

Sustainable Housing Transformations: The Housing Association as a Change Agent for Environmental Innovation and Social Regeneration – Two case studies

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Abstract

The starting point for this study is the central role of the housing association in sustainable transformations of existing post-war housing stocks in Europe. The paper explores the role of the housing association to drive and support transformation processes where the aim is to address both environmental and social issues. Based on a literature review and on two case studies of early market actors, one in the Netherlands and one in Sweden, the paper discusses the role of housing associations as change agents as well as clients for sustainable housing transformations, and how they manages to combine their public tasks and responsibilities and their professional market activities in those projects.

The literature review shows that few qualitative studies have been carried out and little is still known about the internal organisation of housing associations and what constitutes their behaviour related to sustainable housing transformations. Some quantitative studies point to predisposing, enabling and reinforcing factors constituting the innovative behaviour of housing associations towards environmental and in some cases social issues, which are also confirmed by our cases. However, these studies do not unveil the responsive factors or strategies used by the housing associations to handle their challenges. Our case studies show that an engaged manager, a decentralised structure, financial subsidies and external technical expertise is necessary for their work with sustainable housing transformations. Process innovation related to procurement seems to have an important role in the responsive strategies. The environmental and the social retrofitting processes have been found connected and the main motivation for energy upgrading of the housing are social issues.

Key words: sustainable development, housing transformation, retrofitting, housing association, construction client, innovation processes, environmental issues, social issues

1. Introduction

Most European cities face a large and urgent task to restructure and transform post-war neighbourhoods, a task that is driven by objectives for sustainable urban renewal as well as political targets to reduce carbon emissions and fight global climate change. Due to their age, large parts of the post-war housing stocks are in need of technical up-grading. Considerable amount of the societal energy consumption can be allocated to the use of the built environment which calls for objectives for energy efficient retrofitting of existing housing. Recent theoretical studies as well as practical demonstration projects have shown that considerable reduction of resource use can be reached through retrofitting of existing housing stocks. On the whole, environmental advantage for a retrofitting option in comparison to demolition and build new has also been proved (Itard, *et al.*, 2006). However, the problems with post-war housing areas are far from being just technical questions. For example, raising energy prices will eventually led to fuel poverty with social consequences. The actual problems related to post-war neighbourhoods must be described as multi-dimensional, i.e. addressing technically and functionally deteriorating housing stocks, energy inefficiency, poverty, unemployment, social exclusion, vacancies, high turnover rates as well as segregation and stigmatisation. This calls for holistic approaches with joint physical and social regeneration strategies (e.g. Ouwehand, 2006) but also objectives for integrated social and environmental ambitions to reach sustainable development (e.g. Stenberg *et al*, 2009).

The importance of arriving at sustainable housing transformations from a technological and a social perspective, the urge of the issue as well as the complexity of the issue calls for holistic but also innovative strategies which will be discussed in this paper. With a retrofitting cycle of 30-40 years large parts of post-war housing stocks which have not yet been dealt with face *the* opportunity not to be missed to deal with urgent objectives for energy efficiency. In the Netherlands, almost 70% of the existing housing stock is in need of envelope up-grading to reach national climate objectives (Hal van, 2008a). In Sweden, authorities claim that the pace of retrofitting of existing housing should have to be increased from 20.000 – 25.000 apartments a year to 65.000 apartments to address climate objectives as well as to counteract depletion of assets (Green Party, 2008).

The question of sustainable housing transformation of post-war housing is intimately connected to housing associations. As expressed by Primeus (2006) *'A heavy responsibility rests on the shoulders of housing association managers when it comes to the implementation of new urban renewal'*. This paper has the perspective of the Dutch and the Swedish situations which both are countries with large volumes of housing owned and managed by housing associations. In the Netherlands, housing associations owns more than 50% of the market share in social housing areas and sometimes even 100% (Primeus, 2006). In total they own about 35% of the Dutch housing stock. In Sweden, approximately 300 municipal housing companies manage some 830 000 dwelling units. This represents 20 % of the total housing stock and about one third of all dwelling units in multi-storey houses (www.sabo.se).

1.1 Aim and scope

The purpose of this research is to contribute to the understanding of the role of housing associations in sustainable housing transformations and their behaviour in

driving and supporting holistic and innovative strategies. Housing associations have in the last decades developed a 'hybrid' status (Primeus, 2006): they combine public tasks and responsibilities with market activities. As construction clients they have a *public* and a *professional* dimension which is likely to be predominating for their innovation behaviour (e.g. Hartmann *et al*, 2008). These two tasks do not necessarily have to be in opposition even though Swedish housing associations have been found to often have bias towards one of the tasks (Boverket, 2008b).

Sustainable housing transformations link technical retrofitting processes and social transformation processes in which the housing associations have the key role. The questions are how the housing associations manage their role as construction clients for innovative retrofitting activities, and how they manage to link the technical retrofitting processes with social transformation objectives. In parallel to this paper, an article is in preparation that discusses the link between environmental and social objectives in sustainable housing transformations, how these development and innovation processes can benefit from each other, and how the environmental project can be a vehicle for social change (Femenías and Hal van, work in progress). The final aim of the research is to contribute to the understanding of the factors that constitute innovation driving and adopting behaviour among housing associations related to sustainable housing transformations and the potential for a broader transfer of such strategies.

1.2 Research design and layout of the paper

This paper presents early and tentative conclusions from a recently initiated research project. The paper presents a literature review on housing associations and what constitutes their behaviour in sustainable innovation and housing transformation. The paper also discuss preliminary results from two explorative case studies of early market actors in sustainable housing transformation among housing associations, one from the Netherlands and one from Sweden. These two organisations have been awarded for their work focusing on environmental and social issues. Data for the case studies have been collected through documentation, reports, and interviews with key actors and visits on the spot.

The approach to retrofitting used in both case studies can be referred to as 'pimping' that can be described as a external upgrading where the residents live in their dwelling during a relatively short retrofitting project (Hal van, 2008a). The advantage of the 'pimping' approach in relation to a 'stripping' approach, a more radical retrofitting which involves the total or partial stripping of the structure and the need for residents to move out during the process, are lower costs and fewer nuisances for the existing residents. Our focus is also on self-sustaining processes for innovation as a means to find strategies applicable by a broad range of clients in different contexts and without the explicit need for governmental support to initiate and sustain change. What are discussed are new solutions and way of handling a problem, consequently the use of the term innovation and related theory seems relevant. The term innovation is here used as 'an idea, practice, or object that is perceived as new by an individual or another unit of adoption' (Rogers, 1995). This means that the innovation can be new for the adopting organisation but not necessarily new for everybody. The innovation can also be a package of technological solutions and refer to process and management issues.

Considering the holistic approach of the study to real-world situations, a case study approach seemed most appropriate. The justification of a case study approach in an attempt to reveal factors that will constitute housing associations behaviour in sustainable housing transformations is supported by a few earlier studies. Egmond *et al.*, 2005; 2006) have through questionnaires studied the potential for policy interventions to encourage Dutch housing associations to invest in energy conservation. The authors have through a questionnaire classified a large number of Dutch housing associations in different adoption categories as a means understand their innovation adoption behaviour. However, the Dutch studies do not take into consideration the size and organisational structure of the company or the geographical location and political context in which the housing association act. A Swedish survey of a large number of municipal housing companies indicate strong correlation between the factors size, location, and company profile that influence the companies' strategic behaviour (Boverket, 2008a). The Swedish study further point to the need for deeper and more difficult studies of the culture of the housing companies organisations in order to understand the complex background for their behaviour towards social and environmental sustainability issues. So far, few studies have addressed the organisational behaviour of housing associations and their role as construction clients (e.g. Straub, 2004). The necessity to go beyond quantitative studies and go inside the organisation to understand clients' behaviour has been emphasized by Green (1996). This paper will reflect on how such studies can be realised in order to produce results that can be generalised. The focus on internal structures and cultures in client organisations as a means to cast further light on clients' innovation behaviour is a subject that also has support in recent research in the field of construction innovation (Brandon and Lu, 2008).

2. Background: The housing association, their mission and responsibilities

The Housing Associations have been key actors in the construction and management of large housing stocks since the pre-war period. Their public role has for a long time been closely related to social responsibilities of providing dwellings, a responsibility that is still overhanging even though their activities have changed towards a more business-like approach to housing stock management in later years (Primeus, 2006; Boverket, 2008b). The housing associations are responsible for physical interventions in post-war areas but they also have a mission to strengthen social and economic dimensions in deprived areas and to maintain the value of the real estate.

2.1 The Dutch housing association

During the early post-war period, Dutch national policy responded to the housing shortage with large construction programmes, emphasise was on medium- and high-rise housing and subsidised social housing. In the 1960s through the 1980s successful regeneration was carried out of pre-war housing areas and these neighbourhoods quickly improved. On the contrary, the post-war housing areas mainly managed by housing associations deteriorated with increasing social problems. A shift in urban renewal focus from pre-war to post-war areas can be labelled a shift from traditional to new urban renewal (Priemus, 2006). In the Netherlands the current housing shortage can be characterized as a quality issue: people are in search of housing that conforms to their specific needs (www.cecodhas.org).

During the 1990s, subsidies for housing construction were abolished in the Netherlands and social housing providers had to adopt independent strategies for financial and risk management. In 1995, a new legislation was enacted and the housing associations became financially independent from the central government. The status of the housing association can be described as a 'hybrid' combining public tasks and market activities (Primeus, 2006). The key public task is to provide housing primarily for groups that are unable to provide it for themselves. There are more than 500 housing associations in the Netherlands (Straub, 2004). They are independent and not-for-profit organisations. The average size of Dutch housing associations were 4.700 dwellings in 2004 (ibid) Their size has been increasing last years due to merging as a means to achieve a better economic situation.

2.1.1 Policy objectives for urban renewal

Since the 1960s urban renewal has been carried out in urban restructuring programs in the Netherlands focusing on demolition and replacement, particularly on less popular post-war estates (Visscher *et al*, 2006). The Urban Renewal Memorandum of 1997 argued for a comprehensive approach combining social, economic and physical elements as a means to fight negative social and economic development that were recognized as threats to the physical improvements made to the housing stock. In addition, the Major Cities Policy aims at strengthening the economic position of the city and reinforces urban residential areas in the regional market. So even though the focus for current Dutch urban renewal policy is still primarily physical interventions, the idea is to take more account of social and economic aspects (ibid).

The main motivation behind Dutch urban restructuring policy is to increase the social capital through attracting new and middle-class residents thus creating diversification and bring about a better social mix, but also to improve the overall quality of the housing stock, its attractiveness and strengthen the areas' reputation and market value (Kleinmans, 2004; 2006). There is also a motive to raise the levels of home-ownerships. A common motive for diversification among Dutch policymakers is the dilution of problems. Dilution can have an advantage as the burden on disadvantaged neighbourhoods can be reduced but the strategy is inadequate in solving underlying processes of disadvantage and exclusion and the problems of individual households remain unsolved (Kleinmans, 2004). There are some empirical evidence of positive social implications from urban restructuring, but even though the actual effects of diversification strategies on social capital need further research, the legitimacy of the strategy remains unchallenged (Kleinmans, 2006). First, people that move as a result of restructuring, often manages to improve their housing situation. Second, the dilution of problems has been well met both by those who stay and by newcomers in the restructured areas. Restructuring programs are expensive and often gives negative return and a 'social' strategy (Gruis *et al*, 2006) could be an alternative to restructuring. This mainly non-physical strategy would improve services and facilities as well as the reputation of the area also by other allocation and empowerment policies that could stimulate the local economy and improve the educational level.

2.2 Swedish public housing and the municipal housing companies

At the end of the war, housing standards in Sweden were at a very low level by international comparison (Boverket, 2008a). To fight housing shortage and low housing standards, the state took an important role in shaping the housing market. "Good housing for all" became the overall goal of housing policy, and an important

goal of social welfare policy which included construction of new housing and demolition of inferior quality housing. During the whole post-war period heavy state subsidies were given to all kinds of housing producers but the municipal housing companies have since the 1940s had a decisive role in the creation of new housing in Sweden. As part of a political decision, Sweden did not choose the continental model of social housing and engaged instead in public housing to avoid stigmatisation (Boverket, 2008a). The Swedish municipal non-profit housing companies are municipally owned and controlled. In Sweden, municipalities have a very strong position because of their right to income tax which gives them great independence. There are today about 300 members in the umbrella organisation, SABO, for municipal housing associations in Sweden. Their size varies from small (33 apartments) to large (over 20.000 apartments). In 2005, they together owned 20% of the total building stock in Sweden (Boverket, 2008a).

In the post-war era the municipal housing company became important instruments for both the state and municipalities in a social, economic and geographical process of structural change which would define Sweden for several decades. This was a complex key role in the Swedish post-war restructuring which would have been difficult to fulfil if the municipal housing companies' dwellings had been aimed only at those who were worst off (Boverket, 2008a). To handle the continued housing shortage and the objectives for raised housing standards, the Swedish government subsidised the construction of more than a million new homes in the 'Million Programme' 1965 – 1975.

Similar to the Dutch development, the Swedish government has since the 1990s applied a strong market-oriented housing policy. In 1991 a major tax reform was introduced and state subsidies were abolished. Since September 2006 Sweden has right wing government. The state is now less involved in Housing policies and has dramatically reduced their expenditures on housing (Boverket, 2008a). Instead the government has delegated almost all the decisional power with regard to housing at the local municipal level. Following this political decision, the housing companies' strategies are more focused on creating variations on the housing market, and a process of privatisation of the municipal stock has started. At present the government have no economical incentives or other sanctions to direct the behaviour of the municipal housing companies, a power completely in the hands of the municipalities and the market forces (Borg and Lind, 2006).

2.2.1 Fighting social exclusion

Many of the new built suburban areas from the 'Million Programme' had problems from the start with vacant apartments and a stigmatised public image. During several decades problems in these deprived areas have been approached with social and technical solutions (Olsson *et al*, 2005). The technical solutions have reached from limited actions for better outdoor environments to radical rebuilding and demolishing in the so called 'turn-around projects' of the 1980s and 1990s. In the late 1980s the first City Evaluation in a number of deprived suburbs showed an on-going segregation process (SOU, 1990:37) which was confirmed to continue and even escalate in new studies carried out in the 1990s (SOU, 1998:25). In 1998, the Swedish government decided upon a Major urban investment to fight segregation in suburbs to major Swedish cities. The investments have had a local approach with action aiming at: improving education, employment, safety; benefiting club activities; and enlivening

squares and meeting places. The activities in 1970s and the 1980s focused more on managing the existing stock, developing energy efficiency strategies and engaging in resident democracy and participation (Boverket, 2008b). During the radical changes of the 1990s, the housing companies turned their attention from managing housing stock to a tenants' focus, and the provision of good living environments.

In general Swedish building standards are very high, and in deprived neighbourhoods problems are not directly visible (Pekelsma, 2009). Even though many of the post-war neighbourhoods are today in need of renovation, they remain relatively good neighbourhoods in comparison to similar areas in the Netherlands, France or the UK. The problems are to be found on an area level. A study conducted by the OECD in the late 1990s, rated Sweden as one of the most segregated countries in Europe, not making use of the knowledge and potential of foreigners (SOU, 1998:25). As a result 'employment' has become the focal point of integration policy. The idea is that immigrants should be guided to work as a way to enter a social framework in and integrate in Swedish society. However, immigrants that have a job want to move from the deprived neighbourhood and due to a shortage of housing their place is often taken by new immigrants who are still at the starting point of their integration process. Therefore, the development of deprived neighbourhoods is a slow process.

Around the mid-1990s, some municipal housing companies, supported by their municipalities, began to think and act in radically new ways (Boverket, 2008b). One of the underlying ideas was that it was the housing company's everyday ongoing management and not primarily temporary projects that made successful renewal possible. Another important idea was that renewal processes must start out from the residents' perspective, not be imposed by the housing company according to its own predetermined objectives. As few pioneering Swedish municipalities decided that their housing company should not focus on replacing the actual residents with perceived better ones. On the contrary, the current residents, their needs, wishes and active participation should be the basis for renewal. Renewal was to be carried out within the framework of the ongoing management of the estate. These processes would require a re-organization of the housing companies and investments were made to recruit individuals with the right social competence, which were to be present on the estates, in direct and continuous contact with the residents. It proved necessary for housing companies to deal with issues beyond the scope of traditional property management. From the residents' point of view their interests for a better living area were: unemployment, safety, condition, cleanness as well as the reputation of the area, and local services and facilities. Another important issue, from the residents' point of view were how they were treated by the housing company.

As a result of Agenda 21 and UN Habitat directives of the last decades, the partnership approach and governance has become the prevailing mode of governing in Europe (see for example Stewart and Taylor, 1995). Partnerships between housing companies, local authorities and other local actors and the active involvement of citizens have had a prominent role in fighting social exclusion in deprived Swedish post-war areas. The effectiveness of partnerships and governance to sustain local democracy has been discussed and could be seen as a way for government to regain control in these areas (e.g. Taylor, 1997). The 'neighbourhood approach' is a new 'coordination' policy that assures that all parties pursue the same goals. It is public-private partnerships to promote social inclusion in urban development

(www.regeringen.se). In 2010 there will be an evaluation to see whether the neighbourhood approach has been effective.

2.2.2 *The 'greening of the people's home*

Since the mid-1990s the Swedish then socialist government set up policy to realise the vision of Sweden as a forerunner for ecologically sustainable development. To gain political acceptance the ecological vision was linked to the social welfare state and the widely used metaphor of the 'People's home' used for the housing policy since the 1940s was translated into 'greening the People's home' (Lundqvist, 2004). The use of new green technology was to provide new markets and new jobs. The problematic 'Million Programme' housing stock would be retrofitted with new technology and become frontline projects showing the way into the future as a means to fight the stigmatised image of these areas. As a part of a 'Sustainable Sweden' programme the government attributed large subsidies for eco-cycle adjustments of urban areas, and a local investment programme to support sustainable development. The main idea can be described as seeking "ecological sustainable socioeconomic welfare through ecological modernisation" (ibid).

3. The client role of the housing association

Historically, Dutch housing associations were organised on the basis of their three main tasks: letting, finance, and technical function (Straub, 2004). The technical department were responsible for maintenance, refurbishment and new development. After changes in the 1990s when the Dutch housing associations became independent of the national government, the technical departments have more supportive roles to the central or front office business involved in strategic decisions (ibid).

Also in Sweden, historically, many public clients had larger in-house departments for R&D (Kadefors, work in progress) as well as for entrepreneurial activities (Borg and Lind, 2006). During the 'Million Programme' some housing companies even had their own factories for industrialized production of large scale housing estates (Kadefors, work in progress). This led to the creation and growth of in-house expert knowledge. Although these expert departments and functions suffered from the reduced volume of new construction in the 1970s, many clients undertook substantial development activities throughout the 1980s. As a result the recession of the 1990s and the abolished subsidies, many housing association outsourced maintenance and construction work and consequently halved their staff as a means to solidify their economy (Borg and Lind, 2006).

Housing Associations could be categorised as professional or continuing clients but also as secondary clients (e.g. Green, 1996), their main business activity being that of providing and letting social housing and not to make income from construction in itself. What is likely to be predominating for innovation behaviour among housing associations is the fact that they have a public and a professional dimension as clients. The role of the housing association has grown through the aging stock of social housing in Europe. The housing stocks have reached the end of a service life-cycle, and the housing associations are facing policy objectives for carbon reduction. Still, the procuring role of the housing association will continue to vary as they move from maintaining periods to periods of more active construction works and the back to maintaining periods. This periodic procurement work is also likely to influence on their behaviour in adoption and implementation of innovation. Although the political

commission for housing associations has changed in recent years towards more market-like mechanisms, competition are not likely to be their primary driver for strategic choices and innovation (e.g. Hartmann, *et al.*, 2008). The nature of their services sets the housing association in a political rather than a market context. As a consequence their actions are likely to be highly influenced by political targets and governmental policies.

Dutch policy makers have experienced problems with the hybrid organisations of housing association and considered their split in public and private entities, something that has strongly been opposed by Dutch housing researcher Primeus (Primeus, 2006). Also in the UK, conflicting issues as a result of a more professional role of the housing association has led to decline in social responsibilities (Walker, 2000). In Sweden, municipal housing companies have been reported to perceive a contradiction between business interests and their role to fulfil public demand for housing (Borg and Lind, 2006; Boverket, 2008b). However, these are not seen as large problem for their function. A recent survey of Swedish municipal housing companies (291 companies were approached with a response frequency of 78%) shows that in general municipal housing companies take social responsibility even though market factors to a high degree influence strategic choices of some companies (Boverket, 2008b). The most prominent objectives for what municipal housing companies deals with in the field of social responsibilities is to: provide dwellings for those who are in need and are not accepted on the regular market; increase the influence and active participation of the tenants in the continuous management of the area; engage in crime prevention and safety; and to provide dwellings for refugees.

3.1 Factors that influence the behaviour of housing associations

What factors have been reported as influencing the behaviour of housing associations? Regarding social responsibility, the Swedish survey shows that the size of the company as well the location influence the degree of engagement for social responsibility (Boverket, 2008b). Larger companies as well as companies in major Swedish cities were found to engage more in providing dwellings for those in difficulties. A study by Magnusson and Turner (2006) found a correlation between political dominance and social responsibility. Their study indicates that municipalities with a dominating conservative political power more often use their municipal housing as social housing. Furthermore, the Swedish survey showed that a majority of Swedish municipal housing companies engage in larger urban and social transformations of depressed housing areas, often as the driving partner in those processes. The main motivation for engaging in transformation processes are financial but also that this is perceived as their role as municipal housing companies.

A recent study of innovation behaviour among Dutch public clients in road and construction works (Hartmann *et al.*, 2008) shows that social requirements steaming from the political arena are strong triggers for adopting innovation. The conclusion of that study is that public construction clients will “*adopt an innovative idea if they perceive the idea meets critical social requirements without compromising the client’s social responsibilities*” (Hartmann, *et al.*, 2008 p. 443). The ability for the public construction client to adopt will according to Hartmann *et al.* also depend on the reliability of existing knowledge to be used in a new situation. In addition, uncertainties and risk related to adopt an innovation to a new project context was found an important adoption attribute. Risk and uncertainties are reduced by

knowledge expertise acquired from the organizations that have earlier implemented the innovation and trust based relationship and collaboration with project partners. In addition, the public opinion in case of negative publicity will be taken into consideration. The innovation should promise positive publicity. Relating to image issues, safety-related aspects and the financial situation were found predominant as the funding for the innovative activities is fed by tax payers.

3.2 Housing associations and environmental and sustainability issues

Sustainable housing transformation concepts will only have value if they are adopted and used, preferably on a large scale. Studies in the field of diffusion of innovation conclude that many innovations are adopted only by the first-adopting segment of a target group, the so called prime movers or early market actors (Rogers, 1995). Innovations hardly reach the vast majority of the target group, the mainstream market or majority actors. The majority group is much more pragmatic than the prime movers that in turn are more vision-driven. A third segment of the target group is the laggards which will be the last to adopt an innovation and usually do not do so if not forced to. A recent study from the Netherlands shows that environmental innovation in construction is impeded by two chasms. A first chasm is found between the early market actors and the majority actors, and a second chasm between the majority actors and the laggards (Hal van, 2008b).

The diffusion of environmental innovation in new housing has been studied by van Hal (2000). Van Hal emphasises on four factors with determining influence for diffusion of environmental innovations: the quality of the innovation, the organisation of the demonstration project, the organisation of the information transfer of results, and the influence of governmental support. Regarding the organisation of the demonstration project van Hal found four factors to be important: first multi-disciplinary cooperation in the project organisation, second the involvement of an innovation champion, third the support of an influential person to attract interest and create confidence of results, and fourth the determining influence of external factors.

Research from a Swedish perspective regarding client driven innovation and diffusion of environmental innovations in construction point at additional factors with determining influence for innovation and diffusion (Femenías and Edén, 2009): a motivated client with skills to select consultants, contractors etc.; means to support co-operation in the project team (extra time etc.); and the benefits from long-term exchange with research institutions to develop skills and knowledge in the field of environmental innovation. The questions of reliability and transferability must be stressed in diffusion of environmental innovations and consequently both the application of the innovation in a real project must be studied as well as receiving context of adopters (e.g. Femenías, 2004).

Environmental issues and sustainability have been reported to still have little influence on housing associations activities in the Netherlands (Straub, 2004). The same situation is reported in the UK (Hall and Purchase, 2008). The behaviour of Dutch housing associations regarding the adoption of energy conservation strategies has been studied by Egmond *et al.* (Egmond *et al.*, 2005; 2006). A survey of 234 housing associations concluded that about 23% of the housing associations can be referred to as early market actors and 77% as mainstream actors (Egmond *et al.*, 2006). They found strong relationships between adoption categories developed by

Rogers (1995). Egmond *et al.* found that the early market actors among Dutch housing associations were characterised by a highly visionary attitude based on strategic considerations. They are involved in demonstration projects and oriented towards renewable energy. They give priority to energy conservation and sees energy conservation as part of their social entrepreneurship. The early market actors were found to react positively on policy and they have environmental policy plans. Their actions do not seem to be largely influenced by third parties and are not very open to activities of others and the sector and do not perceive influence from the branch organisation. The mainstream actors have weakly developed policy or none at all. They prefer intersectoral co-operation and operates more autonomously. They are not interested in innovative technology and their decisions are more influenced by the umbrella organisation than the early market actors. They are more susceptible to governmental influence. Subsidies will probably not be motivating for early actors but seen as a reward. Covenants and peer pressure could be motivating for mainstream actors as well as the position of energy conservation relating to costs, comfort and quality. A recent interview study among Dutch housing associations regarding finances and energy efficiency shows that insight varies among the companies (Hal van *et al.*, 2009). There seem to still be little financial advantage to engage in energy efficiency and only measure that does not imply extra costs are normally applied.

Based on Green and Kreuter's (1999) model of behavioural change Egmond *et al.* (2005) describe three general categories of factors that make up the determinants that will affect behaviour and environment of housing associations, each with a different influence on behaviour:

- *Predisposing factors* are internal antecedents to behaviour adherent in the organisation. These will include socio-demographic factors such as size and wealth but also awareness, knowledge, norms, attitudes as well as the organisation's perception of its own capacity.
- *Enabling factors* are external antecedents belong to the situation. They are conditions of the environment that facilitate the action: new skills, financial and technical resources e.g. expert advice and subsidies.
- *Reinforcing factors* are consequences of an action which determinates the positive or negative feed-back. This includes status, recognition, financial rewards and reactions of costumers.

The model proposed by Egmond et al. (2005) lacks of categories that describe how housing associations can respond and act. In an earlier paper (Femenías and van Hal, 2009) we have extended the framework with what we call responsive factors and eventually also inhibiting factors.

The Swedish survey (Boverket, 2008b) shows that all but one of the studied companies work actively with energy efficiency in their housing stock. Apart from energy issues, waste separation and indoor climate are important environmental issues dealt with. The Swedish study shows that in general, larger companies and companies in major cities invest more in the environmental field than the smaller companies and companies in smaller cities. In the case of energy efficiency, economical advantage is the major motivation for action. Regarding waste separation the motivations varies and are not mainly financial. Waste separation is a means to engage the residents in the daily routines of the area and also a means for the company to show that they are fore runners for sustainability. Companies with a higher rate of vacant apartments

seem less likely to invest in waste issues due to costs. A strong driving force for waste issues is also national regulation and municipal policy.

The conclusion from the Swedish questionnaire survey is that correlations between different influencing factors for housing companies behaviour could be found but none can bring about a valid explanation. The context is complex and studies of more difficult variables are needed. For example, organisational tradition and culture might be decisive factors as well as the managing directors' attitudes towards policy.

An issue that is decisive to innovation adoption and implementation is that of organisation learning (e.g. Argyris and Schön, 1978) and diffusion of experiences. The lack of learning in the building sector has often been debated and can be attributed to several intrinsic factors among building practices: temporary projects, cyclic demand, lack of time, etc. (e.g. Femenías, 2004). A recent evaluation of ten Swedish sustainable housing transformation project in post-war areas which had received governmental subsidies showed a remarkable lack of organisational learning and internal (inside organisations involved in the project) as well as external diffusion of experiences (Stenberg *et al*, 2009). Without a planned learning process connected to the projects, learning and diffusion will be restricted to individuals and their networks and important experiences and knowledge will be wasted.

4. The case studies

In the following the two case studies will be presented. For a brief overview of basic details see table 1.

4.1 OFW, Flevoland, The Netherlands

Oost Flevoland Woondiensten, OFW, is a Housing Association in Flevoland, in the north part of the Netherlands. OFW manages about 4.600 dwellings and is driven by goals to deal with energy costs and affordable living, as well as the implementation of national policy in the field of sustainability and the compulsory Energy Labelling. Their ambition is to reduce their use of natural gas in the existing housing stock by 20% by 2018. Their approach to deal with these ambitions is designed differently for each project *'taking into consideration unique qualities and living circumstances in each locality, focusing on living costs instead of renting costs'* (www.owf.nl).

OWF has a managing director that is highly motivated to engage in environmental issues and they have what they call a decentralised 'matrix' organisation.

4.1.1 Retrofitting of 85 terraced dwellings in Biddinghuizen

Biddinghuizen was built in the beginning of the 1960s and consists of one-family row houses and a few blocks of flats. Over the years the social balance of the area deteriorated. A few years ago the local schools reported to the local authorities about increasing social problems in the area. OFW started a renewal process with the ambition to create a more socially coherent living area with mixed and varied forms of dwellings and services to fit the needs of the residents. In the renewal process some housing blocks are demolished and replaced by new. The dwellings are partly owned and rented by OFW and partly privately owned. The private owners have been offered to take part in the retrofitting process of the buildings some have agreed others have declined.

The project is a ‘pimping’ project and residents live in their dwellings during the retrofitting that takes about three weeks. In addition to envelope upgrading and changes to heating and ventilation installations, the residents can choose to raise the standard of their kitchen and bathroom on their own expenses. The investments for the envelope upgrading do not affect the rents of the tenants.

OFW use three ambition levels to reach their energy goals: the first level is to reach energy efficiency, the second to minimise the use of fossil fuel, and the highest not to use any fossil fuel. These ambition levels have been translated into technical retrofit packages in four levels: The type of package one is to upgrade the envelope and windows, seal joints and install efficient individual gas boilers for heating and hot water. The type of package two adds extra insulation to the first levels package. The type of package three includes passive details for more energy efficiency: solar shading, zoning, etc. Finally the type of package four includes heat exchangers, solar collectors, PV cells and also water saving measures. The dialogue and trust of the residents, issue of large information campaigns, have been important for OFW as this has resulted in a smoother process.

The procurement and contract used by OFW is that of short contract periods for one phase at the time (limited to 10-15 houses). This has permitted OFW to increase the goals for energy efficiency in each phase of the retrofitting project. The result of the contract form is that the same contractor has won the bid in each phase as this company has had the advantage of having all material on site and the experience.

A social project with local job creation to construct garden fences has been related to the renewal process of Biddinghuizen has not reached expected results. It was found that unemployed residents in the area did not want to join in order to be exposed to the neighbours.

4.2 Gårdstensbostäder, Göteborg, Sweden

The municipal housing company Gårdstensbostäder was established in 1997 with the task to regenerate and develop the district of Gårdsten in the north-eastern suburbs of Göteborg. Gårdstensbostäder is owned by Framtiden AB, which is the corporate body of housing companies owned by the municipal authority of Gothenburg. The company owns a total of 2,700 flats, which is 90% of the property in the area. There are today 7.500 inhabitants in Gårdsten, 83% are of non-Swedish origin.

Gårdstensbostäder has a decentralised organisation. A close relation to tenants was the most important starting point for the initial structuring of the company. As a consequence, their nine house managers are directly sub-ordered to the managing director and they have large authority and responsibility. *‘Motivated staff, organisational foresight and a distinct relation between the business plan and the daily activities are prerequisites for the organisation in our work to improve the housing and the living environment for our tenants’* (Gårdstensbostäder, 2008). Gårdstensbostäder had in 2008 27 staff (13 women and 14 men) that together speak 22 languages a necessity to give the tenants full service in Gårdsten.

Table 1: Basic data from the two case studies



Housing Association	Gårdstensbostäder (GB), Göteborg, Sweden	Oost Flevoland Woondiensten, OFW, Dronten The Netherlands
History	Founded in 1997 with the specific task to manage, develop and regenerate Gårdsten.	Founded in 1969
Stock they own and manage	2698 dwellings which represents 90% of the total of dwellings in Gårdsten, northeast of Göteborg	About 4600 dwellings in Dronten (and garages etc.) in the northern part of the Netherlands
Organisation	~30 employees, together they speak 23 languages	~ 60 employees
Housing Transformation/ Demonstration project	European SHINE-project and Regen-link project called the Solar houses, phase 1 (255 apartments) and phase 2 (243 apartments).	Biddinghuizen, 85 dwellings in total. Some existing apartments are demolished and built new, one-family raw houses are retrofitted
Originally built	1969 - 1972.	1964.
Retrofitting project	1998 – 2000 phase 1, 2001 – 2003 phase 2	2007 – 2009
Energy saving and social retrofitting packages	-Improved thermal envelope partly new windows -solar heating combined with city heating -pre-heated in-air through glazed balconies. -individual meters for energy/water -Green houses (phase 1) as social meeting places	Four accumulative levels of packages: 1. sealing, new efficient boilers; 2. improved thermal envelope; 3. shading, zoning; 4. solar heating, PV etc.
Residents participation	- work-shops with pre-designated themes -resident are involved in the continued management of the area; 6 out of 7 members of the board of GB are residents in the area.	-Focus groups with residents were made in the early stages of the planning process.
Other socio-economic regeneration measures	-Local job- creation -Better public transport -support development of local services and retail -mobilise/engage the residents	-Gardening programme -Local job-creation (not so successful)

4.2.1 The transformation process of Gårdsten

Gårdsten was built 1969 – 1972 as part of the ‘Million programme’. The dwellings in the area are mainly in multi-family housing. The area declined almost from the start and in 1996 Gårdsten was one of the most socially deteriorated living areas in Sweden characterised by health problems, unemployment and large vacancies.

The newly formed Gårdstensbostäder sat up an action plan for the regeneration of the area with a holistic view of urban planning based on resident’s participation. The objectives were to get a mixed population, to attract and retain employment and to develop public and private services in the area. One of the first issues they dealt with was to persuade the governing bodies to set up a direct bus line to connect Gårdsten with the city centre, a main lacking service. Between 1998 and 2006, Gårdstensbostäder created more than 870 local employments and initiated training programmes. In their procurement of construction and maintenance work, Gårdstensbostäder gives priority to contractors that employ local workers thus show that it is possible to combine its role as construction client with social commitment.

The transformation of Gårdsten has stretched over a decade. In order to maintain the continuity of the enhancement of the social structure, it has been important to keep the vision alive. Gårdstensbostäder has focused on the continued direct dialogue with the residents, a process in which they have had to surmount language barriers. As part of this strategy a majority of Gårdstensbostäder board members are tenants. In 2006, Gårdstensbostäder received the National Award for the Enhancement of the Social Structure in Gårdsten. The motivation says that Gårdsten has “developed from having

been one of Sweden's most problem-filled suburbs to an attractive residential area with major social and environmental qualities”.

4.2.2 *The Solar Houses*

As a way to boost the regeneration of Gårdsten, a demonstration project was initiated in 1998. The Solar Houses aimed at decreased energy use and the use of renewable energy in combination with social issues (e.g. resident's participation and meeting places i.e. green houses). The concept was designed by a local architect with experiences from earlier successful retrofitting of existing housing with focus on energy and social issues, and a researcher at Chalmers University of Technology. A European demonstration projects grant was already approved to the project when the idea was presented to Gårdstensbostäder. This became a strong enabler to initiate and carry through the project.

The Solar house project was carried out in two phases which both were granted with European projects. In the first phase, tenants were moved out during the retrofitting process, but in fact only 4 of 10 apartments were occupied at the start of the project. In phase two, residents stayed in during the retrofitting. The technical retrofit package of phase two is similar to that of phase one but for example the green houses, the extra insulation on the gavel facades, and the individual meeting for hot water were left out in phase 2 partly due to costs.

The first phase of the project was carried out as a design and build contract. All involved appreciated the strong commitment from the contractor, consultants and project managers as well as the good relationships. The architect was initially working for the client in the early planning and briefing phases, and in the design and construction phases he worked for the contractor. The architect was part of the project from the early start through the whole construction process and was able to give advice and instruct the building workers on site.

In the procurement of the second phase, the tendering proposal for design and build contracts were all too high which can be explained by market changes and demand. Gårdstensbostäder then decided to engage in a very divided contract and in total had 31 different contracts for phase two. The architect from phase one did the tendering request documentation but they were not engaged by the contractors of phase two. In order to handle the situation with divided contract the client function had to be altered and enforced with more people and competences. The raised costs for the client function did not over-rule the economical advantage of the divided contract which also resulted in better control for the client. In the continuation, Gårdstensbostäder use divided contracts in their transformation of Gårdsten. This also gives them the opportunity to push for local employments in the tendering.

Discussions

A starting point of this research is the hypothesis of the value of linking environmental upgrading and social improvements process in housing transformations as a means to support sustainable development of deprived post-war housing areas. This is a field that has so far been little studied and even though there are projects that claim environmental and social improvements, these have not been proven and are difficult to evaluate. The Solar houses in phase one in Gårdsten has reached at least 40% saving in heating and 30% saving in water use as a result of the transformation

project. At the same time, the results from the transformation process are no vacancies, lower crime rates and a high score for satisfied tenants, according to the housing company. The project is widely acclaimed to be a good example of environmental and social enhancement and has been awarded as such. A recent study does however criticise the social implications of the Gårdsten transformation (Borelius and Wennerström, forthcoming). The study claim for example that the aim to create a more mixed population by attracting new residents has resulted in a rental policy that has reinforced social exclusion e.g. by excluding residents that has a crime record or are dependent on social money. Some vulnerable groups of residents on the market are the losers of such strategies. The transformation of Gårdsten can instead be seen as a way for the company with support from the city, to gain control of the situation in the area. Consequently, the authors suggest that the responsibility for the housing companies to serve the 'public good' should be discussed. Regarding the Dutch case no evaluations have so far been published.

The literature review shows that environmental issues and energy efficiency is higher on the agenda among Swedish housing associations than among the Dutch (e.g. Boverket, 2008b; Egmond *et al*, 2006; Hal van *et al*, 2009). In Sweden energy efficiency is motivated in financial terms while the financial advantage seems to lacking in the Dutch context.

In what way is the environmental upgrading processes linked to the social improvements? Both case studies show that the motivation for the environmental upgrading has its origin in social issues. The main motivations for the transformation of Biddinghuizen were to reach affordable housing through decreased energy use and to provide a better mix of dwellings that corresponds to the needs of the residents. The main motivations in Gårdsten was to lift the image of a deprived and stigmatised area through an environmental project, reduce living costs for energy and water use, and to provide structures to support the building of social capital in the area, e.g. the green-houses. In the Swedish case, the environmental project has clearly been a vehicle for a wider transformation process.

When limited to exterior changes, the technical project could be carried out without being connected to social processes. The two case studies indicate that the environmental and the social processes are linked in terms of legitimating the environmental up-grading. This is necessary for the housing company to be able to carry through the project but is also used as a means to build local democracy, engagement and participation. Gårdstensbostäder are always present at building and maintenance project meetings also with the objective of looking after the tenants' interests.

While the technical retrofitting project is in need of external expertise the participation process has in the two cases been driven by the housing company without the need for external support. What regards the wider transformation processes in the areas this is however carried out in co-operation with local actors. The Swedish case shows that the design participation in the retrofitting project was co-ordinated by the housing company which could be in contrast with contemporary suggestions that urban renewal should engage planners and architects (e.g. Lowndens and Sullivan, 2004). However, this issue needs further studies.

The housing associations and innovation

The importance of active construction client leadership in construction innovation has been increasingly recognized in recent years (e.g. Egan, 1998; Brandon and Lu, 2008). Although there are many examples of influential and innovative clients the clients' roles in driving innovation have also been challenged. Innovation in construction is to a great extent carried out on a project level (Barrett *et al.*, 2008) and innovation in construction is often described as an interactive process between the client and the project team in which the empowering of the client, the management of the project dynamics, and the appropriate user involvement and team building (Barrett and Stanley, 1999) would be just as important as the clients' supreme role as drivers and champions of innovation. In addition, clients have various interests and competence levels and client strategies to innovation are likely to vary considerably. For example, experienced clients with strong in-house organizations have also been found to innovate more than nonprofessional clients (Slaughter and Cate, 2008).

The literature review indicates that few studies, which are easily available and in English, have penetrated in the housing association to understand their culture and behaviour as clients and how they handle policy and organisational objectives related to sustainable development. In addition, the behaviour of housing associations related to policy and other internal and external objectives are likely to vary among different countries depending on their status and relation to government.

The two case studies in this study confirm a few theoretical assumptions on what characteristics early market actors in general, mainly that of a highly visionary attitude (Rogers, 1995), and early market housing associations (Egmond *et al.*, 2006): they have an engaged director, involve in demonstration projects, they use renewable energy, and they are seemingly little influenced by other housing associations. Furthermore, the early market housing associations gives high priority to energy conservation and sees that as part of social entrepreneurship. They are also likely to take policy matters as important. In addition, Egmond *et al.* (2006) state that subsidies do normally not influence early market housing associations behaviour and is instead seen as an award for the work. The present study does however point to that subsidies are not only rewarding factors in sustainable housing transformation but also highly enabling due to the large costs that are involved in environmental retrofitting and also due to the strained budgets of housing associations that manage deprived housing areas.

Predisposing factors for innovation (see Egmond *et al.*, 2005) which are inherent in the organisation of the housing associations are an engaged manager but also a decentralised structure that enables teamwork and individual commitment, which is also recognised as a favourable factor for innovation (e.g. Burns and Stalker, 1994; Green, 1996). The newly formed Gårdstensbostäder were also very enthusiastic to engage in their new task of transforming Gårdsten, an additional predisposing factor.

The European project that was already granted when Gårdstensbostäder accepted the challenge has also been a highly *enabling* factor (see Egmond *et al.*, 2005) in the Swedish project and a large support for the architect and the research to maintain the high objectives during the project. However, as expressed by representatives from

Gårdstensbostäder, they could never have managed to carry through this project without the large financial support and political mandate from the municipality, the owner, and the main group of housing companies in the city. Gårdstensbostäder was given subsidies for the transformation process from the city during a period of 10 years. This financial subsidy has now come to an end and consequently Gårdstensbostäder are not able to invest in such radical projects as the Solar houses any longer. An economical evaluation has stated that from a company business perspective the investments made in Gårdsten are not defensible (Lind and Lundström, 2008). However, on a societal level the economical gains from decreased crime rates and unemployment levels will justify the investments. This indicates the need for governmental subsidies to support this kind of transformation processes. Also the Dutch housing association benefited from enabling financial support in the form a larger grant. Furthermore, OFW can benefit from a better loan situation as they are part of a co-operation of housing associations.

Also the reinforcing factors (see Egmond *et al*, 2005) that support innovation have been strong in both cases, mainly characterised by international and national attention and awards, and satisfied tenants. The Swedish project won the prestigious UN Habitat Award in 2005.

A few additional factors that have been found supportive for innovation in earlier studies (Hal van, 2000; Femenías and Edén, 2009) are also relevant for this study. This regards the positive influence of a multi-disciplinary project team which can be regarded as an enabling factor and the provision of extra time in the project. The latter was in the Swedish case provided through extra money for the design phase through the EU programme. However, a few other factors that were found in earlier research to have positive influence on innovation, do not seem to have had large or any relevance in this study. The presence of an innovation champion and the support of an influencing person do not seem to have been determining for the outcome, neither the involvement of a research institution other than for the scientific evaluation and reliability of results. The researcher involved in the planning of the Swedish case could have been replaced by a qualified consultant, state key actors in the project.

The clients' strategies

In our literature review we found out that the client function of housing association have changed last decades from a more prominent role to a loss of in-house expertise, a consequence of re-organisations and cut downs provoked by a larger market orientation of their businesses. Technical expertise, as well as project management in the Swedish case, has been outsourced in our case studies. Both case studies give examples of what we have recognised as proactive strategies to support environmental and sustainable innovation. These strategies can also be called *responsive* factors, means for the housing association to address sustainable housing transformations (e.g. Femenías and Hal van, 2009). In the Dutch case, short contracts have been detected as one response to deal with sustainable housing transformation. OFW have contract periods for one phase at the time (limited to 10-15 houses). This has permitted OFW to set up a systematic learning process in which they have increased the goals for energy efficiency in each phase of the retrofitting project. Other strategies used by OFW to work with energy efficiency is the systematic use of energy labelling as a way to increase the energy performance of their stock. Their use of energy labelling has social implications as the system is related to rental costs on the principle high

energy label and bad energy efficiency leads to lower rents. OFW have also developed a systematic model with different retrofitting packages that links ambitions and costs. OFW uses brainstorming meetings with invited experts as a means to gain information about advancements in the field of sustainable building.

The Swedish housing company has developed a way of using very divided contract to support housing transformation. At the moment partnering is praised by actors in the building sector as a way to build up trust between the client and the contractor. However, Gårdstensbostäder continues to use the divided and very divided contract form that enables them to have better control of the project (and has resulted in lower costs). The divided contract form needs more client knowledge, a competence that Gårdstensbostäder gained in the first phase of the Solar house project which was carried out as a design and build contract. The social advantage of the divided contract is the possibilities it gives to stimulate local employment in the procurement process and tendering. The divided contract did require enforcement of the client function during the Solar houses phase 2, which was outsourced to contracted consultants.

As a tentative conclusion, it can be discussed whether the strategy of the Dutch housing association can be seen as *client driving innovation* while the Swedish housing company is an example of *client leadership in innovation*. The Dutch housing associations strategy seems to be more proactive in finding and implementing new solutions than the Swedish company. In fact, the Swedish company has up-to date not involved in any more environmental innovative building and retrofitting projects. They use their knowledge from the first phase of the Solar houses, the most innovative, in their continued projects. They have mainstreamed their activities focusing on economically interesting solutions rather than innovating and increasing the environmental ambitions. However, they have engaged in the building of a municipally owned 2MW wind turbine that provides green electricity for the whole area.

Continued research

The issue of sustainable housing transformations and the possibility to enhance environmental and social quality in deprived post-war areas is subject that needs further studies. The complexity of the issue makes it difficult to state what is actually good examples of such. The housing company Gårdsten strategies for the transformation of Gårdsten are in Sweden regarded as a model and has highly influenced a Swedish 12-step model to support sustainable housing transformations proposed by Boverket (Boverket, 2008c) (see Table 2). We find it necessary to further investigate in the actual long-term social and environmental implications of such investments. In addition, the 12-step model does not emphasise on what our study indicates as being predisposing factors for housing associations to act as sustainable housing transformation agents regarding the organisational structure of the company, the engaged manager and mandate for staff to act, as well as in-house competence vs. the need for external support.

Table 2: A Swedish 12-step model for sustainable housing transformations (Boverket, 2008)

		<i>take time and resources.</i>
2	Knowledge	<i>Transformation needs to have a solid base of knowledge on the history of the area and its residents. This knowledge needs to be shared with consultants, constructor and managers.</i>
3	Holistic perspective	<i>Should be the basis for the transformation connecting social renewal and physical retrofitting.</i>
4	New ways of thinking on management and organisation	<i>Transformation needs an active management and new working methods and engaged employees. The organisation should guarantee a close contact to customers.</i>
5	Renewal/retrofitting	<i>The existing environment should be renewed and neglect of maintenance needs to be taken care of</i>
6	Physical changes	<i>Should give surplus value to the housing association and to their residents</i>
7	Connect with the city	<i>Both physically and socially. Give all residents the same conditions and services.</i>
8	Identity what gives self-confidence	<i>Highlight values that give the area a special character. Let the residents feel proud over the transformed area. It is important that the area is re-valued better in the eyes of the surrounding world.</i>
9	Control of effect	<i>The residents should value and give marks that show the effect of the transformation. Measurements and valuations should be done on a yearly basis.</i>
10	Communication	<i>Information about plans and the actual transformation work should be spread generously through the whole process to create participation and to gain accord on goals among all stakeholders. Formulate a vision and make it known.</i>
11	Mobilisation and participation	<i>The active participation of residents is not self-evident. This process needs to be stimulated through active mobilisation, information meetings, home visits, common tours around the area etc. Without the residents participation there will be no real transformation.</i>
12	Economy	<i>The economical possibilities to realise long-term ambitions/transformations.</i>

The paper shows that there is still little known of the organisational structure of housing associations and what factors that influence their behaviour with regard to client functions (e.g. Straub, 2004). The paper presents two case studies in which we have tried to go inside the organisation of housing associations in order to understand their behaviour regarding sustainable housing transformation and innovation that was initially stated to be a necessary complement to quantitative studies already conducted in the field. However, such in-side studies of the organisational structure and decision making culture in housing association are difficult to conduct. The results from our empirical studies are still lacking of information and it is at this stage difficult to do any generalisations of the constituting factors for innovative behaviour among housing associations. We encourage participants at the conference to give their views on how we could design the continued research. Should we add more cases? It has been found difficult to capture the needed information in the organisation and its functions through interviews. Should we engage in ethnographic studies in the organisations?

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