



## Housing Cooperative – renovation project

Total size of document: 6-10 pages

### Introduction

Hammerseng Housing Cooperative is located in Lillehammer. The cooperative owns 2 buildings with 32 terraced flats.

The Norwegian research institute Sintef concluded after an examination of the building that energy-efficiency rating corresponded to an “F” in the new energy labeling system. The occupants felt these issues:

- Draft from windows, doors, walls
- Cold winters and warm Summers
- The façade is ugly
- The terrace floor needs to be renovated

The housing cooperative has an administration and service agreement with LOBB, which is the housing cooperative company in Lillehammer.

LOBB has the responsibility for approx 2400 homes owned by 99 housing co-operatives.

To go for a renovation project needs 2/3 majority at the General Assembly of the respective housing co-operative.

LOBB was invited to participate in the EKSBO Project, which is a sub project to the Norwegian participation in IEA SHC Task 37. The technical department considered which of the housing cooperatives had highest energy efficiency saving potential, and concluded to offer the board of Hammerseng Housing Cooperative to be a pilot for advanced renovation.

For LOBB this was seen as part of their overall strategy in increased focus on

Subtask A

sustainable renovation in their building portfolio.

The former Managing director of LOBB was informed about the EKSBO project through his personal contacts in the Norwegian State Housing Bank. The director introduced the idea of participating in the EKSBO project to his technical department, which consists of two persons. Both became positive to the idea, and their interest grew as they increased their knowledge in the subject through participation at study trips and conferences.

When the former director resigned, and a new started, they continued to develop the idea, integrated as part of the overall strategy for LOBB.

The main steps in the process were:

- 25.10.06: LOBB inspection of buildings together with the board in Hammerseng
- Autumn 2006: LOBB considered which housing cooperatives to be targeted
- 18.01.07: Invitation to be a pilot as part of IEA
- 3.02.07: The board of Hammerseng accepted the invitation
- 30.3.07: Evaluation and a renovation plan – Step 1 (subsidized)
- 22.05.07: General Assembly decided to merge renovation plans for 2008 and 2009 and to include façade, roof, windows and doors
- June 2007: Personal interviews of the owners
- October 2007: Contract signed between LOBB and the board of Hammerseng to execute evaluation and develop alternative renovation solutions by the technical research institute Sintef.

- 15.11.07: Presentation for the board by LOBB, Segel, Housing Bank and Sintef
- 5.12.07: Information meeting for the owners by LOBB, Housing Bank and Sintef
- 21.2.08: General Assembly decided to go for “light” renovation project.

In addition to this, LOBB worked with their strategies on a general level:

- 13.11.07: Internal strategy workshop in LOBB (analysis and ambition level)
- 28.3.08: Internal Strategy workshop, focused on learnings from Hammerseng and definition of strategies for the business area “Renovation”.

#### 1. Information gathering

LOBB as initiator of this specific project mad mainly these types of information gathering:

- Maintenance reports for each of the housing cooperatives.
- Know how from the EKSBO Project about technical issues and decision making processes (including participation at the Passive house conference in Bregenz).
- Knowledge among employees in LOBB about the occupants in many of the housing cooperatives.
- When the pilot was chosen, The Norwegian State Housing Bank and a student from the Norwegian Technical University visited and interviewed most of the inhabitants.
- Information about income level among occupants were gathered from public sites on the internet.

## 2. Analysis

Important factors which indirectly influence LOBB's market (PEST-Analysis):

### Political factors

- Norwegian authorities are encouraging sustainable solutions – also incentives
- Environmental plan for municipality
- Media focuses more on how to increase supply of more energy rather than on saving

### Economical factors

- General strong purchase power
- Relatively low energy prices
- Overheated Norwegian economy
- High pressure in the building market
- Media focuses on how to recruit and integrate immigrants to the market

### Social factors

- Net fortune medium +
- High education level
- Age 60+
- No kids
- Media focuses on how to cope with the elderly wave

### Technological factors

- Lack of competence about sustainable solutions
- Research mainly by Sintef
- Increased focus by tech. Universities.
- New building code to be implemented only for new houses
- Some media focus on "future homes".
- Few existing examples

### Market segmentation

Before the Hammerseng Housing Cooperation was elected as pilot, LOBB

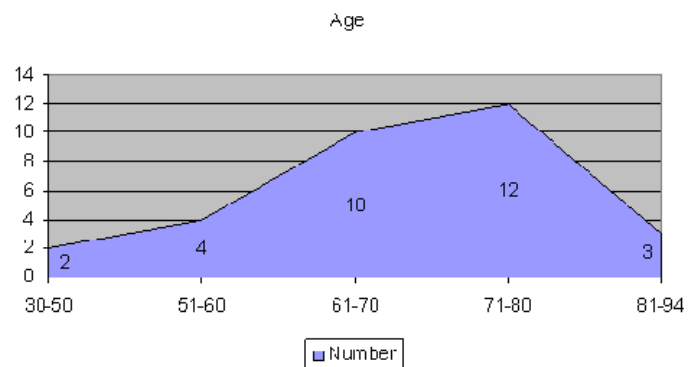
segmented the market mainly by the technical condition of the buildings.

Housing cooperatives established in the seventies and earlier, and which were lagging behind with their maintenance were considered as most likely to be interested in high ambition renovation.

They considered persons with higher education to be more interested due to better financial situation as well as concern for the environment. However, they did not have detailed information about the persons' background so they could only define this from their impression which was founded on their local insight.

As Hammerseng was chosen as the pilot, most of the occupants were interviewed (in person on site) by the Norwegian State Housing Bank and a student from the Norwegian Technical University. Among other information, they found that most had higher education. Several were retired teachers. The households were constituted by 1 or 2 persons without children.

The distribution of age was like this:



The initial hypothesis was that this group should have an income which is above average (i.e. financially good situation).

After checking the financial facts among the occupants (which is public information in Norway), it was stated that:

- 9 of the 22 voting households had two incomes.
- The vast majority of the owners had an income which were lower than the Norwegian average. In fact, some had rather low income.

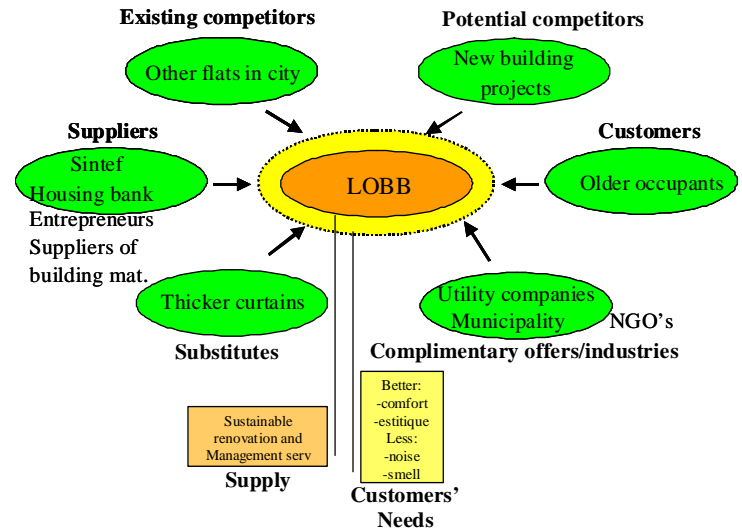


Figure: 6-force model (Grove).

### The market arena

Through the 6-forces model, LOBB discussed what they tried to offer in respect to the customers' real needs. The model illustrates which forces they have to maneuver together with (and some against) in order to design solutions which fulfill the needs of the customers.

The core business of LOBB is to serve housing cooperatives in the region of Lillehammer with management services and technical consulting and planning regarding buildings and outdoor areas. As part of their participation in the EKSBO project they increased the focus on sustainability in renovation projects.

The motivation (which drives them) of the customers is what they feel as their "pains".

The interactive process between LOBB and their customers are directly influenced by the other actors (i.e. forces) on the arena. Foremost, the supplier-side through the EKSBO project is actively motivating both LOBB and the customers to aim for high ambition level.

The competitor-side in this case plays as a driver as it reminds about the options; either to move to a better existing flat or to join a new project. The challenging question for each occupant is therefore, if he wants the existing flat should be updated and competitive to modern flats, or to remain cheap and simple. If more than 1/3 choose the latter options, it is likely that some of the other will move over to more attractive flats.

In the Hammerseng Housing Cooperation several of the occupants did several individual means to cope with the bad insulation, such as using thicker curtains during the cold winter, and by lowering the temperature in some of the rooms. As a consequence, their energy bill was not too scary for them.

In this case, complimentary actors did not play an important role. The municipality of Lillehammer was considered to have common interest with LOBB, as the project included many older persons who could probably extend the time before they had to move into elderly homes.

### Technical analysis

The 2 blocks of flats belonging to Hammerseng Housing Cooperation were built in 1971/72. In 1995 it was made additional 5 cm insulation in the end wall. In the early 80's it was added 5-6 cm insulation in the roof.

The current condition is somewhat "worn" and renovation of the facade is anyway needed.

Energy consumption before:

- Calculated: 267 kWh/m<sup>2</sup>
- Real: ~ 125 kWh/m<sup>2</sup> (due to low indoor temp and individual saving measures). In addition to heating by wood stoves

Sintef's classified the building as category F in the new energy labeling system (A-G, where A is best).

The occupants felt these issues:

- Draft from windows, doors, walls
- Cold winters and warm Summers
- The façade is ugly
- The terrace floor needs renovation

Based on this, such options for ambitions were presented for renovation:

- Ordinary: level E (current F)
  - New rent: NOK 4.932
- Medium: level C (as new build. code)
  - New rent: NOK 6.030
- High: level B
  - New rent: NOK 6.348

Current rent per month for a 97 m<sup>2</sup> flat is NOK 2.643,-

### Summarised SWOT-analysis

Based on the analyses presented above and some others, LOBB summarised their current strategic position:

#### Strengths

- Financially strong

- Well experienced with project management
- Broad professional skills
- Participation in Eksbo (network with interested suppliers)
- Good knowledge about the occupants as well as about the buildings
- In depth knowledge about decision making processes in housing cooperatives
- Good reputation

#### Weaknesses

- Limited experience with sustainable renovation projects.
- LOBB failed in launching a passive house project for new houses, and serves as a bad reference.
- Scarce capacity in following up development projects.
- Lack of QA-system

#### Opportunities

- Financial incentives from authorities
- General strong economy
- Cooperation with the municipality
- Work through the boards in the housing cooperatives to
- By creating the first success, it will be easier to get new started
- Focus on reduced energy costs (in general) and improved quality
- Increase attractiveness and value of flats
- New building code (for new buildings)
- Increased access to knowledge about sustainable solutions
- Increased interest in media for sustainable solutions, such as "house of future"
- Better aesthetic
- Less moisture and draught
- Better indoor temperature

#### Threats

- Limited willingness to pay higher rent (rent was very low)
- Competition from new projects

- Unpredictable decision making process
- Focus on simplification may result in minimum solutions
- Relatively low energy prices
- High pressure in the construction business

### 3. Goal

#### **LOBB's overall vision is to:**

*"Improve the everyday for our members"*

Regarding the existing building stock;

- LOBB has ambitions to improve the quality of older buildings to the level of new buildings.
- LOBB will have at minimum 2 such renovation projects ongoing.

#### **For the pilot project at Hammerseng the goals were:**

- To convince the general assembly to at least go for the medium ambition level.
- To accomplish a successful renovation project.

### 4. Strategies

#### **LOBB's strategies for the renovation business:**

1. Develop, accomplish and communicate good pilots in retrofitting.
2. Development of competence and training within LOBB through use actively use of networks.
3. Good decision making processes for the housing cooperatives.

For the pilot at Hammerseng these strategic choices were made:

1. Tailor-made proposals adjusted to the occupants desires. Three options were designed and presented.
2. The extra cost of planning (related to the ordinary option) was funded by the Norwegian Housing Bank. The additional cost of insulation, etc for the ambitious option was partly sponsored by suppliers.
3. An integrated decision making process with strong involvement of the occupants – but through the board of the housing cooperative.
4. Build credibility by use of the best technical expertise in Norway.
5. Use the positive image of being an international pilot to create pride among the occupants.

#### 5. The actions taken

These actions were taken in order to realize the strategies:

1. The two technical key persons increased their knowledge in the subject by participating in EKSBO, excursions and conferences.
2. Workshop together with the board of Hammerseng where facts about technical solutions were presented by Sintef, and Segel presented challenges in similar decision making processes.
3. Information meeting for the occupants.
4. A student from the Norwegian Technical University and a representative (sociologist) from the Norwegian State Housing Bank interviewed the occupants, focusing on their needs and wishes.

5. The final proposals (three options) were designed as a result of technical analysis and the interviews of the occupants. These were presented for decision at the general assembly.

- Lived in the same flats for long time, therefore not that eager to renovate as newcomers.
- However; should be a “time-window” for renovation due to the ugly façade.

## 6. Results and lessons learned

Only 5 of 22 voted yes for an ambitious renovation.

17 voted for a smaller renovation project (maintenance plan for two next years).

Distribution of the votes:

- 4 of those voted yes had highest income
- The fifth had an medium+ income
- None of the occupants with the lowest income were positive.
- Age does not seem to differ their attitudes
- Only one of the single family households was positive
- Two of four board members voted against.

### Lessons learned

- Financial situation is the most important barrier for this segment.
- As older people they had lived modest without high comfort.
- Due to low energy consumption, the energy savings would not be substantial. The sales arguments left were comfort and nicer look.
- A very high percentage increase of the rent “terrified” the occupants. Some of the wealthier persons sympathised with the poorer.
- An indication that couples are more positive than singles.
- Segmentation criteria:
  - Building: High potential for energy efficiency
  - Persons: Late majority/Laggards
  - Situation:

### The process:

- The board members did not agree about ambition level.
- The chairman was very positive, but was not too communicative (in the two meetings he had hired an other person (external) to lead them).
- The two positive board members were not representative for the majority of the owners.
- All occupants expressed that the information presented by LOBB and Sintef were extensive and good.

### Lessons learned seen by the key persons at LOBB

- Payback time should not be used as the convincing argument
- Important to analyse the real energy consumption today instead of estimated “normal consumption” based on average national figures. As these occupants consumed far less than normal due to individual measures (example lowering temperature), they did not find the theoretical energy (cost) savings to be realistic.
- Communication is perhaps the biggest challenge, as it is needed 2/3 majority for a positive decision. All actors must be convincing in their arguing for a high ambition level. This includes LOBB’s own key persons, all board members as well as external experts. We could all have been more

Subtask A

enthusiastic, including more involvement from other parts of LOBB's organisation. It is easier to communicate pure aesthetic issues than functions.

- The amount of subsidies from ENOVA and The Norwegian State Housing Bank to the project was vague. This could have been used as a sales argument if we could be more specific.
- LOBB's organization has learned a lot about passive means in renovation of existing buildings as well as decision making processes. This knowledge is now used in planning of new retrofitting projects in accordance with LOBBs overall strategy, which is still valid.

Author

Trond Haavik, Segel AS,

Pb 284, 6771 Nordfjordeid, Norway

[www.segel.no](http://www.segel.no)

#### References

Trine dyrstad Pettersen, Sintef Byggforsk; Energiøkonomisk analyse av mulige tiltakspakker i forbindelse med rehabilitering av Hammerseng borettslag (Energy efficiency analysis of possible renovation packages for Hammerseng Cooperative, 2007.

More info om LOBB:

<http://www.lobb.no/>