmarski, P., büro 1.0 (March 2019)
Keilhacker, T. Kazanski. Keilhacker Urban Design. Architekten (March 2019)
Schröder, M., Urbansky Architekten (February 2019)
Sternberg, S., STATTBAU Stadtentwicklungsgesellschaft mbH (April 2019)
Tsvetkova, L., id22: Institute for Creative Sustainability (February 2019)
von Beckerath, V., Heide + von Beckerath (March 2019)

Appendix B: Interview Template (Experts)

The following guide was used to conduct interviews/conversations with experts. Interviews were semi-structured and participants were encouraged to direct the conversation as they saw fit.

Questions

1. Can you briefly describe how long you have lived/worked in Berlin, what your work currently entails, and how you became familiar with the concept of Baugruppen or Baugemeinschaft?

2. How would you currently define Baugruppen and Baugemeinschaft? What would you say are the most important elements of these practices?

3. How would you define a 'successful' Baugruppen or Baugemeinschaft project? Broadly speaking, are there a set of objectives or intended outcomes by which this success can be evaluated?

4. Would you say generally that a Baugruppen or Baugemeinschaft project has a better likelihood of realizing positive outcomes—related to: (1) urban design, (2) neighbourhood and neighbourhood integration, (3) environmental sustainability, (4) housing affordability, (5) social inclusivity, and/or (6) architectural innovation—when compared to other forms of development? If so, can you please comment on any or all that apply.

5. In your experience, how would you say the concepts of Baugruppen and Baugemeinschaft in Berlin have evolved since their inception?

6. Would you say that the current practice of Baugruppen or Baugemeinschaft in Berlin differs from other cities in Germany? If so, in what ways?

7. How do you see the practice of Baugruppen or Baugemeinschaft fitting into the broader

housing system in Berlin? I.e. roughly what proportion of housing in Berlin is provided through this practice and is it useful / possible to consider providing more housing in this way?

8. In your experience, would you say that there is there a specific demographic group or audience who participate in Baugruppen or Baugemeinschaft project in Berlin? Have you noticed a change or shift in the demographic makeup of these groups over the past 10 years?

9. What would you say motivates people to participate in these projects in Berlin? Are these motivations relatively consistent or do they differ on a case-by-case basis? Have you noticed a change or shift in these motivations over the past 10 years?

10. The initial practice of Baugruppen or Baugemeinschaft in Berlin appears to have emerged out of a local set of conditions, such as low rates of homeownership, low levels of investment interest, vacant sites for redevelopment and/or a generally more favourable attitude to more DIY or communal approaches to housing:
    - Do you feel that this is accurate?
    - If so, are these conditions (individually or collectively) still present?
    - If not, what are the current conditions that impact the delivery of these projects?
    - Do you see these external factors (such as those mentioned above) as significantly impacting the delivery of these projects?

11. Are there new practices, concepts or attitudes that are emerging that you see as being compatible with or equivalent to Baugruppen or Baugemeinschaft?

12. What would you say is the future for these types of projects? Are there modifications that need to be made or ways to improve on the delivery / implementation?

13. What would you consider the value of translating the practice of Baugruppen (or some of its constituent elements or ideas) to other contexts?

14. If hypothetically an exchange were to occur, what do you feel would be helpful to consider before attempting this?

15. In your opinion, are there particular difficulties that may be associated with implementing this practice in different contexts globally?

16. Conversely, do you think there are opportunities associated with implementing these practices in different contexts?

17. As a final thought, what is your general perspective of Baugruppen? Is this practice helpful or useful in providing housing?

Appendix C: Interview Template (Residents)

The following guide was used to conduct interviews/conversations with residents.
Interviews were semi-structured and participants were encouraged to direct the conversation as they saw fit.

Introductions

Thank you for agreeing to participate in this study. This interview will last from one to two hours, or longer if you find you have many things to say to me. At the same time, you are under no obligation to respond to every question.

What I have before me is merely a guide – I would like you to speak freely and openly as you see fit.

There are five sections. Each has a number of questions. Some of them are short-answer, and some involve you telling me more. I may take down notes or ask for clarification. Please don't be uncomfortable in either case.

Most importantly: There are no right or wrong answers – I am interested in what you think!

Section A: Residential History

A.1 How long have you lived in Berlin?

A.2 What area of Berlin are you living in?

A.3 Why did you chose this area ?

A.4 Is your current residence a Baugruppe project? Y / N

A.5 How long have you lived at your current residence?

A.6 What are your reasons for choosing your current residence?

A.7 Where did you live before?

A.8 Were there reasons for moving from your previous residence?

A.9 Where were you born?

A.10 Why have you decided to live in Berlin?

Section B: Current (or past) residence

B.1 Could you tell me about the building that you are currently living in?

- B.1.a Number of Units
- B.1.b Parking Spaces
- B.1.c Shared amenity space
- B.1.d Age range of neighbours
- B.1.e Number of windows / available sunlight
- B.1.f Other

B.2 Can you tell me about your unit in the building?

- B.2.a Layout and individual rooms [can sketch if you like]
- B.2.b Number of rooms
- B.2.c Number of bedrooms
- B.2.d Size of bedrooms
- B.2.e Size of kitchen
- B.2.f Orientation
- B.2.g [if applicable] Size of other

B.3 Do you rent or own your unit?

B.4 How are public spaces maintained?

B.4 How are collective payments managed?

B.5 What is the organization of the group?

B.6 Are there any financial or non-financial obligations that you think would not be present in a more conventional homeownership arrangement? rental arrangement? coop?

B.7 Can you tell me a little about what you like or dislike about your living arrangement?

- B.7.a Location (social, cultural, close to work, close to family)
- B.7.b Transport options
- B.7.c Layout and individual rooms – kitchen, living room, bedrooms
- B.7.d Common spaces and access to outside
- B.7.e Building management
- B.7.f Relationship with neighbours
- B.7.g Other economic, social, cultural, architectural or economic reasons

B.8 Overall level of satisfaction with current living situation?

Very Satisfied / Satisfied / Somewhat Satisfied / Not Very Satisfied

B.9 Do you think that there are any trade-offs for associated living in your current location? your current building? your current unit? your current arrangement? (i.e space, higher rent, car ownership, etc.)

B.10 [if applicable] How long do you intend in your current living situation?

B.11 [if applicable] What are your reasons for moving if your are planning to do so?

B.12 [if applicable] What are your future plans for housing / ideal housing situation (?)

Section C: Experience with Baugruppe

C.1 History and trajectory of the project

C.2 Specificities of this project

- location – urban/downtown/semi-urban/fringes (self-assessed)
- structural type of housing
- number of storeys
- size of site
- number of units
- size of units
- common spaces
- appearance and aesthetics
- other design features (energy, amenities, etc.)
- costs of development
- tenure and organizational framework

C.3 Goal for the project at inception—social, economic, environmental, cultural?

C.4 Main challenges of process? identify and how were they addressed?

C.5 What was the level of external assistance? Who was involved (government, NGOs, architects, financial planners, etc.)

C.5 What was the decision making process (e.g. consensus, democratic, majority, key actors, etc.)

C.6 How were roles determined?

C.7 [if applicable] Position or role in the development or administration process?

C.8 Did roles given remain the same throughout the project or did they change?

C.9 [if applicable] Did you derive any satisfaction from your role?

C.10 Over all how satisfied were you with the process of the project

Very Satisfied / Satisfied / Somewhat Satisfied / Not Very Satisfied

C.11 Possible improvements or lessons learned?

Section D: Housing system (policy and self-provided housing)

D.1 What do you consider the most significant challenges of finding and providing housing are? (general)

D.2 Do you consider housing to be affordable and of good quality in Berlin?

D.3 Do you think that there are any cities that share a similar housing system?

D.4 Are there any difficulties or particularities specific to Berlin?

D.5 Are you aware of actions being taken by the organizations and institutions (the government) to help improve housing opportunities?

D.6 [if applicable] Do you think that these actions likely to improve housing opportunities in Berlin?

Very Likely / Likely / Somewhat Likely / Not Very Likely

D.7 What do you think the level of cooperation is between organizations, institutions and individuals?

D.5 Overall do you consider self-provided housing to be valuable or useful?

D.6 If you think it is valuable to do so, what could help promote self-provided housing?

D.7 Challenges of initiating self-provided housing focusing on barriers?

D.8 Opportunities of self-provided housing if provided at scale (speculative)?

Section E: Personal History

E.1 How old are you?

E.2 Gender?

E.3 Children? If so, how many and what age?

E.4 Hobbies / other interests?

E.5 Preferred mode of transport? Do you own a car? If so, how many?

E.6 Profession? Education?

E.7 Ethnic background?

E.8 Budget for housing?

[Thank you for your time]

[Please feel free to contact me at any time if you have any questions or concerns regarding the research]

Appendix D: Detailed Project Survey

For this survey a 'purposive sampling strategy' was deployed, which aimed to locate 'information-rich' examples of the concept in practice. These projects were selected with the intent of presenting a range of models based on the following criteria: (1) completed recently, (2) diversity of 'commoning' features, (3) different levels of resident involvement, and (4) different partnerships with state, non-profit and private sector actors.

Name	Status	Address	Land Cost	Construction Cost	Cost/ sqm	Property	GFA
Haus Eisenzahn	completed	Eisenzahnstraße 38 10709 Berlin				2,061 m2	2,641 m2
Ausbauhaus Neukölln	completed	Braunschweiger Straße 41 12055 Berlin		€1,550,000	608 € / m2	1,400 m2	2,550 m2
Bluecher24	completed	Blücherstrasse 24 10961 Berlin				997 m2	3,200 m2
Kreutzigerstrasse 20	completed	Kreutzigerstrasse 20 10247 Berlin					1,080 m2
Baugruppe Simplon	completed	Simplonstr. 54-56 10245 Berlin				1,280 m2	3,222 m2
Baugruppe SIMplus	completed	Simplonstr. 52 10245 Berlin		€5,780,000		938 m2	
Baugemeinschaft MAX42 GbR	completed	Maximilianstrasse 42c 13187 Berlin				552 m2	915 m2
Baugruppe in Mitte	cancelled	Schillingstr. 1 10179 Berlin		€3,980,000	2,052 € / m2		1,940 m2
R50	completed	Ritterstrasse 50 10969 Berlin	€480,000	€4,022,000	1,938 € / m2	2,056 m2	2,075 m2
c19	completed	Christburger Strasse 19, 10405 Berlin					2,872 m2
e3	completed	Esmarchstraße 3 10407 Berlin					987 m2
Florastrasse 81	completed	Florastrasse 81 13187 Berlin				732 m2	1,440 m2
Baugruppenprojekt Görschstraße 17	completed	Görschstraße 17 13187 Berlin	€600,000	€4,850,000	2,310 € / m2	1,600 m2	2,100 m2
Shared Space Malmöer	completed	Malmöer Straße 10439 Berlin		€2,450,000		1,100 m2	
IBeB	completed	Lindenstraße 90/91 10969 Berlin				2,798 m2	5,530 m2
AVERAGES						**1,410 m2**	**2,350 m2**

FAR	Storeys	Units	GFA/unit	Legal Form	Link	
1.3	6	30	88 m2	GbR	http://buergerstadt.de/m/projekte/haus-eisenzahn/	http://www.cohousing-berlin.de/de/projekte/haus-eisenzahn
1.8	6	23	111 m2	GbR	http://www.cohousing-berlin.de/de/projekte/ausbauhaus-neukoelln	https://www.praegerrichter.de/AUSBAUHAUS-NEUKOLLN-1
3.2	7	27	119 m2	GbR / WEG	http://www.cohousing-berlin.de/de/projekte/bluecher24-baugruppe-kreuzberg	http://www.liebscher-tauber-architekten.de/bluecher.html
	6	11	98 m2	GbR / WEG	http://www.cohousing-berlin.de/de/projekte/kreutzigerstrasse-20	
2.5	6	31	104 m2	GbR	http://www.cohousing-berlin.de/de/projekte/baugruppe-simplon-simplonstr-54-56	
	6	24		GbR	http://www.cohousing-berlin.de/de/projekte/baugruppe-simplus-simplonstr-52	
1.7	5	7	131 m2	GbR	http://www.cohousing-berlin.de/de/projekte/baugemeinschaft-max42-gbr	
	5	16	121 m2		http://www.cohousing-berlin.de/de/projekte/baugruppe-mitte-schillingstrasse-am-kino-international	
1.0	8	19	109 m2	GbR / WEG	http://www.cohousing-berlin.de/de/projekte/r-50-baugemeinschaft-ritterstrasse-50	https://www.bundesstiftung-baukultur.de/beispiele/r50-ritterstrasse-50-berlin
	8	27	106 m2		http://www.kadenundlager.de/projects/e3/	
	7	8	123 m2			
2.0	6	13	111 m2	GbR	http://www.cohousing-berlin.de/de/projekte/florastrasse-81	
1.3	5	15	140 m2	GbR	http://www.cohousing-berlin.de/de/projekte/baugruppenprojekt-goerschstrasse-17	
	5	22		GbR / WEG	http://www.cohousing-berlin.de/de/projekte/shared-space-malmoeer	http://www.c-wagner.de/projekt.php?id=2
2.0	5	66	84 m2	GbR / WEG / eG	http://ib-eb.com/ibeb_de.pdf	
1.7	**6**	**23**	**111 m2**			