

*Design for Government course  
Aalto University  
2016*

# **IN GOOD COMPANY**

*Motivating strategic upkeep  
in housing companies*

**PROJECT REPORT**

*- by -*

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## SUMMARY

This project report is the result of Design for Government 2016 course at Aalto University. The paper describes the process and outcomes of one of the two student groups working on the brief commissioned by the Ministry of the Environment of Finland titled "Maintenance and energy in Finnish housing companies". The work has been done by a multidisciplinary group of master students - Marija Erjavec, Veikko Isotalo, Jutta Menestrina and Ekaterina Perflyeva.

The report begins with introducing the design project and the Ministry's brief in more detail. A large part of the paper is about the extensive research performed by the team describing interviews with stakeholders, analysing existing tools and solutions and exploring the world of Finnish housing companies, largely relevant to the project.

Special for a design project, the research part is followed by an extensive synthesis part where we connect the data obtained through various methods. This part includes comprehensive ideas, opportunities and stakeholder mapping. We conclude there with formulating new and more detailed problems moving into choosing one to reformulate the brief.

The third part of the report presents our proposal - Pitäjä, the engine for strategic upkeep in housing companies - in detail. Besides showing the visual part of the tool, we also make the case for its spillover effects in the system and potential risks it may contain. Finally, the report is followed by a short discussion part to encourage a conversation about designing solutions for government.

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# INTRODUCTION

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*»Create a strong case-a sense of urgency  
so that people start telling each other:  
Let's go, we need to change things!«*

- BIRGIT MAYER

2 Juha Kronqvist, 2016.  
Design for Government  
course

“Let’s go, we need to change things!” – that is what we aim for. It describes our group’s aims on a personal level as well as the aim of the Design for Government studio course. We believe that this is the attitude we and other professionals need to have – to address, to deal with and to design solutions for the complex challenges in the public sector.

The urgency of implementing design in the public and governmental sector exists in Albert Einstein words: “You can’t solve a problem with the same mind that created it.” The Design for Government course is based on this urgency. Design thinking can help challenge existing frames and is open to input from outside. It bridges contexts and helps moving between problem and solution. It emphasizes intuition and visual thinking.<sup>1</sup> Design solutions are, unlike science which is based on facts, closely connected to linking existing information, an empathic understanding of events and issues as well as own experience. Therefore, combining the governmental challenges with design helps to change the point of view and opens up new solutions and pathways to existing, urgent

1 Nigel Cross, 2011.  
Design Thinking

issues. It leads to creating a sense of future in the here and now which again can foster change in the future.<sup>2</sup>

Projects which can be tackled with this mindset are formulated by some of the Finnish Ministries. The project with its particular brief discussed in the following pages was given by the Finnish Ministry of Environment. The first part of this report – research and synthesis – includes research, findings and problem descriptions of both groups dealing with the same brief: “Maintenance and energy in Finnish housing companies.”

Two groups of students have worked on the brief resulting in two projects titled as following: “My plan – a planning tool for renovations and active governance in housing companies” by Andre Vincentini, Anssi Laurila and Simone Menge and “In good company – motivating strategic upkeep in housing companies” by Marija Erjavec, Veikko Iso-talo, Jutta Menestrina and Ekaterina Perfilyeva. This report presents a thorough description of the latter. Both projects were embedded in the Design for Government course at Aalto University in 2016.

# PROJECT BRIEF

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Our project was based on the brief titled “Energy and maintenance in Finnish housing companies” given by the Ministry of the Environment. The brief tackled two big problems: first, the “renovation era” that is underway for the housing stock built in 60s, 70s and 80s and how to deal with this in a sustainable way, and second – the government being demanded to improve energy efficiency to meet the climate change mitigation targets. As 30% of carbon dioxide emissions are caused by the built environment<sup>3</sup>, housing sector is an important source to look into. The following description is based on the original brief.

## CURRENT SITUATION

Reducing energy consumption of the existing housing stock is a major policy issue in Finland. Housing built in the post-war period (1960s-80s) consist mainly of housing companies (taloyhtiöt) and will enter the so-called “renovation era” within the next 20 years. This is a challenge and opportunity when it comes to climate policy as it would be essential to integrate energy improvements within forthcoming renovations.

Finnish housing companies play a strong and unique role in Finland, taking a significant share of the building stock. Their management is based on The Finnish Limited Liability Housing Companies Act<sup>4</sup> that entitles non-professional owners to decision-making often with the help of professional housing manager (isännöitsijä). Decisions related to renovations need to have an agreement on what, when and how to renovate, including the issues of cost, quality and sustainability. Decisions are valid through the majority or unanimous voting which makes it even harder for all stakeholders.

The state of maintenance in buildings can be quite low - there is lack of expertise, competing interests and difficulty in having a long-term view. Very few housing companies have a long term plan. There is a clear lack of strategic or systematic

approach in housing companies. Improving long term systematic maintenance of buildings in housing companies already spurred some tools and projects, both mandatory and voluntary.

Another project related to the problem of energy efficiency was the implementation of Energy Experts by Tampere-based energy agency Ekokumppanit. Energy Experts are residents trained in improving energy efficiency in their housing company. The project has been so far piloted in Tampere only<sup>5</sup>; the use of tools and the range of the work of Energy Experts are however, not enough to achieve impact on larger scales required by energy efficiency targets in policies.

## KEY QUESTIONS

Based on previously explained facts, there are two key questions we received from the Ministry of Environment:

1. How to motivate housing companies for more systematic and foresightful maintenance and renovations planning (considering also energy efficiency and sustainability)?
2. How to develop the “energy expert” role in housing companies in order to better serve the needs of housing companies and sustainability?

Besides governmental stakeholders as receivers of the project’s outcomes, the ministry also sees the boards of housing companies and housing managers as important stakeholders.

## OUTLOOK FOR THE FUTURE

Ideally, in the future all the stakeholders around housing companies would have a common understanding of their buildings’ condition and long term view on future renovations. This could possibly be ensured through a revision of various tools. Nevertheless, possible solutions and concepts should not only concentrate on housing companies but emphasize the bigger picture of their operations context.

<sup>3</sup> Ministry of the Environment, 2016.

<sup>5</sup> [www.ekokumppanit.fi/energiaekspertti/](http://www.ekokumppanit.fi/energiaekspertti/)

<sup>4</sup> [www.finlex.fi/fi/laki/ajantasa/2009/20091599](http://www.finlex.fi/fi/laki/ajantasa/2009/20091599)

# RESEARCH

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In order to understand the context of the problems we were tackling, we have done a lot of research using different methods of obtaining information. In our research process, we focused on understanding stakeholders, analyzing existing solutions and getting expert data on concrete matters. Our objectives for the research part of the project were to find out:

1. what stakeholders are involved in this context;

2. how Finnish housing company system works;
3. how are the problems of achieving energy efficiency and managing renovations currently solved in that system.

Thus, we have explored two main themes - stakeholders and housing companies as described in sub-chapters below. Based on the brief, we also looked at energy experts to widen our understanding of energy efficiency efforts in housing.

## *Engaging with Stakeholders*

### **ATLAS WORKSHOP**

To engage our key stakeholders in a dialogue, we have organised a workshop based on Atlas design game that facilitated an open discussion related to our brief. The objective of the workshop was to bring key stakeholders together, reveal more underlying meanings and motivations behind the commissioner's brief and touch base on what solutions have been out there, what worked and what did not.

The workshop was attended by the representatives of the Ministry of the Environment, Environment Centre of the City of Helsinki, Prime Minister's Office and Tampere-owned energy agency Ekokumppanit, who pioneered the energy expert project.

The objective of the workshop was to bring key stakeholders together, extend our understanding of the brief and research questions as well as identifying further stakeholders. The workshop was also an opportunity to find out about the most visible frustrations stakeholders see in their work that are related to energy efficiency problem in housing.

The Atlas game helped us kick off a long and fruitful discussion full of qualitative judgement about values related to housing and living and the work of multiple stakeholders on different levels.

The main insights gained from the workshop were:

1. easy living and saving money often mean more to residents than any sustainability or energy efficiency values;
2. information flows and knowledge on managing buildings are key and must be facilitated;
3. there have been a lot of projects aimed at improving energy efficiency awareness and an array of various tools but they were rather scattered and not coherent enough to be used well together. what their role in the housing company is.

### **INTERVIEWS**

After we have established the common ground with our stakeholders at the Atlas workshop, we planned several interviews to dig deeper in certain themes. The interviews were mostly semi-structured where we prepared questions in advance but also engaged in an open discussion on spot. To present different angles to our problem, below is a digest of our key interviews and insights gained from the stakeholders on governmental level as well as two key unions related to housing and real estate.

## 1. INTERVIEWS WITH MINISTRY OF THE ENVIRONMENT

It was important for us to reach an in-depth discussion level with the commissioner of the project. During the three times that we met for an interview, we have discussed the Ministry's view on the energy efficiency targets and their opinion on how they should fit into the current Finnish "taloyhtiön maailma" ("world of housing companies"). The Ministry is greatly concerned with finding ways to positively motivate people to save energy rather than engage in creating new legal tools. Previously, they have run awareness campaigns aiming at changing the everyday habits of residents but they were aware of their limitations and inability to change the whole system.

Another issue that popped up often in the discussion with our key stakeholder was strategy. As a governmental body, the Ministry creates strategies to reach the climate change mitigation targets. They would also like to see a more strategic approach in the way housing companies are managed.

A lot of work has already been done to help manage housing companies and energy consumption. However, that work had resulted in a multitude of tools produced by different companies that are not user-friendly and created more burden and unnecessary routines. The Ministry would like to see a tool that fits well in the current system, is user-friendly and really understood by its users (whether residents, energy experts or housing company boards and managers).

One of our original questions was whether renovating the 1960s-1980s houses on a big scale makes sense at all as these houses will reach end of the lifespan in few decades. The Ministry has assured us that renovating is indeed the only option rather than building new estate with a lot of embedded energy. Moreover, they see a great opportunity in promoting the improvement of energy efficiency before the next wave of renovations.

## 2. INTERVIEW WITH FINNISH REAL ESTATE MANAGEMENT FEDERATION (ISÄNNÖINTILIITTO)

To begin our exploration of the taloyhtiön maailma, we turned to Isännöintiliitto, the umbrella organisation governing the majority of housing companies in Finland. This union is responsible for educating housing managers and facilitating the operations of housing companies and their insights were key for our research.

The most common frustration of the union is the fact that housing managers and board members are mostly not professionals and must be educated to perform a good job. Moreover, board members lack motivation as often they are chosen to sit on the board as someone has to be there. Amateurs in the management bring about frustration and prolonged routines rather than quality in operations.

One other big problem that the union referred to was miscommunication. Often, the board and the managers are left unaware of the residents' real needs which keeps them from making good strategies or policies. Valuable information is not collected or kept somewhere and the concepts of open data, digitalization or sharing economy with all the opportunities have not reached the market yet.

Apart from everlasting frustrations like non-professional management, Isännöintiliitto is currently making big plans for encouraging strategic management in housing companies. The new guidelines will focus on the quality of life of residents instead of maintaining the physical environment of buildings. The union admits that most of the decisions are strongly influenced by people's will to save money on everything yet they want to move away from this and concentrate on quality.

As regards energy, Isännöintiliitto promotes energy efficiency through its regular communication channels - Kotitalo magazine, Pihaparlamentti online blog, bulletins for housing managers, brochures for board members and various web services. The union sees printed content and online surveys as really efficient means of communication between managers, boards and residents. It seems that there are not enough tools for ensuring a quality information flow or current tools do not provide for it.

### 3. INTERVIEW WITH FINNISH REAL ESTATE FEDERATION (KIINTEISTÖLIITTO)

As we continued exploring the organisations that have a stake in housing company system in Finland, we became interested in exploring what challenges related to collecting, storing and using

*»The problem is that people making strategies are technically oriented. They make the documents 7-30 pages long. They miss the whole point. People don't care to read them. The strategy should be made by residents for residents.«*

information there are. As Kiinteistöliitto told us, it is very common that many players within the housing company system hold back information and can even prevent the residents, for instance, from getting any extra knowledge as they are afraid of people getting too curious.

The situation is difficult and somewhat even mystical as during the renovations planning, many shareholders are kept away from setting agendas for the meetings where decision-making takes place. It is then reasonable why residents fight against renovations as they do not understand why those are done in the first place. Last year Kiinteistöliitto published a communications recommendations but they think the majority of documents are still too complicated and technical for an average resident to understand. Just like the Ministry and Isännöintiliitto, Kiinteistöliitto agrees that the idea behind strategy in housing companies is core and should be clarified.

The union also realises that the strategy must not be a document written and read once, rather an agenda that is never forgotten and included as a reminder on all meetings. Their last attempt to

bring order to housing companies did not last - introducing taloyhtiön kuntotodistus (housing company certificate) with star rating was in place in 2008-2015. It was too expensive and lowering the price inspired misconduct so many companies did not play along - the idea of a passport for housing companies did not really work out in the end.

### 4. INTERVIEWS WITH HELSINKI REGION'S CONSUMER ENERGY ADVISORY (HKY) AND HELSINKI REGION ENVIRONMENTAL SERVICE AUTHORITY (HSY)

As part of their municipal services, for the past two years HKY provides energy education for housing companies in forms of clinics, trainings and the online tool Energiaopas.fi. HKY targets specifically the housing managers as links to housing companies who can presumably promote the training to board members and residents to plan renovations together. They do not expect residents to become directly and actively involved in such trainings. It is in their interest as well to be a rather private consultant, not trying to be known to everybody. One of the problems HKY expressed was the gap between professionals and lay level people when communicating about renovations or housing fixes that are traditionally described by "engineer talk".

In our conversation with HSY, we were especially interested to find out about their ongoing Ilmastokatu<sup>6</sup> (Climate Street) project where they renovate buildings in Helsinki for more energy efficiency. There are several housing companies participating in the project but for each the situation and the willingness to renovate was case-specific. Alike Isännöintiliitto, HSY are also frustrated with the absence of handy and open energy consumption data that could offer opportunities for energy providers, policy makers and housing companies.

<sup>6</sup> [www.ilmastokatu.fi](http://www.ilmastokatu.fi)



## *Energy efficiency and education*

As suggested by the initial brief, part of our research focused on energy efficiency and the current state of educating people to become more aware of why it is important and how it relates to climate change.

Current energy efficiency targets are part of climate change mitigation strategies imposed on supranational level by the EU. This creates a necessary burden to reduce energy consumption but does not provide solutions for changing everyday behaviour of residents.

Through interviews with Finnish Environment Institute (SYKE) and energy agencies - Helsinki-based Motiva and Tampere-based Ekokumppanit - it was clear that energy consumption is not a dire issue in Finland as the price of energy is too low for a commoner to really care about using more or less energy.

### **ENERGY EXPERTS**

Energy Experts were introduced in Tampere as a pilot project to improve the energy awareness in housing. An energy expert, trained by Ekokumppanit, is a resident who knows most about

the house's energy and suggest improvements as well as answer other resident's queries related to energy issues.

Often, these experts' role comes down to very practical things like installing LED lights in common areas. Energy Experts are also costly as somebody needs to invest in their education. It is also unclear what motivates residents to undergo such training. As shown by the latest questionnaire conducted by Motiva, there are a range of motivations that do not necessarily stem from sustainability values. Moreover, since the project has been so far tested in Tampere only and the energy expert role is voluntary, it is hard to judge if it would really make a difference on a country-wide scale. As commented by the Ministry, it would be worth expanding the effort of energy experts and integrating it into the housing company system. Perhaps, an energy expert could be a compulsory role on the board of housing company. The Ministry also questioned the need to have energy experts as particular individuals stating that the problem most likely lies in modifying current tools.

## *Analysis of existing tools*

As expressed by many stakeholders during interviews, there are various tools circulating in the taloyhtiön maailma without much coherence and user friendliness. Following is a digest of existing tools that already serve decision-making in housing companies.

### **MANDATORY TOOLS**

According to Kiinteistöliitto, the current tools that are available have very little significance in the actual upkeep of a housing company. The decisions are made on "feeling" basis without validating the actual need or asking the residents what they want.

### **1. KUNNOSSAPITOTARVESELVITYS**

Kunnossapitotarveselvitys (Report on maintenance and renovation) is an informal document required by the Finnish legislation. The report requires the board of a housing company to present a written proposal of all of the maintenance measures that are planned to be taken in the next five years. The current problem with this is that

the five year time-scale is far too short and the decisions to include something there can be more or less uninformed, and not necessarily followed through. Often the board does not know how these measures are been taken care of in other housing companies.

## **2. RAKENNUKSEN KÄYTTÖ- JA HUOLTO-OHJE T. HUOLTOKIRJA**

The Maintenance Manual is a building-specific manual that includes information about the needs, reasons and timing of the maintenance and renovations of newly built buildings. It is also advised that the maintenance manual is made for existing buildings to unify the maintenance culture of the buildings. The manual provides proper documentation of the maintenance and aids the upkeep of buildings; it gives a clear idea of the scope of renovations.

## **3. ENERGY CERTIFICATE**

A housing company is required to acquire an energy certificate when a part of the building is taken into use, sold or leased. The purpose of the energy certificate is to help the stakeholders evaluate the energy consumption of different buildings.

### **VOLUNTARY TOOLS**

#### **1. KUNTOARVIO**

Condition assessment is a building-specific document made by professionals about the overall condition of the building when the need for renovation is coming up and a realistic estimation of the condition of the building is required.

#### **2. KUNTOTUTKIMUS**

Condition survey can be made as to deepen the understanding of the condition of certain individual part of the building. Condition survey can be described as a medical examination of a building.

Following parts of the building can be taken under condition survey: piping, ventilation, indoor air quality, structural integrity, building automation. Like the condition assessment, the condition survey is building-specific.

#### **3. KUNNOSSAPITOSUUNNITELMA (BUILDING MANAGEMENT PLAN OR LONG TERM PLAN)**

Kunnossapitosuunnitelma is meant to ensure that the maintenance of the building is well planned and that too many repairs will not occur at the same time making the cost of living unbearable. It is made for 3 to 5 years at the time and it includes financial planning. It then realistically provides an idea what needs to be done and what can be done, and when.

#### **4. KIINTEISTÖSTRATEGIA (REAL ESTATE OF BUILDING STRATEGY)**

The board of the housing company and the housing manager determine the real estate strategy. It is a plan for the building maintenance and ownership that includes The current state of the housing company, what is the desired state of the housing company in 5 or 10 years and defining the measures how to reach that goal.

## Understanding the Finnish housing company system

As part of our design research, we really challenged the fact that being familiar with the Finnish housing company system as Finnish residents is simply enough. We expanded our research to find ways to reach the housing companies from within and find angles not portrayed in public information available online or in printed sources. We aimed to become able to ask questions that would shed light on the situation from the residents' perspective and to find ways to observe housing companies in their operations.

An online survey sent to residents aimed to build a picture of the knowledge level of actual energy-related topics in housing companies. Interviews with several board members helped understand the similarities and differences in housing companies, which all take care on their own in their own manner and pace. As part of our design research, we drew inspiration from observing, asking questions and finding out more about our subject - housing companies - which we have found to be all case-specific. This is the system of the Finnish Limited Liability Housing Companies Act: to allow each separate entity to govern their own decision-making. To build a bigger picture, we combined pieces from different sources and built an extensive mental map of the stakeholders and topics in question.

### RESIDENT WALK “LÄHIÖKIERROS”

Visiting housing areas built in 1960s-1970s and talking with residents in their neighbourhoods was a starting point in starting to grasp the situation and how the problems or opportunities discussed in the brief could be recognized. The three Helsinki neighbourhoods explored were Kontula, Mellunmäki and Pihlajisto.

The conversations with residents were helpful in hinting whether the “renovation era” is understood as a challenge or whether it is an unfamiliar concept on the level of the average residents. The first part of the exploration analysis was based on approaching people around their

homes and interviewing them about their living environments and involvement in housing management issues. The second part consists of observations made in the three neighbourhoods. Some features were immediately noticeable and some ideas surfaced after longer periods spent in each area. Where the two parts came together was in observing how willing residents were to talk and discuss their housing companies.

### KONTULA

*»We don't understand why the place has such bad reputation«*

- RETIRED APARTMENT OWNER

We have talked to several residents who had lived in Kontula since the day it was built. After chatting with only a few, the importance of taking the demographics of the area into consideration became clear. A man living in a 9 storey building mentioned that it is difficult to get to know people in such a large house and that it is clear that the residents change quickly as apartments become vacant due to the gradual shift in demographics.<sup>7</sup> The longer term residents stated that before there was more of a community feeling but this has changed as little effort was put into getting to know all residents in the situation where residents had kept changing.

Common events such as talkoot (crowdsourcing events) have decreased in popularity or older residents are no longer able to take part. A specific trait that we noticed in Kontula was the appreciation of services being near. Some felt more passionate than others in knowing about their housing companies. Overall, the comments remained on the level of “trusting the board”, considering that “everything has gone okay until now” and statements that

*»generally, we have a good [housing] company«*

<sup>7</sup> [www.hel.fi/hel2/tietokeskus/julkaisut/pdf/13\\_09\\_18\\_Tilastoja\\_29\\_Vuori.pdf](http://www.hel.fi/hel2/tietokeskus/julkaisut/pdf/13_09_18_Tilastoja_29_Vuori.pdf)

## MELLUNMÄKI

*»As I do not live here with a large family, I do not use the common exterior areas, I only use them for walking through«*

-RESIDENT IN MELLUNMÄKI

The area of Mellunmäki in the periphery of Helsinki is easiest reached by car. The buildings in the heart of it are built in a grid pattern and do not create an open community feeling. People walking by were harder to stop for a chat. Exterior renovations had already taken place but the residents we talked with were unaware of costs as the work had been done before they moved in. In a similar manner as Kontula, trusting surfaced as the main attitude towards housing company boards.

## PIHLAJISTO

The high rise buildings of the suburb of Pihlajisto<sup>8</sup> are closer to Helsinki from the eastern areas of Kontula and Mellunmäki. Expanding housing areas have reached its borders now connecting directly to the older area of densely built buildings from 1960s and 1970s. Residents were harder to stop for a chat as people seemed to be in a hurry or not willing to listen to why we wanted to talk. Few mentioned that as they were not owners, they do not care as much as they would had they been owners of shares in a housing company. Overall, the renters and owners in Pihlajisto have not had trouble with the board or did not know or care to know more. This shakes off the illusion of a good housing company. What seemed most important with the renters in Pihlajisto was the fact that they considered the area good and wished to be able to keep renting apartments there. The rising real estate prices seemed to be lurking around the corner as Helsinki keeps expanding<sup>9</sup>.

## INSIGHTS FROM RESIDENT WALK

Within conversations in residents in each area, no mention of costs of renovations or complaints of such was mentioned, neither considerations of energy efficiency in housing matters. The interviewees seemed at ease with their suburb (lähiö), not claiming problems with the area or their build-

ings. The residents were aware of piping surveys that had been done but the renovations were still ten years ahead. No improvements or aspirations to create a better housing company were apparent. When touring the areas, we have also observed that notice boards in buildings seem to be the most popular communication channel and no efficient spreading of information was desired.

Comments about difficulties remained on the level of criticising unprofessional board members “stirring up stuff, saying things according to how they feel rather than based on facts”. The residents seemed to be not informed enough about their own housing. Information on past renovations remained on the most visible jobs such as changing windows. Here it looked like ticking boxes is the sufficient way of renovating older buildings rather than improving one’s house. Regarding the future renovations, residents had very vague ideas of something approaching in ten years rather than knowing the specifics, including less costly or more energy efficient choices potentially available for the housing built in 1960s-1970s. If the resident knowledge stays on this level, the question rises: how does one become interested in taking active part in renovations and what would be a good way to start learning?

## RESIDENT SURVEY

An important aspect in the research process was to define where the residents stand in regards to our research problem. In the effort to explore the possible solutions, was important to understand whether residents can make an impact in their housing company or whether they know enough about how they could engage in housing company management. The questions presented in the online survey led towards drawing this understanding, defining and channeling the background information that might reveal what motivates or demotivates residents. A further emphasis on energy consumption and energy efficiency in housing was included in the survey as it had not surfaced as an important topic during the resident walk conversations. The aim of the survey was to find out about the following:

1. whether residents know the state of the building they live in;

<sup>8</sup> [www.kotitalolehti.fi/2014/10/kuurkistuslahioon-lahio-tuli-muotiin](http://www.kotitalolehti.fi/2014/10/kuurkistuslahioon-lahio-tuli-muotiin)

<sup>9</sup> [www.hel.fi/hel2/tietokeskus/suunnat/ss203/Artikkeli.html](http://www.hel.fi/hel2/tietokeskus/suunnat/ss203/Artikkeli.html)

2. whether they know their building's future renovation plan;
3. what their role in the housing company is;
4. whether they are well informed about energy efficiency issues;
5. why they are or are not motivated to save energy.

A total of 34 residents answered the survey, all having dealt with housing companies in past or present. We were able to collect key insights in the three themes - motivation, resident activity and energy as described below.

### **MOTIVATION**

Half of the respondents plan to continue living in their buildings for another 2-5 years. In this regard, it is important to note that 48,5% lives in rented apartments which may also influence the engagement in housing company operations. Both short-term living and detachment of the renter from a housing company may demotivate people from being an active housing company member.

### **RESIDENT ACTIVITY**

The answers drew a mixed picture of activity and interest levels. Where the majority (30,3%) of respondents claimed to be very interested in their housing company, the majority was still not taking part in its annual meetings (45,5%). One fourth of respondents claimed to be active members able to active others as well. Slightly less than one third have at some point been on board of a housing company. These two numbers leave out the rest 70-75% whom either are not interested or feel like they do not know enough to take part in decision-making.

### **ENERGY**

57.6% commented on energy efficiency being a very important factor. However, only 6,1% claimed to be knowledgeable in energy efficiency related topics. 45,5% of residents do not take part in planning renovations although a clear majority find sustainability an important criteria in planning renovations. The notorious attitude-behaviour gap was confirmed by the survey.

### **INTERVIEWS WITH BOARD MEMBERS**

Interviews with five different board members shed light on common issues and opportunities that being part of the board brings. In all cases, the board itself works well together and does their fair share of work for the common good. The communications between boards, housing managers and residents seemed different in each case. In two housing companies the manager had proactively suggested the housing company to take part in competitions leading to good results and stakeholders' pride. However, in one case the manager had taken very poor control of contracts for renovation work that brought financial trouble to the entire company. The board members in larger housing each shared a certain passion for the work as they had become more involved.

*»It [Being a board member] is a natural way to sustain your property and your own money - you can keep it safe«*

-BOARD MEMBER

Varied resident demographic in each housing companies influences its activity a lot. Older residents might not be able to take part in common activity days and might have different attitudes on spending money on more expensive renovations with a longer payback period that is of no relevance, benefit and value to them. Each housing company is different - it has different dynamics and attitudes towards one another. According to some, younger residents are impossible to activate whereas others claim that old residents are stuck in old habits.

*»Living in a block of flats blinds people from responsibilities which are not gone; you need to take care of your house as if you would live in your own building«*

-BOARD MEMBER IN KONTULA

The board members recognized the profile of truster - the resident who trusts their housing

company. Most of the residents wish to have “easy living” and they have found their channels to communicate either directly to the manager or the board if something is broken but they seldom proactively suggest ideas for improvement. One board member introduced a profile of distrusters, one or two being enough to affect the whole community in a negative way. Distruster are noticed for voicing their complaints but not acting. The majority of trusters go unnoticed. Just trusting as a way of being within a housing company results in a narrow view towards upcoming challenges.

*»I joined the board because I knew that there will be renovations coming. I wanted no big surprises...«*

-BOARD MEMBER IN KULOSAARI

For each housing company notice board played a key part as the main information channel. Board members often communicate with each other by email; one housing company took pride over their channel on WhatsApp mobile messenger. In each area residents thrive to get to know all other residents yet without actual effort. Running into each other at hallways or yards seemed to remain the normal starting point.

#### **OBSERVING A HOUSING COMPANY'S ANNUAL MEETING**

General annual meetings (yhtiökokous) are a common event for any resident to take part and an important one in taking part in the decision-making. Attending a meeting for the purpose of observing the decision-making process may feel as intruding to the residents of the house, however we thought it would be valuable to get a visual impression of how things are decided upon in housing companies. The meeting we attended was held in a housing company managing a housing complex of 50 apartments built in the 1960s.

The meeting followed the typical process of a yearly agenda along with some emotion stirring situations where disagreements were overruled by the majority vote. The meeting highlighted some possibly repeated challenges as well as naturally case specific situations which must not be generalized. As the defining event of the year, the meeting surfaced some interesting aspects that influenced our project in defining certain issues, limitations and restrictions related to what a housing company can achieve.

The housing company in question has an active image. They proudly display a plaque they won for “pipe renovation of the year” on the exterior wall of their building. Attendance level was slightly more than half of the shareholders. In leading the meeting the manager referred to the tight schedule several times.

Two hours had been reserved for the meeting with an extensive agenda presenting two entries for action for the coming year. The manager and the chairman had to guide discussion back on the agenda not to derail to other topics as there was clearly a lot to discuss. Few attendees kept drifting to off-topic discussions that slowed down the decision-making process and stirred up more conversation.

The decisions made during the meeting were called by the chairman stating “This is agreed on” and in most cases the approval functioned smoothly. Two times decision had to be made by voting. Open voting by large majority resulted in the minority being dissatisfied and some individuals storming out of the meeting in disappointment. The comment by the chairman “Do you really want to call an extra meeting for this decision?” communicates how straining these meetings may be when decisions must be made but the residents might be pushed to their limits, wasting energy in unrelated conversations. At the end of the meeting the board member privately stated to us as observers “This is democracy in action”. Universal agreements are difficult to reach but decisions must be made.

## INTERPRETATION AND SYNTHESIS OF THE PROBLEM

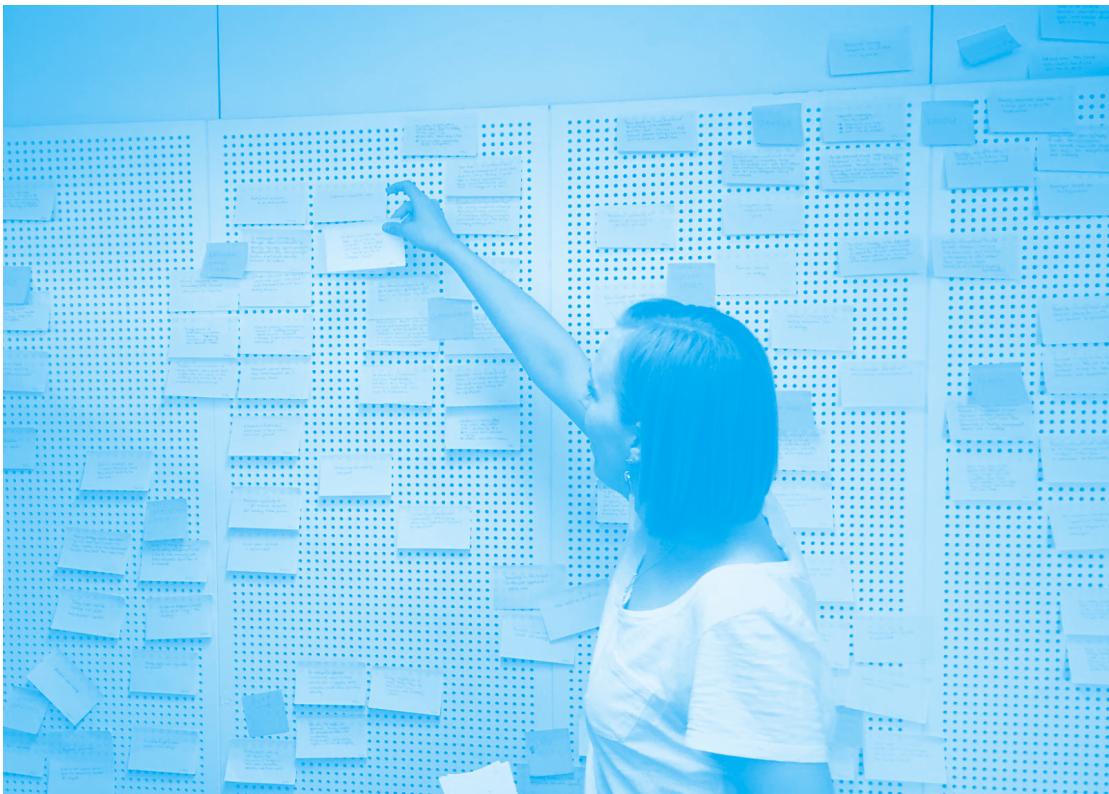
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In this part of the report we synthesize the qualitative data collected during the research process. We have dealt with the data in different ways by applying various design tools. The objective of synthesis was to move from data to knowledge and create a solid basis for our ideas. We took bits and pieces of data apart and looked at our problem

and its contexts from different perspectives. Unlike in sciences, in this design project, it was very important for us to see and, where needed, establish the connections between information. The results are presented as insights from our affinity diagram, opportunity mapping and systems mapping described below.

### *Affinity diagram*

Affinity diagram is a method used commonly to organise qualitative data. In total, we have done two rounds of affinity diagram - first with general statements from the collected data and second with more concrete judgemental statements from our interviewees. The outcome of the latter is presented below.



Grouping ideas is not as straightforward as one may think as many ideas overlap.

### **OUTDATED SYSTEM**

- *Housing companies are getting closer to an era of transition where technology will be fully employed.*
- *Housing company system has been increasing in complicatedness with more laws and tools introduced.*
- *Technology is seen as an answer to many challenges.*
- *Current information channels are not effective in reaching an adequate amount of residents so planning renovations together and in advance does not exist as a practice.*
- *The residents do not think of themselves as customers. The shift to customer-orientedness needs to happen in a structural way rather than from bottom-up.*

### **NETWORK**

- *Best existing practices of improving energy efficiency and managing renovations are very loosely connected and not showcased enough.*
- *There should be networks to connect housing companies (including energy experts and boards).*

### **THE FORCED HABIT**

- *Housing companies are prisoners of habits doing things “the old way”. Improvements are difficult to introduce as low dynamics of operations in housing companies do not allow for it.*

### **ENERGY EXPERT ROLE**

- *Energy experts do not have a clearly defined role in communities*
- *There is no solid structure that supports energy experts in working closely with the residents.*

### **EASY EXCUSES**

- *The diversity among residents needs to be addressed through the buildings’ communities.*
- *Mental models and stereotypes still create barriers within housing companies.*

### **TRAPPED STAKEHOLDERS**

- *The stakeholders seem to be trapped in a loop of similar actions - creating campaigns to push information - and not coming up with radical or innovative solutions.*

### **REWARDS**

- *Housing companies/managers/residents who have improved the value and energy efficiency of their building should be rewarded. Constant rewards could reinforce a positive feedback loop.*

### **STRATEGY**

- *There is no platform to develop a long term view and strategy in housing companies.*
- *There are limits to how much action can be demanded from residents.*
- *A yearly general meeting can only discuss few topics, usually only urgent ones or related to small routines.*

### **DATA FLOW**

- *There are too many scattered data flows and too few communication channels for long-term planning leading to uninterested or trusting residents.*

### **FEELINGS**

- *People are led by personal feelings and emotions concerning their property and wallets rather than factual information.*
- *Just a few not trusting residents can change the opinion of the whole community*

### **LANGUAGE**

- *Board members are amateurs lacking education and motivation. They do not speak the same language with experts.*

### **VALUES**

- *Ageing buildings as renovation areas may seem to have bad reputation but in fact carry a lot of value*
- *Residents care about their own property allotments but do not see the building as a whole.*
- *Money savings, comfort and health can be seen as main values whereas sustainability is often not on the radar.*
- *Healthier neighbourhoods may have more money to spend. This may mean more sustainable renovations.*

### **VISION**

- *More tools are needed to be used on regular basis to raise energy and climate change awareness in everyday life.*
- *Ways to measure the wellbeing of residents and their needs could give more direction for finding appropriate solutions.*



## Opportunity mapping

Based on the statements we collected through the affinity diagram, we started asking questions to build bridges between the situation as it is now and what it could be in the future. Asking opportunity question allows seeing what could realistically have been already done to solve the problem. We have mapped some questions that seemed like good opportunities to change the existing system.

What if ...

*...there would be a system to store information about energy consumption and external factors so that data from different years could be compared?*

*...instead of energy experts there would be community managers engaging residents in quality decision-making?*

*...there would be an open database of renovations where the reports of all the renovations can be uploaded for comparison?*

*...what if residents could get billed more according to their consumption?*

*...what if saving energy was made to be fun?*

*...what if residents could see the consequences of their actions and decisions in visual and interactive way?*

*...what if all energy experts would work under one company and be employed by municipalities?*

*...what if all housing companies would have energy experts?*

*...what if we concentrate on existing knowledge rather than the lack of knowledge?*

Mapping these opportunities was one step closer to starting formulating our solutions and justifying what way outs might be most feasible and realistic in the closest future. However, before jumping into brainstorming, we set out to have a solid look at the big picture and systems behind our stakeholders and the problem.

## Systems mapping

*»It has become less apparent where problem centers lie, and less apparent where and how we should intervene even if we do happen to know what aims we seek ... By now we are all beginning to realize that one of the most intractable problems is that of defining problems... and of locating problems.«*

– RITTEL AND WEBBER 1973

The system in question is the Finnish housing company affecting lives of majority of Finns as it provides them a share that is called home. Home is a simple and familiar concept as is taloyhtiö as an entity. Our research beyond the common conception of taloyhtiö required to cross the threshold of “common understandings” and question many of the generally agreed “facts” to draw a picture of the system. Housing company

on a systemic level may be looked at from different perspectives, where consideration must be made in how many or how few aspects or stakeholders are taken into consideration. When considering where to draw a boundary, what must be decided on is how big or how small the appropriate boundary in each situation is. The process of mapping the systems took this into consideration as a starting point and instead of a large

systems map we concentrated on drawing the models from different perspectives and focusing on a few more detailed boundary maps and some bigger “richer picture mappings”.

The benefit of investing time and effort into these separate mapping lies in the opportunity to clarify the content.<sup>10</sup> In the process part of a project these extensive mappings draw a conclusive background in developing solutions that may make an impact on a systemic level. When clarified content is mapped considering consequences, designed system interventions are possible. In the case of housing company as a highly complex system with a rich social layer, the level of understanding possible consequences is key. To develop a proposal to change a system requires a heuristic understanding of the context and the beneficiaries.

In the process part of the project, the systems thinking exercises helped define the problems that can be identified. Often these problems have deeper roots and causes as may seem at first. Here is where design thinking meets systems theory.

*»Systems theory and design thinking both share a common orientation to the desired outcomes of complex problems: to effect highly-leveraged, well-reasoned, and preferred changes in situations of concern.«*

-JONES, 2004

Systems thinking as an analysis of the situation functions as a platform for creative solutions based on action in the disciplines of design<sup>11</sup>. Both fields aim for preferred situation, solving problems or creating desired outcomes. Design as a discipline may use the traditional methodologies and tools to impact and work towards the systematic changes. Another key exercise is to identify points in a system with high possibilities to make an impact or points with potential to change.<sup>12</sup> These points may be identified in the different mappings. The evaluation whether these points are easy or possible to change follows as an exercise to identify the most fruitful entry points to the system.

<sup>10</sup> “Investment into clarifying intent” Bryan Boyer, Justin W. Cook & Marco Steinberg. In Studio: Recipes for Systemic Change

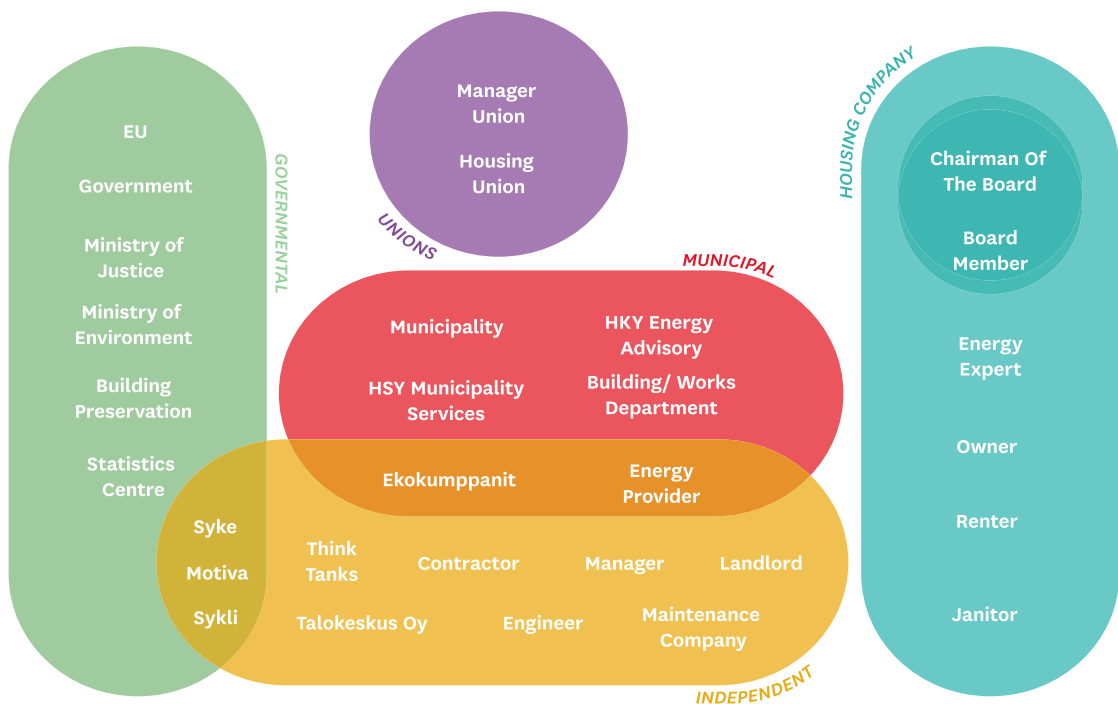
<sup>11</sup> Jones, 2014.

<sup>12</sup> Hella Hernberg, 2016. Design for Government course

### STAKEHOLDER MAP

Our systems mapping begins with acknowledging the pool of stakeholders directly or indirectly related to our problem. Based on our research and interviews, we have mapped the stakeholders relevant for the context of our problem.

Stakeholder map



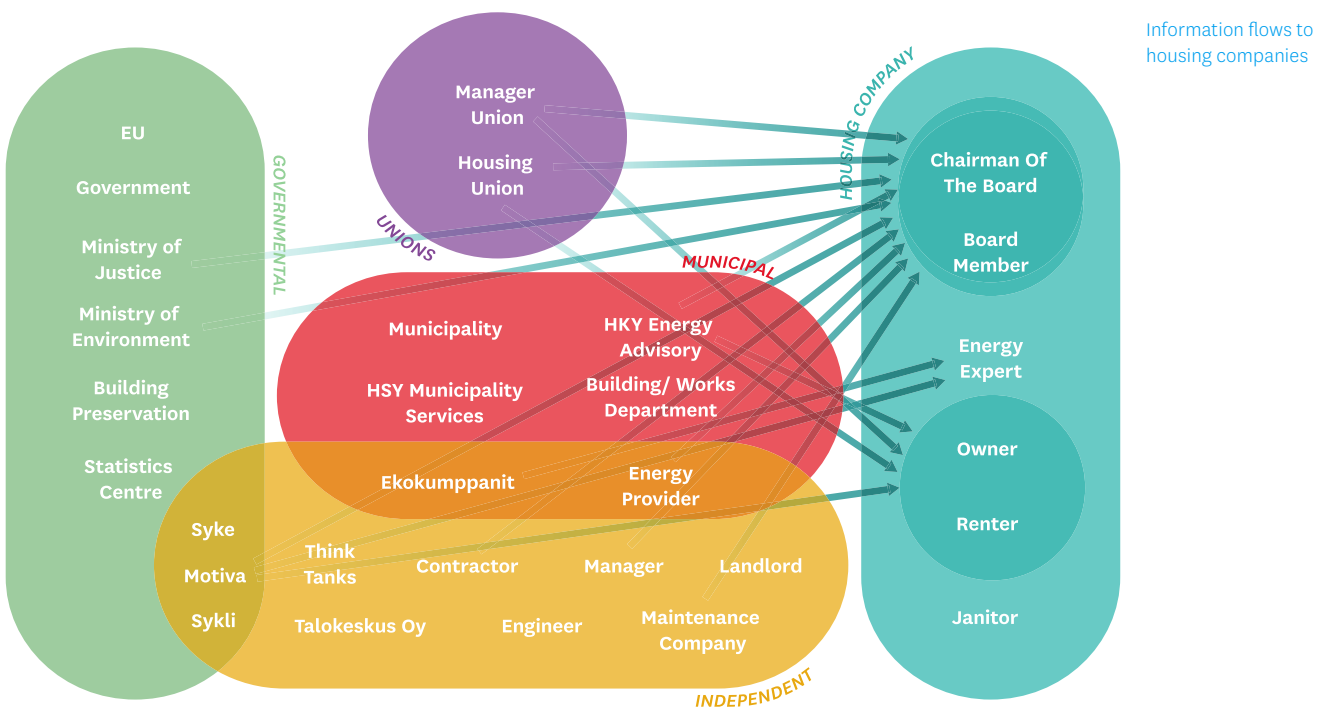
On this map we have grouped the relevant stakeholders into five categories:

- Stakeholders on the governmental level such as the EU, Finnish government, ministries and other public sector bodies;
- Municipal and regional services (Helsinki taken as example), including the Helsinki Region Environmental Services Authority (HSY) and the Environment Centre for the City of Helsinki;
- Unions - The Finnish Real Estate Federation (Kiinteistöliitto) and The Finnish Real Estate Management Federation (Isännöintiliitto);
- Housing companies - including boards, residents, housing managers;
- And independent organisations, such as energy agencies and providers.

The stakeholder map helped us understand what people and on what levels are involved in energy efficiency in housing and can influence the decision-making process.

### INFORMATION FLOWS

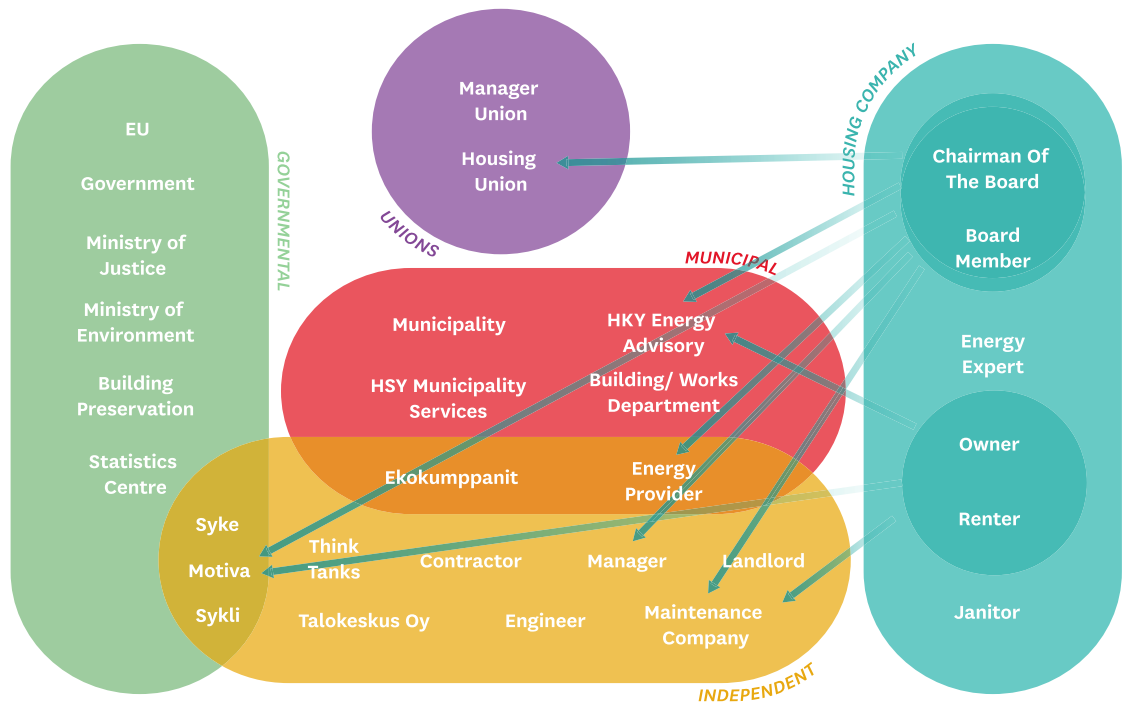
As found during research, information is key in having a well-supported functioning system but often information flows do not function properly. Having looked at our stakeholder map, we mapped the ways information flows into housing companies (including boards, housing managers and residents) to better understand where there are too many channels and where the information does not flow or the channels are missing.



Housing company boards are attacked by all sorts of information from the governing unions, experts and service providers. The information is transferred in form of trainings or printed content (provided by organisations such as Motiva, Kiinteistöliitto, Isännöintiliitto, HKY). “Personal” knowledge about the building is provided by the housing manager, energy providers, contractors and includes information on costs, upcoming and possible renovations, state of the building.

It takes a lot of effort for the board to digest the

information and communicate it further to the residents. However, boards and housing managers often keep the information from residents or do not use effective communication tools. Leaving messages on a notice board remains the most common way of communication. Besides information about current affairs, there is knowledge that must be sustained in order to upkeep housing companies. Here the situation is more difficult as time and change in boards causes loss of knowledge about buildings and renovations done in the past.



We also had a closer look on the possible external communication from the residents and the housing companies - to whom they could talk and to whom they actually talk. Ideally, there could be many possible information-based connections on such a map but as our research has shown, the bo-

ard might only communicate with the maintenance company and the housing manager not exploring other opportunities to find new knowledge by contacting other stakeholders. To conclude, functioning information flows in this system depend heavily on the work of housing company boards.

### SOCIAL ANALYSIS

*»Residents' values need to be the basis of strategic decisions in housing companies.«*

-ISÄNNÖINTILIITTO

Our brief outlined the will of the Ministry to focus on people's everyday. Where there is place for everyday routines, it is important to find and connect social aspects of living - roles, norms and values - that inevitably influence our thinking as emotional, not just rational individuals.

One of our hypotheses in this project was that low engagement in energy efficiency (or, on the whole, sustainability) is because being sustainable or eco-friendly is not an important value. Factors like low prices for energy in Finland also influence

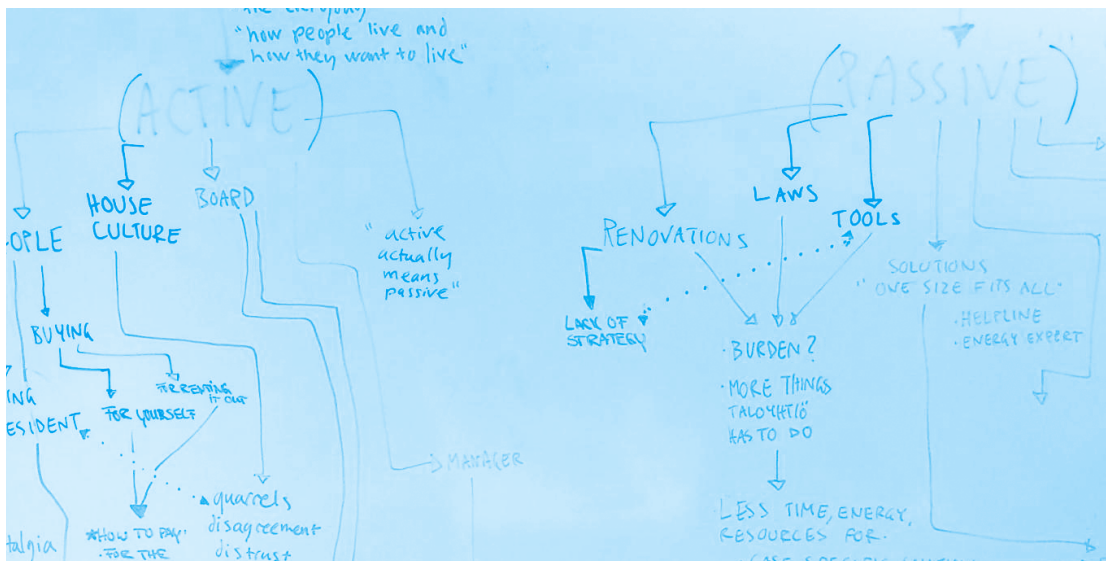
these values. For the residents, we have found that such values as money (or being able to economize), convenience ("easy living") and trust (along with externalising responsibility to housing companies) are more important than sustainability.

Naturally, it is not surprising energy efficiency is not on everybody's agenda no matter the strong directives from the EU and national governments. What is important here is that values need to be recognized in decision-making of housing companies to ensure successful strategies. In fact, Isännöintiliitto is pushing the agenda of incorporating residents' values and demographics into strategic plans. Moreover, stakeholders need to identify different parties' values and find common ground. If sustainability does not become a value by its own, there is always an opportunity for the government to wisely nudge people to become more aware and knowledgeable in energy efficiency matters, for instance, by linking it to other values like health or community feeling.

## Defining problems

Our extensive research has revealed a multitude of problems existing around housing, renovations and energy efficiency. In this chapter we try to break the bigger problems down to more concrete ones.

To bring all our thoughts about possible problems and issues together we started mapping them out in tree structures. Our goal was to find the starting problem that frames a bigger picture of all possible pathways and that would help us concentrate on one or two possible tracks for starting the ideation process. In creating the tree diagrams we discussed two main problems:



### PROBLEM 1

HOW TO REACH THE ENERGY EFFICIENCY  
(CLIMATE CHANGE MITIGATION) TARGETS OF  
2030 AND 2050?

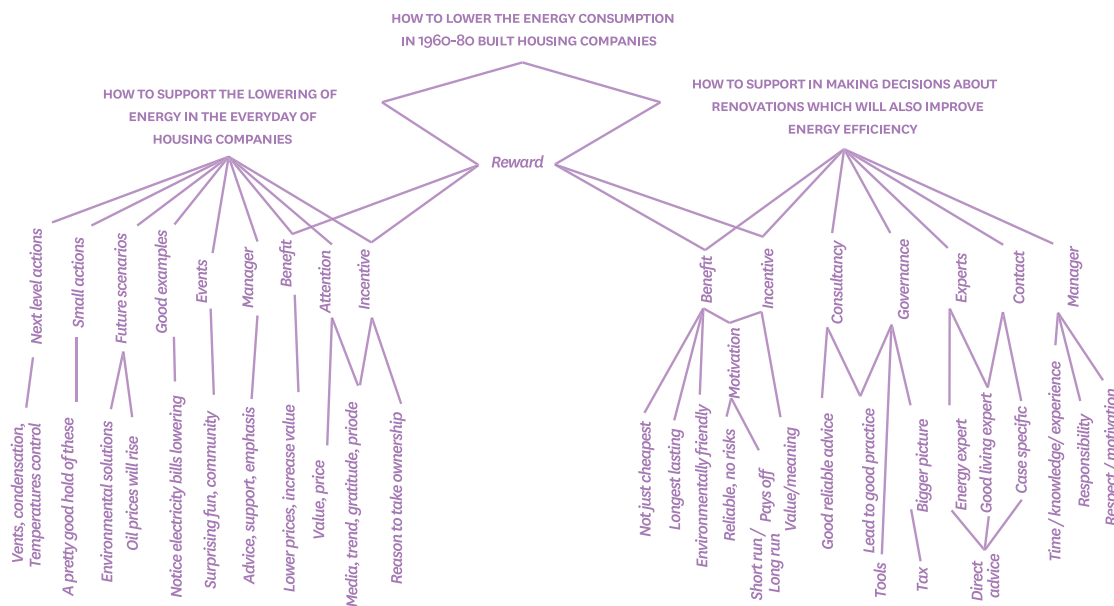
With this question as a starting point, we found two pathways that led on from this. One would be to concentrate on the bottom-up, the everyday of people and housing companies and the other possibility would be to impose a solution from top-down. Problems concentrated around people's (owners and residents) behaviour arose in the first track. The second track was rather focused on laws and tools and the fact that one solution might not fit every housing company. In the end, both pathways track down issues of existing but scattered information and communications channels not working as they are supposed to. The either "active" but more common "passive" attitude of owners and dwellers emerged here as well.

### PROBLEM 2

HOW TO LOWER THE ENERGY  
CONSUMPTION IN HOUSING COMPANIES IN  
BUILDINGS BUILT IN 1960S-1980S?

This starting question led to two different problem tracks - on the one hand the issue of supporting the lowering of energy in the everyday of housing companies and on the other hand, the problem of supporting decision making about renovations which also leads to improving the energy efficiency. With these two pathways we started a discussion about future problems as well as incentives, consultancy and what causes frustration with these matters.

Mapping problems in tree structures helps understand big picture challenges and concrete troubles



### MOST FRUITFUL PROBLEMS

Housing company as a system unfolds a vast amount of problems on a wider level. After mapping out the problems, we aimed for a more personal approach of finding the most fruitful problems for ourselves as project makers. Stating these fruitful problems helped move the discussion from the level of wider problems towards ideating solutions on a manageable scale. To set the tone for ideating, each member of the team as designer has stated their view:

*“We can’t trust the bottom-up approaches only. There has to be something that is imposed top-down.”*

*“What is the long term value of the building? Can we influence the market through raising awareness for the nostalgia of buildings constructed between 1960 and 1980?”*

*“Can we find an approach which rewards residents who are already doing good in energy efficiency and renovations? It could help showcasing best practices and could have a spillover effect. Nevertheless, there needs to be an investment to do so.”*

*“It’s all about community. There should be an intention that can be tackled through community decisions. These decisions should be made more transparently.”*

*“The resident should be a client as well as the physical building. Can we create a passport for buildings? Could it be a yearly, visualized calendar? We should aim for people doing the things they see other people are doing.”*

*“Engage young people in better communities! Nowadays the decision makers in the board as well as the managers are quite old. We should bring more young people to those decision-making processes.”*

*“Savings and metrics should be personalized for buildings. In doing so, could we merge influencing the market with nostalgia feelings and a more visual approach of showing important events of the building?”*

Our personal aspirations and beliefs have set the tone for the ideation process described in the next part of the report.

## OUR BRIEF

In light of our extensive research, we came to ask ourselves new questions, such as why are the renovations such a big problem? What if the problematic buildings were to be simply demolished? What is the cost of renovating or building anew? How much CO<sub>2</sub> emissions are caused by renovating, demolishing, building?

We discovered that during the 1960s-1980s 980 000 apartments were built in Finland.<sup>13</sup> The big renovation boom is already there and will accelerate as more and more of those apartments and buildings are approaching the renovation stage. In the next four years alone, 66 000 apartments will be in need of renovation adding up to 2,7 bn € cost.<sup>14</sup> In the next decade, the costs of renovations will only be rising.

The built environment consumes about 30% of the national energy<sup>15</sup>. Renovating in time and properly is thus really important if energy efficiency is to be achieved. If renovations are done

too late, the expenses increase. In some cases renovations are too expensive for banks to finance.

Overall, there is no chance to meet the climate change mitigation targets by avoiding renovations and demolishing the buildings. Not renovating in time has a huge economical, environmental and social impact. At one point, it will be not worth renovating anymore and the price of such inactivity will be the demolition of a lot of buildings, therefore a big loss of real estate, and a spike in CO<sub>2</sub> emissions.

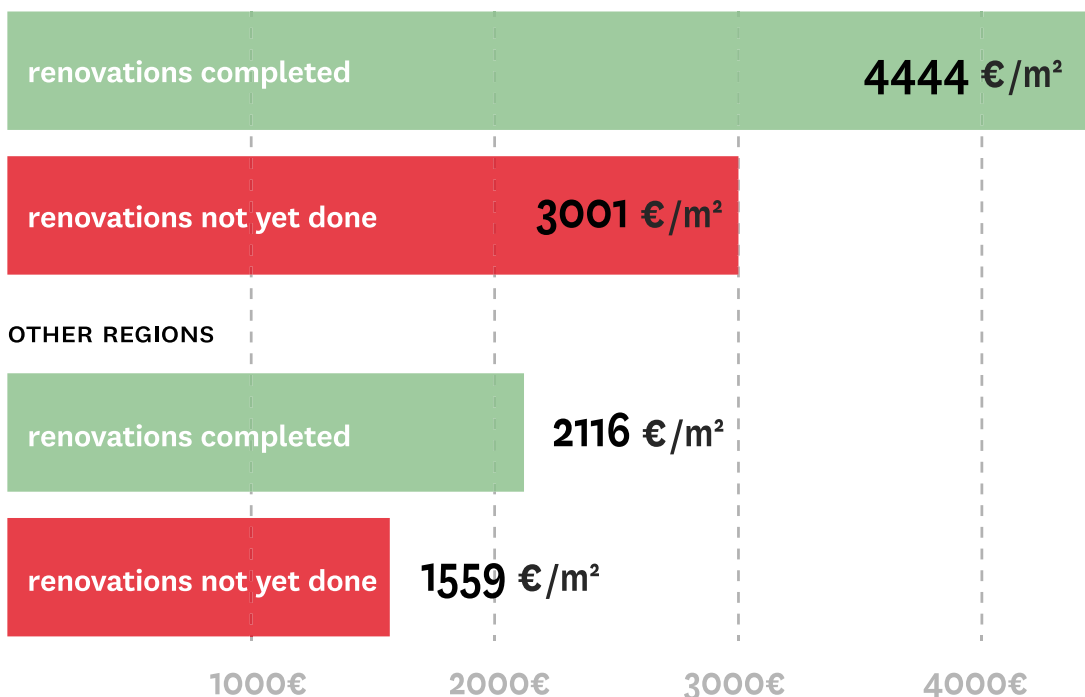
70% of Finns who own a dwelling are the ones responsible to make renovations in time. Real estate owners have to agree on renovations and invest their money and time in it. For housing companies this often means not only a large financial, but also a planning and decision making burden. And their decisions will impact the value of their real estate.

<sup>13</sup> Hietala et al., 2015

<sup>14</sup> Tem.fi, 2016

<sup>15</sup> Ministry of the Environment, 2016.

### CAPITAL CITY REGION



Sale price per square metre in apartment blocks (source: Yle)

With low participation in housing company matters - in big housing companies, as little as 10% of the residents show up on the annual meeting - residents rarely understand upcoming renovations. The past and upcoming renovations become wrapped in mystery, and thus create fear and anxiety. Such situations lead to paralysis in decision making and a delay in needed renovations. And when renovations are done ad-hoc, energy efficiency or any other sustainability factors are barely considered.

These new questions, along with the in-depth interviews with many stakeholders, residents and board members, led us to believe that the housing company system does not function very well. We realised we need to rephrase the initial brief in order to meet the enormous financi-

al and sustainability challenge for residents and society of the coming renovations. We realised we need to focus on how to create a demand for a well-maintained housing company.

We explored the whole lifecycle of the buildings, noticed that the a resident is but a brief moment in the long lifespan of one building. The information about the state of the building is not passed on from resident to resident, that mostly the people selling or purchasing an apartment do not see the bigger picture - when is the moment of purchase taking place in the total lifespan of the building. We compared the lifecycles of buildings built in the 60s - 80s, and realised they are currently at the approximately half of their lifespan, which can be extended significantly with proper renovations.



# SOLUTIONING

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In our solutioning phase, we used three different methods to find sensible ideas to pursue. First, we brainstormed some initial ideas, keeping in mind our reformulated brief and results of the research. Second, we circulated the ideas between us and snowballed more ideas based on the initial ones, adding one more thing with each round. The following four ideas appeared during this round:

## ***“Our house”- an online platform and a mobile app for housing management for boards and residents***

- *Agendas made collectively through questionnaires*
- *Agendas can be electronically generated*
- *Yearly report can be electronically generated, including a timeline of renovations and other relevant history of the building*
- *Encouraged shared content and comparison of best practices with other housing companies*
- *A channel to keep residents informed*
- *Routine functions - booking saunas and laundry via the mobile version*
- *Sharing energy consumption and efficiency data*

## ***Strategic comparison tool for housing companies***

- *Comparison of houses based on energy consumption characteristics*
- *The residents would be presented with options and showcase studies*
- *Quantifying how much energy each resident saved*
- *Giving out rewards to residents based on energy savings*
- *Suggestions for similar buildings*
- *Storing and utilising big data this solution would provide*

## ***Metering individual spending of energy***

- *Residents’ spending is visualised compared to the house’s average*
- *Meters made visible to people inside apartments*

## ***Buying an apartment as a leverage point***

- *Certificate for the housing market providing information on selling apartments that affects the market*
- *The process of buying an apartment would include strategic information about the building*
- *The house’s timeline is public and includes information on completed renovations*
- *Most common apartment search websites would include the timelines of the buildings in a very visual way*
- *Service payment (yhtiövastike) would be predicted for the future*

After laying out these groups of solutions, we have mapped them according to their usefulness (from small to large) and implementation (from easy to hard). Thereby we chose the third idea about influencing housing market through information. Moreover, for us it seemed to have the largest leverage point in the whole system.

# PROPOSAL

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In this part of the report we finally describe Pitäjän - our proposal for the reformulated problem.

## *Background for the Proposal: Value of an Apartment as Motivation*

Housing companies have very different needs and interests depending on different factors like geographical location or size. It is mainly so due to shareholders and their different interests. The diversity of housing companies and their residents makes it difficult to find a single source of motivation for every shareholder to start paying attention to the condition of their jointly owned buildings. This case is known in economics as a lack of public good production, where everyone would benefit if there would be more of it. For instance, if the building was in a better condition, but the benefit for a single person is not great enough to provoke action.

In housing companies the benefit of strategic upkeep is not even easily quantifiable because it takes the form of welfare for the residents. Better housing could benefit health, yet avoiding health risks is a matter uneasily assessed, which is difficult to put a price tag on. Some psychological benefits are found, as well as stressing about renovations decreases when things are

planned ahead well. This simultaneously increases the sensation of one's security. As things are well planned, residents can financially prepare for upcoming costs of renovations.

There is one thing that most people agree on being passionate about - the price of their apartments. We see this as key in provoking motivation for strategic upkeep in housing companies. Many see housing as a stable investment rising in value, which is in many cases a false presumption. The value reflecting the market price of an apartment is also affected by the overall state of the building which is the responsibility of the housing company. Information from and about housing companies are too scarce as buyers make their decisions on the real-estate market. In Finland the market prices end up not fully reflecting the real value of the apartments as the market cannot gather enough information on the state of the building or the cost of owning the apartment for the next years due to renovations.

## *Imperfect Housing Market*

The Finnish housing market is an imperfect market in economic sense. The biggest obstacle for the market to function better is lack of transparency, which increases the risk for a single buyer on the market. As purchase prices of apartments are not completely visible for the buyers, stereotypes are reinforced and affect the market. Maanmittauslaitos provides some

real estate purchase prices in exchange for payment.<sup>16</sup> Ministry of Environment and ARA provide purchase prices for apartments in specified postal code area. Asuntojen.hintatiedot.fi gives also information about the size of the apartment and a short description about the overall state of the apartment (Asuntojen.hintatiedot.fi, 2016).

<sup>16</sup> [www.maanmittauslaitos.fi/aineistot-ja-palvelut/palvelut/kiinteistojen-kauppahintarekisterin-ote](http://www.maanmittauslaitos.fi/aineistot-ja-palvelut/palvelut/kiinteistojen-kauppahintarekisterin-ote)

Directly obtainable information about an apartment on sale shows the seller's price request and captions of manager's certificate (isännöinstijätodistus). Manager's certificates vary in content and in price being in average around 90-120 euros as the most expensive ones over 200 (Blencowe, 2014 and Kiinteistöliitto, 2016). Oikotie also estimates areal square meter prices in order to offer a quick comparison of the apartment to others in the same area. Energy certificate rank is reported for buildings that have it. Done renovations are described with a single word and a date. Upcoming renovations are also listed but they can be reported

without any date.

The buyer of an apartment faces risk on two fronts: 1) difficulty in evaluating seller's price request and 2) lack of detailed information about the state of the building. These points of uncertainty are interconnected. Even if comparing purchase prices, not only price requests that can be strongly biased, were enabled, it would not be sufficient. The purchase prices should be comparable, also the state of the apartment and the building need to be assessed. Moreover, lack of information about done and upcoming renovations can bring unprepared costs as more renovations are required.

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## *Introducing our solution - Pitäjä*

Pitäjä is an engine for strategic upkeep in housing companies. It is an information technology system with a front-end and a back-end, first of which is accessible for users such as housing company board members, apartment buyers etc. The back-end of Pitäjä is a database that contains all data on energy and renovations for housing companies that use Pitäjä.

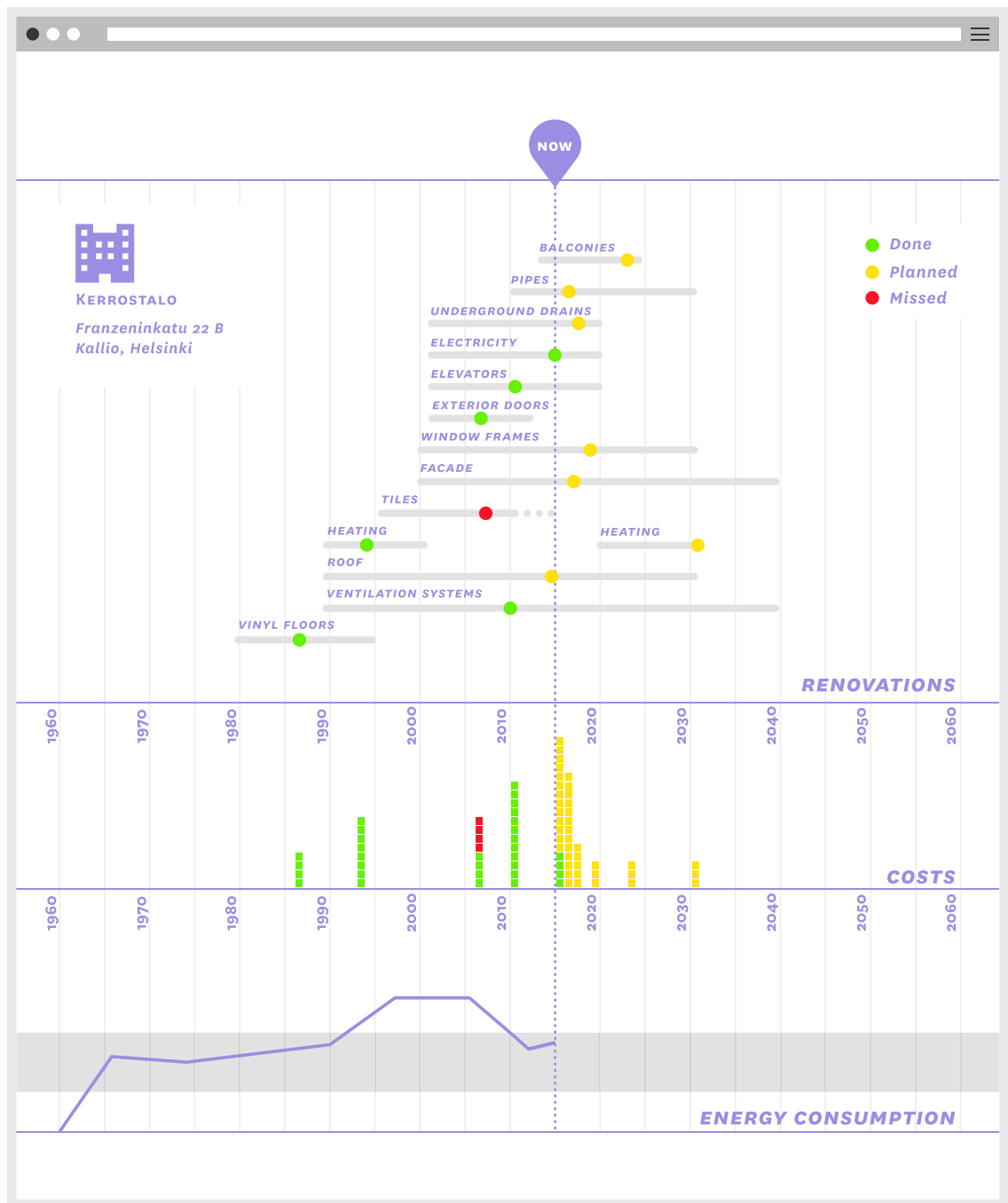
### **PITÄJÄ'S USER INTERFACE**

Pitäjä's user interface shows renovations history and plans in a timeline starting from the year of construction of the building. From there, it derives the suggested renovation periods. Renovations are divided into sections by different renovation types. Renovations are marked as done, planned or missed and visualized by colors. Individual renovations can be clicked and viewed in detail. Those details may contain information about what was exactly done, which contractor was used and so on. This way Pitäjä encourages to share as much information on renovations as possible.

There are three possible levels of precision which show costs of renovations in Pitäjä:

1. Pitäjä can ask for the user to input the actual renovation costs;
2. Sharing the price of renovation contracts might be a too sensitive of an issue. In this case experts pre-evaluate different renovation types. According to the renovation type Pitäjä can give a rough estimate of the possible cost of single renovation
3. If estimating the prices is not reasonable Pitäjä can indicate the scale of renovations in a more abstract manner.

Knowing about the future renovations in the housing company would benefit the owner of the apartment as one can prepare for the future costs in advance. To the buyer that information is also essential, as one is buying an apartment one needs to put money aside for the renovations. Now the buyer can calculate better if one can afford living in the apartment as the renovations increase monthly housing company payments.



### NUDGING THE RENOVATIONS MARKET

There is also a chance that Pitäjä could nudge renovation market to perform better as it currently lacks transparency while renovation prices are not public information. Consultants are typically hired by housing companies to perform call for bids. The price of renovation is individual and based on assessment of the renovation company. This is why costs of future renovations cannot be exactly evaluated. If costs of past renovation we-

re shared in Pitäjä and also the type of renovation performed, we could end up having unofficial price catalogs of renovation companies. Then housing companies would be able to compare prices of renovation companies. The greatest benefit would be achieved if the information about the renovation company were combined with the information about the quality of their performed work. This way renovation companies would be ranked by their quality of renovating.

## VISUALIZING ENERGY CONSUMPTION

Pitäjä would also track energy consumption of the building. Housing companies that use district heating could input monthly heating consumption figures to Pitäjä. For those figures to be comparable, Pitäjä should normalize the consumption numbers based on figures describing the annual heating requirement in different localities. Housing company members could now see whether the normalized figures stay constant over time. If normalized figures vary over time, there might be a reason to investigate.<sup>17</sup> For building comparisons Pitäjä would calculate heating index based on those normalized figures. In buildings where heating relies on electricity Pitäjä can take electricity consumption as an input and visualize it. This would work in a similar fashion than in buildings that use district heating.

Electricity consumption could be also visualized in Pitäjä. Electricity consumption should be separated to the common electricity consumption of the housing company (kiinteistösähkö) and individual apartment electricity. The more interesting of these two is the common electricity consumption of the housing company, expenses of which are divided for all residents to pay.

### PITÄJÄ'S DATABASE

The database of Pitäjä stores all data on renovations, energy and general information about the housing company and the building. We suggest that it would be located on servers maintained by Kiinteistöliitto as they already host websites for housing companies (<http://www.taloyhtiosivut.fi/>). The user of Pitäjä would log in with his housing company's credentials and thereafter being able to update the information of his housing company in the website.

The database should also be open for the wider public to inspect the visualized information about housing companies. It would also be beneficial to provide a possibility to search and compare housing companies. Moreover, the data in Pitäjä's database should be available for everyone to download as an API. This way the

open data could be used by companies and small businesses which can use the data to create services for housing companies. This way the data provided by Pitäjä boosts economic opportunities. For instance, an application for joint renovations for many housing companies could be created with the help of data provided by Pitäjä. What is more, companies offering energy efficiency solutions could find their potential customers by looking at energy consumption data in Pitäjä. There are other potential ways of positively applying the data Pitäjä can store.

### HOW DOES THE DATA APPEAR IN PITÄJÄ?

There are many possibilities for those who actually input the housing company information to Pitäjä. We recommend housing company boards to do this. Other option would be that the housing manager would input all the information but this does not necessarily provoke the housing company members to take action. Therefore we suggest a compromise where housing company board members would input the information to Pitäjä and then the manager would confirm and add the missing information. If housing company has a trained energy expert he could be in charge of filing energy and electricity related information, as they would check the consumption meters anyway. This way energy expert would have a clear role in the housing company activities and his work would be visible as the numbers on energy and electricity consumption are updated into Pitäjä.

The benefit of letting the board members input the information is that they have to get to know their building as they inspect the renovation documents. It is also easier for residents to persuade board members to fill in the housing company information because the residents can put more pressure easily on them as they live in the same building. In contrast, the manager might be dealing with several housing companies and if they all would want the same thing, it could be too much to handle, at once. Besides, the manager might not own an apartment in the same building, so there would be a lack of self-interest in adopting Pitäjä.

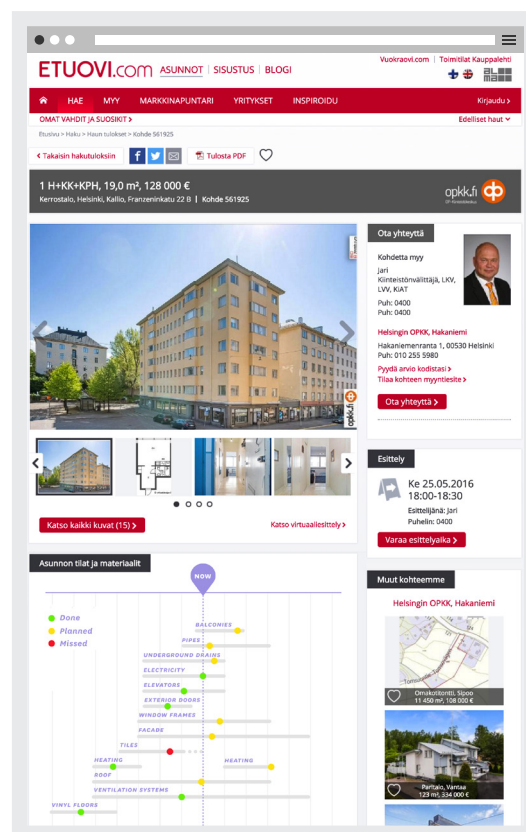
<sup>17</sup> [www.motiva.fi/julkinen\\_sektori/energian kayton\\_tehostaminen/kiinteistojen\\_energianhallinta](http://www.motiva.fi/julkinen_sektori/energian kayton_tehostaminen/kiinteistojen_energianhallinta)

## Solution for the big picture: better functioning housing market encouraging better upkeep

Value of an apartment is always in the interest of the owners, a premise we can see as the potential to use the housing market as key mechanism of influencing housing companies towards a more strategic upkeep and renovating. As previously mentioned in this report, in current situation there is some information, although vaguely represented about the overall status of the building for the buyer. Information is shared by the minimum requirements and future renovations can be spelled out without any specific date. For inexperienced buyers the state of the building and the quality of its upkeep may remain a mystery after seeing manager's certificate as they are not able to evaluate whether any renovations been done in time, or if there should be any big renovations after next 5 years, or is the energy consumption in the typical range for buildings constructed in that era.

A seller and a buyer may agree on ordering a condition inspection for the apartment on sale, but needs for renovating in real estate level are not included to the inspection.<sup>18</sup> Thus, the inspection alone will not make buying an apartment a risk free investment.

Pitäjä would create that long needed transparency in the housing market by providing more relevant information on renovations and the state of the building especially for a buyer. It would complement the existing system, as being not just another tool to make things more complicated. Most of the things are already noted on paper by housing companies so Pitäjä just helps transferring it online to be visible for everyone. Now the apartment prices could be more spot on as the buyer can prepare for the upcoming renovations and see the energy efficiency of the building. This way the upkeep information of the housing company can actually become a criterion for making decisions on the apartment sales. That is why Pitäjä's user interface would be added as a web element into a real estate provider's website.



Pitäjä in Etuovi.com's apartment advertisement.

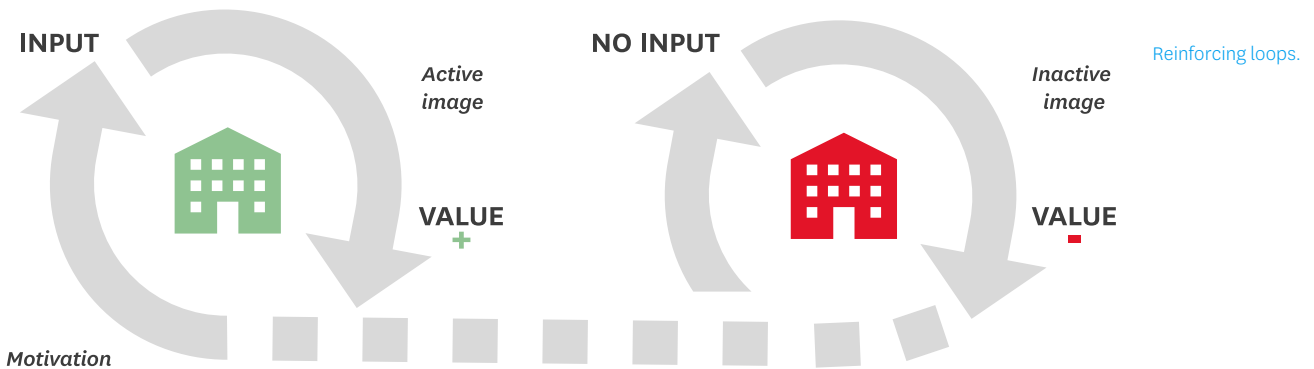
The main idea of Pitäjä is to make a division between well-managed housing companies that have renovated on time, are energy efficient, share a lot of information and those that do not. This makes buying an apartment from a good company much less risky than from a housing company where Pitäjä has not acquired any information or it is being held back. Introducing Pitäjä as an optional tool in well-established real estate providers websites would lead to a situation where well-managed housing companies will start adopting Pitäjä. The apartments in those housing companies are presented in much more detail, which diminishes risks for the buyer, resulting in apartments being sold much more easily than in housing companies that have not adopted Pitäjä.

18 [www.asuntotieto.com/300001\\_Taloyhtiotieto/2008\\_k/kuntotarkastus/KUNTOTARKASTUS.html](http://www.asuntotieto.com/300001_Taloyhtiotieto/2008_k/kuntotarkastus/KUNTOTARKASTUS.html)

**HOUSING COMPANIES MOTIVATED BY COMPARISON**

In well-managed housing companies the incentive to share information via Pitäjä is reinforced as it has a positive effect on the value of the apartments in the building. The housing companies that have not adopted Pitäjä see their apartments value decreasing as the buyers are getting used to knowing more about what they are buying, thus decreasing the demand for apartments in poorly managed housing companies.

The decrease of value and capability to sell an apartment in poorly managed housing company provokes call for action in those housing companies. Apartment owners will either get involved in the housing company activities and demand for better upkeep from the manager and the board or they will see their apartments loose value. In the long run, Pitäjä benefits everyone from buyers to housing company apartment owners as better upkeep and foresightful renovating becomes a common practise.

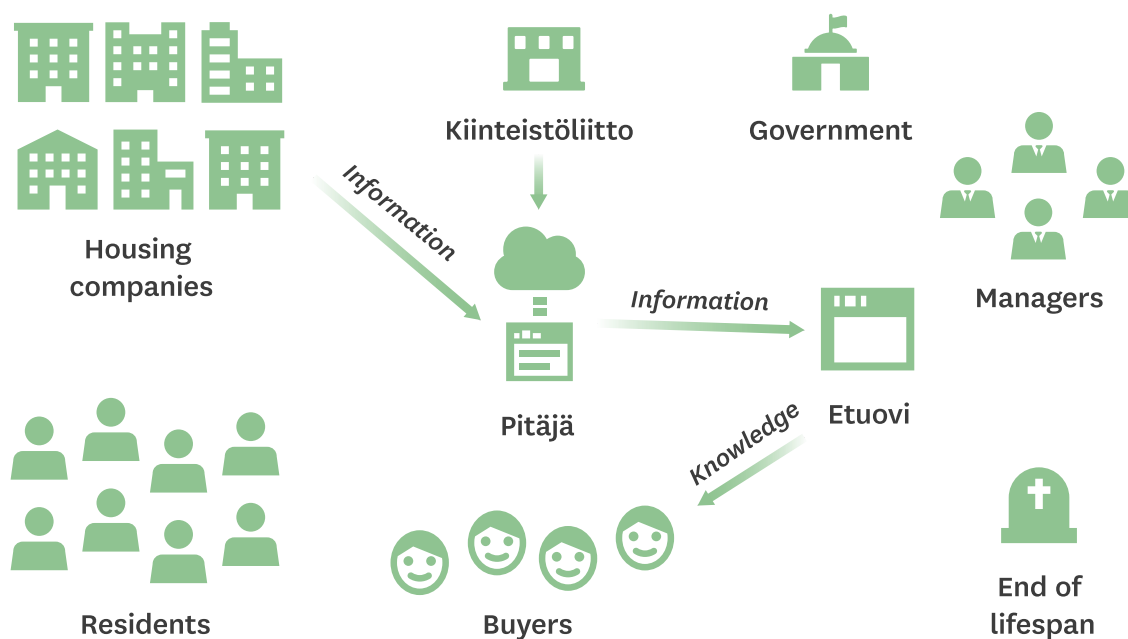


**SPILLOVER EFFECTS AND SYSTEM-WIDE BENEFITS**

It is not just buyers and housing company owners who benefit from implementing Pitäjä. The positive effects go through the whole housing company's system as Pitäjä's data will be utilized. Residents are more up to date as needs to renovate or improve energy efficiency become clearly visible. This fosters decision-making as renovations are perceived more transparent. Renovation companies and small businesses will have new opportunities to target specific customer segments and respond to their needs, thus creating jobs and economic activity. Housing companies could access Pitäjä's database, just as they should be able to access that information through an applicati-

on to see whether there are similar renovations happening in housing companies nearby. This way, they could contact each other and collaborate. Managers and construction/renovation companies could be compared and ranked by the success of their upkeep and renovations. The government could use Pitäjä's data to monitor the entire housing company system with complete details on every building. The data could be used to plan policies and taxation for upcoming renovations. For instance having met ministry's energy saving goals Pitäjä could entitle housing companies to have tax reductions. In the long run, Pitäjä could make people think about the future of their building and give options for housing companies to plan the end of the lifespan of the building.

Spillover effect



### WHAT IT TAKES TO LAUNCH PITÄJÄ

What is required for Pitäjä to function? Not a lot and a lot of it is already done. Real estate providers already feature information about housing companies in their websites and there appears to be interest in easing the buying process by providing easily visible information that Pitäjä collects.

As discussed earlier, Pitäjä requires a home repository to function. Kiinteistöliitto is the best candidate to take care of the maintenance of the service as it already offers free website services to member housing companies. Pitäjä could become a flagship of Kiinteistöliitto's services and it could lure attention to the services they already offer. Kiinteistöliitto is already playing a major role in housing company system and it could lead the way of accelerating digitalisation in housing companies.

The implementation of Pitäjä and enjoying all its benefits would not require any legislative changes. The idea is to introduce Pitäjä as a voluntary tool driven by housing companies motivation to keep their timelines up to date. Without any coercion we can go around the privacy legislation that is preventing energy certificate to fulfill its tasks.

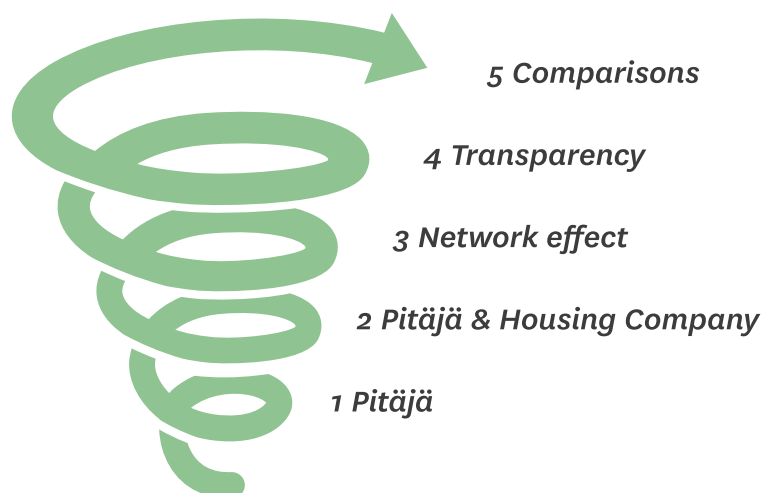
The success of Pitäjä depends on information input of housing companies. The adaptation of Pitäjä will happen in five stages. First, Pitäjä will be up and running and connected to main real estate

provider's websites. Then the boards of (presumably well-managed) housing companies will input their information, after which housing markets will start to utilize Pitäjä and encourage information sharing. This leads to gradual change where new housing companies adopt the tool creating transparency to the housing market, making comparisons of housing companies possible.

### ACKNOWLEDGING PITÄJÄ'S RISKS

Pitäjä aspires to create transparency in housing company system and beyond. We could have better housing market and a standard of well-maintained housing companies with more foresight in their planning. The biggest risk for Pitäjä's success is data input; if it would not attract critical mass of users, Pitäjä might not become a household name and be adopted by most housing companies. That is why there should be some reward for early adopters of the tool securing Pitäjä's success. Another risk for Pitäjä is the unpredictability of the real-estate market's reaction to the increased transparency of housing companies. Lastly, there are housing companies that have not been active in updating their information with Pitäjä or would not use it, will the decrease of value of their apartments encourage them to invest more in upkeep of their buildings, e.g., housing companies owned by the elderly, not interested in long term value of their properties?





## DISCUSSION

Within this project, we conducted many different techniques in gathering knowledge. The most fruitful one being the discussions with the residents, board members, experts and professionals in different fields, and thus creating a bigger picture that was lacking beforehand. The most fruitful problem to solve is showing the bigger picture to all involved in the processes of renovations. In order to know who the stakeholders are, we needed to conduct an investigation based on interviews, ask questions about how the interviewee is connected to others in this matter, and to follow the leads.

We saw the rigidness of the existing housing company system as one of the biggest challenges we faced in the project, and put thought into how to change it for the better.

Future lies in the digital realm and open data. It is high time to shift to digital, to make the information accessible and transparent to all stakeholders. The gains are great for all involved, however they require learning new approaches and competencies:

- *to keep in mind the bigger picture of all stakeholders, processes and tools,*
- *to understand the needs of all involved,*
- *to channel those needs into a common goal,*
- *to make use of what open data has to offer in terms of making informed decisions,*
- *to nurse transparency, which in turns grants trust between stakeholders.*

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