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Predicting an American future for cohousing

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Abstract

Cohousing is an innovative form of accommodation. It offers economic, environmental and social advantages over existing forms of development. Cohousing emerged in the USA during the past 20 years as an innovative housing form with a niche market, but adoptions to date have been limited. This paper seeks to determine the future for cohousing in the USA, using innovation diffusion theories. It reviews the factors influencing the rate of diffusion of cohousing (relative advantages, compatibility, complexity, trialability and observability). It investigates the impact of path dependencies and the existence of disruptive technologies on adoptions. It considers the potential for cohousing to "cross the chasm" and be adopted by the mainstream. The findings of the research suggest that "grass-roots" approaches to the creation of cohousing communities are likely to result in the greatest number of adoptions in the future.
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1. Introduction

As household numbers continue to grow globally in the 21st Century, decision makers are increasingly seeking more sustainable ways of accommodating that growth. Cohousing could provide one accommodation solution that addresses this need, Williams [1]. This paper presents evidence that cohousing is a more sustainable housing form and demonstrates its market potential. Cohousing first emerged as an innovative form of collective housing in Denmark over 40 years ago. Since then it has gained in popularity in Northern Europe, the USA and Pacific Rim countries. In Northern Europe models have emerged in both private and social housing sectors, whilst in the USA growth has been in the private housing market. In both Northern Europe and the USA cohousing started out as a grass-roots model, which was resident led and funded. Today a dichotomy has emerged between Northern Europe and the USA in terms of supply.

In Northern Europe Governments have seen the advantages of cohousing in delivering the social and environmental objectives identified by the sustainability agenda. In some countries (e.g. the Netherlands) cohousing principles have been widely adopted by the social housing sector, delivered through a top–down process. As social sector accommodation constitutes a major proportion of stock in Northern Europe, its adoption is widespread. Thus both grass-roots and top–down models exist in Northern Europe.

The situation in the USA is considerably different. Cohousing has largely remained a resident-led model within the private sector; although more recently partnership and developer led models have begun to emerge.

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Thus adoption of cohousing in the USA is essentially reliant on public demand. In this situation the success of cohousing is dependent on its competitiveness in terms of its ability to visibly fulfil market demand. To date the adoption of cohousing in the USA has been limited and it remains a niche market.

This paper investigates the future market potential for cohousing in the USA, using diffusion theory. It looks at the characteristics of cohousing in order to determine its potential adoption rates. It discusses whether path dependencies and disruptive technologies will limit its future success. Finally it discusses whether bounded normative influence might be the key to the future success of cohousing in the USA.

The paper builds on research conducted by the author (Williams, 2001, 2003 and 2006, unpublished). Data for the study was collected from a range of sources. The initial review of the sustainability of cohousing was determined using a mixture of primary and secondary data sources. A literature review of cohousing theory was completed to determine whether cohousing was a sustainable accommodation option. This was supplemented with a national survey of communities to determine the social, economic and environmental advantages and disadvantages of cohousing.

Factors influencing the diffusion of cohousing in the USA were also studied using a range of sources. A national post-occupancy survey was completed to ascertain the factors motivating the adoption of cohousing, the characteristics of adopters, factors that limit wider adoption or that have led to rejection. This data was supplemented with a series of expert interviews (conducted with cohousing providers—architects and developers—as well as the USA Cohousing Network).

An analysis of national secondary data was completed to determine the relative adoption rates of different cohousing models and whether competition between models impacted on the overall adoption of cohousing. A study focussed on California was also completed to determine whether the introduction of particular cohousing models in the state had led to a faster rate adoption, when compared to the national rate. The trends emerging from this analysis were discussed with cohousing providers in order to determine an explanation for the trends demonstrated.

Finally, the residents in neighbourhoods surrounding cohousing communities, for four case studies in California, were interviewed to determine the degree of interaction and integration between communities and the extent to which this influenced adoption of cohousing within the wider community. Two retrofit and two new build communities were studied. California was chosen as the focus of this study due to spatial clustering of cohousing in the state, particularly in higher density urban areas, which suggested potential for bounded normative influence to increase adoption rates.

2. Cohousing—a definition

What is cohousing? Cohousing is a form of collective housing which has four common characteristics, McCamant and Durrett [2]:

- *Social contact design* (SCD): the physical design encourages a strong sense of community.
- *Extensive common facilities*: as an integral part of the community common areas are designed for daily use, to supplement private living areas.
- Resident involvement in the recruitment, production and operational processes.
- Collaborative lifestyles offering inter-dependence, support networks, sociability and security.

Communities comprise private units (in which households reside) and communal facilities.[1] They are planned based on SCD principles[2] that reportedly encourage more social interaction, helping to build more cohesive communities, Williams [3]. Generally the private dwellings tend to be small, but the loss of space in the private unit is supported by the provision of communal facilities. Communal facilities provide space in which less

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[1]For example communal kitchen/dining areas, laundry, gym, workshop, office space, guest bedrooms, entertainment room, garden, storage space.

[2]The SCD principles include: provision of indoor and outdoor communal facilities; good visibility into all communal spaces, car parking outside the community or car-free communities, gradual transitions between public and private space, provision of semi-private outdoor spaces close to private units for socialising; positioning of key facilities and access points on walkways.

Table 1
The development models

Model	Resident-led model	Partnership model	Speculative model
Description of model	Entire resident group involved with the development and design process, as well as community formation	Partnership approach— developers and residents work together at all stages of the process	Developer led. Developer deals with design, development and community formation
Community visioning	All residents involved	All residents involved	Developer
Recruitment	All residents involved	All residents involved with professional help	Developer
Legal structures and financing	Resident led with professional help	Developer led	Developer
Design Process	Resident led with professional help	Developer led with resident input	Developer
Community development	Resident led with professional help prior to living in community and throughout life of community	Resident led with professional help prior to living in community and throughout life of community	Resident led once living in community

Source: adapted from Davis, 2001 (unpublished).

frequent household activities[3] can be accommodated, whilst private units provide adequate space for daily activities.

In all cohousing communities residents are involved to some degree in recruitment, production and operational processes. For new build communities the extent to which residents are involved depends on the development model adopted: resident-led, partnership, or speculative models have emerged in the USA (Table 1).

The resident-led (grass-roots) approach involves residents in recruitment[4] and production processes.[5] The residents bear all financial costs and risks associated with the project. They raise their own capital for the development and are personally liable for ongoing costs. The residents employ professionals to design and build developments, but essentially act as project managers for the production process. This requires expertise and major time commitment. This model is unsurprisingly limited in terms of demand for a variety of reasons [1]:

● Time and financial commitment,
● Financial risk and problems getting finance,
● Need for a great deal of management and technical expertise,
● Difficulties in competing for sites with developers.

Thus other approaches to development have emerged that tackle these problems by involving a developer in the process. Developers can be very helpful in facilitating the development of cohousing communities because they already have access to potential sites, expertise and finance. Their involvement reduces residents' time and financial commitment on projects and provides access to the resources needed for development.

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[3]These activities might include exercising, home-working, large social gatherings, visiting guests, etc.

[4]Recruitment—in new build communities this involves residents in the process of marketing the community to other prospective residents (for the partnership and speculative models with the assistance of the developer). Residents also make the final decision whether to accept or reject potential neighbours generally assessed systematically using a range of predetermined criteria. This helps to ensure stronger social networks in the completed community. In retrofit communities this largely involves outreach by cohousers into the wider community in order to encourage neighbours to join their community.

[5]Production process—for new build this involves the financing, design and construction of the community. For retrofit development this process is often limited in terms of the delivery of physical infrastructure.

There are partnership and speculative approaches. The partnership approach enables residents and developers to work closely together to produce communities. The speculative (top–down) approach involves residents only in community building exercises. Developers are solely responsible for the production process. Partnership and speculative approaches remove the problems of risk and lack of resources encountered by residents adopting the resident-led approach. However the speculative approach can encounter greater difficulties in establishing cohesive communities [1].

In addition to new build there are retrofit communities. This is where cohousing principles are applied to an existing neighbourhood. The key to retrofit communities is the social structures established that encourage greater informal and formal social contact, which builds social capital and results in a more collaborative lifestyle. This lifestyle may be further facilitated by minor physical changes to the layout of the neighbourhood (for example the removal of fences, orientation of buildings, closure of roads, alterations to private units to increase access and visibility of communal facilities and spaces) and the provision of communal facilities. It may also involve changing legal structures for the land and properties included in the community. Retrofitting communities can reduce the level of commitment, risk and resources required from residents by essentially working with existing stock and infrastructure.

Regardless of the development approach, residents are always involved in operational processes.[6] They are involved in the maintenance and management of indoor and outdoor communal spaces; preparation of communal meals (1–3 times per week); organisation of social events within the community and liasing with the wider community. Residents organise regular activities (e.g. social, educational, cultural events, exercise classes, etc.) within the communal spaces. Often these activities and spaces are open to the wider community to encourage greater integration, which acts as a catalyst for community development across a wider area.

Finally cohousers adopt a collaborative lifestyle. Essentially this means that residents act inter-dependently. They support each other informally (e.g. lift-share, child-care, support for the less able, sharing expertise and goods, etc.) and formally through various committees established to organise maintenance and social events. This enables residents to live independently within a cohesive community, which offers support, safety, security as well as opportunities to socialise and share resources (very much in line with the more utopian view of traditional communities). Residents are involved in activities inside and outside the community. They work outside the community and their finances remain separate (which further distinguishes cohousing from the more radical communitarian models). Although these are the key characteristics of cohousing, there is considerable variation between communities in terms of physical form, supply mechanism, production process, levels of participation, location and so on.

3. Is cohousing a more sustainable form of housing?

According to Marcus and Dovey [4] "cohousing is a high quality and highly sustainable alternative" (p. 112) to traditional housing options. Indeed it does appear to fulfil some sustainability objectives: strong social networks and social cohesion, pro-environmental behaviour and a greater sense of well-being amongst residents [1]. Strong social networks and social cohesion are characteristic of cohousing communities. These strong social bonds develop as a result of SCD; resident involvement in the production, recruitment and operational processes and social structure (common goals and non-hierarchical structure). This has been demonstrated by empirical research [1,4–6] conducted in cohousing communities (Table 2).

There is also evidence of pro-environmental behaviour in cohousing communities (Table 3). A combination of strong social networks and communal facilities enables residents to share resources. These networks also facilitate the transference of pro-environmental ideas and attitudes that lead ultimately to the creation of social norms, which reinforce this behaviour. Pro-environmental behaviours have resulted in significantly lower levels of resource consumption (including energy, land, goods) and waste production in cohousing communities alongside increased recycling and car-sharing schemes [1,4,6,7].

There is also research [4,6–8] which suggests that living in cohousing generates a greater sense of well-being amongst residents (Table 4). Research carried out in communities in the USA showed that cohousers tested against Maslow's [9] "hierarchical needs"(physiological, safety, a feeling of belonging, self esteem and

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[6]Operational processes—i.e. managing and maintaining the cohousing communities once complete.

Table 2
Factors influencing strong social networks and social cohesion in cohousing

Factors creating strong social networks and social cohesion	Research findings	Research references
Social contact design	Cohousing design (social contact design) positively impacts on social behaviour: • The centrality, size and existence of the common house influenced social interaction, participation, community support, unity and safety • The division of space and circulatory systems in communities appeared to be the key design factors influencing social interaction • Circulatory systems and surveillance opportunities created by design were the features most affecting security • Densities and accessibility were the key design features influencing the strength of support networks in the community • The common house was identified as being the key design feature encouraging both participation and unity within communities • Opportunities for social interaction and safety were increased through social contact design whilst participatory, supportive behaviours and unity seemed to be independent of it • Density (proximity) and layout; division of public and private space; the quality, type and functionality of communal spaces appear to be the key design factors influencing social interaction in cohousing • Social (informal and formal) and personal characteristics appear to have a greater impact on social interaction than design • Social, personal and design factors are inter-dependent. Social and personal factors can significantly enhance the positive impact of social contact design on social interaction	[3–6]
Resident involvement in decision-making processes and operation	Informal and formal social factors and personal characteristics influence use of communal facilities and level of social interaction. In cohousing communities these factors operate together increasing social capital	[3,4,7,8]
Social structure: non-hierarchical structure; formalised social activities; common goals and norms within communities	Informal and formal social factors and personal characteristics influence use of communal facilities and level of social interaction. In cohousing communities these factors operate together, increasing social capital Cohousing helps people to organise themselves as a residential group to overcome the alienation of modern neighbourhoods by building mutual support and sociable relations between households	[3,7,8]

Source: adapted from [1].

self-actualisation—also used to determine well-being) scored highly [5]. Cohousers felt they were valued members of their communities, involved in decision-making processes and delivery, which increased their feelings of empowerment and well-being [7]. It was also found that the well-being felt amongst cohousers emanated from the perceived social, economic and health benefits of living in cohousing communities (Table 4).

A key criticism of cohousing in terms of sustainability is the exclusion of some groups (particularly of the less affluent) from communities. Cohousing communities tend to be homogenous (Table 5). Research showed that cohousers in the UK, USA and Netherlands tend to be affluent, white and well educated [1,8]. This deterred some groups (particularly low-income and ethnic groups) from joining cohousing communities because they felt they would be socially and culturally isolated. In a few instances socially excluded groups (particularly those with strong religious beliefs) have formed their own homogenous communities to overcome problems of socio-cultural isolation [8]. Less affluent groups were also excluded from living in new build cohousing communities by capital cost, further exacerbated by a lack of rental units [1]. However the retrofit cohousing model offers a more affordable option for less affluent groups, which could help to overcome the problem of exclusivity. Inclusion of rental units in new build communities could also help to overcome the affordability issue.

Table 3
Factors encouraging pro-environmental behaviour and lower resource consumption amongst cohousers

Factors influencing environmental outcomes	Research findings	Research references
Pro-environmental behaviour—high levels of social capital encourage pro-environmental behaviour	High levels of social capital in cohousing encourage pro-environmental behaviours: • Increases environmental awareness • Creates a protective society in which can operate environmental practices based on common rules and norms • Increases peer pressure to adopt pro-environmental behaviours • Switch of focus for individual to collective responsibility that encourages pro-environmental behaviour • Ease of implementing environmental schemes collectively rather than individually • Recycling and reuse capabilities were greater amongst residents living in cohousing and greater capacity to share goods and space	[4,6,7]
Resource savings made in cohousing through pooling of resources	Significant space, energy and good savings can be made by those living in cohousing. On average 31% space savings, 57% electricity savings and 8% good savings. Residents tend to share second cars and thus ownership of second cars is lower. Resident ownership of washing machines, tumble driers and freezers was reduced by 25% by living in cohousing communities because people tended to use communal laundry facilities. Ownership of DIY and gardening tools was also low, again because the tools were shared communally. Ownership of privately owned lawn mowers reduced by 75% when residents moved into cohousing	[1,4,6,7]

Source: adapted from Williams, 2005a.

Table 4
Factors producing a sense of well-being amongst cohousers

Factors influencing well-being	Research findings	Research references
Well-being	Cohousers scored well against Maslow's "hierarchical needs"(physiological, safety, a feeling of belonging, self esteem and self-actualisation)	[5,7]
Social benefits	The benefits of living in cohousing include an increase in well-being resulting from increased opportunities for socializing, support, security, sharing chores, sharing expertise, living with people with similar interests, inter-dependent living. These benefits are built through a combination of social contact design and process (resident involvement in decision-making and community formation). Well-being generated through empowerment and ability to influence immediate environment and community decisions	[1,4,6–8]
Economic benefits	Ability to share daily living expense. Cohousers highlighted significant savings in daily expenditure as a result of sharing facilities, vehicles and goods. Financial security resulting from sharing of some costs within the community. Reportedly higher resale values	[1]
Health benefits	Sharing healthier meals within the community. Support networks for the less mobile/able within the community allowing them to live independently. Opportunities to socialise reported as being beneficial to mental well-being of residents	[1]

Source: adapted from [1].

Lack of integration between cohousing communities and the wider community in which they are embedded is another issue that impacts on the overall sustainability of cohousing [1]. Cohousers cited two reasons for poor integration between communities. Firstly fatigue amongst cohousers (resulting from their involvement in

Table 5
Factors influencing social inclusion and exclusiveness of cohousing communities

Factors influencing inclusion	Research findings	Research references
Homogeneity	Homogeneity (particularly in terms of race, religion, income, education) in communities reinforces exclusivity: supported by evidence from USA, Netherlands and UK	[1,8]
Affordability	Lack of affordable accommodation in new build communities excludes low-income groups: supported by evidence from the USA. However, retrofit cohousing models and the provision of rental units in cohousing communities have overcome this barrier in some instances	[1]
Activities in the wider community	Cohousers activities in the wider community increases integration between communities: supported by evidence in the USA and UK[a]. Key problem is that some cohousing communities are more insular—resulting from perceived hostility of surrounding communities or development fatigue (particularly in the case of new build developments)—thus integration restricted	[1]
Activities in the cohousing community to which the wider community are invited	Informal and formal social activities within the cohousing communities open to the wider community also helped to encourage greater integration between communities. Key problem is that some cohousing communities are more insular—resulting from perceived hostility of surrounding communities or development fatigue—thus integration restricted	[1]

Source: adapted from [1].
   [a]Various approaches were adopted by cohousing communities to encourage integration between communities: canvassing local people about the development proposal; recruiting residents from the local community to live in the development; supporting local services/facilities (e.g. shops, schools, etc.); opening the community facilities and events to visitors from the locality; becoming involved in local social networks (e.g. local religious groups, parents associations in schools, clubs and societies); cohousers lobbying for the provision local services and facilities.

the development, design, recruitment and operational processes) reduced their ability to be involved in the wider community or organise events in their own community to which the wider community were invited. There is some evidence to suggest that problems created by cohousers fatigue reduce over time. As communities become more established and cohousers have had a chance to recover from the demands of community development and formation they begin to become more involved with the wider community [1]. Secondly the perceived hostility of surrounding communities (particularly in inner city locations) towards cohousers, made them disinclined to be involved with the wider community [1].

In other instances high levels of integration exist between communities. Residents in the wider community had been invited to various events in cohousing communities. Resources and expertise had been shared between communities. In some instances cohousing communities have lobbied for the provision of services and facilities within the locality that have benefited both communities. This level of integration appeared to be fostered by strong social links and the exchange of resources across community boundaries. Thus cohousing communities can be inclusive if a concerted effort is made by cohousers to bridge community boundaries and affordable accommodation is provided.

Overall, the evidence from the research presented here supports Marcus and Dovey's [4] assertion that cohousing offers a sustainable form of accommodation, particularly if inclusivity is addressed in the ways described.

4. Adoption of cohousing in the USA—1986–2006

The architects McCamant and Durrett first introduced cohousing to the USA in 1986. Over the next 20 years it evolved, the cohousing population grew, spreading across a wider geographical area and spawning a diversity of models. An analysis of the USA data showed [10] that by 2006 just under 3500 people were living in cohousing communities (60 currently completed communities) in the USA with many further communities in the pipeline (132 currently forming or on-site). To date cohousing communities have been developed in 37
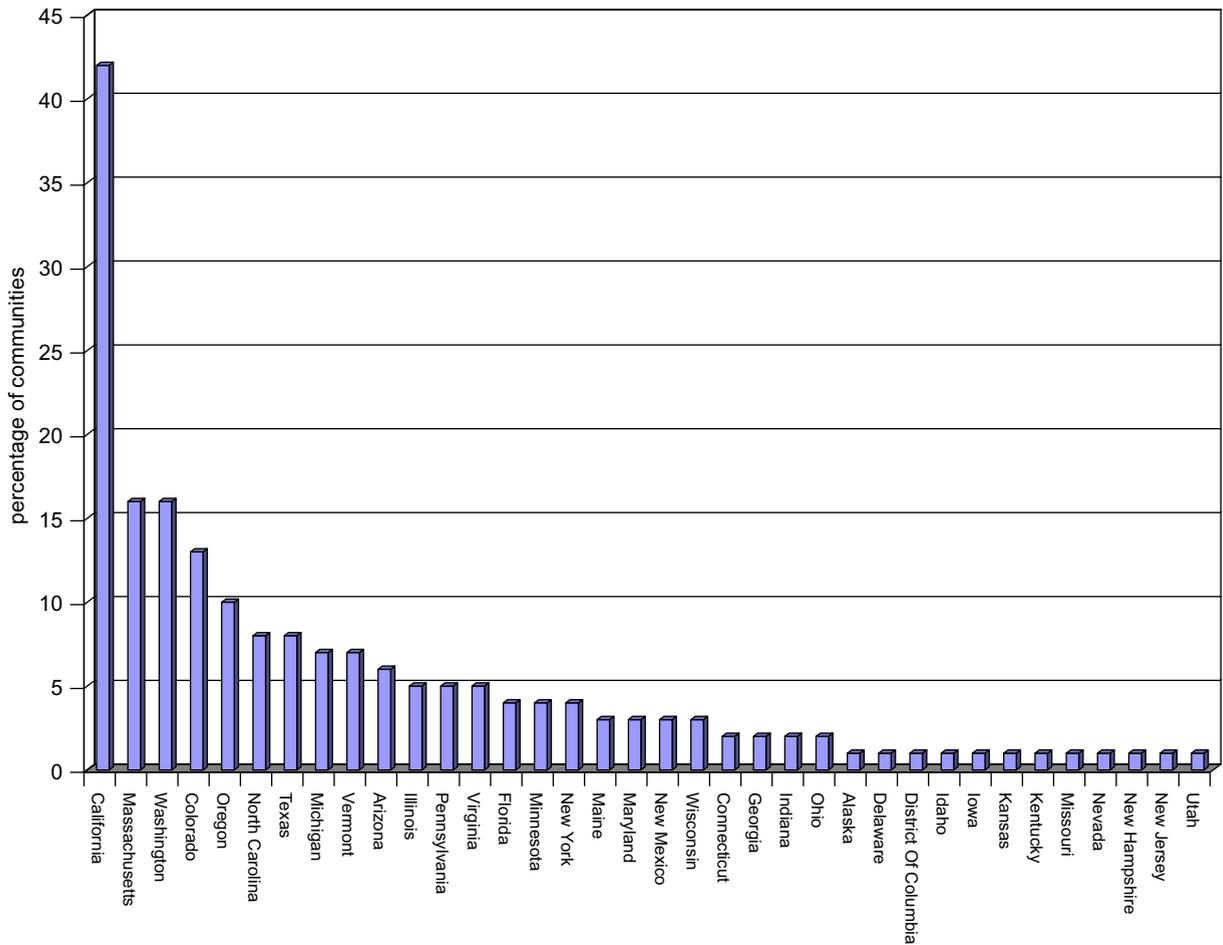
Fig. 1. Percentage of completed cohousing communities per state in USA 2006. *Source*: compiled using TCN data [10].

US states, although spatial clusters can be seen in California (42% of communities), Massachusetts (16% of communities in USA), Washington (16% of communities in USA) and Colorado (13% of communities in USA—Fig. 1). However, in 2006 only 0.001% of the US population was living in cohousing.

5. Diffusion of cohousing

The data suggests that adoption of cohousing is continuing to increase in the USA, albeit rather slowly. The question is will cohousing be adopted by the mainstream or will it continue to be a niche market? Further analysis was completed to determine the factors influencing the rate of adoption of cohousing in the USA based on the framework established by Rogers [11] in his work on innovation diffusion theory.

Diffusion is the stage at which a product or process becomes more widely available within a population. Rogers [11] defines diffusion as the process by which an innovation is communicated through certain channels, over time among the members of a social system. The statistics for cohousing suggest that currently diffusion has been limited in the USA and thus the adoption rate is slow. Rogers [11] suggests that the characteristics of innovations, as perceived by individuals, influence adoption rates. These characteristics include: relative advantage, compatibility, complexity, trialability and observability. The performance of cohousing against these criteria was tested using feedback from the national post-occupancy cohousers survey and expert interviews.

5.1. Relative advantage

The relative advantage is the degree to which an innovation is perceived as better than the idea that it supersedes. The degree of relative advantage may be measured in economic terms, social prestige factors, convenience, and satisfaction. The greater the perceived advantage of an innovation, the more rapid its rate of adoption will be. In terms of economic advantage, prestige, convenience and satisfaction cohousing did offer some important relative advantages (Table 6).

The key advantage appeared to be higher resale values (although only anecdotal evidence was given to support this). The majority of cohousers surveyed post-occupancy also reported high levels of satisfaction with their home and neighbourhood. They highlighted a number of contributing factors: higher re sale values, greater social interaction, support, security, safety, increased feeling of empowerment, opportunities to share resources and expertise. High re sale values and security are very important to the public in the USA. These two strengths could make cohousing attractive to the wider population if they were made aware of it.

Table 6
Relative advantage

	Benefits	Disbenefits
Economic	Higher resale values Lower daily living costs as a result of sharing resources (particularly important as resource costs increase e.g. energy)	Higher initial capital costs of new build developments (resulting from greater resident involvement which slows the development process and the provision of communal facilities), which may exclude less affluent groups
Social prestige	Customisation of private and communal facilities in new build development to reflect resident preferences increases prestige value. Provision of communal facilities, particularly gyms, office space, workshops, entertainment spaces and hot-tubs increase the social cache of cohousing communities	Collective housing label reduces social prestige Collaborative lifestyle is not consistent with preferred individualistic lifestyles. Less prestigious because private space is limited
Convenience	Opportunities to share household chores and maintenance. Easy access to people with similar interests—"convenience community." Flexibility provided by communal facilities for accommodating short-stay visitors	Time, emotional and financial costs and greater risk of new build. Problems finding sites associated with the resident led new build approach. Levels of involvement in community post-occupation very demanding and may result in loss of leisure time. Expertise required during the production and operation processes. Lack of flexibility in private units for accommodating changes in household size, resulting from space limitations and lack of alternative accommodation in communities due to slow turn-over
Satisfaction	Better quality of life—resulting from greater social interaction, support, security, safety, opportunities to share resources and expertise. Higher resale values. Increased feeling of empowerment	Length of development process for new build. Costs (time, financial, emotional) of new build. Expected levels of involvement in production and operational processes. Conflicts between residents in production and operational processes (e.g. design decisions, management and maintenance of communal spaces, organisation of communal activities). Lack of privacy resulting from social contact design and collaborative lifestyle which forces social interaction

The convenience afforded by opportunities to share resources, maintenance chores and easy access to other residents in the communities (described as "convenience community") were highlighted as being further strengths of cohousing. Some cohousers also suggested that there was prestige attached to living in cohousing resulting from higher resale values, residents ability to customise their community and the provision of some more "luxurious" communal facilities (e.g. gyms, hot-tubs, entertainment spaces, office space, etc.).

Lack of cultural affinity with cohousing in the USA was identified as being a key weakness. Cohousing is viewed with some suspicion due to its classification as a collective housing form. It is perceived that the collaborative lifestyle could potentially impinge on individual freedom of choice because of the inter-dependency of individuals within communities. However it is the inter-dependencies within cohousing communities, which builds social capital crucial to the support networks and security found in cohousing communities. SCD and smaller private dwellings reduces privacy, which is also in direct conflict with mainstream aspirations. Thus, lack of cultural affinity with cohousing is a key barrier to adoption.

The level of resident involvement required in production and operational processes (particularly associated with resident-led approaches) was also seen as a weakness of cohousing. Time cost (in the production and management of communities), financial risk, difficulties in obtaining sites and need for expertise limit adoption. High initial capital costs for new build is a barrier to less affluent households, whilst issues of conflict and lack of privacy in the post-occupancy phase were identified as causes of rejection amongst cohousers. Thus cohousing demonstrates both strengths and weaknesses that impact on its perceived relative advantage and rate of adoption.

5.2. Compatibility

Compatibility is the degree to which an innovation is perceived as being consistent with existing values, past experiences and the needs of potential adopters. If an innovation requires the prior adoption of a new value system, then diffusion is a slow process. The compatibility of cohousing with existing values, needs and past experiences was considered (Table 7). Cohousing is consistent with community and pro-environmental values. It is also consistent with the demonstrated need for secure living environments, high re sale values and lower daily living costs. To date cohousing seems to have attracted those who have had positive experiences of collaborative lifestyles (having lived in communities which have informally or formally encouraged greater inter-dependency between residents), although the social and safety benefits of living in closer-knit communities is beginning to appeal to those who have not experienced collaborative lifestyles.

However, cohousing is perceived by the American public to be inconsistent with the values of individual freedom and privacy as well as the need for spacious private dwellings. These values and needs are embedded in contemporary culture and thus are difficult to overcome. In reality cohousing offers independence and privacy, although perhaps to a lesser extent. Raising awareness of this could help to overcome current

Table 7
Compatibility

Compatibility	Consistency	Inconsistency
Existing values	Consistency with community and pro-environmental values. Source—expert interviews	Inconsistent with existing values of individual freedom and privacy. Source—expert interviews
Past experiences	Consistent with past experiences for those who have adopted collaborative lifestyles. Source—national post-occupancy survey	Inconsistent with past experiences for those who have adopted independent lifestyles. Source—expert interviews Negative past experiences of collaborative living arrangements. Source—expert interviews
Existing needs	Consistent with a need for supportive, social, safe and secure living environments. Source—expert interviews Consistent with economic priorities—high resale values and lower daily living costs. Source—expert interviews	Inconsistent with need for spacious private units and greater levels of privacy. Source—expert interviews

perceived cultural barriers. Potential adoptees lack of experience or bad experiences of more collaborative lifestyles also act as a barrier to adoption. However, high re sale values for units in cohousing communities suggest that the benefits afforded by a more collaborative lifestyle (particularly security, support and opportunities to socialise) are valued. Raising awareness of these benefits could help to increase adoptions. Perhaps cohousing is not consistent with the values and needs currently held by the American public (i.e. freedom and privacy), but early indications are that cohousing could be consistent with emerging values and needs (pro-environmental and community values, security and safety).

5.3. Complexity

Complexity is the degree to which an innovation is perceived as difficult to understand and use. The more complex an innovation the slower the rate of adoption. Cohousing is complex. The concept can be difficult to understand and even more difficult to operate. Expert interviews suggested that confusion occurs amongst potential adoptees as to whether cohousing is a housing form or a lifestyle (in fact it is both). For those who have not experienced living in cohousing, associations with other collective housing forms or communitarian lifestyles are often confusing and not helpful in its promotion. The experts interviewed suggested greater clarity was needed in conveying the concept to a wider audience that might be facilitated through a more aggressive marketing strategy and more working examples.

In terms of operation experts interviewed suggested that resident involvement in complex processes (production and operation) can also be off-putting. Cohousing requires residents to have expertise in a range of areas (design, project management, finance, marketing, maintenance, etc.), which makes it difficult for the wider population to adopt. Experts suggested that new production and operational models (involving developers and external maintenance contractors) could reduce the variety of expertise needed by residents. They also suggested that retrofitting existing communities could be a less complex process. Existing physical and social infrastructure reduces the diversity of expertise needed to retrofit a cohousing community. However, residents still need communication, negotiation and decision-making skills to manage community decisions and organise communal activities.

5.4. Trialability

Trialability is the degree to which an innovation may be experimented with on a limited basis. An innovation that is trialable represents less uncertainty to the individual considering adoption. Thus the ability to try an innovation for a trial period increases rate of adoption. Rental units in cohousing communities could provide a means by which more people could try the lifestyle before buying into it. Unfortunately lack of rental options in cohousing communities in the USA limits this. However, there is evidence from the national post-occupancy survey to suggest in existing communities that the majority of residents who have had the opportunity to rent accommodation, subsequently either buy into the community at a later date or move to a newly forming community. This certainly underlines the benefits of providing rental units in communities to increase adoption rates. Lodgers in cohousing communities also show a propensity to continue to live in cohousing communities, although the affordability issue often limits their ability to buy into a community.

The key problem in terms of providing rental units in the majority of cohousing developments is that the approach adopted to production in the USA tends to be resident led and financed. In order to enable mixed tenures new partnerships are needed with additional investors. In some instances this has been the development company. Expert interviews highlighted that partnership approaches to the delivery of low cost housing options were being explored. This is certainly an issue that needs to be tackled if cohousing is to be adopted more widely.

5.5. Observability

Observability is the degree to which an innovation is visible to others. The easier it is for potential adoptees to see the results of the innovation, the more likely they are to adopt and the faster the adoption rate. The problem is that the key benefits (social and environmental) of cohousing are not visible. In some instances even

the physical structure itself is so well integrated into the surrounding urban fabric that it is not visible. However over time some benefits may be realised in the wider community.

A detailed study of four communities in California,[7] highlighted cohousers strength in influencing local political issues, success in helping to get service and facilities provided in the wider community, offering social events and services to the wider community (e.g. craft fairs, film nights, parties, carpooling, exercise, language classes, etc.). According to the expert interviews this is not the experience of all cohousing communities. Many are more insular and thus the benefits are less visible to the wider community.

Anecdotal evidence from the California study suggested that opening up communities to the public for a variety of events appeared to foster positive interest in cohousing amongst residents in the locality. There was also evidence that the two retrofit communities had expanded to include residents from the surrounding area. Thus in these instances interaction between communities had resulted in further adoptions in the immediate locality. However, the expert interviews highlighted that it would be difficult for those living further from cohousing communities to see the benefits. Thus they suggested a marketing strategy was needed in order to increase non-proximal adoptions. Currently in the USA the Cohousing Network is the key body performing this function.

The cohousing network is made up of cohousers, developers and building professionals. It promotes cohousing through various media channels internationally. It provides residents and professionals with the necessary information to successfully develop communities and campaigns to raise awareness of cohousing amongst the public, government institutions and professionals. It provides a vehicle for networking amongst interested parties who are forming communities, looking for sites, trying to identify potential sources of finance or professionals to work with them. It also offers opportunities for individuals to attend open days in cohousing communities and identifies rental potential. More recently it has also worked with realtors to identify potential sites, properties or residents for forming communities. Expert interviews highlighted that in San Francisco and the Bay Area, involvement of realtors in the formation of cohousing communities has increased both supply and demand for units. Interest amongst realtors in cohousing in this area has resulted from the market demonstrated by formation or development of nine communities to date.

The fact that 3500 people already live in cohousing communities with a further 132 communities in the development pipeline demonstrates that the network has been successful in these early adoption stages. However, if cohousing is to be adopted by the mainstream new approaches are needed. Top–down and grass-roots approaches could be adopted. The top–down approach would involve commercial marketing led by volume house builders and realtors. This would require that both groups could see economic advantage in marketing and providing cohousing units. A grass-roots approach would be to encourage the incremental expansion of existing communities using cohousers to market cohousing to their neighbours.

5.6. Overview

Thus innovations that have perceived advantages over their competitors, are compatible with the current values system, simplistic, visible and adoptees can trail on a temporary basis are likely to have a faster rate of adoption. Cohousing does have relative advantages in terms of economic returns and levels of satisfaction (Table 8). However, it also has disadvantages when compared with current housing forms in terms of convenience and social prestige. The former may be overcome through adoption of less resource intensive models (partnership, retrofit and speculative approaches). The social prestige of cohousing could also be increased through the collation and publication of re sale data (if anecdotal evidence from the expert interviews is correct).

Cohousing is less compatible with the current values system in the USA than standard housing models. However, it is possible with the emergence of new values (pro-environmental and community values) and needs (safe, secure, social and supportive living environments) it could become increasingly popular if these benefits are advertised. Cohousing is a complex innovation and requires greater understanding and expertise

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[7]Residents in neighbourhoods surrounding cohousing communities, for four case studies in California, were interviewed to determine the degree of interaction and integration between communities and the extent to which this influenced adoption of cohousing within the wider community. Two retrofit and two new build communities were studied.

Table 8
Overview

	Strengths	Weaknesses
Relative advantage	Economic benefits and satisfaction	Convenience and social prestige
Compatibility	Consistent with emerging values and needs	Not consistent with existing dominant values and needs
Complexity	Less complex models emerging.	Cohousing is complex to understand. It also requires a great deal of resident expertise in production and operational processes
Trialability	Open events and activities in cohousing communities enable potential adopters to trial the lifestyle to an extent. Strong informal social networks between communities also helps to develop greater understanding of what it means to live in a cohousing community	Lack of rental units in communities reduces potential for trailing the lifestyle before committing to it
Observability	Interaction between cohousing communities and surrounding neighbourhoods has resulted in the incremental growth of some communities	Commercial marketing strategies are underdeveloped

amongst residents both in the production process and during operation. Greater understanding of cohousing could be achieved through grass-roots (word-of-mouth) and top–down (commercial marketing) approaches described earlier. However, retrofitting principles of cohousing into existing communities has begun to grow in popularity, which is a simpler and more accessible approach and could potentially increase adoption rates.

Very few opportunities to trial cohousing are available due to lack of rental units, which limits adoptions. This problem is compounded by the fact that the benefits of living in cohousing are not necessarily observable to those living outside communities. However, some evidence suggests that where rental accommodation exists it encourages a greater adoption rate. Further evidence suggests that where relationships between cohousing communities and their surrounding neighbours are strong, the transfer of information between communities through social networks about the benefits increases adoption rates.

6. Path dependence

Path dependence (created by positive feedback mechanisms resulting from social convention and economic costs of change) may lock certain technologies in place, thus influencing the rate of diffusion [12]. Housing supply and demand is path dependent—both are standardised [13]. The housing industry in the USA adopts a top–down approach to supply (speculative approach) that produces standard housing units, which have a proven market. There is no resident input into the recruitment, development and design processes of speculative new build development. The developer raises finances for the development and finds suitable sites. This approach ensures shorter development timelines and thus is less costly and risky for the developer. Home owners buy units at the end rather than the start of the process, which also removes the risk for them. This process and the end product have a proven market which reduces risk for both the developer and the home owner.

For cohousing the production process and end product are different from the standard housing model. Thus the delivery structures and the expertise needed to produce cohousing are also different. The existence of communities and high re sale values suggests there is demand for both the process and product, but for developers specialisation in a limited niche market is financially risky.

A speculative approach to cohousing has begun to emerge in the USA to tackle this problem. This approach fits with social convention and is the least costly of the approaches to new build cohousing communities, largely because development timelines and customisation are reduced, but also because developers can use existing supply structures and expertise for delivery. However, there is some debate in the literature [1,8] and

amongst cohousing professionals (expert interviews) about whether this approach fosters the same level of social cohesiveness, which is crucial to a more collaborative lifestyle and its associated benefits (i.e. support, security, etc.). Cohousing professionals felt that partnership approaches to new build cohousing produced a better quality product.

Cohousing developers were asked whether they saw any competitive advantages of the partnership approach when compared with a speculative approach to new build cohousing communities. The key advantage highlighted was that demand was guaranteed for the partnership approach, whilst the market for speculative cohousing was unproven. With the partnership approach cohousers bought into communities at a much earlier stage in the development process (often before developers had incurred any costs) thus reducing the risk to the developer. Also residents were involved in the marketing of communities, which proved a successful recruitment technique and reduced marketing costs to the developer. Most developers interviewed felt that whilst cohousing remained a niche market the partnership approach was less risky than the speculative approach because the demand for cohousing was unproven.

However, developers reported that there were also problems with the partnership approach, largely because resident involvement in the design process tended to lengthen the development timeline, which increased costs. They said that in some instances this had been overcome by restricting the number of residents consulted (core-group approach) or by restricting the residents design decisions to communal spaces (as most of the conflicts were about the design of private spaces). Involving residents in the design process also had implications for the range of expertise required by developers. In some instances developers would require training to ensure an effective consultation process (which would have cost implications). Developers also suggested that partnership approaches to housing development had limited public appeal. This was largely because of the level of input required by residents. Thus adoptions were likely to be limited.

Path dependency in the housing industry is a key barrier to supply and adoption of new build cohousing models. However, the resident-led new build and retrofit approaches to cohousing remove this barrier. There is already tradition of self-build communities in the USA, although demand for such an approach is limited. The resident-led approach to new build cohousing communities largely conforms to the traditional self-build approach. As with all self-build projects, resident-led cohousing developments tend to be more costly and risky than speculative or partnership approaches.

The retrofit approach is less costly and risky than the resident-led new build approach. In addition it does not involve developers in the process. Thus it does not compete with existing housing supply mechanisms and is not subjected to the constraints imposed by path dependency in the industry. Its affordability perhaps makes it the most competitive of the approaches.

7. Disruptive technologies

Disruptive technologies may also radically change diffusion patterns for an innovation [14]. The most important disruptive technologies in this instance are standard and specialised housing forms (e.g. gated communities, ecological houses, etc.), which compete successfully with cohousing. There also competing cohousing models which may impact on each others' diffusion patterns. An analysis of the cumulative number of adoptions (measured by the number of cohousers) of each of these models in the USA and California was completed. The purpose of analysing the California data separately was to determine if the faster rate of diffusion of cohousing in the state could be explained by the emergence of different models over the same time period. The adoptions curves showed that the rate of adoption of cohousing in California exceeded that of the USA. Overall the analysis showed (Fig. 2) that the resident-led model had been more popular in the USA over the 20-year period from 1986 to 2006. The less demanding partnership and speculative models appeared later and had gained in popularity. The data showed that at national level the three models were not competing (i.e. acting as disruptive technologies) but complementing each other, resulting in an overall increase in adoption rates for cohousing.

A similar analysis was completed for California (Fig. 3). The adoption rate of the partnership model over the time period was significantly greater than for the resident-led model. Thus the partnership model appeared to be more popular in California. The analysis indicates a slowing in the rate of adoptions for the partnership model between 1993 and 1996, which coincided with the emergence of the speculative model in 1993 and the
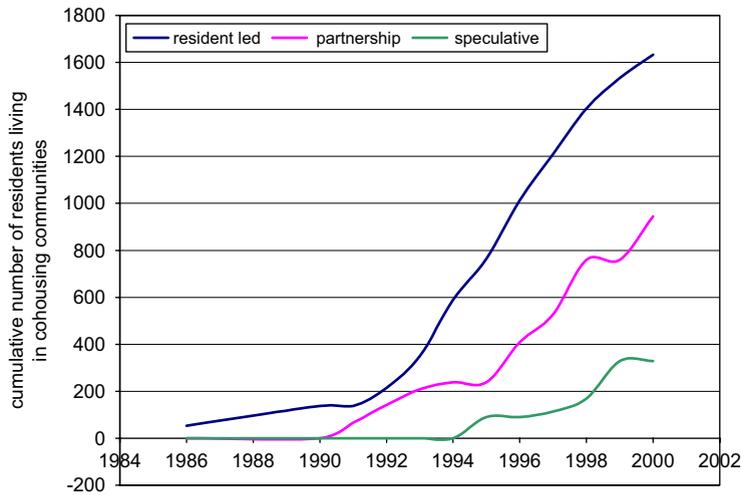
Fig. 2. Cumulative adoptions of different cohousing models in USA 1986–2006. *Source*: compiled using original survey data and data from [10].
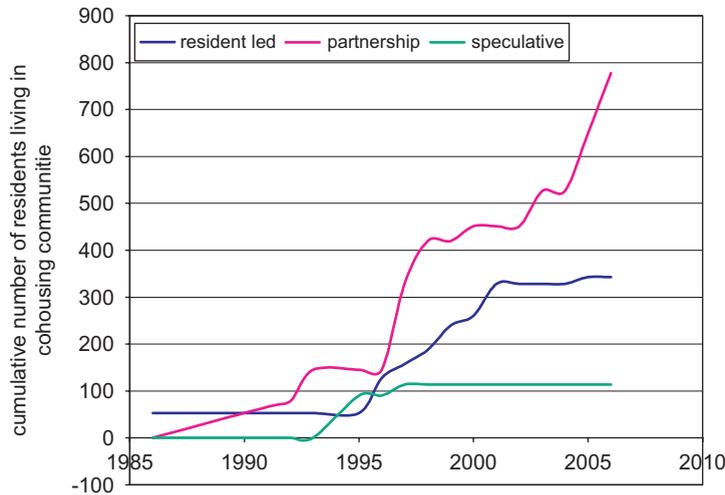

Fig. 3. Cumulative adoptions of different cohousing models in California 1986–2006. *Source*: compiled using original survey data and data from [10].

rapid growth in adoptions of the resident-led model in 1995. For this period at least it is likely that competition between models influenced the rate of adoption of the partnership model. Thus there is some evidence that the resident-led and speculative models were acting as disruptive technologies for this period.

However the continued growth in adoptions of the partnership model, suggest that this competition did not affect its adoption rates detrimentally over the period 1986–2006. In fact in 2006 the popularity of the partnership model was continuing to increase, whilst interest in the other models appeared to have stabilised. The analysis highlights a further interesting point, that perhaps one of the reasons for the greater success of cohousing in California (compared with the USA as a whole), might be rooted in the adoption of the partnership model.

Experts interviewed certainly felt that this was true, because the partnership model had relative advantages, particularly in terms of risk and level of commitment (time and financial) on the part of the resident when compared with the resident-led model. However, other location dependent factors may also be responsible for the rapid adoption of cohousing in California, including cultural affinity, the clustering of cohousing expertise and champions in the state.
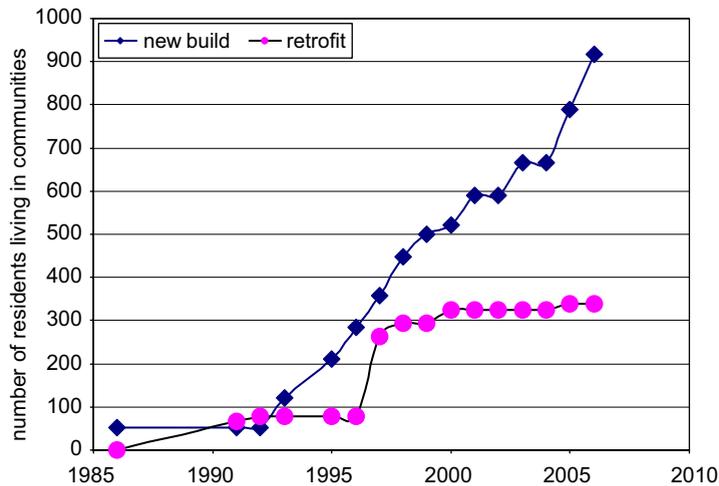
Fig. 4. Cumulative adoptions of new build and retrofit cohousing models in California 1986–2006. *Source*: compiled using original survey data and data from [10].

Experts also suggested that the overall increase in cohousing adoptions in California between 1996 and 1999 might result from the emergence of retrofit communities. The rationale for this assumption was that retrofit communities could develop more quickly, with less risk to the cohouser and at less cost than new build communities. Thus experts suggested that the retrofit model could be a competitor to the new build model. However, analysis of the data (Fig. 4) showed no evidence that the rate of adoption of the retrofit model impacted detrimentally on new-build adoptions. Thus these models appear to be complimentary.

The evolution of cohousing has produced a variety of approaches to supply. However, there is no real evidence from the analysis of data (with the exception of the time period 1993–1996 in California) that these different forms of cohousing have acted as competitors (disruptive technologies) during the time period 1986–2006, rather they have complemented each other and appear to have collectively helped to increase cohousing adoptions. The real competitors are standard and specialised housing forms previously mentioned.

8. Crossing the chasm

Cohousing has yet to "cross the chasm," [15] moving from a niche market populated by "innovators" and "early adopters" (characterised by technological enthusiasts and visionaries) to the mainstream markets populated by the "early majority" (pragmatists). Moore [15] suggests that the difficulties in "crossing the chasm" result from the different expectations of these groups. The ability of cohousing to overcome this barrier will largely depend on marketing, awareness, distribution and pricing. Cohousing does have the potential to be of interest to the "early majority" because of the pragmatic benefits it offers. It may potentially be able to "jump the chasm" if these pragmatic benefits are disseminated, more affordable options (rentals or social housing) are introduced, resident involvement in the production process is reduced (developer-led or retrofit models) and if units are available.

The infrastructure for raising awareness of cohousing already exists in the form of the cohousing network. The involvement of developers, architects and real estators in the network also means that their connections with the construction industry, housing providers and the public can be used as channels through which the benefits of cohousing and associated expertise can be disseminated. However, if cohousing is to bought into the mainstream a more comprehensive approach to marketing through top–down (commercial) and grass-root (word-of-mouth) approaches are needed (described in Section 5.5). The pricing of cohousing units will also influence whether the early majority decide to adopt cohousing. Thus providing affordable units in new cohousing developments (through partnerships with affordable housing providers) and encouraging the growth of retrofit communities is crucial.

Location also seems to influence adoption rates. Certainly spatial clustering of cohousing in states (particularly California) and in urban/suburban locations[8] suggests adoptions may be locationally dependent. Experts suggested that this may result from greater cultural affinity amongst those living in certain states with the cohousing concept. However, equally it could be as a result of the spatial distribution of cohousing professionals who can facilitate the development of communities. There is some evidence to support this as developers, realtors and architects specialising in cohousing can be found in California, Massachusetts, Washington and Colorado where spatial clustering is also found.

There appears to be spatial clustering in more densely populated urban and suburban areas. Some of the experts suggested that this might be because of greater cultural affinity with the objectives of cohousing amongst the public in these locations (pro-environmental and community values) or greater perceived need for safe and secure living environments. However, it was also suggested that adoption rates might be higher because the benefits of cohousing are being communicated faster through social networks in these locations (word-of-mouth advertising) and the communities can be more easily observed. If indeed adoptions vary with location as suggested, an effective distribution strategy needs to reflect this and maximise on the use of existing social networks for marketing, competitive advantages resulting from the clustering of expertise and greater cultural affinity (resulting from values and needs).

9. Bounded influence

An interesting theory developed by Kincaid [16] suggests that an innovation accepted by the minority can become accepted as a social norm (thus being adopted by the majority) by means of the *process of bounded normative influence*. Kincaid [17,18] found that in a relatively bounded social network, where communication among members is restricted, the system as a whole tends to converge over time towards a state of greater cultural uniformity. Thus if parts of the network have some affinity with the innovation, over time it is likely to spread throughout the bounded social network. Transfer may also occur across adjacent networks, if both have similar levels of persuasiveness. In this instance the transfer of the innovation across boundaries will depend on factors including frequency of communication and location in the network.

This theory is particularly relevant to cohousing communities in the USA. Firstly, communities tend to be found in urban and suburban locations thus are centrally located in the local social network. Secondly communities have strong internal and external social networks through which knowledge and expertise can pass. Thirdly communities tend to have articulate and enthusiastic members, who could enable the transference of ideas (particularly in terms of raising awareness of the benefits of living in cohousing) within the wider community.

Research was carried out in four locations in California in the localities surrounding two new build and two retrofit cohousing communities. One of the new build communities had been very recently established. All were in urban or suburban locations. Local residents living in close proximity to communities were interviewed to assess their attitudes towards cohousing and cohousers. The research also determined whether proximity to cohousing communities had actually encouraged further adoptions in the local community.

In the recently formed new build community, formal and informal social channels had not been established between cohousers and their neighbours. There were two reasons cited by cohousers for this "fatigue" and the perceived hostility of the surrounding community. The time, energy and resources that the cohousers had invested in the production of the new community had left them without a great deal of energy to arrange events at which social networking could take place. Some cohousers also felt that the surrounding community was hostile towards them and did not wish to build social networks. Those interviewed in the surrounding community viewed cohousing negatively. They suggested that this was because they felt excluded by the cohousers. This was in part because of the physical design of the community (a gated development) but also

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[8]Spatial clusters in the USA can be seen in California (42% of communities in USA), Massachusetts (16%), Washington (16%) and Colorado (13%). Spatial clusterings can also be seen in urban and suburban locations; 39% of cohousing communities in the USA are urban, 37% suburban, 14% small town and 10% rural. The majority of communities in California are urban (50%), whilst 36% are suburban and 14% are found in small towns and rural locations.

because there was very little social interaction between communities. None of those interviewed showed any interest in living in cohousing.

In the more established cohousing communities, cohousers invited local residents to join them in formal and informal social activities (social gatherings, classes, film clubs, etc.). Two of the communities also used their political influence (described earlier in Section 3) to lobby local authorities for additional local services and facilities, which advantaged both the cohousing communities and their neighbours. Local residents were happy that these cohousing communities were an integral part of the wider community.

There were high levels of social interaction across boundaries. The relative advantages of living in cohousing were conveyed through these social channels and the benefits became visible, which encouraged residents in the wider community to join the existing cohousers. Also the fact that residents in the wider area could trial the collaborative lifestyle of the cohousing community (through attendance at formal and informal community events) before getting fully involved in the community also increased their willingness to become part of the cohousing community. This incremental approach offered an affordable and easily accessible entry into existing cohousing communities.

These findings suggest that there is potential for cohousing to become a social norm in the localities surrounding existing communities, if social channels are established, which can result in the incremental growth of existing communities. The extent to which social channels are established is dependent on the attitudes of cohousers to the wider community. These attitudes can be dependent on individual characteristics of cohousers, their perception of the surrounding community and the length of time the community has been established. The research does demonstrate that the process of bounded normative influence operates for cohousing communities. This process could be utilised to increase the rate of adoption of cohousing in the USA.

10. The future

This paper has investigated the future market potential for cohousing in the USA, using diffusion theory. It has assessed the characteristics of cohousing in order to determine its potential adoption rates. It has discussed whether path dependencies and disruptive technologies will limit its success. Finally it discussed whether bounded normative influence might be key to the future success of cohousing in the USA.

It was found that path dependencies in the housing industry and the competitiveness of traditional housing forms were the key factors that would limit the future market for new build cohousing. Thus, it seemed that the retrofit approach to the creation of cohousing communities was likely to be more successful strategy for increasing adoptions. In addition, retrofitting communities made the collaborative lifestyle accessible to more people because it required less resources (finance, expertise and time), was more simplistic and enabled adopters to test a collaborative lifestyle without making major resource commitments (as with new build).

The research also demonstrated that there was great potential for communities to expand, if the social channels for the transfer of information between cohousers and their surrounding communities were established, through formal and informal social activities. A similar process can be seen operating in communities adjacent to new build cohousing development. These "word-of-mouth" and "try-before-you-buy-in" approaches seem to be very successful marketing strategies. However, the process is relatively slow and spatially restricted. Marketing through commercial channels (housing providers and realtors) would be needed to supplement this approach in order to encourage wider spatial coverage. Realtor involvement in the marketing and creation of cohousing communities is already happening in the San Francisco and Bay area for example and appears to be very successful in increasing adoptions and spatial coverage.

Of the new build models the partnership and resident-led approaches appear to have greatest potential. The speculative approach appears to be limited by its lack of ability to deliver collaborative lifestyles. Both resident-led and partnership approaches are currently limited in terms of adoptions. The potential for the expansion of the resident-led approach is restricted by the resources and expertise required to implement it (similarly to most self-build projects). The partnership model removes these barriers and has the potential to increase adoptions. However, current supply structures and marketing strategies could limit this. More cohousing providers and a commercial approach to marketing are needed in order to accelerate adoptions. Both supply structures and marketing campaigns should initially target locations in which cohousing has been successful in order to maximise adoption potential and limit financial risk to investors.

So is there a future for cohousing in America? This research suggests this is the case. In the first instance there is a long way to go before the market amongst "innovators" and "early adopters" is saturated. This demand can be satisfied using existing delivery structures. In the second instance there appears to be potential for cohousing to be accepted by the early majority and thus move into the mainstream through grass-roots processes (retrofit, "word-of-mouth" and "try-before-you-buy-in" approaches). These processes need to be supplemented by commercial marketing and partnership approaches to new build development in order to ensure that adoptions are more widespread in the future.

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