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Intermediacy and the diffusion of grassroots innovations: The case of cohousing in the United States.

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ABSTRACT

Grassroots innovations (GIs) diffuse by three pathways: replication, up-scaling, and translation. To date, a small body of research illustrates that niche-to-regime translation occurs under conditions of intermediacy: when a niche shares some, but not all, properties of a regime it prefigures. There has been less focus on the dynamics of niche replication and up-scaling, and the conditions that encourage these diffusion pathways. Drawing from interviews with the founders of cohousing initiatives in the United States, this paper offers in-depth accounts of replication and up-scaling, revealing how niche leaders and local project founders have positioned their projects as meaningful and practical to individuals with economic and social commitments to the mainstream. These results emphasize the interpretive nature of the diffusion of GIs while also problematizing the concept of intermediacy. A more nuanced understanding of these niche diffusion pathways will inform subsequent research on GIs, including additional subcategories of replication and up-scaling.

1. Introduction

In the past two decades, the field of sustainability transitions has explored how the trajectories of socio-technical regimes change as a consequence of both exogenous landscape pressure and the emergence of 'niche' alternatives that serve societal functions parallel to the incumbent regime (Rip and Kemp, 1998; Geels 2002, 2004). How niches form, endure, and emerge (or fail to emerge) in the socio-technical mainstream has occupied an important corner of the broad transitions literature since its inception (e.g. Kemp et al., 1998).

In the last decade the concept of grassroots innovations (GIs)—niches sustained by the ideological commitment of local actors—has matured into a relevant subcategory of the broader transitions literature (Seyfang and Smith 2007; see Hossain (2016) for a recent review). This paper frames *cohousing* as a grassroots innovation and interrogates processes of niche replication and up-scaling amidst selection pressure from an incumbent housing production regime. While cohousing exists in countries around the world, this paper attempts to hold constant the regime context in which cohousing is framed by focusing exclusively upon the cohousing movement in the United States (US).

Cohousing is a residential development model that clusters private dwelling units around collectively -owned and -managed spaces. Residents lead both the development process and daily management of the community. The collaborative nature of cohousing addresses several social and environmental dilemmas at once, and may serve as an innovation that policy makers at multiple scales can employ to address issues like climate change, housing affordability, and social isolation in cities.

This paper uses the case of cohousing to detail processes of niche replication and up-scaling. Prior research on GIs has emphasized the importance of 'intermediacy' in processes of niche-to-regime translation: Paradoxically, niche projects that share some properties

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of the regime they prefigure are better able to directly influence changes in that regime than 'radical' niche projects (Smith, 2007; Boyer, 2015). This intermediate status emerges over time, as the boundaries between niche and regime dissolve, and actors position themselves in both domains (Boyer, 2014).

While processes of replication and up-scaling have received relatively less attention in the GI literature, growth in the number of local projects and the number of constituents at those projects logically increase the circulation and reapplication of local knowledge as well as opportunities for translation, and thus, regime change (Schot and Geels, 2008). Through interviews with project founders and supporting evidence from key texts of the cohousing movement, this paper offers evidence for the interpretive nature of niche replication and up-scaling, reaffirming the importance of intermediacy as a phenomenon in GI research while offering contours for its application.

The US cohousing movement represents a sort of "pragmatic utopia" by articulating a socio-environmental critique that does not preclude its residents working in- and associating with- individuals and institutions of the mainstream (Sargisson, 2012). This paper illustrates how leaders of the cohousing movement use this pragmatism strategically, as a means to the movement's diffusion. In this sense, findings here complement existing scholarship that documents the importance of pragmatic positioning in processes of niche-to-regime translation (Smedby and Quitzau, 2016; Boyer, 2015, 2014, 2013).

The paper progresses as follows: Section Two situates discussions of niche diffusion in the broader transitions and GI literature. Section Three offers historical background on cohousing, contrasting it with an incumbent housing production regime in the US. Section Four discusses research methods. Section five elaborates on findings. Section six discussions theoretical and practical implications, with concluding thoughts in section seven.

2. Literature review

Transitions literature understands socio-technical niches at two levels: (1) as individual "local projects"; and (2) as a broad network of local projects united by similar objectives, models, and organizations, also known as the "global niche". Geels and Raven (2006, 378) describe a cyclical learning process that takes place between local projects and a global niche whereby new knowledge is applied by individuals at local projects, and then disseminated by the global niche through conferences, workshops, written materials, and other forms of communication. Communication among various projects, often through intermediary actors and institutions, promotes a self-reinforcing technological trajectory that can grow to challenge a dominant socio-technical regime.

Socio-technical regimes (regimes) are mutually reinforcing regulations, knowledge systems, cultural symbols, physical structures and technology, and markets that favor certain activities easier than others (Kemp et al., 1998). Niches—explain Smith and Raven (2012)—*shield*, *nurture*, and *empower* path-breaking innovations from the selection pressures of a regime. This protection offers time and space for actors to experiment with immature innovations. The nature and origin of protective space varies. Niches can be forged actively, for example as the consequence of a strategic investment (Kemp et al., 1998) or as part of government-sponsored transition experiments (Kemp et al., 2007; Loorbach et al., 2015). Niches can also emerge passively, originating as a hobby for the elite (Geels, 2005), an accident of geographic isolation (Ornetzeder and Rohracher, 2013), or as GIs that emerge to address social need and/or as a reflection of the ideological commitment of actors in civil society (Seyfang and Smith, 2007; Smith, 2007, 2006).

In the case of GIs, the commitment of local actors serves as the 'protection' for innovative activities, independent of an initiative's ability to generate profit. As such, GIs confront existential obstacles that market- and institution-based niches do not. For example, GIs are more prone to activist burnout and must draw from a more diverse resource base than niche projects supported by corporate or government budgets (Seyfang and Smith, 2007; Seyfang and Haxeltine, 2012).

2.1. Diffusion pathways for grassroots innovations

Despite these challenges, recent research has observed three routes by which GIs diffuse: (1) replication; (2) up-scaling; and (3) translation (See Fig. 1; Seyfang, 2010; Seyfang and Haxeltine, 2012; Ornetzeder and Rohracher, 2013; Boyer, 2015; Gorissen et al., 2016; Seyfang and Longhurst, 2016).
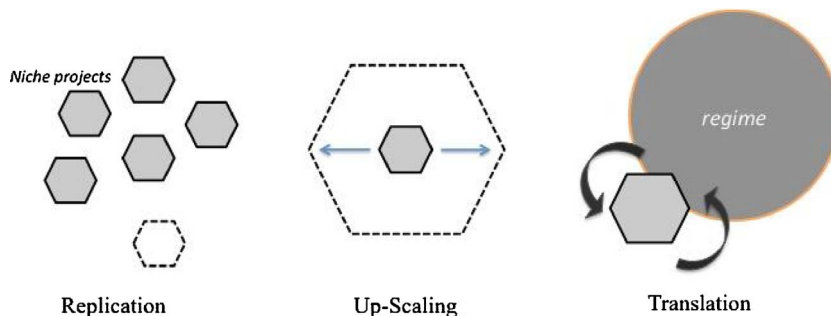

Fig. 1. Grassroots innovations diffuse through pathways of replication, up-scaling, and translation. Replication involves the expansion in the number of local initiatives; up-scaling involves growth in the constituent population at local initiatives; translation involves an exchange in practices and values between niche and regime.

2.1.1. Replication

Replication involves growth in the number of local initiatives, and coincides with the diffusion of information and skills, for example through books, conferences, workshops, formal education, or person-to-person communication within a committed activist network. Seyfang (2010) documents the replication of the straw bale housing niche through workshops and information published in print and online. Similarly, replication is evident in the expansion of the ecovillage movement propelled by a variety of online resources, on-site educational opportunities, and community tours (Boyer, 2015). Seyfang and Longhurst (2016) explain that replication can occur (1) without any connection to a global niche ("reactive replication"); (2) with guidance and support from a global niche ("proactive replication"); or (3) *only* with the permission of a broader niche network ("managed replication"). The authors offer strong evidence that replication proceeds more rapidly when *not* managed by a centralized organization.

2.1.2. Up-scaling

Up-scaling involves the expansion of the niche beyond an activist core, when individual projects, "recruit more participants and grow in size, activity, or impact" (Seyfang and Longhurst 2016, 7). For example, Ornetzeder (2001) documents how solar-thermal heating scaled-up from local do-it-yourself groups to a broader consumer audience in rural Austria. Ecovillage initiatives can expand beyond their resident-membership, inviting non-residents in the surrounding region to participate in food cooperatives or bicycle activism (Boyer, 2015). In the context of community currencies, Seyfang and Longhurst (2016) consider up-scaling the growth in the number of users of a particular currency, finding that successful scaling is the consequence of internal factors like a project's access to resources, and external factors like sociocultural context of a project. The authors comment on how almost all community currencies experience challenges meeting users' expectations:

> "…potential users might be wary, and require reassurance that their needs can be met. [Community currencies] must then fulfill users' performance expectations and retain their participation, and sometimes emerging, enthusiastic—but oversold—projects fail to meet users' expectations"

2.1.3. Translation

Translation involves the adoption of niche practices and accompanying values by an incumbent regime. So whereas up-scaling involves the expansion of niche practices or artifacts to new users (e.g. the construction of a new cohousing development), translation involves changes in a dominant set of interdependent social, physical, or regulatory structures that accommodate the niche (e.g. the adoption of new land use regulations or financial instruments that permit cohousing in future development). While considered the rarest diffusion pathway, translation has earned the deepest attention from researchers, in all likelihood because it focuses on the niche/regime interface. On one hand, "thin" translation can distort properties of the niche if regime actors transplant certain elements of the niche, and not others (Smith, 2007; see also Gaventa, 1998); Alternatively, "thick" translation involves structural changes in the regime that embody values and practices of the niche. Empirical accounts of thick translation involve corresponding changes in both niche and regime. For example, Boyer (2014) illustrates how an ecovillage experiment that began as a radical environmental protest in the 1980s evolved to alter urban development standards in Tompkins County, New York in the 2010s. Over several decades, grassroots actors bent the rules of urban development without breaking them. Meanwhile changes in national policy and awareness of climate change (e.g. shifts in the socio-technical landscape) created space for niche actors to alter the rules of urban development. Evidence for translation emerged at the end of a long period of change within- and interaction between- the niche and regime. Similarly, Smedby and Quitzau (2016) illustrate how local governments in Scandinavia facilitated processes of innovation in energy efficiency through "mainstreaming," which involves back-and-forth dialogue between the demands of niche and regime at multiple stages in the development process.

The aforementioned cases affirm the importance of 'intermediacy' in processes of niche-to-regime translation articulated by Smith (2007). Explains Smith, "….a niche in tune with the incumbent system will not demand very great changes in socio-technical practice; whilst radical niches… will not diffuse much at all since they demand too many (structural) changes (2007, 430)." The ability of a niche to simultaneously diverge from- *and* offer useful feedback to the regime can vary across different local projects within the same global niche (Boyer, 2015) stimulating transitions at different geographical scales (e.g. Culotta et al., 2015). In the context of translation, then, intermediacy is the opening of dialogue, observable when actors relax principles of both the niche and regime, and in so doing, advance the objectives of both action domains under changing socio-technical landscape conditions.

While transitions research offers relatively detailed accounts of processes of niche-to-regime translation, less work has explored the dimensions of replication and up-scaling, and whether or how similar properties of dialogue and learning apply to these diffusion pathways.

2.2. The interpretive nature of change within MLP levels

Geels (2010) proposes that dynamics *within* levels of the MLP are best approached through intepretivist/constructivist frameworks, which understand individuals as 'intersubjective sense-makers' that act continuously on their interpretation of the world and adjust their interpretation through social interaction and the development of new shared meanings. Charmaz (2006) explains that constructivist frameworks ask, "*What* do people assume is real? *How* do they construct and act on their view of reality? Thus, knowledge—and theories—are situated and located in particular positions, perspectives, and experiences" (p. 127). Processes of Transition Management act on this understanding by building coalitions around shared beliefs, generated through the exchange of individual perspectives (Frantzeskaki et al., 2012; see also Bos and Grin 2008).

To date, grassroots innovation research has documented the *presence* of replication or up-scaling without probing why individuals invest their time and resources into uncertain and typically unprofitable grassroots initiatives. The case study of cohousing, below, aims to illuminate these processes. What motivates individuals to invest their time and resources into GIs under conditions of high uncertainty? How can the broad GI literature benefit from this deeper understanding?

3. Cohousing as a grassroots innovation

Cohousing is community development model that emerged in Northern Europe about 50 years ago (Vestbro, 2010), and has since diffused to several hundred sites in North America. Observers of the cohousing movement explain that architects Kathryn McCamant and Charles Durrett imported the model to North America in the late 1980s (Jarvis, 2011; Williams, 2008; Fenster, 1999). The couple first encountered Danish *bofællesskaber*[1] in 1980 while studying abroad as undergraduate architecture students.[2] They later coined the term "cohousing" in their self-published book *Cohousing: A contemporary approach to housing ourselves* (1988). They have consulted on scores of cohousing projects in the thirty years since.

Each version of McCamant and Durrett's book lists the same six properties of cohousing (paraphrased):

1) *Participatory process*: Future residents participate in the design and development of their community.
2) *Community-oriented design*: Design encourages social interaction among neighbors.
3) *Common facilities*: The community has common facilities accessed on a daily basis by residents, and these facilities serve as a supplement to private facilities.
4) Resident management: Decisions about the community are made by residents.
5) *Non-hierarchical structure*: Major decisions are made in an egalitarian fashion, often by consensus.
6) *Separate income sources*: The community itself does not serve as a source of income to its members, and individual households are expected to earn income independently.

Research on cohousing reveals that built cohos have mostly adhered to these guidelines. While a growing number of coho startups consult with a professional developer at some point, most are ultimately developed by a group of future inhabitants (Williams, 2008). Cohousing residents regularly congregate to share meals, to make decisions about common facilities, and donate their labor to maintain the facilities shared by all households (Jarvis, 2011). Recent research by Markle et al. (2015) presents strong evidence that residents of cohousing engage in socially-supportive behaviors more often than demographically similar non-residents of cohousing. Additionally, daily life inside cohousing communities prepares residents to engage in a variety of political activity outside the cohousing context (Berggren, 2016).

3.1. Cohousing as an alternative to developer-led, speculative housing

Cohousing has been framed as a foil to contemporary neoliberal models of urban development because the development process focuses deliberately on accommodating inhabitants' social needs while, in theory, lowering individuals' physical and environmental footprint (Lietaert, 2010). About 70 percent of homes constructed in the USA since 1950 have been built at economies of scale and sold by their builders to individuals with minimal involvement in the design and development process (US Census Bureau, 2015; Harris, 2009). Since the conclusion of World War Two, residential development in the USA has more often accommodated the needs of large-scale housing developers instead of the dynamic social and economic needs of American households (Hayden, 2002; Checkoway, 1980). Architectural historian Hayden (2002) details how the design of contemporary American homes and neighborhoods reproduces a narrative of the nuclear family (i.e. a man, a woman, and their children) as the dominant and morally superior economic unit in the United States. Zoning ordinances and an array of financial tools and tax incentives reinforce this development model, marginalizing household varieties *other than* the nuclear family, and spurring what Hayden labels a contemporary "housing crisis."

While measuring whether or not cohousing is a more 'sustainable' living option is a nuanced challenge with high variability across different initiatives (Marckmann et al., 2012), most communities commit verbally to environmentally conscious living (Sargisson, 2012). A limited number of studies offer evidence that cohousing neighborhoods operate at lower rates of daily resource consumption than neighborhoods of similar size and location, in part because cohousing encourages neighbors to share spaces and facilities that 'typical' and even 'green' neighborhoods access as exclusive household units (Hendrickson and Wittman, 2010; Moos et al., 2006). These findings complement recent research that suggests that the growing proportion of single-person households in the US and the rest of the world places upward pressure on carbon dioxide emissions because households with fewer inhabitants cannot take advantage of economies of scale as can larger households (Underwood and Zahran, 2015). Even as more and more people opt to live alone, sharing material resources *among* households—a defining feature of cohousing—may present a practical avenue toward increasing household energy efficiency, thus lowering greenhouse gas emissions (Ala-Mantila et al., 2016).

[1] The Danish word *fællesskaber* means "communities"; *Bo* means *"to live"*. Together their approximate English translation is "living community".
[2] The details of McCamant and Durrett's journey appear on their firm's website: < http://www.cohousingco.com/history/ > Accessed February 17, 2015.

3.2. The cohousing movement: COHO/US

The contemporary cohousing movement coalesces around the Cohousing Association of the United States (COHO/US), founded in 1994. Despite a surge of cohousing projects in the early 2000s, the model remains relatively rare in the US. A recent newsletter published by COHO/US reports 288 total communities, including 162 "established" or "expanding" communities, and 126 "forming" communities (Alexander, 2016). For most projects, the development process involves years of unremunerated work by founding members, including the recruitment of future inhabitants who are often unfamiliar with the concept of cohousing at the outset. These two processes—project initiation and member recruitment— are the main avenues by which the US cohousing niche replicates and up-scales, respectively.

What can a closer look at these processes reveal about the theoretical pathways of replication and up-scaling? Specifically, under what conditions do individuals initiate cohousing projects (replication) or commit to joining a cohousing project, as resident-member? If dynamics within levels of the MLP are best understood through interpretivist frames, as proposed by Geels (2010) then what interpretations and understandings change as individuals forge and commit to GI projects. How can our understanding of these processes enhance our understanding of 'intermediacy,' as well as future research on GIs and the diffusion of GIs for broader socio-environmental agendas?

4. Methods

Between March and July of 2015, the author conducted semi-structured telephone interviews with founding members of twenty-four (24) randomly selected cohousing projects listed in the COHO/US directory. E-mail requests solicited a telephone interview with one member capable of recalling the entire founding and development process. After contacts either failed to respond to two requests (n = 10) or declined to interview (n = 2), the author descended to subsequent records on the randomized sample frame. Although the degree to which the sample represents the entire population of cohousing projects cannot be verified statistically, selected projects represent a variety of geographic locations, and with no statistically significant differences in the number of housing units and acreage of the total population of cohousing projects.

Semi-structured interviews consisted of questions intended to elicit candid accounts of the interview subjects' discovery of the concept of cohousing, their initiation of a specific cohousing project, their professional experience in the housing or community development sector, the professional and intellectual resources that cohousing project founders enlisted to develop their community, the process of recruiting new members, and how their initiatives overcame challenges from project conception—when founders began to invest their time and resources into cohousing as a residential option—to full or nearly full building occupancy. Interviews lasted 35–75 min, and were recorded and transcribed with help from two graduate assistants. For purposes of anonymity, the names and specific communities of the subjects interviewed are not included in the manuscript. The case study below also references published materials and web resources from the cohousing movement to triangulate interview data.

Following abductive analytical methods detailed by Charmaz (2006), data was coded around the phenomena of replication and up-scaling. Abductive reasoning folds together data collection and analysis in iterative rounds so that new data informs old analysis, and new analysis informs future data collection. Using the transcribed interviews as data, an open coding processes begins at a fine scale—often proceeding sentence by sentence—to identify what work the data accomplishes. For example, an interview subject might begin, "So I've been interested in intentional communities most of my life." This sentence can be coded *identifying with intentional community* because this is the primary function of the sentence: the interview subject is associating herself with intentional community. A single interview transcription can produce hundreds of individual codes, but many codes overlap and can be collapsed into broader axial codes, and ultimately conceptual categories that can be generalized across multiple specific contexts. Conceptual categories like quickly in the data collection process—often in the first few interviews— and these categories can either be affirmed or amended by additional data in later interviews. For the phenomenon of replication, coding was guided by the question: *what is changing* when a new cohousing initiative emerges? Similarly, for up-scaling, coding was guided by the question: *what is changing* when and individual becomes a member of a cohousing community? In the context of replication, coding coalesced around two major categories: 1) understanding cohousing as supportive community, but not communalism; and 2) stumbling upon cohousing. In the context of up-scaling, coding resulted in the category 'understanding housing as a community development process rather than a consumer product'. While different cohousing founders report diverse and context-specific experiences, these experiences coalesced around several coherent themes, described below. The results incorporate additional data drawn from published materials of the cohousing movement as well as academic sources to provide historical context to interview findings.

5. Results: shifting meanings in GI diffusion

5.1. Replication

5.1.1. Understanding cohousing as supportive community, but not communalism

The generation of new cohousing initiatives hinges on a shift in the way project founders understand themselves relative to broad narratives of intentional community in North America. Although McCamant and Durrett introduced cohousing to the US in the 1980s, features of cohousing like shared ownership of common spaces, mutual support of neighbors, and non-hierarchical governance overlap with features of intentional communities that have existed in various forms on the North American continent for hundreds of years (e.g. Foglesong, 1986, Chapter 2; Zablocki, 1980; Matthews, 2010). Since the middle twentieth century, intentional

communities in the United States have come attached to images of societal estrangement, sexual deviance, and recreational drug use in "hippie communes". Anthropologist Lockyer (2007) explains that these images, "…are not accurate representations of the diverse kinds of people and social arrangements that characterize intentional communities or a long history of intentional communities around the world that scholars of intentional community have documented (p. 26)."

Aware of these connotations, spokespeople for the cohousing movement have consistently and explicitly distanced the model from "income-sharing communities" of the past and present. This is most apparent in the sixth defining property of cohousing: "separate income sources" (see above). While the first five properties emphasize processes of design and community management that have existed in community of the past, the sixth serves specifically to distinguish cohousing from images of communal life associated—correctly or incorrectly—with intentional communities in North American history. McCamant and Durrett elaborate, "When the community provides residents with their primary income, as in some intentional communities, the dynamics among neighbors changes—and it adds another level of shared resources beyond the scope of cohousing (McCamant and Durrett, 2011, 30)". The webpage of McCamant's consulting firm, CoHousing Solutions, details the challenging connotations attached to American intentional community:

…"intentional community" frequently connotes a shared religious, political or social ideology rather than simply the desire to have much more of a sense of community with their neighbors, some of whom might be quite different from themselves (McCamant, 2015).

More recently, a September 2016 opinion piece in the New York Times quotes (then) COHO/US executive director Alice Alexander, who distances cohousing from images of communalism: "There's nothing wrong with communes, but cohousers actually value privacy and structure highly" (Martin, 2016).

5.1.2. "Ah, this could work!" Stumbling up cohousing

This deliberately cultivated distance—and its invocation in conferences and books of the national cohousing movement—emerges in interviews with coho project founders. While founders learn about the cohousing model from a variety of media, almost all describe how learning about the model enabled them to act on often long-held communitarian ideals *without* abandoning important elements of their daily life. One founder explained:

"I've been interested in intentional communities most of my life⋯The challenge of intentional communities, of course, was [earning] money. I went and visited some [communities] where it was like, 'Yeah, we could move here but how would we make a living?' Then I read the cohousing book [(McCamant and Durrett, 1988)] when it first came out and I was like 'Ah, this could work!'"

Another founder recalled advice he received from a friend to avoid a 'shared purse' style of community:

"[This friend] had grown up in central Kansas in an intentional community that was started back in the '60 s that was much more sort of… shared purse and everything, and he advised me not to ever go down that road, but he did say cohousing is a really good alternative. He showed me the cohousing book and he and I volunteered to do some with a cohousing project that was starting up in Chicago."

Another founder expressed how she and her nascent community embraced the cohousing model as a way to "accomplish the bills" after envisioning different versions of a "sustainable community." When probed, this founder clarified that the model wouldn't forbid its residents from earning a mainstream income, as would other community models they had envisioned.

Repeatedly, founders framed the decision to initiate a cohousing project as a sort of compromise between their ideological aspirations (on one hand) and practical realities of their daily life (on the other). One founder explained how she and her husband used to share a kitchen and bathroom with twenty other young adults in an "old boarding house," and that founding a cohousing community represented "a next step, when you become an adult." Another founder learned about the model while in search of an artistic cooperative at a conference: "[Cohousing] really resonated with me. I think I've been thinking about doing community since I was six years old …so when I saw the cohousing model… I realized I didn't have to reinvent the wheel."

Other community founders distinguish cohousing with intentional communities rooted in religion or spiritual practice:

"We were determined not to [be] founded on religion or other philosophies, but ours was to be a healthy community, easy on the land and so forth, sharing and doing things together, and the cohousing model was exactly right for us."

In these and similar stories, founders reiterated that the cohousing model—as presented in written materials and professional conferences by movement leaders—provided a vehicle to enact aspirations of cooperative living *without* requiring that they (a) abandon existing sources of income, (b) invest time in "inventing" a new type of community model, or (c) embrace new cosmological beliefs.

The process of initiating a coho, then, involves understanding what cohousing *evades* as much as what cohousing actually *accomplishes*. Upon discovering cohousing—typically through a key text or conference presentation affiliated with spokespeople of COHO/US—, founders feel empowered to act on a version of intentional community that doesn't require them to abandon their economic livelihood, and/or belief systems. A more radical—and to the interview subject, impractical—image of intentional community emerges in nearly every founding story.

5.2. Up-scaling

5.2.1. Understanding housing as a community development process, rather than a product

Up-scaling the cohousing niche involves growth in the number of individuals residing in a particular cohousing project. As illustrated below, attracting future residents to a new coho entails a process of community development rather than a series of buyer/seller transactions common in the mainstream housing market. Whereas most American homes are produced and sold to future residents as consumer goods,[3] an individual interested in living in a new coho enters a highly social and skilled process that can involve years of unremunerated work and some financial uncertainty. To overcome this uncertainty project leaders create a provisional membership stage during which the meaning of 'housing' shifts from an outcome to a process.

As McCamant and Durrett (2011) describe, cohousing development typically begins with the creation of a small "core" group that can raise enough funds to purchase land. As described in interviews, founding members attract a core group by hosting open information sessions, social events, and structured discussions about the future of their community. A member of a community in the Portland, Oregon region describes how they "had socials every other Sunday, for years" before attracting enough residents to invest in a parcel of land for their community.

Interested individuals can typically enter the process as provisional members by paying a small fee ($20-100), which entitles them to attend social gatherings and meetings. The small fee helps subsidize snacks, meeting space, and reading materials around which gatherings revolve. Later, individuals can invest more heavily (typically, a down payment of $10,000 or more) as "full members" or "equity members", committing themselves financially to the project. Larger investments support consultant fees, site analysis, and payments for land and construction.

Many—often the vast majority—of provisional members do not advance to full or equity membership status. Interviews suggest that very few individuals who express initial interest in cohousing projects progress to living in cohousing. This is consistent with discussions of activist burnout in prior accounts of GIs (Seyfang and Haxeltine, 2012; Seyfang and Smith, 2007). Founders detail a process of attrition whereby individuals join an initiative as provisional members, only to "drop" in due course. Explains one founder from a community in rural New York State:

"…we talked to—I do not exaggerate—thousands upon thousands of people over seven years. We had hundreds and hundreds of people come to our open houses. We had a couple hundred families or individuals join [as provisional members] and then drop out. All for the first twelve households…the winnowing process was just extraordinary."

One major challenge to recruitment is the ambiguity of the future physical community. This ambiguity highlights a tension between interpretations of housing as a ready-made consumer product (on one hand) and interpretations of housing as a community development process (on the other). Early in the coho development process members must invest time and money into a *vision* of community, rather than into a known material outcome. Founders describe how opacity about the future location or physical dimensions of the coho repels individuals who are interested in cohousing as a living option in theory. One founder articulates how most individuals are reluctant to commit to a future home they cannot see or touch. His description invokes the dominance of speculative housing production:

"… people come and they go and they drop. And there's like 80 percent of people in the world who really need to see and touch something, before they're ready to buy in, and there are a few of us intuitive thinkers who can sort of imagine something and *voila* it really exists, but the vast majority of people are just sort of like, 'Well, let me know whenever it's built.'"

Arriving at a clear and convincing vision for a future community requires a level of trust and interpersonal communication that group members actively cultivate. Nearly every interview subject described how their initiative invested time into learning how to conduct efficient and inclusive meetings. Decision-by-consensus is the most common model for major decisions, although it is not the only model. Many coho start-ups invite professional consensus educators including several that work primarily in the cohousing movement.[4] Others draw from the expertise of members with prior collective decision-making experience. In both scenarios, future residents acquire new skills so that they can work productively through the inevitable conflicts that arise when multiple households seek to share ownership of the same land and facilities. One founder describes how her initiative relied upon the guidance of members who had practiced consensus for seven years in a different intentional community. The couple's advice about how to structure community meetings was invaluable for overcoming the group's interpersonal differences:

"Y'know, when you start a meeting you don't just get into the room and launch into a meeting. We did this kind of a group dance for a long time together and it was symbolic of coming there and being willing to participate in all this⋯You hit so many bumps and struggles, and people want to join and people leave. There is a lot of uncertainty and stress. So you have to build trust, and we got lucky."

Although skills training continues for years after residents move in to their homes, trust and clear communication are especially important during the early development of the community because decisions about land and construction are expensive to reverse.

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[3] In the United States, 74% of new homes are produced "for sale," that is, produced by a professional developer and sold as a consumer product to future inhabitants who have had very limited involvement in the design or development of their future home (US Census Bureau 2015). See Harris (2009) for an historical overview of housing speculation in the United States.

[4] Examples include Annie Russell (http://annierussell.com/); Laird Schaub (http://www.sandhillfarm.org/canbridge.html); and Tree Breeson (http://www.treegroup.info/),

Skills training takes place at local sites and national conferences, between professional experts and future residents, and among the residents themselves.

McCamant and Durrett offer a series of workshops to cohousing startups ranging from an introductory "getting it built" workshop to more specific sessions about common house design. Other skills, including practical guidance for cohousing initiatives that are just forming, are transmitted through texts, the COHO/US website, and an e-mail listserv administered by COHO/US.

In summary, interviews with project founders reveal how scaling-up membership in the cohousing movement requires that individuals pass through a long, laborious learning phase during which individuals are participants of the cohousing niche without taking up residency in it. During this intermediate phase, individuals are effectively cohousing residents-in-training, developing the skills, trust, and later, contributing the financial capital to build a new community. The process reframes the meaning of housing, from a ready-made consumer product to a skilled and social process. The earliest stages of provisional membership status also allowed interested individuals to participate in community development without committing, contractually, to the future neighborhood.

6. Discussion

6.1. How can GI scholarship best frame and theorize processes of replication and up-scaling?

In the case of cohousing, both replication and up-scaling involve shifts in meanings—in the ways individuals understand and act upon concepts of intentional community and housing. These shifts occur as part of an interactive learning process facilitated by individuals in various positions relative to the broad US cohousing movement. I review these processes below.

6.1.1. (Proactive) Replication: shifting interpretations of intentional community

Replication involves an interaction between the global niche—as represented in key texts or by key spokespeople—and individual founders of a project. The process of initiating a coho involves qualitatively different work than the process of joining and committing to an initiative already in progress (e.g. up-scaling). Interviews with the founding members of cohousing communities describe how their interaction with spokespeople and published materials of the global niche (e.g. COHO/US) transformed their understanding of the meaning of intentional community. COHO/US and its spokespeople compete with widely-held images of "purse sharing" communities or "hippie communes" that contradict expectations of contemporary American life. While the cohousing movement challenges several major features of middle-class urban development—for example, housing as a consumer product, household social isolation, privatized neighborhood management, automobile-centric design—it does not demand that its residents abandon their economic independence or belief systems.

This interpretive shift may not apply to all categories of replication, however. Seyfang and Longhurst (2016) describe how replication can be reactive, proactive, or managed (see above). Each of these different categories imply different types of relationships between grassroots actors and a global niche: *Reactive* replication involves spontaneously-forming local projects with no explicit connection to a global niche; *Managed* replication involves local projects chartered by the global niche; Between these poles, *proactive* replication involves guidance, but not explicit permission, from a broader niche network. The case of US cohousing offers multiple examples of *proactive* replication. Founders recall how books, conferences, consultants, and other media of the global niche help reframe the meaning of intentional community, yet new cohos are ultimately initiated and funded as independent projects. It is uncertain whether managed replication would offer local actors sufficient flexibility for interpretive changes, or whether reactive replication would offer local actors sufficient guidance.

6.1.2. Up-scaling: shifting interpretations of housing

Similarly, coho founders describe how their initiative attracted and retained new resident-members through a variety of methods, all of which support a gradual community development process. Attracting and retaining new residents involves months, or sometimes years of meetings and collaborative decision-making about the social and physical future community. By contrast, housing in the US is predominantly an off-the-shelf product, and involves little or no inter-household collaboration (Harris 2009). A critical shift in the interpretation of "housing" occurs during the community development process. Consistent with other accounts of grassroots innovations, there is a high level of activist burnout, or in the words of multiple interview subjects, "dropout." While founders describe some instances of individuals dropping out because of financial surprises or interpersonal differences with existing members, many instances of "dropping" seem to be associated with the temporal and physical uncertainty of the project.

Future GI research can contemplate multiple sub-categories of up-scaling, not unlike the sub-categories of replication listed above. Taking up residence in a cohousing neighborhood involves a level of investment and commitment qualitatively different than, for example, using a community currency, joining an energy cooperative, installing solar thermal panels, or purchasing organic food. Scaling-up cohousing involves transformations at the scale of the household that are not easily reversed. There are also conceptual limitations to up-scaling in the cohousing movement because founding larger communities with more households introduces a level of social complexity and abstraction that a community-led, participatory design model discourages. Building additional rental units may lower an individuals' barriers to entry, but even if cohousing projects were to better accommodate renters—a strategy championed by Williams (2008)—the current cohousing model demands, at minimum, that residents invest time into meetings and social events with neighbors: This is not a casual undertaking, or a matter of simply consuming a different type of product.

Broadening cohousing membership ought to look different than building cohousing at economies of scale. The latter would require broader changes in socio-technical regimes, for example, relationships between democracy, public participation, housing
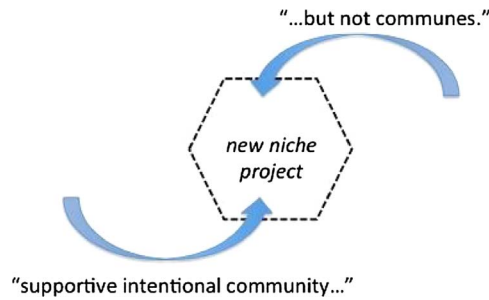
Fig. 2. Niche replication takes advantage of intermediate imagery, in the case of cohousing, images of innovative community while distancing itself from more radical images of income sharing communities and communities with a religious core.

finance, and land use law that the cohousing niche can model, but cannot inspire independently. Changes at this scale will require processes of niche-to-regime translation not explicitly covered in this paper.

6.2. Intermediacy in replication and up-scaling

Processes of niche-to-regime translation have been shown to thrive under conditions of intermediacy—when elements of both action domains blend and overlap. This paper makes a parallel case for processes of replication and up-scaling, although replication and up-scaling take advantage of 'intermediacy' in different ways. The data above show how the US cohousing niche deploys imagery in its key texts and through key spokespeople that offer a counter-narrative to both dominant US housing production models and prevailing images of intentional communities as "communes." This positioning helps future community founders see beyond long-held practical and moral inhibitions about living in intentional community (see Fig. 2). Unlike intermediacy in processes of translation, intermediacy in replication does not evolve gradually—it is rather projected in texts and by spokespeople as a static beacon meant as a signal of pragmatism to project founders with commitments to the mainstream.

Growing the membership of the niche (up-scaling) takes advantage of an intermediate status that allows individuals to exist both inside and outside the niche (see Fig. 3). This intermediate status helps mitigate the uncertainty of investing in a product that cannot be seen or touched. It is important to note that project founders often do not pass through this intermediate status because they assume all or most of the risk of an early project. This risk diminishes as additional future residents commit money and their time to a coho. Provisional membership and the security it offers is therefore most important to the earliest recruits, who join a project in its most fragile stages.

While transitions literature has traditionally understood a niche as a protective space that incubates innovative technologies and practices, the interview data above show how individuals pass through protective *spaces* over time, at the local level. The global niche and local projects create provisional, low-risk spaces in which interested members can 'test the waters' before fully committing their time or finances. Future research must examine the extent to which these applications of intermediacy apply to other niche networks. What interpretive shifts do individuals encounter as they initiate new local projects or subscribe to a project as a member? To what extent can these findings be generalized across other GIs, or are they specific to GIs that involve high-risk investments and decisions that are difficult to reverse?

6.3. Limitations

As discussed above, a small number of prior studies offer evidence that cohousing communities operate at lower per capita levels of energy and resource consumption than homes of similar size and location, in part because cohousing encourages neighbors to share spaces and appliances typically accessed by individual household units. Yet cohousing communities are diverse in setting and design,
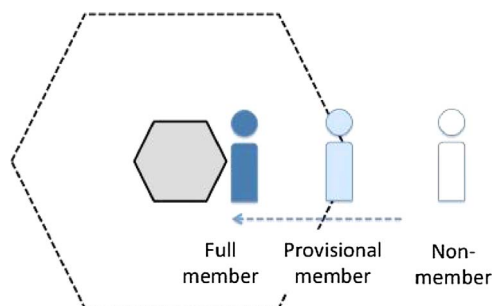

Fig. 3. Attracting new members of the cohousing niche (up-scaling) benefits from provisional membership: an intermediate space in which individuals are both inside and outside the niche.

and some communities prioritize energy- and resource- savings higher than others. It is difficult to conclude without a broader and more systematic comparison of household consumption levels inside and outside cohousing communities whether the cohousing model, as currently applied, represents a more 'sustainable' housing option. Multiple authors, however, have single-out cohousing for its potential to addresses environmental, social, and economic contradictions of urban development (Campbell, 1996; Chatterton, 2013). The model's cluster design plus encouragement of resource sharing presents strong hypothetical grounds for future research that more systematically compares the consumption habits of cohousing communities and non-cohousing communities of similar dimensions.

A noteworthy challenge of this research was that interview subjects consisted only of founders of completed and inhabited cohousing projects. Incomplete or stalled cohousing projects were not included in the sample frame, in part because no comprehensive list of incomplete cohousing projects exists. On one had, the role of intermediacy in processes of replication and up-scaling could emerge from a study that compared 'successful' and 'unsuccessful' cohousing projects while controlling for other variables that contribute to a project's success. Future research on the cohousing movement or other grassroots experiments can monitor specific projects from their initiation, comparing benchmarks of project success in real time rather than interview project founders years after the fact.

Furthermore, this research does not discern whether the particular strategy employed by the US cohousing movement is an optimal or even a *good* strategy for niche replication and up-scaling; It simply shows that leaders of the US cohousing movement attract new project leaders and, later, new residents by challenging certain narratives of mainstream housing options, and while preserving others. The US cohousing movement may benefit from any number of other diffusion strategies. For example, most of the published materials and publicity efforts in the cohousing movement are oriented toward potential project founders and residents, but it may behoove the cohousing movement to invest more heavily in educating professional developers, academics, financial institutions, and legislators with more influence over the rules of housing production in US metropolitan regions. A next-step in evaluating the power of intermediacy in GIs might involve cataloging and comparing diffusion strategies across different grassroots niches.

7. Conclusions

The cohousing model challenges day-to-day spatial and social relationships reinforced by speculative single-family housing production in the US. The movement serves as an ongoing experiment in collaborative living that prioritizes the needs and demands of its residents, and in so doing, may address broader social and environmental challenges of urban living. The case of cohousing reveals that replication and up-scaling grassroots innovations requires movement-level and project-level leaders to work pragmatically to frame niche alternatives as achievable in spite of real uncertainties. This requires 'intermediate' images and statuses that mitigate the perceived social and economic costs of GI activity.

This paper focused on how new cohousing projects emerge and how individuals transition into cohousing residency. Diffusing and growing grassroots innovations demands years of unpaid or low-paid work, with high risks and uncertain rewards. These risks and rewards are likely to vary from global niche to global niche, and even among local niche projects. Therefore, the interpretive process and the importance of intermediacy may vary as well. An in-depth understanding of the process of founding and growing local GI projects—in this case, cohousing neighborhoods— serves as an anchor for future comparative research. Through interviews with the founding members of cohousing projects in the United States, this study reveals that the phenomenon of niche replication in the US cohousing movement involves an interpretive turn wherein individuals begin to understand 'intentional community' as a practical and achievable living option despite its radical connotations. This turn is achieved through written and verbal communication—primarily by key actors of the global niche. Future studies can examine how this property of intermediacy varies among niches that replicate in different ways (i.e. reactive, proactive, and managed replication). A second important interpretive turn occurs as individuals pass through a provisional membership phase that transforms their understanding of housing from a consumer product to a community development process. This intermediate phase allows individuals to exist both inside and outside the cohousing movement, helping them cope with high risks and uncertain rewards of membership. Whether, and the extent to which, such a process exists across different types of niches is a promising arena for future research: how do different niches with different physical, social, and financial barriers to participation attract and retain constituents?

Addressing the major sustainability challenges of the twenty-first century will require confronting typically unexamined assumptions of daily life: Where, how, and with whom we live is structured heavily by regimes that profit from the commodification of urban space, and consequently, the decimation of valuable social and environmental systems. Grassroots innovations like cohousing allow for experimentation with bold social and technological alternatives that are often inaccessible in the mainstream. Encouraging as these alternatives may be, attracting and retaining a niche constituency benefits from understanding and acting on how individuals make sense of these radical alternatives relative to the mainstream. Niche leaders' ability to frame their experiments as useful and achievable plays an important role, therefore, in the diffusion of grassroots innovations.

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