

Technical University of Denmark



## Renovation of Single-Family Houses – An Emerging Market

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*Published in:*

Proceedings of SB10 Finland: Sustainable Community - buildingSMART

*Publication date:*

2010

*Document Version*

Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

*Citation (APA):*

Haavik, T., Tommerup, H. M., Vanhoutteghem, L., Svendsen, S., Paiho, S., Ala-Juusela, M., ... Aabrekk, S. E. (2010). Renovation of Single-Family Houses – An Emerging Market. In Proceedings of SB10 Finland: Sustainable Community - buildingSMART

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## Renovation of single family houses – an emerging market



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## Summary

The Nordic research project “Success Families”, is a joint project between VTT in Finland, Danish Technical University, Mid Sweden University and Segel AS in Norway. The aim of the project is to find out how to bridge missing link between the homeowner and the variety of suppliers of relevant products and services. The project started in May 2009 and will conclude in first quarter 2012.

This paper presents preliminary conclusions related to stakeholders’ interests and what barriers and opportunities are identified so far in the market place for energy efficient renovation of detached houses. As the work in this project is in progress, the presentation at the conference will include new findings identified after the deadline of this paper.

**Keywords:** energy efficiency, detached houses, single family houses, renovation, renovation

## **Extended abstract**

### **Renovation of single family houses – an emerging market**

As a major conclusion of an international research project as part of IEA SHC Task 37 “Advanced renovation with solar and conservation”, it was pointed out that one of the major challenges to reduce energy consumption in the residential sector is how to get into the detached house market, which in Norway represents 85% of the energy consumed in residential sector.

The owner is left to himself to consider what actions should be implemented to upgrade his house. According to a survey by VTT in Finland, 60% of the renovation of detached houses is executed by the house owner. For professional actors offering holistic solutions this represents a huge business potential. One of the major objectives of the Nordic project “Success Families”, which is a cooperation between VTT in Finland, Danish Technical University, Mid Sweden University and Segel AS in Norway, is to find out how to bridge missing link between the homeowner and the variety of suppliers of relevant products and services.

Which new business models and strategies are to be chosen by different actors within the building industry as well as new actors entering this market, will be addressed in this project which started in May 2009 and will conclude in first quarter 2012.

This paper presents preliminary conclusions related to stakeholders’ interests and what barriers and opportunities are identified so far in the market place for energy efficient renovation of detached houses.

As part of the project, it will later be discussed optional strategies for different key actors which plan to take a role in development of this market. Pilot projects will be followed and guided in different Nordic countries.

So far there has been limited attention to address the need for major renovation in existing detached homes. The campaigns we have seen so far by authorities and companies have focused on separate items, such as heat pumps, and less on holistic solutions. If the goals for reducing carbon emissions are to be achieved, there is a need for increasing both the number of renovation projects in existing building stock, as well as the ambition level in each project.

The building regulations in these four Nordic countries do not require application for implementing energy efficient measures in existing buildings. Only when there the exterior look or the use of the building is to be changed, there is a need for applying for permit.

The existing market is therefore characterised by wide range of actors which offer their specific solutions. In most cases the house owner is therefore left to himself to compose the right “package” for renovation of his home.

In “Success Families” the actors in the value chain are described in respect to their interests of taking part in developing holistic solutions to this market. The key players will be companies which are situated in the first line towards the house owner. This can be established actors in the value chain, as well as complementary actors such as a utility company in Denmark. Independent from who is playing the key role, a major challenge is to organise the necessary cooperation between complementary actors in order to offer a complete package to the house owner.

In the paper there are defined concrete examples of possible consortiums of companies to create a “one stop shop”.

# Renovation of single family houses – an emerging market

## 1. Introduction

Based on the fact that authorities in the Nordic countries face the necessity to reduce emissions from the building stock, there is expected increased attention and incentives to speed up renovation of the existing building stock in general.

As a major conclusion of an international research project as part of IEA SHC Task 37, it was pointed out that one of the major challenges to reduce energy consumption in the residential sector is how to get into the detached house market, which in Norway represents 85% of the energy consumed in residential sector. If the 2030 targets shall be reached it is assumed that the renovation rate of the Norwegian housing stock has to be increased from currently 1,5% to 3-4 % per year [1]. This means there is a very big business potential for companies that develop the right concept to offer to the market.

The challenge for the single family house owner is that he is left to himself to consider what actions should be implemented to upgrade his house. According to a survey by VTT in Finland, 60% of the renovation of detached houses is executed by the house owner. One of the major objectives of the Nordic project “Success Families”, which is a cooperation between VTT in Finland, Danish Technical University, Mid Sweden University and Segel AS in Norway, is to find out how to bridge missing link between the homeowner and the variety of suppliers of relevant products and services.

This paper presents preliminary conclusions related to stakeholders’ interests and what barriers and opportunities are identified so far in the market place for energy efficient renovation of detached houses. As the work in this project is in progress, the presentation at the conference will include new findings identified after the deadline of this paper.

## 2. Existing value chain

### 2.1 Type of actors in the value chain

The fundamental question about who could take the lead in exploiting this business potential, it is relevant to analyse the interests of the major types of actors in the existing value chain. In this exercise it is also important to include complementary actors, which could see an interest in expanding their services for their existing customers.

The analysis, which covers all four countries (Denmark, Sweden Norway and Finland) categorise the companies in respect to their interaction to the house owner. In another work package in “Success Families” there is listed the very few known complete service packages in the four countries [2].

Figure 1 on next page illustrates all relevant existing actors from industry, traditional first line services and other stakeholders place in the value chain. The red lines illustrate the trade flow between the actors. In fact some industrial companies also sell directly to the house owner. The full service providers are coloured in light blue in order to demonstrate that none so far offer a real complete service. Either implementation or financing is lacking.

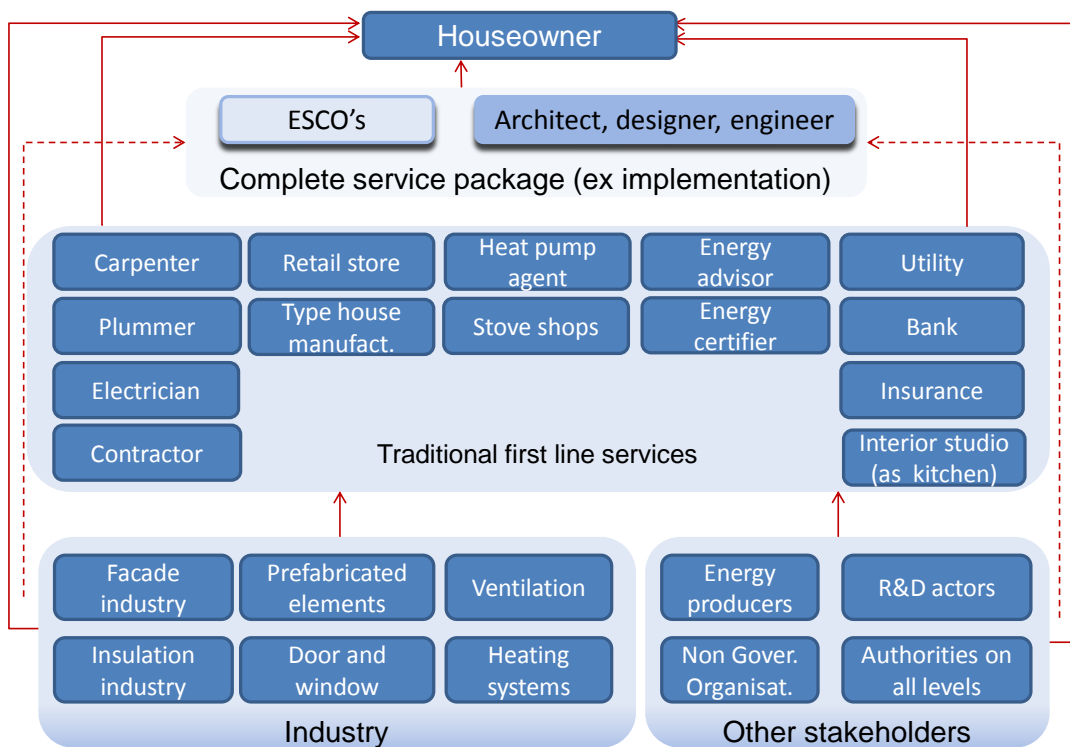


Fig. 1 Value chain

## 2.2 Barriers and opportunities

For those few companies offering a complete service package, the project “Success Families” has through its workshops so far identified such **barriers** for speeding up the development of this market:

- From the supplier side:
  - Own competence and will to collaborate with other trades – stick to core business
  - Lack of complete concept to offer to the market
  - Unclear how to make profit of complete package
  - Normal procedure is to offer the customer only what he asks for, and it is more complicated to “educate” the customer so he sees the need for a holistic solution.
- For the demand side:
  - Expensive service
  - Trustworthiness of the company
  - A do-it-your-self culture
  - Lack of tradition to buy counselling services from architects and engineers
  - Financing

For the companies which develop a complete service package there are such opportunities:

- Renovation focusing on energy efficiency is a growing business as old houses count for a large share of housing stock
- New partnerships with other companies in order to put in place the necessary skills can open create new business
- Fulfil the real needs of the house owner:
  - Complete and objective proposals for the job - in contrast to an incomplete and unclear proposal/quotation

### **2.3 Type of actors in the value chain**

The fundamental question; who could take the lead in exploiting this business potential, the right answer is that there are many different types of candidates. Based on the examples identified by “Success Families”, and analysis of the stakeholders’ interest, these are the most likely actors to play a key role in a full service concept:

- Contractors/carpenters
  - These serve the demand for traditional renovation today
- Real estate agents
  - These play an important role in sale of existing houses. They are in contact with the new house owner which is more likely to upgrade the newly acquired house, compared to persons who have lived there for a long time [3]
- Utility
  - Dong Energy initiative through its daughter company Cleantech, illustrates that this industry can make use of their close relation with the house owner to offer additional services, such as a major renovation package [4]. The same point is to a less extent also demonstrated in the REEP story in Canada [3].
- Hardware stores
  - These sell most of the material, components and systems to renovation projects. A challenge to be coped with is the lack of skills among the retail staff.
- Technical consulting companies
  - These posses high skills for planning of holistic renovation solutions.
- Type house manufacturers
  - These companies designed and constructed the old houses which now need to be upgraded
- Insurance / Banking
  - This sector has normally a tight relationship to the house owners. They are also recognised as being “neutral” regarding choice of technical solutions. Their major challenge is their lack of technical competence.

### 3. Interaction and cooperation between companies

#### 3.1 The six forces model

The “six forces model” [5] helps to analyse and understand the competitive arena.

To apply this model for a complete service package, or in short “one stop shop”, these questions are answered in this order:

1. What is the core business of a “one stop shop”? (Orange).
2. Who is the customer? (House owner).
3. What are his real and complete needs in this respect? (Yellow).
4. Who are the most important suppliers?
5. Who are the most important competitors?
6. Who are the most important potential competitors?
7. What substitutes may be identified?
8. What are the most important complementary providers?

#### One-stop-shop concept



## **3.2 Potential joint ventures to create new service packages**

In this paragraph examples of possible cooperation between actors to create one stop shop are mentioned. As the project is proceeding it is likely that more specific and realistic examples will follow.

### **3.2.1 Joint venture of industry and retailers**

Consortium of industry actors with complimentary products defines a full service package which they even can brand.

Directly involved: An industry actor with more than one relevant product, which means that the company has a very strong interest in succeeding with a broader concept.

Other actors: The most important complimentary actors and retail actors

### **3.2.2 Joint venture of construction and architect/engineering companies**

Directly involved: Medium sized construction company

Other actors: Suppliers of key components/material and architect/engineering company if these capabilities do not exist in house.

### **3.2.3 Complementary businesses expand their business into renovation**

Key actor could be either: Real estate agency, insurance company or utility. The key actor take advantage of its existing market position, to sell a complete package which they compose by using subcontractors.

Directly involved: Installer or utility to change heating system, carpenter to install windows, construction company to improve insulation and/or install windows, and energy auditor to evaluate energy efficiency potential

Other actors: window/door supplier, insulation supplier, painters, heating system suppliers

### **3.2.4 Joint venture of type house producer, bank and home owner association**

Directly involved: Type house producer for complete package for renovation of existing houses including in-house or external consulting engineers and architects with the necessary qualifications related to existing building

Other actors: Bank and mortgage credit institute, Home owners association – impartial consultants to make plans for renovation and quality control – renovate or new house.

## **4. Discussion and conclusions**

The first step to develop a new and innovative business model is to understand the customers' real needs. Regarding renovation, the house owner might not know his own needs, as he has no knowledge about what can be done to the house in order to make it more energy efficient. The decision making process is therefore in this situation a "learning process". To "teach" and guide him through this, credibility and trustworthiness is a prerequisite.

As a consequence, the challenge in "Success Families" is to create consortiums with a mixture of credibility, an existing market position, capacity and capability to supply a complete package of good quality.

The next step in the project is to develop strategies for the selected consortiums from different Nordic countries to be monitored as pilots. By September this work package in the project is planned to be almost completed.



There are already established agreements with companies which have newly started or in progress to start pilots in cooperation with "Success Families". In 2012 experiences from these pilots will be documented.

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