



## Deliverable D4.4

### Constituting the compelling offers

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# Contents

<b>CONTENTS .....</b>	<b>4</b>
<b>SUMMARY .....</b>	<b>8</b>
<b>INTRODUCTION.....</b>	<b>11</b>
Background .....	11
Definitions .....	12
<b>1. METHODOLOGY .....</b>	<b>14</b>
1.1 the refurb compelling offer creation toolbox.....	14
1.2 Creating a compelling offer .....	19
1.3 Template for describing the compelling offer .....	21
<b>2. THE REFURB COMPELLING OFFER DATABASE .....</b>	<b>23</b>
<b>3 DANISH COMPELLING OFFERS .....</b>	<b>25</b>
3.1 NATIONAL APPROACH .....	25
3.2 Compelling offer DK #1 – the indoor-climate package.....	28
3.3 Compelling offer DK#2 – the save-energy package.....	36
3.4 Recommendations for scaling up the compelling offers across Denmark .....	43
<b>4 BELGIAN (FLANDERS) COMPELLING OFFERS .....</b>	<b>45</b>
4.1 REGIONAL APPROACH.....	45
4.2 Compelling OFFER BE#1: Leiedal.....	47
4.3 Compelling offer BE#2: Bostoan.....	63
<b>5 GERMAN COMPELLING OFFERS .....</b>	<b>70</b>
5.1 National approach .....	70
5.2 Compelling offer DE#1: Energetic renovation of housing stock.....	70
5.3 Conclusions using the compelling offer template.....	77
5.4 Conclusion and considerations for DE#1 scaling up.....	79
<b>6 DUTCH COMPELLING OFFERS .....</b>	<b>81</b>
6.1 National approach .....	81

6.2 Compelling offer NL#1: Empower your ‘mienskip’, go energy neutral together! .....	82
6.3 Compelling offer NL#2: Module–WISE approach To NOM .....	86
6.4 Compelling offer NL#3: Order tailored zero-energy home - a la carte .....	90
6.5 Conclusions and considerations for NL regional and national scale-up .....	93
<b>7 ESTONIAN COMPELLING OFFER .....</b>	<b>95</b>
7.1 National approach .....	95
7.2 Compelling offer EE#1 – Reconstruction grant .....	96
7.3 Conclusions and considerations for scaling up in Estonia .....	100
<b>8 SLOVENIAN COMPELLING OFFER .....</b>	<b>102</b>
8.1 National approach .....	102
8.2 Compelling offer SL#1 – GREEN AND SUSTAINABLE BLOCKS OF FLATS.....	102
8.3 Lessons learned & Recommendations .....	108
<b>ANNEX 1 – HOUSING COMPANY RENOVATION IN HALLE/GERMANY .....</b>	<b>109</b>
<b>REFERENCES.....</b>	<b>113</b>

## List of Figures

Figure 1: Overview of the REFURB compelling offers. ....	10
Figure 2: The Lean start-up model, by Eric Reize .....	15
Figure 3: The 11 step REFURB Customer Journey model as developed by the Region Friesland, NL.....	16
Figure 4: The Value Proposition Design Model, illustrated by Alexander Osterwalder.....	18
Figure 5: The Business Model Canvas Model, illustrated by Alexander Osterwalder.....	19
Figure 6: Creating REFURB compelling offers in 5 steps – based on a specific dweller/dwelling segment....	21
Figure 7: Trias Energetica .....	25
Figure 8: nZEB reference table for 22 potential renovation solutions in a Danish single-family detached house .....	26
Figure 9: value proposition analysis for young family’s (YF) energy renovation.....	29
Figure 10: the customer journey as described in the methodology. ....	29
Figure 11: Business model canvas analysis for key stakeholders involved in young family’s energy retrofit	32
Figure 12: value proposition analysis for empty nester family’s energy retrofit.....	37
Figure 13: Business model canvas analysis for key stakeholders involved in empty nester family’s energy retrofit .....	39
Figure 14: Flemish Government, steps of a so-called ‘BENOVatie’ .....	46
Figure 15 NZEB renovation grants in Flanders for houses (Huis) or apartment units (Appartement) as of 3 investment measures (vanaf 3 investeringen) within 5 years (source: EANDIS) .....	46
Figure 16: inspirational brochure .....	48
Figure 17: the 11-step Customer Journey for the Leiedal offer .....	51
Figure 18: Business model of Leiedal's renovation package .....	52
Figure 19: extract from an example of the integrated renovation advice. The first column contains the description of the main stages if the deep renovation is staged. The second column describes the measurements linked with each stage. It starts from the “current situation” (huidige staat), over “the most urgent works” (dringend aan te passen) to be in line with the national code on basic dwelling quality; to “tackle” (aan te pakken) about bringing the dwelling to NZEB-level, to “nice result” (mooi resultaat) and ends with fantastic (schitterend).....	54
Figure 20 screen captures from questionnaire of MijnEnergiekompas.....	57
Figure 21: download of the tailor-made renovation report of MijnEnergieKompas. ....	57
Figure 22 download report for the customer from MijnEnergieKompas .....	59
Figure 23: leaflet invitation to use Bart – the renovation coach.....	59
Figure 24: the customer journey described to the homeowner in a few easy steps.....	60
Figure 25: Promotion leaflet – promoting the warmer homes (Warmer Honen) concept.....	61
Figure 26: Illustration of timber frame module in production (source: Bostoën) .....	64
Figure 27: Illustration of Isofinish, an integrated wall component (source: Recticel) .....	64
Figure 28: Business model of Bostoën’s renovation package .....	66
Figure 29: drivers and barriers for renovation projects in German housing companies .....	71
Figure 30: value proposition for “owners of multi-apartment dwellings” .....	71
Figure 31: list of key people being interviewed .....	74
Figure 32: business model for development of customer tool .....	76
Figure 33: Business model for management of district projects.....	77
Figure 34 Trias Energetica principle TU Delft Netherlands .....	81

Figure 35: The Business model canvas for “Mienskip” (community)..... 82

Figure 36: Energy initiatives in Friesland. The green stars represent a local energy cooperation. The yellow suns are collective solar fields. Note: Not all these initiatives are necessarily related to the ‘Energiewerkplaats’. The orange flashes are active Buurkr ..... 84

Figure 37 Zero-energy rental dwellings in Huizum-Leeuwarden (March 2017, photo Lisa Adema)..... 86

Figure 38: the business model canvas for the “module-wise” compelling offer ..... 87

Figure 39: the business model canvas for the “a la carte” compelling offer ..... 90

Figure 40: Construction of new MFHs in Estonia ..... 95

Figure 41: the Business Model canvas for the EE renovation grant offer ..... 96

Figure 42 - value proposition to target group ..... 98

Figure 43: The Business Model canvas for the SL renovation offer ..... 105

*List of Tables*

Table 1: Overview of 10 completed Refurb compelling offers..... 24

Table 2: Danish renovation packages ..... 28

Table 3: Main features of Mijn energiekompas and Renovatiecoach..... 50

## Summary

Within the REFURB project, a “compelling offer” is defined as a soft proposal to a specific market segment, whereas a “renovation package” is considered as a mix of technical renovation measures.

The creation of a compelling offer starts with an effective renovation package that is relevant for the chosen segment. The REFURB Deliverable D3.2 “Existing Renovation Solutions Towards nZEB” Report describes existing renovation solutions. One or more solutions will form the basis for a nZEB renovation package.

This report will present the REFURB methodology and the toolbox which will be used for creating the compelling offers as well as the database of the developed compelling offers for BE, DK, DE, NL, SI and EE. The Report also includes 10 created country specific compelling offers – created by using the REFURB methodology and toolbox.

The compelling offer creation engine is based on the Lean start up methodology and uses the following tools:

- the **Customer Journey**, describing how homeowners in 11-steps can be inspired from “becoming aware” in step-1 until “wanting more” in step-11
- the **Value Proposition**, describing how homeowners value gains and pains associated with the energy retrofit and how gain creators and pain relievers will be developed
- the **Business Model generation**, used for creating a new business model for homeowners and stakeholders associated with the Customer Journey

By adding more aspects, the compelling offer becomes more attractive, valuable, robust and holistic in their approach:

- **financial solutions** (REFURB Deliverable D4.3 “Supportive financial constructions” Report) e.g. specific subsidies or soft-loans
- **tools for market uptake** (REFURB Deliverable D4.5 “Online customer tool and market approach” Report)
- **performance test and quality assurance** (REFURB Deliverable D5.4 “Ensure performance nZEB renovation packages” Report)
- **single-point of contact quality assurance** (REFURB Deliverable D5.5 “Quality assurance on point of contact for nZEB renovation” Report)

In a nutshell, the compelling offer creation engine can be summarized in the following steps:

1. Decide your market segment
2. Use the customer journey to identify the stumbling blocks and advantages/actions
3. Generate the value proposition
4. Describe the business model
5. Add the financial support (optional)
6. Appoint a Single point of contact (if required)

As described in the REFURB Deliverable D4.2 “Local tailoring and overview of regional differences” Report, all country partners in the REFURB project have carried out a tailored analysis of their individual markets



and have created a solid overview identifying key local segments, drivers and solutions for each country. The majority of the countries have selected private homeowners in either single family houses or multi-family houses as the most relevant market segment to nZEB renovation. Therefore, the compelling offer creation methodology developed focused on private households (homeowners).

A REFURB compelling offer template has been created to secure the soft proposal approach, based on the offer elements and measures as described above. However, the template also addresses the national market potentials, the importance of right timing, meaning when the offer is presented to the homeowner in the customer journey's step1 etc.

Within this report, the database of compelling offers developed by the country teams in Denmark, Belgium, Germany, the Netherlands, Estonia and Slovenia can be found. An overview is shown in Figure 1. The majority of the offers address large market potentials within each country and they are easy to rollout within the specific countries.

As the offers are tailored-made to address the specific needs and opportunities within each of the six countries, there seems to be limited cross-border synergy between the offers. Nevertheless, these offers serve as inspiration for creating new compelling offers using the REFURB offer creation methodology presented in this report.

BE	DK	NL	DE	EE	SI
<b>ALL-IN-ONE AND STEP-BY-STEP RENOVATION PACKAGES</b>	<b>FIVE PACKAGES FOR COMFORT AND HEALTH</b>	<b>UNBURDENED NZEB RENOVATION</b>	<b>ATTRACTIVE FLATS TO LET OUT</b>	<b>A FAIR NZEB OFFER</b>	<b>AN ECONOMIC SAFE SOLUTION</b>
<b>Target group</b>	<b>Target group</b>	<b>Target group</b>	<b>Target group</b>	<b>Target group</b>	<b>Target group</b>
Single family houses	Single family houses	Any private owned house	Multi-apartment, Housing companies and cooperatives	Multi-apartment, private owned	Multi-apartment, private owned
<b>Construction period</b>					
Any	1960-1980	Any	Any	1960-1980	Any
<b>Specific Intervention timing strategy</b>					
Yes	Time of purchase, time of retirement	Yes	When there is a need	When owners can agree	When owners can agree
<b>Single point of contact, independent energy adviser</b>					
Yes	Yes	No	Non Applicable	Non Applicable	Non Applicable
<b>Financial offer</b>					
No	Can be integrated locally	ESCO	KfW funding options	KredEx Package	ECO Fund
<b>Investments in EUR</b> 60.000+	<b>Investments in EUR</b> 12.000-67.000	<b>Investments in EUR</b> 20.000-100.000	<b>Investments in EUR</b> No limits	<b>Investments in EUR</b> 55.000-394.000	<b>Investments in EUR</b> No limits
<b>Webpage with calculation tool</b>					
Yes	No	Non Applicable	Yes	No	No
<b>Energy ambassadors</b>					
Yes	Yes	Yes	No	No	No
<b>Customer Journey consortium</b>					
Industry with energy expert and architects	Regional/local stakeholders	Local community	District solutions	Local community	Construction company driven
<b>Quality assurance issues addressed</b>					
Yes	Non Applicable	Yes	Online tool	Yes	Yes

Figure 1: Overview of the REFURB compelling offers.

# Introduction

## BACKGROUND

Deep renovations of the residential sectors buildings towards nearly Zero Energy Buildings (nZEB) is lagging behind the European political ambitions for energy renovation. The overall REFURB project focuses on bringing forward solutions to solve the complex interplay between the supply side and the demand side of a nZEB renovation and bring forward compelling offers targeting the residential sector.

The supply and demand side of a nZEB renovation has been documented and described in previous REFURB reports and the first steps towards bridging the gap between supply and demand have been analysed in the reports “**Demand – Supply Combinations**” (REFURB Deliverable 4.1 Report) with “**Local Tailoring and overview of regional differences**” (REFURB Deliverable 4.2 Report). Also, the overall framework, methods and approach to filter information for creating a compelling offer for the homeowner are described in detail as well as the main local segments, drivers and solutions.

**Supportive financial constructions** (REFURB Deliverable D4.3 Report), **Online customer tool and market approach** (REFURB Deliverable D4.5 Report), **Ensure performance of nZEB renovation packages** (REFURB Deliverable D5.4 Report) and **Quality assurance on point of contact for nZEB renovation** (REFURB Deliverable 5.5 Report) will improve insights, interact and create robustness of the compelling offers.

The core objective of WP4 is to **combine findings and information derived in other REFURB work packages**. Through systematic analysis and iterative steps, the complexity of the area is untangled providing an overview of general and specific clusters of solutions for creating “an offer you can’t refuse” for the **residential sectors buildings**. WP4 consists of the following deliverables, where this report is the REFURB Deliverable D4.4:

- D4.1 Report: Demand - supply combinations
- D4.2 Report: Local tailoring and overview of regional differences
- D4.3 Report: Supportive financial constructions
- **D4.4 Report: Renovation packages**
- D4.5 Report: Online customer tool and market approach

The scope of this specific task on developing the compelling offers is two-fold:

- to **develop a REFURB methodology and toolbox** for creating compelling offers
- to **create, test and report the developed high potential REFURB compelling offers**, developed in each country, based on insights from previous reports, tested to secure acceptance by target dweller segment and core stakeholders (according to REFURB task 6.1)

The goal for each country is to bring all the inputs and insights developed in REFURB into “a REFURB Compelling offer” (based on one or more renovation packages) toward nZEB renovations in the national markets.

Within this task, specific renovation packages are developed. For doing that, this task builds on the input of the previous WPs and tasks within this WP. The compelling offers will be different to various homeowners, and will therefore have the form of a collection of renovation packages (see definitions section below).

These renovation packages will be based on the tailored demand–supply combinations, and can be seen as a combination of technologies that will jointly provide the best result. The renovation packages should be made available, usable and understandable to all targeted homeowners and stakeholders. This means amongst others that the benefits should be made clear and visible to all parties. For example, for a homeowner it should be clear what a solution means for him in terms of *return on investment* or *improvement in comfort*; a supplier should be able to make the translation from the real demand of the customer to a system of technologies and his responsibilities in the servicing period (e.g. a guaranteed energy saving).

This REFURB Deliverable D4.4 “Constituting the compelling offer” Report will describe the methodology and toolbox developed for creating the REFURB Compelling offers. It includes the description of ten specific compelling offers created by the REFURB country teams in Denmark, Belgium, Germany, The Netherlands, Estonia and Slovenia – demonstrating the use of the REFURB Compelling Offer creation methodology and toolbox.

## DEFINITIONS

Within REFURB, the term Compelling offer means:

- An easy-to-understand commercial offer to an end-user, written in non-technical language which satisfies his/her requirement for comfortable living but at a higher energy-efficiency of his/her dwelling.
- An offer comprising the optimum combination of solutions/technologies to be installed in the most logical sequence, tailored to the type of dwelling, the state of the building, the geography in which the dwelling is located and socio-economic parameters.
- An offer that unburden the end-user, so he/she is assured of an agreed higher energy efficiency without worrying about individual technology choices.

In order to respond efficiently to dweller/dwelling characteristics, a REFURB Compelling offer is therefore constituted by one or more technical renovation packages (the REFURB Deliverable D3.2 “Existing renovation solutions toward nZEB” Report), complemented by one or more other services/products, such as:

- the renovation package itself: the technical solutions/toolbox (e.g. renovation measures for building envelope, technical installations, renewable energy production...) (REFURB Deliverable D3.2)
- financial solutions (REFURB Deliverable D4.3) e.g. specific subsidies or soft-loans
- online customer tools and market approaches for market uptake e.g. Leiedal’s “mijn energiekompas” or Leeuwarden’s “Slim Wonen” website (REFURB Deliverable D4.5)
- performance guarantees or quality assurance e.g. Energy performance contract, or Energy performance certificate as a proof of the energy savings/energy performance respectively (REFURB Deliverable D5.4)

- services to unburden customers or support them in the customer journey e.g. the Danish Better Housing Consultants, Sonderborg Charlie or Leiedal's Bart coach (REFURB Deliverable D5.5)

# 1. Methodology

This report builds on the findings documented in the REFURB Deliverable D3.2 “Existing renovation solutions toward nZEB” Report. The Report has researched the state of the renovation market and listed the solutions for renovation to nZEB that are (near-)available on the market. The D3.2 Report determines which existing renovation solutions can be used in renovation packages that are offered to homeowners to stimulate them to renovate their house to nZEB. Moreover, the above-mentioned report also defines which aspects of those solutions are important to know and to use when developing new renovation packages.

The D3.2 report formulates recommendations for offering renovation packages based upon an analysis of currently offered renovation solutions (technological and non-technological), and the country contexts in which they are offered. Special attention has been paid to one-stop-shop solutions, as they are a promising non-technological solution for such renovation packages to be offered on the market.

## 1.1 THE REFURB COMPELLING OFFER CREATION TOOLBOX

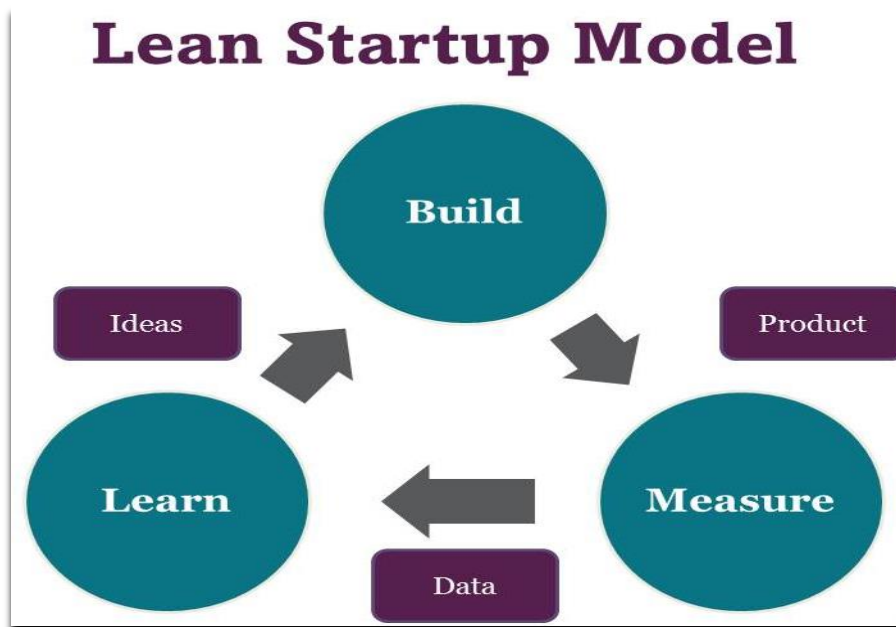
The compelling offer creation engine is based on the Lean start-up methodology. Lean start-up<sup>1</sup> is a product/services development tool/model to shorten product development cycles by adopting a combination of business-hypothesis-driven experimentation, iterative product releases, and validated learning.

The central hypothesis of the lean start-up model is that, if start-up companies invest their time into iteratively building products or services to meet the needs of early customers, they can **reduce the market entry risks**. But the improvement model can also be applied for existing activities and companies.

The model builds on creating a minimal variable prototype product, which is tested in the market with focus on measurement and learning feedback cycles. The Lean start-up method is developed by Eric Rise and the methodology is visualized in Figure 2 below.

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<sup>1</sup> [www.52weekturnaround.com/lean-startups-brussels-2014/](http://www.52weekturnaround.com/lean-startups-brussels-2014/)



*Figure 2: The Lean start-up model, by Eric Reize*

The tools or building blocks used for developing the compelling offers are:

1. Customer journey: Describing how homeowners become motivated and how stakeholders will support homeowners realizing their renovation project
2. Value proposition: Identification of the value proposition to the chosen dweller/dwelling-segment
3. Business model generation: Generation of the business model to secure stakeholders organising a commercial consortium along the customer journey ensuring a realistic market uptake

These tools are described more in detailed in the following paragraphs. The description includes how these tools are integrated to create an engine, forming the basis for creating compelling offers.

### 1.1.1 The Customer Journey

The first building block is the Customer journey model. The REFURB Customer journey is based on the customer journey-model of Dutch VNG "Klantenreis energiebesparing woningeigenaren". The Dutch VNG Customer Journey model has been translated and adapted as the REFURB Customer Journey model<sup>2</sup>.

The REFURB Customer Journey describes the 11 steps that homeowners go through in the purchase process of energy renovation. The 11 steps are linked with positive and negative experiences during the journey. The 11 stages are: (1) Becoming aware, (2) Becoming interested, (3) Becoming active, (4) Consider

<sup>2</sup> For further explanations about the search for a customer journey model, see the REFURB Deliverable D2.5 "Marketing the tailored demand drivers" Report.



the options, (5) Financing, (6) Selecting a supplier, (7) Installation and payment, (8) Experience, (9) organizing - search for service, (10) Sharing experiences, (11) Want to more.

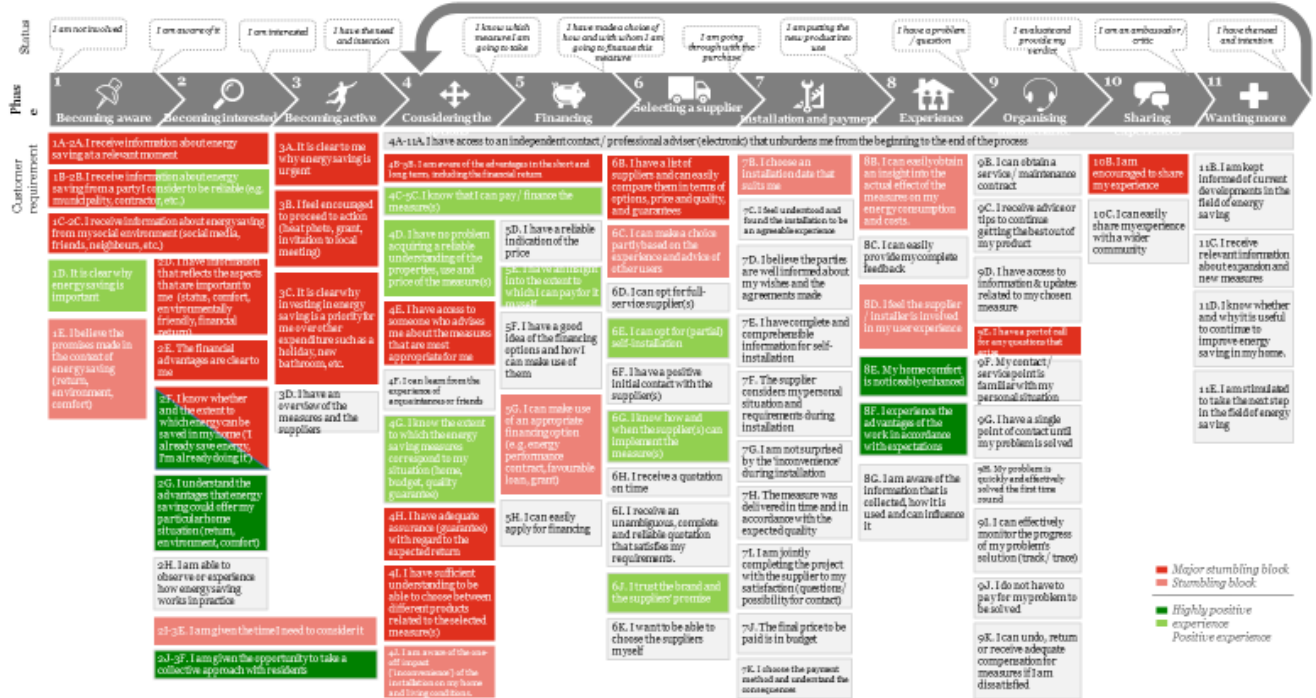


Figure 3: The 11 step REFURB Customer Journey model as developed by the Region Friesland, NL

Figure 3 shows the REFURB customer journey and its 11 steps. Every step of the journey is essential for a successful completion. Each step has a number of named stumbling blocks, which addresses challenges (and positive experiences) along the journey. Majority of the (red) stumbling blocks are identified along the initial 4 steps of the Customer Journey. After successful completion, the customer wants to share (and become ambassador for new customers) and him/her-self may want more, which can trigger a new journey with new renovation packages.

Below the 11-step Customer Journey with highlighted essentials of each step are listed:

- Step 1** Becoming aware – it is essential that the information is **(timely)** received by the homeowner at the relevant moment. A relevant moment is a renovation project, an addition to the family, or at a point of time when people are motivated to invest, either by motivation or because of component break-down.
- Step 2** Becoming interested – it is essential that a trusted party provides the information.
- Step 3** Becoming active – it is essential that the homeowners understand why they must act now.
- Step 4** Considering the offer – it is essential that the value proposition and potentially connecting to a single-point of contact (advisor).
- Step 5** Financing – an indication of costs and how the investment can be financed is essential.



- Step 6**      Selecting a supplier – an overview to make simple comparisons between the options and the possibility drawn on others’ experiences is essential.
- Step 7**      Installation and payment – a personal approach and structured communication is essential.
- Step 8**      Experience –impact measures and comfort in accordance with expectations are essential.
- Step 9**      Organizing –maintenance contract and proactiveness being proactive providing advice and tips are essential.
- Step 10**     Sharing – it is essential to encourage users to share their experiences both for spreading the word of mouth publicly, but also for their own confirmation of decisions made.
- Step 11**     Wanting more – it is essential to stay in touch with the homeowner and to keep him/her up to date about new measures.

The REFURB Customer Journey form a circular process, initiated by a successful step 1-3, followed by a cycle 4-10 leading to a new cycle – step 11 “Wanting more” (the next renovation package), re-entering step 4.

The high potential segments, drivers and solutions have previously been identified per country in the REFURB Deliverable D4.2 “Local tailoring and overview of regional differences” Report. Key to a successful completed journey is understanding the Customer Journey and tailoring it to meet the specific homeowners’ requirements.

The below scheme provides a few examples of how existing country renovation solutions, as described in the REFURB Deliverable D3.2 and D3.4 Reports, support the REFURB Customer Journey and its 11 steps approach.

The REFURB country adaptation and compelling offer creation and therefore includes a step-by-step local assessment of the 11-step Customer Journey model, its challenges, stakeholder engagement and implications at national level – using the above scheme.

REFURB WP5 will discuss the Customer Journey’s quality implications further.

### **1.1.2 The Value Proposition Design**

The second building block for creating a compelling offer is to clearly identify the value proposition for the selected segment. A strong value proposition addresses the Pains (Barriers), Gains (Drives) and Jobs (Solutions) relevant for the chosen segment to transforms this into a short value proposition, which can be summarised by answering the following bullet points:

- for (target customers)
- who are dissatisfied with (the current alternative)
- the REFURB renovation package is a (new package)
- that provides (key problem-solving capability)
- unlike (the renovation package alternative)

A graphic method for identifying the value proposition is the method developed by Alexander Osterwalder described in his book: "The Value Proposition Design - How to Create Products and Services Customers Want"<sup>3</sup>.

Figure 4 **Error! Reference source not found.** shows the design elements of the value proposition.

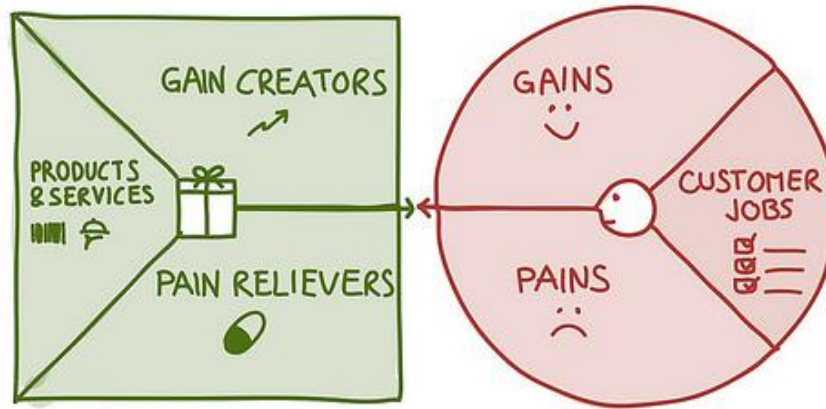


Figure 4: The Value Proposition Design Model, illustrated by Alexander Osterwalder.

In the REFURB project, the value proposition model is being used to understand the value proposition for the selected homeowner segment and secure a successful completion of step 1 – 4 in the Customer Journey (becoming aware, becoming interested, becoming active, considering the offer).

### 1.1.3 The Business Model (Canvas) generation

The "Business Model Canvas" generation is a strategic management and lean start-up template for developing new or documenting existing business models. It is a visual chart with nine elements describing a firm's or product's value proposition, infrastructure, customers and finances.

The Business Model Canvas is developed by Alexander Osterwalder and documented in the book "Business Model Canvas"<sup>4</sup>.

In the REFURB-project, the Business Model Canvas generation is being used to secure that key stakeholders are aligned with the supporting jobs to be completed during the customer journey's step 4-9.

The Business Model Canvas is visualised in the model template illustrated in Figure 5 and includes the following 9 key elements:

- Customer segment
- Value proposition – to the compelling offers key stakeholders
- Customer relationship
- Channels
- Key activities

<sup>3</sup> <http://businessmodelalchemist.com/blog/2012/08/achieve-product-market-fit-with-our-brand-new-value-proposition-designer.html>

<sup>4</sup> <http://www.slideshare.net/timdelhaes/the-pitch-method-busines-model-canvas-v2>.

- Key partners
- Key resources
- Revenue streams
- Cost structure

Be aware that the value proposition to be used in the model is different from the (customer) value proposition discussed in 1.1.2, as the value proposition in the Business model should be based on the value proposition for the key stakeholders.

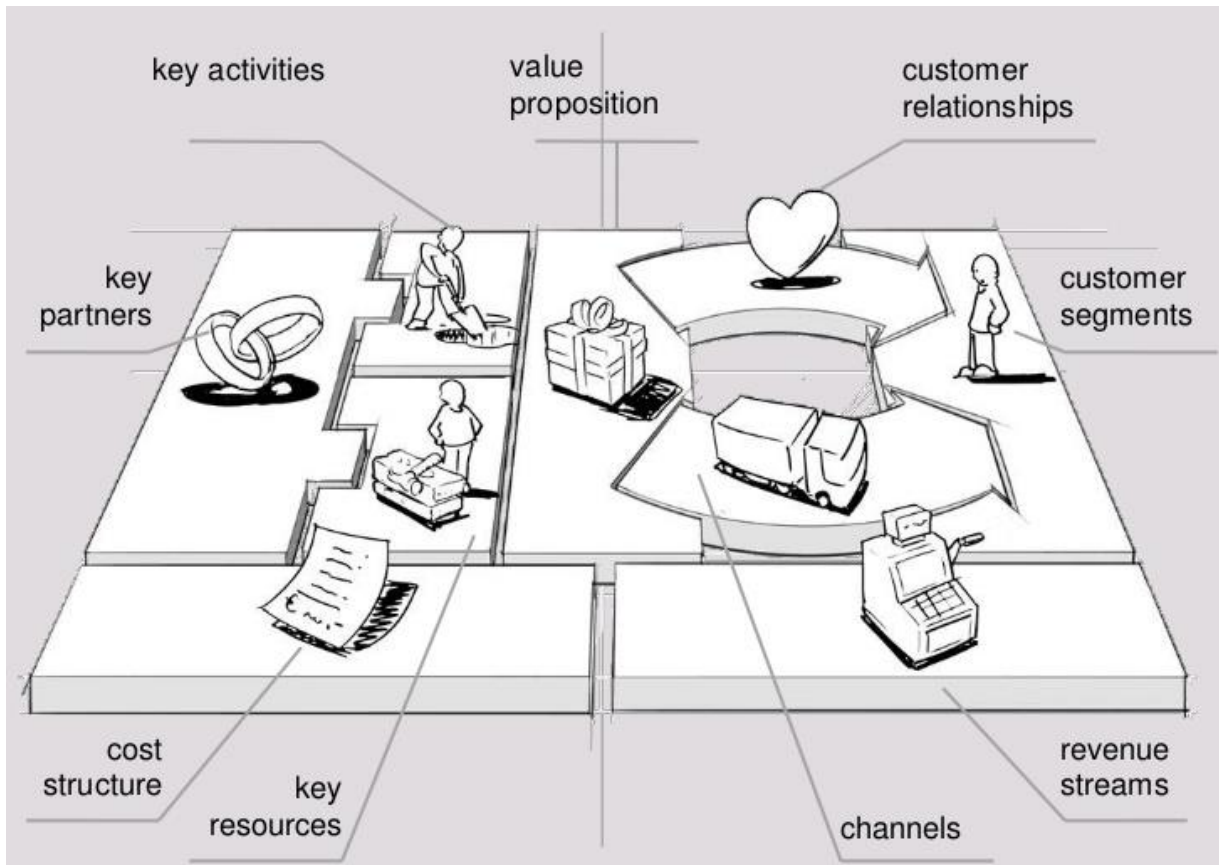


Figure 5: The Business Model Canvas Model, illustrated by Alexander Osterwalder.

## 1.2 CREATING A COMPELLING OFFER

As mentioned before, the Lean Start-Up model is applied to generate the compelling offers (“an offer you can’t refuse”). This will be an open innovation process including local testing (REFURB Deliverable D6.1 “Pilot evaluation” Report) with local customers (YF/EN) and the key supporting stakeholders (craftsmen, banks, real-estate agents, architects, energy consultants etc.).

The compelling offer creation methodology can be summarized in the following steps:

1. Decide your dweller/dwelling segment
2. Generate the value proposition
3. Add the financial support (optional)
4. Describe the business model
5. Use the customer journey to identify the stumbling blocks, advantages and actions

## 6. Appoint a Single point of contact (if required)

For each of the regional selected dweller/dwelling segments, the Value Proposition, the Business Model and the Customer Journey, are used to finalize the compelling offer. For the specific homeowner segment targeted, the **(2) value proposition** helps move the customer from step 1 to step 4 of the Customer Journey and supports additional loop/cycles described as step 11 of the CJ: wanting more.

National **(3) incentives or financial support** as described in the REFURB Deliverable D4.3 “Supportive financial constructions” Report, strengthens the value proposition and value creation further.

**The (4) business model** supporting key stakeholder engagement during step 4 – 9 of the Customer Journey is required to create a strong stakeholder support

The **(5) REFURB customer journey** determines the sequence for the 11 steps actions from step 1: “not being aware” until step 11: “wanting more”. High quality procedures or QA-preprogrammed activities (check-points) can improve the safety and robustness of the customer journey. The QA activities are described further in the REFURB Deliverables D5.3, D5.4 and D5.5 related to the customers journey, ensuring performance and the profile of the single point of contact respectively.

The business model and the customer journey also need to be implemented and programmed in the local society in order to make sure that the homeowners are supported along the customer journey – and not “left alone” at any time.

A **(6) single-point of contact** (advisor/coach) can unburden the homeowner during the process and create a positive customer experience. The **single-point of contact** function is preprogrammed during 4-11 of the customer journey model. In real life in Sonderborg (DK) and Leiedal (BE), these independent advisors have shown to be very successful and are named “Charlie” and “Bart”. The roles and competences of such catalyzers will be discussed further in the REFURB Deliverable D5.5 “Quality assurance on point of contact for nZEB renovation” Report.

Figure 6 illustrates how the above REFURB toolbox (customer Journey, Value Proposition and Business Model Canvas) linked together, is forming the basis for creating a successful REFURB Compelling offer for a specific dweller/dwelling segment.

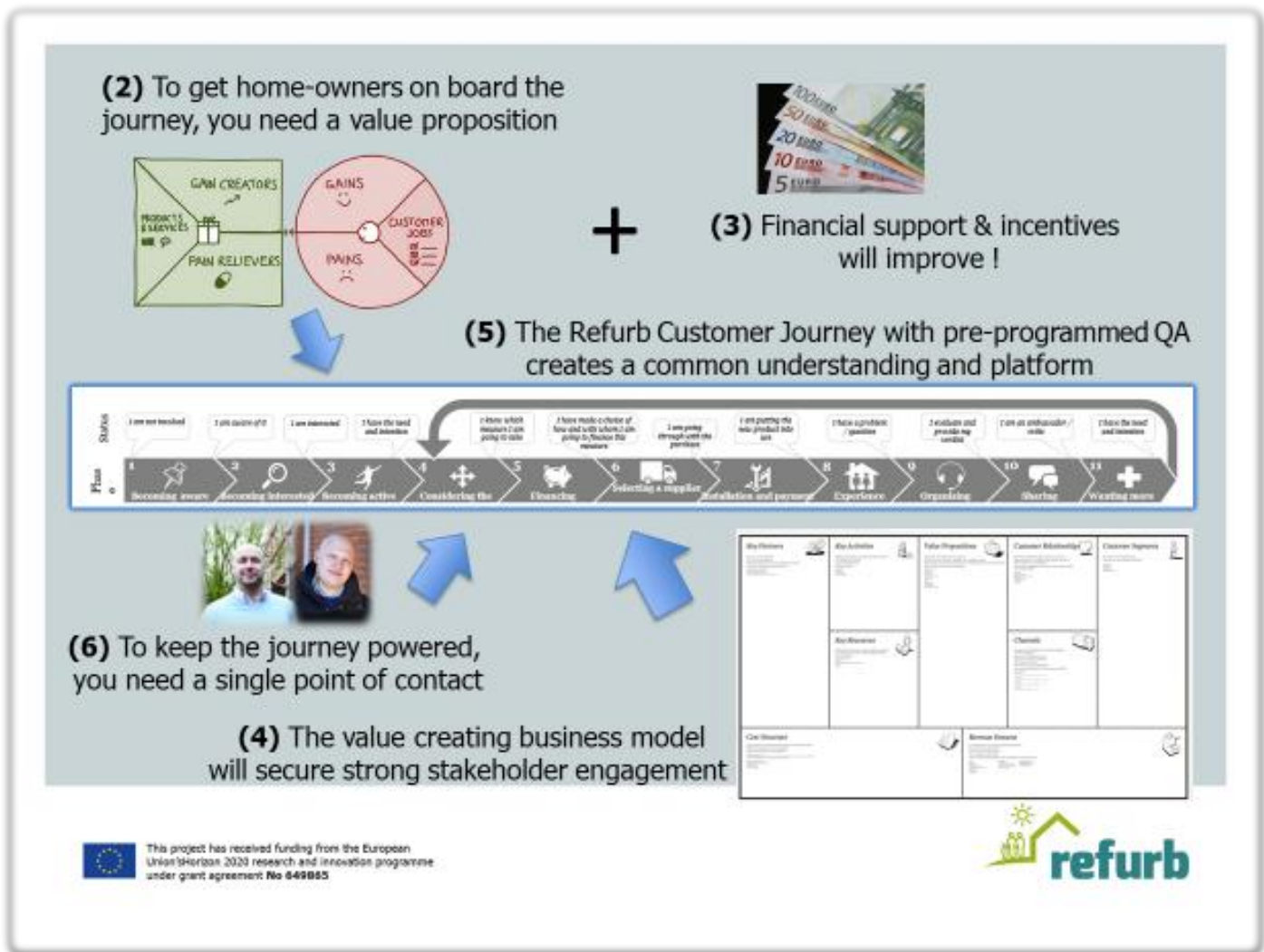


Figure 6: Creating REFURB compelling offers in 5 steps – based on a specific dweller/dwelling segment

### 1.3 TEMPLATE FOR DESCRIBING THE COMPELLING OFFER

The below template for creating country specific compelling offers has been developed to secure an easy overview and communication of the created compelling offer.

Using the above described REFURB Compelling offer toolbox and this template will enable local stakeholders to develop new compelling offers meeting the REFURB standard for an integrated compelling offer creation.

Using the REFURB toolbox and template also helps securing, that the offer will follow the definitions as described above (see section definitions).

<b>Compelling offer name</b>	<b>XX#y NAME</b>
<b>Selected segments (target groups)</b>	YF/EN
<b>Short description</b>	XXX
<b>Market value potentials in country</b>	XXX – what is the market potential and society value of the national market addressed by this compelling offer?
<b>Timing of intervention</b>	XXX – time of house purchase, kids arrival, retirement etc.
<b>What needs to be done (the job)?</b>	XXX – describe the renovation package, the job and potential sequence issues
<b>Value proposition to target group</b>	XXX – what is the value proposition to attract the selected segment?
<b>Business case for the family &amp; stakeholders</b>	Investment, savings, ROI, financials <ul style="list-style-type: none"> <li>•which national/local instruments will strengthen the offer?</li> <li>•what is the (economic) payback time in years for the investment</li> </ul>
<b>Customer journey implications</b>	XXX – how the renovation package will interact with each step in the 11 step Customer Journey. What are the key communication messages for step 1-3 and how is the journey process powered? – how to unburden customers etc.?
<b>Business model implications</b>	XXX – how the renovation package will create a positive business mindset for key stakeholders
<b>Quality measures integrated</b>	XXX – how quality measures are integrated into the compelling offer based on the Customer Journey process, the building aspects and the cooperation of the (homeowner) customer to avoid the rebound effect and by stakeholder training. The table referenced is based on the REFURB Deliverable D5.4 Quality assurance of the compelling offers.
<b>Market uptake tools integrated</b>	XXX – which?

Figure 8: REFURB template for describing and communicating the compelling offer

## 2. The REFURB compelling offer database

The presented compelling offers are all created based on methods described in the REFURB Deliverable D4.2 “Local tailoring and overview of regional differences” Report, where each region has selected one or more dweller or dwelling segment representing a majority of the country’s dwellings.

The following chapters describe the developed compelling offers per country. These are designed based on insights from previous reports, using the REFURB compelling offer toolbox and template and will be tested using the “Lean start up model” to secure acceptance by target dweller segment and core stakeholders (according to REFURB project Task 6.1).

These ten specific compelling offers created by the REFURB country teams in Denmark, Belgium, Germany, The Netherlands, Estonia and Slovenia – demonstrating the use of the REFURB Compelling offer creation toolbox, as described before.

Table 1 provides an overview of the ten REFURB compelling offers described per country with the following characteristics:

- The dwelling and dweller segment
- Specific timing to be addressed
- Financial solution integrated
- Market uptake tool integrated
- Quality assurance addressed
- Market potential indication

Country	Compelling offer	Dwelling Type	Dwelling type	Specific timing	Financial solution	Market uptake tool	Quality measures integrated	Market potentials
DK#1	Indoor-Climate package	Single-family	YF	yes	yes	yes	yes	€€€
DK#2	Save-Energy package	Single-family	EN	yes	yes	yes	yes	€€€
BE#1	Leiedal	Single-family	YF/EN	yes	(yes)	yes	yes	€€€
BE#2	Bostoan	Single-family	YF	yes	(yes)	yes	yes	€€€
DE#1	Energetic renovation of housing stock	Multi-apartment association	YF/EN	no	yes	yes	yes	€€€
NL#1	Empower your mienskip	Any private	YF/EN	yes	yes	no	yes	€+
NL#2	Module Wise approach to NOM	Any private	YF/EN	yes	no	no	yes	€€€
NL#3	Order tailored zero energy home – a la cate	Any private	EN	yes	no	no	yes	€€€
EE#1	Reconstruction grant	Multi-apartment private	EN	no	yes	no	yes	€€€



SL#1	Green and sustainable blocks of flats	Multi-apartment private	YF/EN	no	yes	no	yes	€€€
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*Table 1: Overview of 10 completed Refurb compelling offers*

The developed REFURB methodology toolbox provides an easy to use implementing platform to create REFURB compelling offers. It offers an integrated approach which can be used at both local and national level at any country for creating compelling offers.

Certain similarities between the countries in creating REFURB compelling offers, especially for the single-family houses. However, as the offer creation is based on local context and adaptation, these can be used as inspiration when creating new compelling offers in specific country circumstances.

The methodology, as described in this REFURB Deliverable D4.4 Report, focused on private homeowners except for Germany and Estonia where housing companies or housing associations were the selected market segments. For this reason, the German and Estonian teams have faced different challenges. Therefore, the REFURB compelling offer descriptions for these countries will be different.



## 3 Danish compelling offers

### 3.1 NATIONAL APPROACH

The Danish approach to create compelling offers for the selected target groups is based on the following key components:

- Selection of dweller/dwelling segment
- A sequenced approach to create a valuable package of solutions (1.1.2)
- Creating a compelling offer to be offered within a specific timing (1.1.3)

#### 3.1.1 Selection of dweller/dwelling segment

The already chosen dweller/dwelling segments - see REFURB Deliverable D4.2 Report for DENMARK - are young families (YF) and “empty nest” families (EN) living in single-family detached houses built 1960 – 1979.

#### 3.1.2 A sequenced approach to create a valuable package of solutions

##### Trias Energetica determines the sequence

Following the Dutch Trias Energetica principle<sup>5</sup>, renovation packages (mix of technical measures) should be created by a combination of energy efficiency means (first priority) combined with energy supply from renewables (second priority). Fossil energy should only be used if priority one and two cannot solve the equation.

This implies a sequence of solutions to be part of the renovation package, addressing:

- the building envelope - improving energy efficiency
- installations - improving energy efficiency
- existing energy supply - turning this into renewables – either produced at the building or in the neighborhood
- the dweller behavior, including choice of appliances, electronics and light etc. to avoid the Rebound effect (see below)

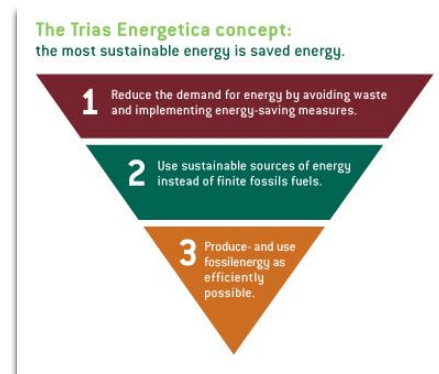


Figure 7: Trias Energetica

Research across Europe indicates the importance of also addressing behavior as consumption of energy generally increases after renovation (the Rebound effect), unless there is strong awareness created.

<sup>5</sup> <http://www.eurima.org/energy-efficiency-in-buildings/trias-energetica>

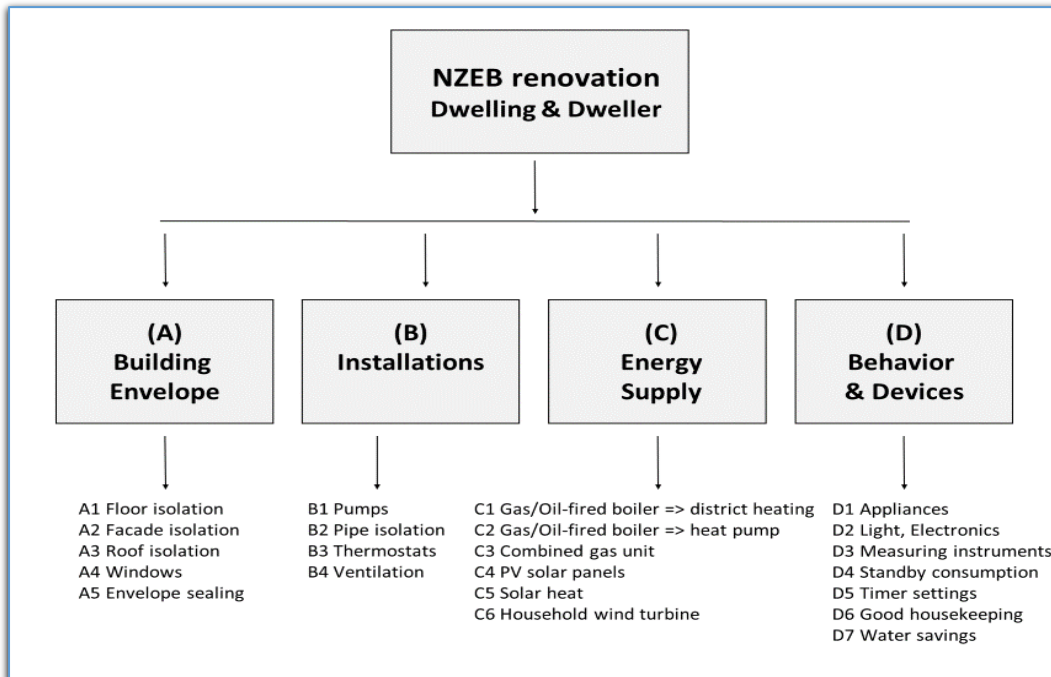


Figure 8: nZEB reference table for 22 potential renovation solutions in a Danish single-family detached house

Figure 8 shows 22 potential Danish renovation measures (based on REFURB Deliverable D3.2 Report), leading to nZEB.

The REFURB research team at Aalborg University (AAU) has made a study of how a Danish detached single-family house (parcelhus) can be retrofitted using the above listed solutions to meet the nZEB-standards.

The study concludes that:

- it is technically possible to reduce energy consumption by up to 80% excluding “new” insulated walls
- the energy saving potential is unique for each house, as partial renovations of some sections of envelope /installations/energy supply are common in such buildings
- evaluation of the state of each building is required by a professional in order for a meaningful renovation package to be applied
- Despite having a small share of the total building, envelope windows can contribute greatly to both energy savings, comfort and architectural value of a house. As variations and types of windows are great, the variation of investment cost is also great. Window costs will depend on parameters as heat, light and solar transmittance qualities, frame material, shape and color as well as size and type of window (openable/fixed) etc.

In Denmark, homeowners are urged to use district heating as the main heating source, where available. Despite that currently district heating provides lower efficiency, compared to heat pump solutions, it is still recommended for homeowners to connect to the district heating grid. This is because the source for

district heating is expected to move away from fossil fuels to large-scale heat pumps, utilization of industrial waste heat, etc., which will be more efficient than single, small-scale heat pumps.

### 3.1.3 A catalog of DK nZEB renovation packages

Based on the above DK measure considerations and surveys, the following five nZEB renovation packages have been created – targeting young families (YF) and/or empty nest families (EN) (see table 2).

In section 3.2 and 3.3, two compelling offers will be described based on two selected renovation packages, following the REFURB Deliverable D4.4 compelling offer methodology. The selected packages are expected to meet specific YF/EN demand:

- **the Indoor-climate package** – targeted the YF Young Families
- **the save-energy package** – targeted EN Empty Nest families

Offer/package	Target group	Investment In EURO	Value proposition	Pay-back time	Finance package	Local CJ-phase 1-11 programming	Single point of contact
<b>Package 1</b> The “Get started” package  Family is already connected to a district heating network	YF/EN	Up to €12.000	Save initial 15% of your energy bills – easy and safe by picking the low hanging fruits.	9 years	Broager Sparekasse  Arbejdernes Landsbank  Sydbank	P1-3 promotion & storytelling P4-9 stakeholder training and alignment P10 visibility platform P11 next step follow-up based on request	No - not required  But supported by webinars and evening courses
<b>Package 2</b> The “Indoor-climate” package  Family is already connected to a district heating network	YF Young families	Up to €33.500	Fix your indoor climate, have a healthier family-life and save up to 30% on your energy bill	26 years	Broager Sparekasse  Arbejdernes Landsbank  Sydbank	P1-3 promotion & storytelling P4-9 stakeholder training and alignment P10 visibility platform P11 next step follow-up based on customer request	Yes – paid by the promoting banks
<b>Package 3</b> The “Save energy” package	EN Empty nesters	Up to €56.000	Cut your energy bills by up to 70%, fix your indoor climate, have a healthier family-life, save money	17 years	Broager Sparekasse  Arbejdernes Landsbank  Sydbank	P1-3 promotion & storytelling P4-9 stakeholder training and alignment P10 visibility platform and award (silver) P11 follow-up based on customer request	No – but can be ordered separate by the customer

<b>Package 4</b> The " Comfort-energy" package	EN Empty nesters	Up to €66.000	Have a more comfortable life, produce your own electricity, cut your energy bills by up to 80%, fix your indoor climate, have a healthier family-life, save money	17 years	Yes  Broager Sparekasse  Arbejdernes Landsbank  Sydbank	P1-3 promotion & storytelling P4-9 stakeholder training and alignment P10 visibility platform and award (gold) P11 follow-up based on customer request	Yes – paid by the promoting banks
<b>Package 5</b> A la carte	YF/EN	No limit	Prepare your (new) home for a good, safe, healthy and environmental cautious family life and save up to 80% on your energy bills – make your own choices	tbd	Yes  Broager Sparekasse  Arbejdernes Landsbank  Sydbank	P1-3 promotion & storytelling P4-9 stakeholder training and alignment P10 visibility platform and award (green) P11 follow-up based on customer request	Yes – paid by the promoting banks

Table 2: Danish renovation packages

### 3.2 COMPELLING OFFER DK #1 – THE INDOOR-CLIMATE PACKAGE

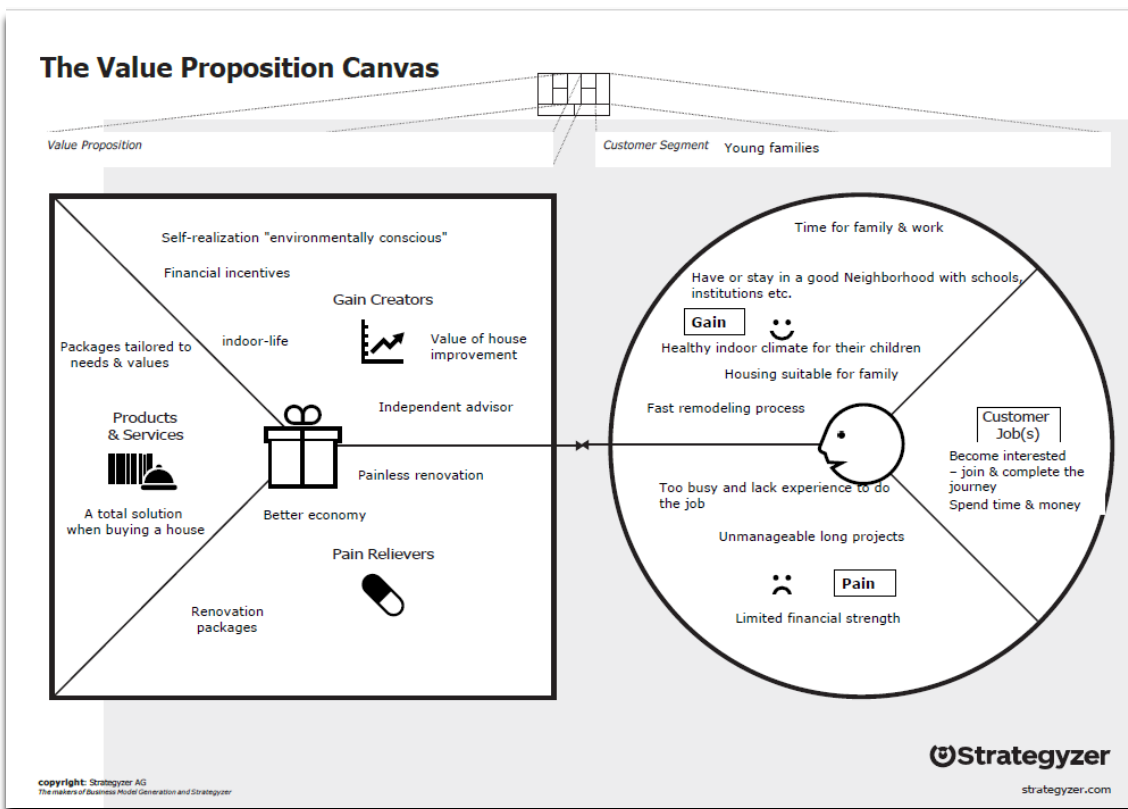
The Indoor-climate package addresses the growing interest among especially young families for a better indoor-climate.

#### 3.2.1 Methodology considerations

##### Customer segment and value proposition

The already chosen dweller/dwelling segment - see REFURB D4.2 Report for DENMARK - are young families (YF) living in single-family detached houses built 1960 – 1979.

According to Statistics Denmark (by 2017), there are 181.000 houses of this type country wise. In the Region Southern Denmark alone, there are 16.000 houses, owned by young families within the 18 – 39 age group.



The energy

renovation value proposition for young families

Figure 9: value proposition analysis for young family's (YF) energy renovation.

The value proposition analysis shows that young families preferences are:

- A new house in a good neighborhood – or remaining in the existing neighborhood is key
- A healthy indoor climate
- The house has to fit/support the need of the family
- Family lacks time and money – time for the children and family is a gain creator
- Renovation packages simplify the work and remove pains
- A total solution when YF buying a house

Young families need more space when the family expands and kids become teenagers. The young families generally also lack experience about maintenance and are therefore very dependent on hiring craftsmen to do the jobs. Local testing showed that social media communication is important to young families.

**The Customer Journey (CJ)**

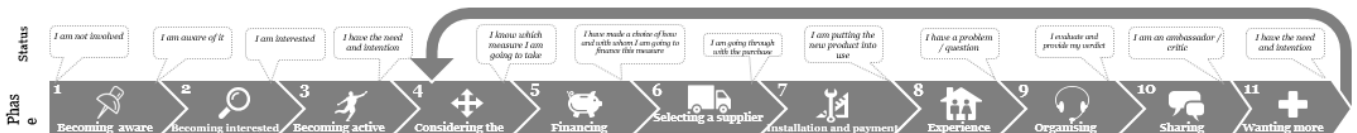


Figure 10: the customer journey as described in the methodology.

The customer journey process is fueled by the young families being motivated. The REFURB Customer Journey starts with the customer becoming aware (step 1), interested (step 2) and active (step 3).

Timing is important to all decision making, also when it comes to young families. In family life, there are open windows of (motivation) opportunities when it comes to energy retrofit in homes/buildings, which should be addressed timely when they arise.

For a young family (YF), the following reasons (from REFURB Deliverable D2.2 Report) are key drivers for a successful step 1-3:

- buying a new house, having more kids/teenagers, extended family
- personal motivation and value system
  - **motivated by good indoor climate**
  - motivated by low operational and maintenance cost
  - motivated by low carbon/resource footprint
  - renovating kitchen/bathroom
- fascinated by smart energy gadgets, producing your own (energy)
- maintenance reasons
  - roof, windows, oil/gas-burners, installations
  - climate adaptation

If the window of opportunity is not timely addressed, the family and society in general risk losing the retrofit opportunity for decades. An example is when the house roof is being renovated due to aging. In this case, substantial more insulation should be added to the roof, as the new roof might last for 50+ years. The same applies for windows (lifetime of 25 years), the replacement of oil/gas burners by district heating or heat pumps (lifetime 20+ years) etc.

Across all the above reasons, the indoor-climate has become a strong driver for energy retrofit in Denmark and is expected to become the future most important driver for energy retrofit in buildings. Therefore, indoor-climate should ideally play a much stronger role in the compelling offer-creation and communication – especially when targeting the young family (dweller) segment.

The first customer journey step requires a high general knowledge level of awareness in society including society agents (craftsmen, banks, real estate agents, ambassadors, neighbors, kids, ...) being willing to watch out for timing in their neighborhood/community and use their knowledge to raise timely awareness among community (new) homeowners.

Ambassadors; namely families who have already completed one or more iteration of customer journeys steps 1 – 9, according to the REFURB Customer Journey, are now inspired to share their experience with other families (step 10) and themselves wanting more (step 11).

### **Business model canvas for key stakeholders**

As mentioned before, the general awareness, the individual motivation, the timing (reasons) and the value proposition are key enablers for the young families entering the customer journeys first steps. Society stakeholders (including ambassadors) can energize/vitalize the steps.

But the customer journey's steps must also be beneficial for the key stakeholders adding value to the important jobs to be done along the journey. Using the business model generation will secure that business value creation is a core driver for other stakeholders such as banks, craftsmen etc.

The analysis shows that there is a value creation to these stakeholders, starting in CJ step-4 and continuing until and including step-11 – based on the renovation job being initiated and completed. However, it seems to be a challenge “fueling” step 1–3, which ideally should be encouraged based on (business) independent

society/community/municipality platforms. The same applies for the (independent) single-point of contact supporting the customer along the step 4-11 of the journey.

The below business model canvas analysis (figure 11) emphasizes that the main challenge is to get the key stakeholders engaged in the initial steps of the customer journey – either by being active themselves or by co-sponsoring the process driven by other parties, or by a combination of both.

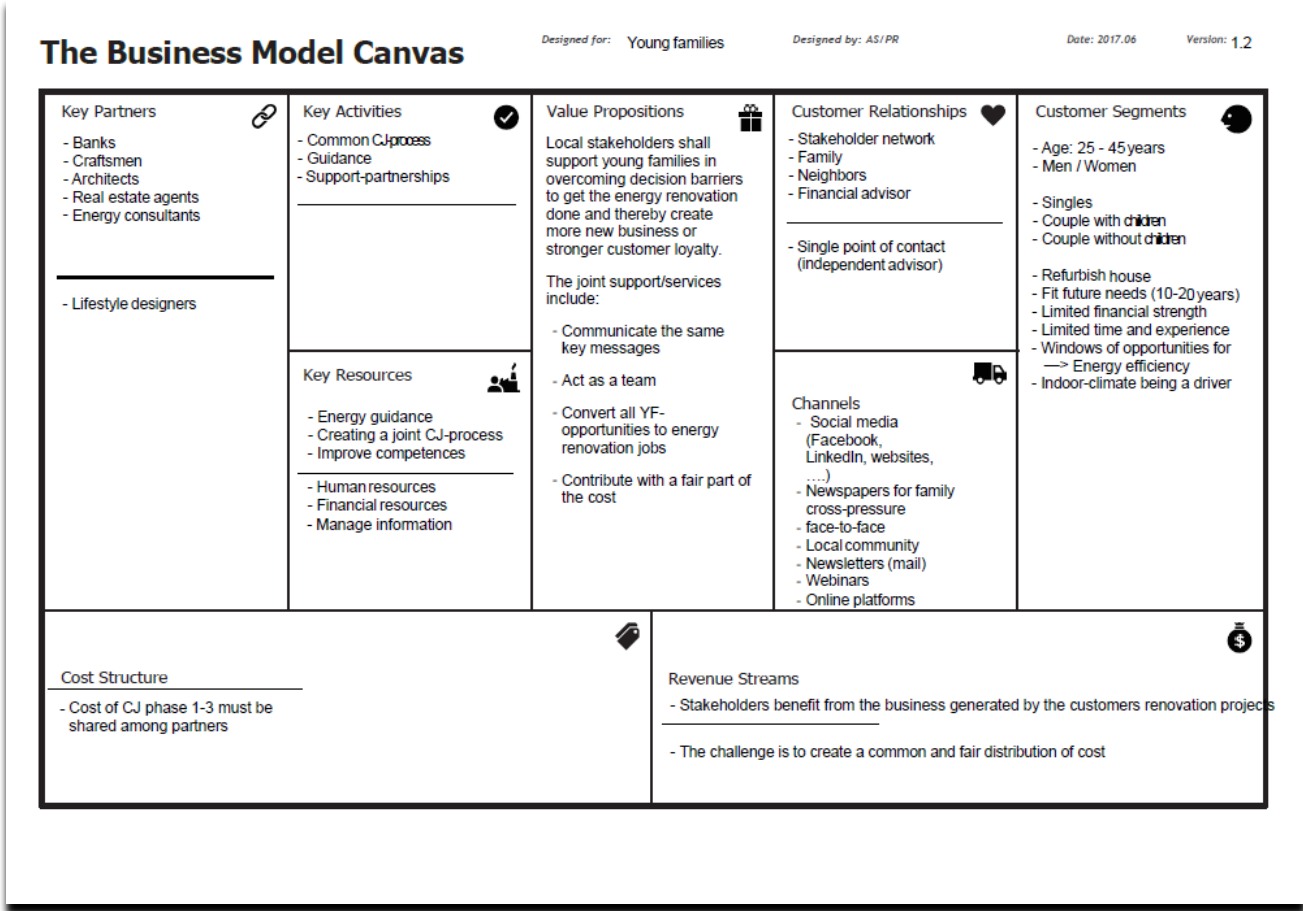


Figure 11: Business model canvas analysis for key stakeholders involved in young family's energy retrofit

Experiences from the ZEROhome 3.0 (ZEROblig) project in Sonderborg during 2015 confirm that it is possible to finance the single-point of contact by local stakeholders having a strong interest in homeowner-families overcoming the initial CJ-steps without dropouts. Such stakeholders in Sonderborg are, among others, banks, district heating companies or craftsmen promoting the initial critical CJ steps, without any expectation of a one-to-one payback, as the single-point of contact ideally needs to remain independent. In 2015, a joint-budget to cover the single-point of contact was financed by local stakeholders with €67.000.

Across Denmark, several municipalities have engaged in starting or operating energy renovation initiatives for homeowners like specific initiatives such as “get rid of your old oil burner” or more general approaches. These initiatives are described in the REFURB Deliverable D5.5 Report “Quality assurance on point of contact for nZEB renovation” Report based on research studies by AAU - Aalborg University and DTU - Denmark Technical University.

100% private concepts like the BetterHome concept (Danfoss, Grundfos, Velux, Rockwool) operate without public co-financing. As described in the REFURB Deliverable D5.5 Report, the national Danish BetterHousing concept has educated several hundreds of energy-consultants, but also this concept seems to lack local stakeholder/society-support.



However, a strong local/municipal driven platform promoting a safe customer journey along the initial CJ steps 1 – 3 will also act as a strong enabler for the BetterHome and BetterHousing type of concepts, as a completed customer journey is dependent on a successful completion of steps 1-3.

### 3.2.2 Description of the compelling offer DK#1: the indoor-climate package (YF)

The creation of this compelling offer for an indoor-climate package targeting young families is based on the methodology and analysis presented above.

<b>Compelling offer name</b>	<b>The Indoor-climate package (YF)</b>
<b>Selected segment (target group)</b>	
	YF – Young families
<b>Short description</b>	
	The Indoor-climate package helps young families to achieve a better indoor-climate and a healthier family-life combined with up to 30% energy savings. Local banks (in Southern Denmark) will offer financial support including financial consultancy, competitive financing and co-financing of the independent advisor.
<b>Market value potentials in country/region</b>	
	181.000 single detached houses (parcelhus <sup>6</sup> ) in Denmark are owned by young families – based on an investment of app. €33.000, depending on the energy condition of the house. The estimated market value is close to €6 billion.
	For the region of Southern Denmark, the market value potential is approx. €0.5 billion based on an average investment of €33.000 and 16.000 young families living in single-family houses in the region.
	In real life, the market potential should be lowered with approx. 10%, as some young families already have implemented the YF indoor-climate package. On the other hand, the package might have potentials in other dwelling/dweller segments.
<b>Timing of intervention</b>	
	The ideal timing for the young family is:
	<ul style="list-style-type: none"> <li>- when it purchases the house,</li> <li>- alternatively, when it expects first or more kids</li> </ul>
	This makes the real estate agents and banks (and craftsmen) important stakeholders for initiating the customer journey process.

<sup>6</sup> <https://da.wikipedia.org/wiki/Parcelhus>

### What needs to be done (the job)

The technical solutions included in this package include:

Package #	2
	Indoor-climate
LED Light	✓
Pipe-insulation	✓
Circulationpump	✓
Radiator thermostats	✓
Roof insulation	✓
Wall insulation	✓
New windows *	✓
Mchanical ventilation	✓
Insulation of crawl space floor	✓

A solution implementation description has been prepared for the craftsmen in order to secure a high-quality implementation.

### Value proposition to target group

Fix your indoor climate, have a healthier family life and save up to 30% on your energy bill. Local banks (in Southern Denmark - tbc) will offer you free consultancy and guidance and your local craftsman will secure an easy and safe implementation-process.

An award system targeting the homeowners, recognizing their energy/climate achievement is being developed and can be adapted at local level.

By implementing the full package, the EPC will change from a “G” to “D” – based on BE15<sup>7</sup> calculations. However, specific energy improvement and EPC depends on the initial condition of the house. The present energy marking is based on a house where nearly any renovations have been performed within the lifecycle of the building.

### Business case for the family – Investment/ROI/financial incentives

The young family’s investment for a full implemented package amount to approx. €33.500. The specific investment depends on the condition of the house. For example, many families have already sufficient roof and wall insulations which will lower the investment. The craftsmen or the single-point-of-contact will review the situation and advise the family accordingly.

When making the investment, the family can sell the energy saving to an energy company and receive approx. €1.100 as “energy savings” incentive. The family will also be allowed to deduct approx. €1.000 in their tax schemes (Bolig/job-ordning) in the same year.

The annual saving corresponds to up to 30% of the annual energy bill, which will improve the EPC from “G” to “D”, depending on the initial conditions of the house.

The ROI – return of investment – for the complete renovation package is 26 years.

<sup>7</sup> <http://sbi.dk/beregningsprogrammet/Pages/Start.aspx>

**Customer journey implications**

The following actions will secure a safe customer journey for the young family:

- building up a database with local case-stories and ambassadors (on-going)
- create a manual for stakeholder requirements – along the 11-steps
- building competence with the energy-trained craftsmen to deliver the renovation package (across traditional skills), potentially training of special craftsmen to do the coordination and become a single-point of contact
- local case-based communication focused on the value proposition and targeting young families by mainly using social media
- sales/communication-training of front-end key stakeholders: banks, real-estate, consultants, craftsmen to avoid losing homeowners

**Business model implications for key stakeholders**

As the above market value calculations show, there is a large market potential of €6 billion in Denmark for this compelling offer. Overall it shows a strong win-win for business-creation for the key stakeholders involved.

**QA Quality measures integrated – referencing the REFURB quality measure table**

The young family segment has generally very limited understanding of their home, technical measures and for how to cooperate with craftsmen. There is a need for measuring the indoor climate before and after the energy retrofit. Further training of craftsmen and key stakeholders is required to secure a safe and customer journey for the young family.

Specific Quality measures related to the REFURB quality table:

1. The Building: The Roadmap for renovation is highlighting benefits of the higher comfort and indoor climate (European standard).

1.1. Roadmap: How to ensure the plan is followed and is the correct one, avoid lock-ins?

- The offer is a complete indoor-climate solution, created in close cooperation with Aalborg University and discussed with leading market experts. However, there is a risk to be considered when/if the homeowner only implements part of the renovation package.

1.2. Proposed work for the house is correct: coach may ensure that the technical measures are correct ones.

- The craftsmen will be trained/instructed to follow the technical guidelines of the offer. The BetterHousing consultants will be able to support the homeowner, when he/she decide to for an individual solution.

- The financing banks should play a stronger role in securing that either the entire solution/offer is implemented, or there is a BetterHousing consultant involved in the approval of the modified offer.

1.3. Quality of installation: supervision

- The craftsmen are trained to follow the technical guidelines for the installation.

1.4. Quality of maintenance (step 9 CJ)

- The craftsmen instruct the homeowner in how to maintain the solution implemented. Special attention is given to how to achieve the calculated energy-savings (both short and long term), frequent cleaning of air-filters and technologies to measure the indoor-climate.

1.5. training supply on technical (nZEB) and communication skills

- the installation craftsmen’s association (Tekniq) is already focused on constant improvement of technical and communication skills<sup>8</sup> – local technical colleges and vocation training schools<sup>9</sup> will be invited to host local courses for further training.

1.6. indoor quality/comfort?

- A technical tool “IC Meter<sup>10</sup>” is available on the market for measuring the indoor-climate. BetterHousing consultants will also be invited to offer new services related to indoor-climate measurement and improvements.

1.7. sensors for monitoring the indoor comfort, energy savings, behavior? For a while for deep renovations.

- Se above initiatives.

2. Consumer: behavior guidelines, no control on the human behavior, training of user -> usage as motivation. Manual of the building

- A Consumer guideline (including supporting website) will be created in cooperation with key potential stakeholders like Aalborg University, Bolius, BetterHome, Energistyrelsen.

3. Training of financial institution, real estate agents and other stakeholders

- Further training will be offered in close cooperation with Tekniq, Dansk Byggeri and the local technical schools. Local training of other stakeholders (banks, real-estate agents and municipal administrators will be implemented in close cooperation with interested municipal admin.

#### **Market uptake tools integrated**

As explained in the REFURB D4.5 Report “Online customer tool and market approach”, there are several tools available in the Danish market for renovation market uptake. The tools target both homeowners and the professional stakeholders like consultants, advisors and craftsmen. Three tools are found valuable for inspiring homeowners in the early stages of the Customer Journey. Based on high/medium level of information input, they estimate energy and money saving potentials, CO<sub>2</sub>-reductions, investment and payback time. The tools will be part of the compelling offer, as young families are interested in such tools.

## **3.3 COMPELLING OFFER DK#2 – THE SAVE-ENERGY PACKAGE**

The save-energy package addresses the big interest among especially empty nesters (EN) for lowering their energy cost before they retire.

### **3.3.1 Methodology considerations**

#### **Customer segment and value proposition**

The already chosen dweller/dwelling segment, see REFURB Deliverable D4.2 Report for DENMARK, are empty nest families (EN) living in single-family detached houses built 1960 – 1977.

According to statistical information from Statistics Denmark (by 2017), there are 445.000 houses of this type country wise. In the Southern Denmark region alone, there are 70.000 houses owned by empty nesters within the 50 – 79 age group.

<sup>8</sup> <http://www.tekniq.dk/kurser/oversigt/kursuskatalog>

<sup>9</sup> <http://zerobyg.dk/>

<sup>10</sup> <http://www.ic-meter.com/dk/>

The building renovation value proposition for empty nester families (EN)

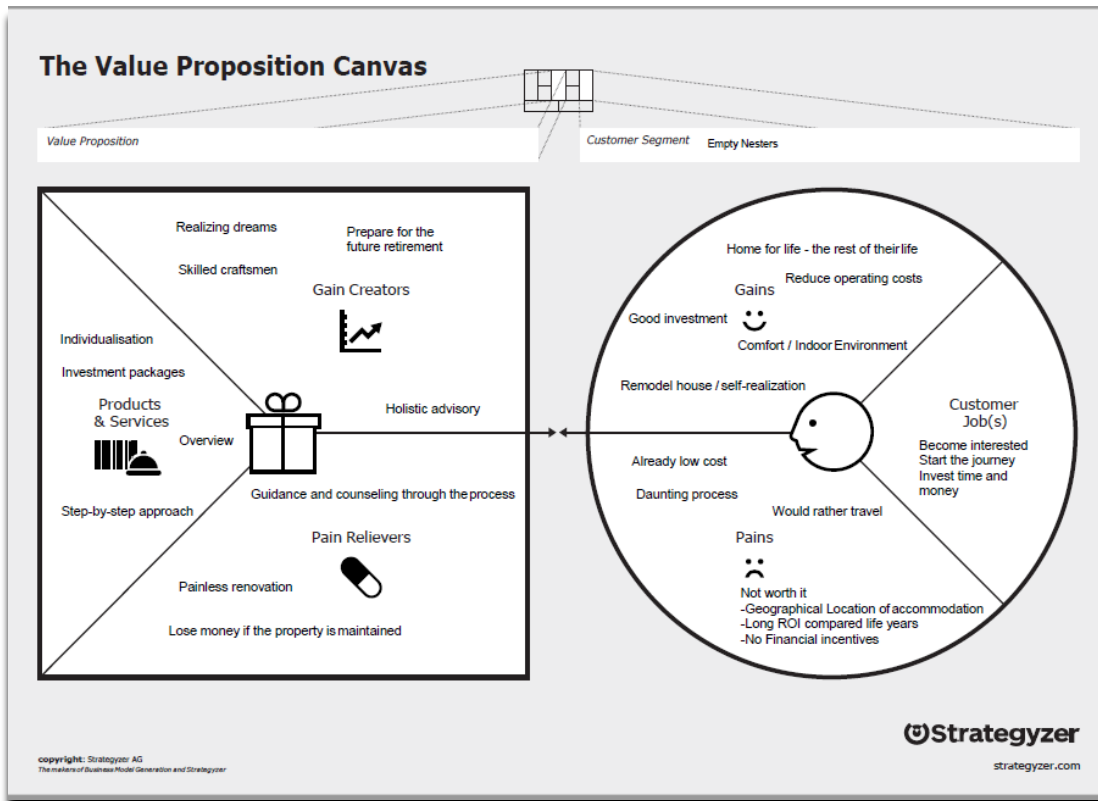


Figure 12: value proposition analysis for empty nester family's energy retrofit

The value proposition analysis (Figure 12) shows that:

- the empty nesters generally have the available funds, skills and mindset
- they just need to overcome the “why” barrier and get started on a step-by-step approach
- the “why” shall be addressed by “lowering future cost” and improved comfort

The EN-generation of families generally have been used to save their money and accept a low comfort level looking forward into the future, the families will face maintenance challenges that should be tackled now.

Even though empty nesters have much space (because the kids have left the nest), they like having space for their interests and hobbies. The empty nesters are often experienced with the renovation work and have more time available for either taking good care of the implementation and/or being part themselves of the implementation (DIY).

Local testing showed that traditional media are still the most efficient way to communicate with the EN-segment, even though more and more EN-people are using social media such as Facebook etc.

## The Customer Journey

The customer journey process is fueled by the empty nest families that are motivated to invest. The REFURB Customer Journey starts with the customer becoming aware (step 1), interested (step 2) and active (step 3).

Timing is important to all decision-making, also when it comes to empty nest families. In family life, there are open windows of (motivation) opportunities (when it comes to energy retrofit in homes/buildings), which should be addressed timely when they arise.

For an empty nest family, the timing window is when either moving to a different home or preparing the existing home for the next 10-30 years of living. Based upon this the following reasons (from REFURB Deliverable D2.2 “Mapping Demand Side Drivers” Report), the following aspects become key drivers for a successful CJ steps 1-3:

- maintenance reasons (have to be made easy-to-maintain)
  - roof, windows, oil/gas-burners, installations
  - climate adaptation to avoid rain and flood water
- personal motivation and value system
  - motivated by low operational and maintenance cost
  - motivated by good indoor climate
  - motivated by low carbon/resource footprint
  - renovating kitchen/bathroom
- fascinated by smart energy gadgets, producing your own (energy)

If the opportunity window is not timely addressed, the family and society risk losing the retrofit opportunity for decades. See comments about lost window of opportunities etc. in the above description of Customer journey for compelling offer DK#1.

## Business model canvas for key stakeholders

As already mentioned, the general awareness, the individual motivation, the timing (reasons) and the value proposition are key enablers also for the empty nest families entering the customer journey’s first steps. Society stakeholders (including ambassadors) can energize/vitalize the steps.

But the customer journey steps must also be valuable to the key stakeholders taking care and adding value to the important jobs to be done along the journey. Using the business model generation will secure that business value creation as a core driver for other stakeholders like banks, craftsmen etc.

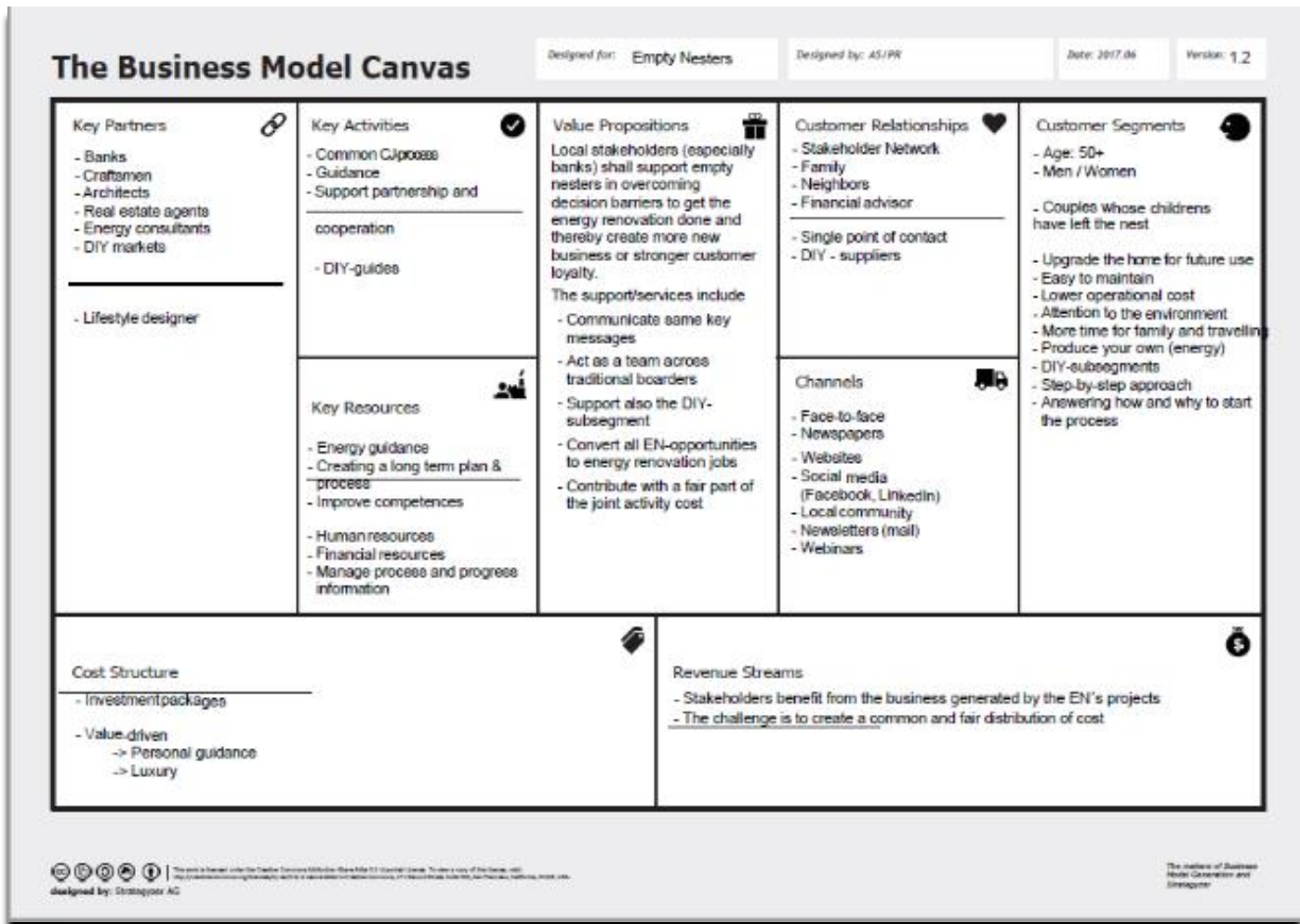


Figure 13: Business model canvas analysis for key stakeholders involved in empty nester family's energy retrofit

Servicing the customer journey from step 4 until step 11 is already economic viable for the service providers. However, it seems to be a challenge motivating the customers to get started in steps 1 – 3. Ideally those first steps should be fueled based on (business) independent society/community/municipality platforms. The (independent) single-point of contact should focus his/her support to the homeowners along the step 4-9 of the journey.

The above business model canvas analysis (figure 13) highlights that the main challenge is to get the key stakeholders engaged in the initial steps of the customer journey – either by being active themselves or by co-sponsoring the process driven by other parties, or by a combination of both.

A strong local/municipal driven platform promoting a safe customer journey along the initial steps 1 – 3 is essential for a successful completed customer journey. It depends on having no-dropouts during steps 1-3.

Conclusions are the same as for compelling offer DK#1.

### 3.3.2 Description of the compelling offer DK#2: the Save-Energy package (EN)

The creation of this compelling offer for a save-energy package targeted Empty Nesters (EN), is based on the methodology and EN-analysis presented above in 3.3.1.

<b>Compelling offer name</b>	<b>The Save-Energy package (EN)</b>
<b>Selected segment (target group)</b>	
	EN – Empty nester families
<b>Short description</b>	
	The Energy-save package helps empty nester families achieve better comfort, a better indoor-climate, combined with up to 70% energy savings due to own ground heat pump heat production or district heating (50%). If required, local banks (in Southern Denmark) will offer financial support including financial consultancy and competitive financing. A single-point of contact is available, offered by a bank or by BetterHousing for support/services along the customer journey.
<b>Market value potentials in country</b>	
	445.000 single detached houses (parcelhuse) in Denmark are owned by empty nesters – based on an offer-investment of app. €56.000, depending on the energy condition of the house, the estimated market value is close to €25 billion.
	For the region of Southern Denmark, the market value is potential approx. €4 billion based on an offer-investment of €56.000 and 70.000 empty nest families living in their own single-family house in the region.
	In real-life, the market potential should be lowered by approx. 25%, as several empty nest families already have implemented part of the EN energy-package. On the other hand, the package might have potentials in other dwelling/dweller segments.
<b>Timing of intervention</b>	
	The ideal timing for the empty nest family
	<ul style="list-style-type: none"> <li>- is when EN-families turn 60 years and start receiving payments from their pension savings</li> <li>- alternatively, when last kid leaves the nest</li> </ul>
	This makes the bank's financial-advisor a key stakeholder for initiating the customer journey process.
<b>What needs to be done (the job)</b>	
	The technical solutions included in this package include:
Package #	3
	Save energy
LED Light	✓
Pipe-insulation	✓
Circulationpump	✓
Radiator thermostats	✓
Roof insulation	✓
Wall insulation	✓
New windows *	✓
Mchanical ventilation	✓
Insulation of crawl space floor	✓
HP-heat +water-6 kW -integ. storage	✓
Ground floor -Standard finish	✓ ↑



The empty nest family will probably prefer to implement the package in a step-by-step approach, which is doable to avoid lock-ins starting with the insulation/windows, ventilation and completing with the new heat source. By first insulating /changing windows, the heat demand is reduced which can/will lower the size of the heat pump and therefore save money.

A step-by-step approach will also lower the need for craftsmen internal coordination since the houseman/wife will do the coordination.

#### **Value proposition to target group**

“Cut your energy bills by up to 70%, fix your indoor climate, have a healthier family-life and save money and time” is the key message addressing the EN-family.

By implementing the full package, the EPC will change from a “G” to “C” based on BE15<sup>11</sup> calculations. Specific energy improvement and EPC depend on the initial condition of the house. The present energy marking is based on a house where nearly any renovations have been performed within the lifecycle of the building.

The improvement will increase the selling price of the house and shorten the waiting days in the selling process when the house will be announced for sale in the future.

#### **Business case for the family – Investment/ROI/financial incentives**

The empty nesters’ investment, based on a full package, will amount to approx. €56.000. The specific investment depends on the condition of the house and whether it is connected to district heating or not. For example, many families have already roof and wall insulations, which will lower the investment.

When making the investment, the family can sell the energy savings and receive approx. €2.300. The family will also be allowed to deduct approx. €900 in their tax schemes of the same year.

The annual savings is up to 70% of the annual energy bill, depending on the initial condition of the house before renovation.

The ROI – return of investment – for the complete compelling offer DK#2 is 17 years.

#### **Customer journey implications**

The following actions will secure a safe customer journey for the empty nesters in a step-by-step approach:

- establish a database with local case-stories and ambassadors
- create a manual for stakeholder requirements – along the 11-steps
- build competence with the energy-trained craftsmen to deliver the package (across traditional skills), potentially name/train special craftsmen to do the coordination
- local case-based communication focused on the value proposition and targeted empty nester families using traditionally newspaper media
- sales/communication-training of front-end key stakeholders: banks, real-estate, consultants, craftsmen

#### **Business model implications for key stakeholders**

As the above market value calculations show, there is a large market potential of €25 billion in Denmark for this compelling offer and overall a strong win-win for business-creation for the key stakeholders involved; especially

- entrepreneurs/craftsmen – will create more business and revenue based on the package
- banks – will be able to offer services and potentially also new loans for customers

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<sup>11</sup> <http://sbi.dk/beregningsprogrammet/Pages/Start.aspx>

- advisors/consultants – will be involved when/if it is required for the process and specific case
- real-estate-agents – will grow loyalty (and future business) with new EN house-buyers
- energy consultants/ Better Housing consultants – will create more business in an energy check-up and a recommendation for a renovation package.

#### **QA Quality measures integrated – referencing the REFURB quality measure table**

The empty nester segment has generally a good understanding about their home, technical measures and how to cooperate with craftsmen. However similar initiatives created for the young family segment will be offered to the empty nester segment.

Specific Quality measures related to the REFURB quality table:

1. The Building: The Roadmap for renovation is highlighting benefits of the higher comfort and indoor climate (European standard).

1.1. Roadmap: How to ensure the plan is followed and is the correct one, avoid lock-ins?

- The offer is a complete save-energy solution, created in close cooperation with Aalborg University and discussed with leading market experts. However, there is a risk to be considered when/if the homeowner only implements part of the renovation package.

1.2. Proposed work for the house is correct: coach may ensure that the technical measures are correct ones.

- The craftsmen will be trained/instructed to follow the technical guidelines of the offer. The BetterHousing consultants will be able to support the homeowner, when he/she decide to for an individual solution.

- The financing banks should play a stronger role in securing that either the entire solution/offer is implemented, or there is a BetterHousing consultant involved in the approval of the modified offer.

1.3. Quality of installation: supervision

- The craftsmen are trained to follow the technical guidelines for the installation.

1.4. Quality of maintenance (step 9 CJ)

- The craftsmen instruct the homeowner in how to maintain the solution implemented. Special attention is given to how to achieve the calculated energy-savings (both short and long term) as the actual behavior is very important for achieving the calculated energy savings.

1.5. training supply on technical (nZEB) and communication skills

- the installation craftsmen's association (Tekniq) is already focused on constant improvement of technical and communication skills<sup>12</sup> – local technical colleges and vocation training schools<sup>13</sup> will be invited to host local courses for further training.

1.6. indoor quality/comfort?

- A technical tool "IC Meter"<sup>14</sup> is available on the market for measuring the indoor-climate. BetterHousing consultants will also be invited to offer new services related to energy savings and indoor-climate measurement and improvements.

<sup>12</sup> <http://www.tekniq.dk/kurser/oversigt/kursuskatalog>

<sup>13</sup> <http://zerobyg.dk/>

<sup>14</sup> <http://www.ic-meter.com/dk/>

1.7. sensors for monitoring the indoor comfort, energy savings, behavior? For a while for deep renovations.

- See above initiatives.

2. Consumer: behavior guidelines, no control on the human behavior, training of user -> usage as motivation. Manual of the building

- A Consumer guideline (including supporting website) will be created in cooperation with key potential stakeholders eg. Aalborg University, Bolius, BetterHome, Energistyrelsen.

3. Training of financial institution, real estate agents and other stakeholders

- Further training will be offered in close cooperation with Tekniq, Dansk Byggeri and the local technical schools. Local training of other stakeholders (banks, real-estate agents and municipal administrators will be implemented in close cooperation with interested municipal admin.

#### **Market uptake tools integrated**

Referencing the REFURB D4.5 “Online customer tool and market approach” Report, there are several tools available in the Danish market. The tools target both homeowners and the professional stakeholders like consultants, advisors and craftsmen. Three tools are found valuable for inspiring homeowners in the early stages of the Customer Journey. Based on high/medium level of information input, they estimate energy and money saving potentials, CO2-reductions, investment and payback time.

The tools will be integrated in the Save-energy offer, as some EN Empty Nesters have the interest, time and competencies to use such tools.

## **3.4 RECOMMENDATIONS FOR SCALING UP THE COMPELLING OFFERS ACROSS DENMARK**

The market potential for the two packages is more than €30 billion across Denmark.

As commented in the REFURB Deliverable D5.5 “Quality assurance on point of contact for nZEB renovation” Report, there are several existing platforms for energy retrofit of buildings across Denmark. The ones being analyzed by the DK Refurb team are:

- The BetterHousing project – established as concept by the state in 2014 and based on well (energy, consultancy) trained craftsmen/consultants, during 2015 promoted in public by DEA - the Danish Energy Agency
- BetterHome – private project since 2014 operated by the four leading Danish equipment suppliers Danfoss, Grundfos, Velux and Rockwool
- The Green Business Growth project operated in 7 municipalities across the Region of Southern Denmark
- The ZEROhome (ZERObolig) in Sonderborg, since 2010 operated by the PPP Sonderborg ProjectZero initiative

As only the last two initiatives are managed by the DK Refurb team, the DK-team can only take responsibility for scaling up the “compelling offer” concept in the Southern region of Denmark, where the

ZEROhome and the Green Business Growth are operating. However, the findings and conclusions will be promoted to all stakeholder across Denmark in view of a country wide expansion.

## 4 Belgian (Flanders) compelling offers

### 4.1 REGIONAL APPROACH

In Flanders, there are two approaches elaborated within REFURB to compose nZEB compelling offers for homeowners. They have been composed by:

- A public body i.e. Leiedal
- Commercial parties i.e. Bostoен

Within REFURB, the choice was made to align as much as possible with the renovation packages as stated by Flemish policy. As a result, the compelling offers will build further on the set of measures put forward in Flanders including then:

- nZEB requirements
- Grant measures: wall, floor, roof insulation, high performance doors and windows, solar thermal system, heat pumps

The renovation packages of the compelling offers of Bostoен and Leiedal will further complement these with additional measures, such as:

- Other heating systems
- PV-installation
- Electricity
- Comfort: bathroom, kitchen

Depending on the drivers of a specific customer, these packages can be further adapted to specific needs of the customers.

As not all the homeowners have the financial possibilities to carry out a full nZEB renovation, the distinction has been made between 'entry' and 'all in one' nZEB packages. The 'all in one' (or full) renovation packages include a complete renovation to nZEB, according to the definition of the Flemish government (see further). Full renovation packages could discourage homeowners with minor ambitions or less financial possibilities to start with at least the first steps of an nZEB renovation. With an 'entry' renovation package, homeowners can at least start with the first steps of an nZEB renovation. This assumes that also an 'entry' renovation package includes a long-term full renovation advice to nZEB to avoid lock-ins.

Leiedal's concept corresponds with an "entry-level" nZEB package, while Bostoен's turnkey concept corresponds with the "all-in-one" approach.

Another distinction is that Leiedal's compelling offer is more homeowner oriented, with products and services all aiming at providing the right information and unburdening the homeowner of administrative, financial and technical issues during the renovation process. On the other hand, Bostoен's compelling offer is more oriented toward a "construction offer". As the package is a market-initiative, there can be more focus on specific product solutions, such as integrated wall-concepts or prefabricated building components.

#### 4.1.1 Building blocks for nZEB renovation packages in Flanders

The five basic steps to realize a full nZEB renovation are described for private homeowners by the Flemish Government as the steps of a so-called 'BENOVatie' (or a 'better' renovation to nZEB<sup>15</sup>):

Leer BENOVeren in 5 stappen. Volg jouw ideale BENOvatietraject!



Figure 14: Flemish Government, steps of a so-called 'BENOVatie'

According to the Flemish definition of an nZEB renovation the following requirements are necessary:

- Insulation-level of roofs, facades and floors:  $U_{\max} \leq 0,24 \text{ W/m}^2\text{K}$
- Insulation-level of windows:  $U_{\text{window,average,max}} \leq 1,5 \text{ W/m}^2\text{K}$ ; glazing  $U_{\text{glazing}} \leq 1,1 \text{ W/m}^2\text{K}$ ; doors  $U_{\text{door}} \leq 2,0 \text{ W/m}^2\text{K}$
- Overall energy performance level: maximum E-level = E60 or maximum  $100\text{kWh/m}^2$  (according to EPC-calculation)

Moreover, since 2017, an additional financial incentive to conduct a total NZEB-renovation is in place, either step-by-step or in one go. Investments for roof-, wall- or floor insulation, window glazing, heat pumps, solar boiler or ventilation systems can lead to additional grants of up to 4.750 EUR for single family houses and up to 2.375 EUR for apartment units.

#### De totaalrenovatiebonus

Bij de eerste energiezuinige verbouwing die je uitvoert, activeert Eandis automatisch de BENO-pass van je huis.

Voer je minimaal 3 energiebesparende maatregelen uit binnen de 5 jaar?

Dan kan je rekenen op een extra **totaalrenovatiebonus** bovenop de individuele BENOvatiepremies.



	Huis	Appartement
Vanaf 3 investeringen	1250 euro	625 euro
Vanaf 4 investeringen	+ 500 euro	+ 250 euro
Vanaf 5 investeringen en na opmaak EPC*	+ 1000 euro	+ 500 euro
Vanaf 6 investeringen	+ 1000 euro	+ 500 euro
Vanaf 7 investeringen	+ 1000 euro	+ 500 euro

De totaalrenovatiebonus geldt voor investeringen in dak-, muur- of vloerisolatie, HR-glas, warmtepomp, zonneboiler en ventilatiesysteem. Controleer de voorwaarden op onze website.

Figure 15 NZEB renovation grants in Flanders for houses (Huis) or apartment units (Appartement) as of 3 investment measures (vanaf 3 investeringen) within 5 years (source: EANDIS)

<sup>15</sup> source: <https://www.mijnbenovatie.be/nl/stappen/>

## 4.2 COMPELLING OFFER BE#1: LEIEDAL

### 4.2.1 The methodology used for creating the compelling offer

The key objective in Leiedal's concept is to encourage homeowners to carry out renovations and to unburden them as much as possible during the renovation process. Therefore, the main emphasis is on the surrounding framework with its supporting services rather than the actual technical solutions of the renovation package.

In Leiedal's concept, the content of the renovation package is composed together with the homeowners. This "*a la carte*" approach ensures that the renovation corresponds to the wishes and requirements of the homeowner. The technical guidance offered by Leiedal further guarantees that the conducted renovation measures comply with the nZEB requirements and do not create any lock-in situations in the long run.

The supporting services of Leiedal's concept evolve around the instruments "MijnEnergiekompas" (MyEnergycompass, a digital tool) and the RenovatieCoach (RenovationCoach to unburden homeowners). Leiedal combines these instruments with other instruments into the compelling offer. Furthermore, these instruments complement other existing instruments of regional initiatives such as energy scans or soft loans, to ensure maximum synergy.

Homeowners can find their way to these new services in several ways. As it is initiated by public sector, channels of local government and local/regional stakeholders (mainly in the field of housing quality) are used to generate leads. Through their networks and communication channels (e.g. article in municipal magazine, homeowners requesting for information at the city hall etc.), homeowners are made aware of the compelling offer. But also via more generic (but targeted) communication, and an emerging mouth-to-mouth recommendation of happy customers, homeowners can get aware of the offer. Via an initial free intake visit, homeowners get more insight in what to expect and in the quality offered.

It is expected (and observed) that energy renovation is not the key driver for starting a renovation. Severe quality and safety issues might be the trigger, or the desire to upgrade, or increase the comfort of the dwelling. Via the integrated approach, the nZEB-dimension is added.

#### 4.2.1.1 Customer segment

Leiedal's concept targets homeowners of single family houses in the region of Southwest-Flanders. Although open for all homeowners, Leiedal expects a higher share of rather "middle-class" homeowners, e.g. "young families" and "empty nesters". Leiedal's concept is designed with these segments in mind. Initiatives of other organizations in the region already target other specific segments, such as the private rental market and low-income households.

With regards to the building typology, the offer will be the most appealing for homeowners, who want to carry out two to four small-to-medium-size renovation works to their house (windows, roof, cavity wall insulation, installations...) i.e. interventions that are not major renovations works and as such do not require an architect and/or building permit. Targeted investment costs are between €10.000 and €60.000. In addition, the offer includes an advice to achieve nZEB-level in the long-term. This approach is compatible



with current public initiatives such as Renovatiepact<sup>16</sup>. In the framework of the Renovatiepact, existing instruments like Energy Performance Certificates (EPCs) for residential buildings are currently under review. The updated format of EPCs will include an automatically generated step-by-step renovation master plan, which can be further customized with experts such as architects, energy experts or the Renovatiecoach. The implementation of this update is scheduled for January 2019.

Finally, the offer is also open for homeowners who would like to carry out deep renovations but will be redirected to architects and other relevant building professionals after the initial advice.

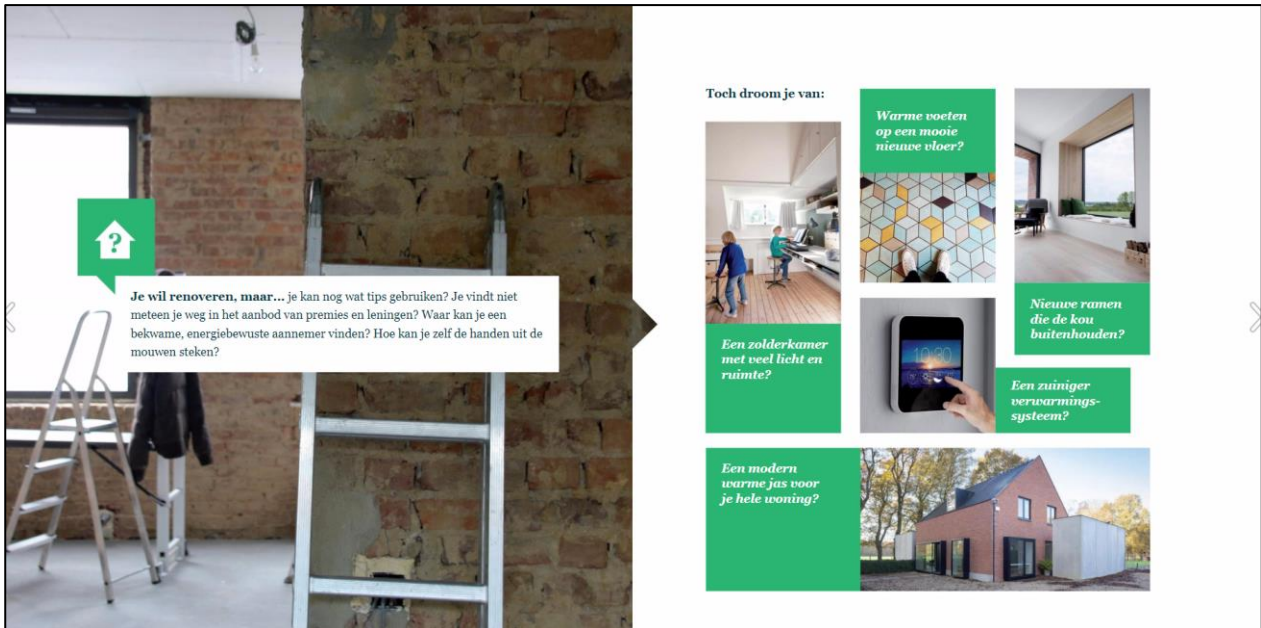


Figure 16: inspirational brochure

#### 4.2.1.2 Value proposition

##### 1) Customer Jobs

Leiedal's offer addresses the following needs of homeowners:

- Homeowners want to know the state of their house
- Homeowners want to upgrade their home
- Homeowners want to improve the quality and comfort of the dwelling

##### 2) Customer Pains

- Homeowners do not know where to find the right information. There are too many options offered by many parties, sometimes contradictory. This can create confusion and uncertainty on what is the right thing to do.

<sup>16</sup> Renovatiepact (translated: Renovation Pact) is an initiative of the Flemish Government to increase the renovation rate of the residential building stock in Flanders. More information:

<http://www.energiesparen.be/energiebeleid/renovatiepact>



- Homeowners want to know the state of their house and how to approach a nZEB renovation. Existing tools in Flanders such as Energy Performance Certificates can be improved in formulating proper advice on how to renovate to nZEB and where to start with the renovation.
- Administrative burden (legal issues & regulations, apply for subsidies...)
- Budget constraints
- Worries about the renovation process, and lack of confidence in building professionals

3) Customer Gains

- Have a first idea of the state of the house
- Advice on how to start / proceed with the renovation, consisting of links to useful information and best-practice examples
- An independent party with technical expertise on renovation and that can guide the homeowner through the renovation process
- Guidance towards subsidies and other financial incentives
- Customized services, based on what the homeowner considers necessary
- Leads towards reliable craftsmen and follow-up on the quality of the executed work.

Leiedal offers full support during the renovation process, by offering a renovation coach service. The renovation coach is an independent party who will provide tailor-made advice, guidance and support during the renovation process and the building sector. Other supporting services will make sure that homeowners find their way to technical resources, financial information and skilled building professionals.

1) Products & Services

The products and services in Leiedal’s offer all focus on helping homeowners to find the right information or providing them support during renovation.

The main services included in Leiedal’s offer are:

- The online tool “**Mijn Energiekompas**” (my energy compass), which gives more insight in the energy performance of the user’s dwelling in an easy-to-understand way, provides first leads to more information and already generate a first renovation advice based on the user’s input;
- The service of the “**Renovatie Coach**” (“Renovation Coach”): An independent party with technical expertise on renovation who can guide and support homeowners through the whole renovation process.
- The website “**Warmer Wonen**” (“Better Living”): an online portal, where homeowners can find a selection of all the relevant information regarding NZEB renovations. The website also includes best practices and media to inspire people
- A pool of contractors: A list of preselected contractors with the necessary technical skills regarding NZEB

<b>Mijn energiekompas</b>	<b>Renovatiecoach</b>
<ul style="list-style-type: none"> <li>• A rough estimate of the energy performance for all dwellings in the region (no input required, benchmarking is possible).</li> </ul>	<ul style="list-style-type: none"> <li>• Renovation coaching through whole renovation process</li> <li>• Independent, reliable,</li> <li>• Integrated advice: technical, financial,</li> </ul>

<ul style="list-style-type: none"> <li>• A free tool to make an improved estimate energy performance</li> <li>• A free renovation report with tailor-made nZEB-advice</li> </ul>	<p>practical, legal...</p> <ul style="list-style-type: none"> <li>• Optimizing subsidies</li> <li>• Trustee, 1 single point of contact</li> <li>• Guidance to fitting building contractors</li> </ul>
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*Table 3: Main features of Mijn energiekompas and Renovatiecoach*

## 2) Pain Relievers

**MijnEnergiekompas** gives insight in the energy performance in a very communicative way, and shows how to renovate to nZEB. And it is for free. It is a minor effort to go through the questionnaire. Technical knowledge is not required.

The **RenovatieCoach** is specialist in renovation processes, knows the different options and helps homeowners to take the right decisions. He gives them confidence on what to do, and is an independent partner. He helps homeowners through the jungle of administration and subsidies.

## 3) Gain Creators

Homeowners will easily find the relevant information with regards to nZEB renovation, either via the generated report with Mij Energiekompas or via the online portal Warmer Wonen.

With **MijnEnergiekompas** homeowners increase their knowledge on their energy performance, and they can benchmark with other dwellings. They get insight in the options to consider renovating to nZEB.

With the help of the **RenovatieCoach**, homeowners save time in managing their renovation process. They save money as they are assisted in choosing the most cost-optimal nZEB-renovation, and are sure they apply for all subsidies. They are. This rewards homeowners with improved comfort, health and value of the dwelling.

Both the Renovatiecoach and the pool of contractors secure that their renovation is executed in a technically proper way.

### *4.2.1.3 Customer journey*

**MijnEnergiekompas** focusses on the first 3 steps: generating awareness on energy performance of the dwelling, getting people interested in the nZEB-solutions, and getting people active by guiding them to actions. This is further complemented by the Warmer Wonen website, as both tools refer to one another. In the renovation report of Mijnergiekompas, the first options for renovation are already stated. In this way, it makes the link to step 4 (considering the different options). But from here on, the tool redirects towards the RenovationCoach who can help homeowners in their renovation process.

Thus, the **RenovationCoach** focusses on the next steps (from step 3 to step 10): he helps them to consider the different options, with finding financial solutions (e.g. subsidies), can guide them to suppliers and contractors, etc. The **Pool of contractors** specifically targets step 6 (selecting supplier). The **Warmer wonen** website also plays a role in this part of the journey, as it provides background information to support steps 4 and 5 (considering the technical and financial options).

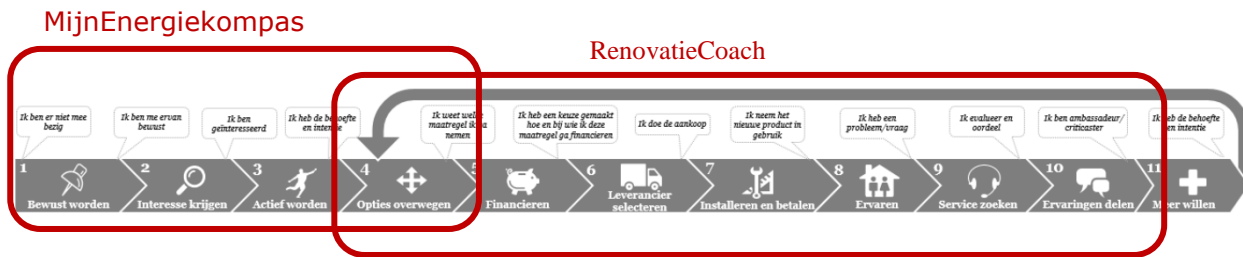


Figure 17: the 11-step Customer Journey for the Leiedal offer

#### 4.2.1.4 Business Model

As mentioned, severe housing quality issues, the ambition to improve the comfort of the dwelling, and general awareness that the energy performance of the dwelling is poor are key enablers for the young families entering the customer journeys first steps. The region network of municipalities and (public) stakeholders can energize/vitalize the phases.

The business model canvas (table below) shows how value is created by the compelling offer. It is designed from the perspective of the main stakeholders, towards the customer. For every stakeholder, this might vary, but in the table below it is the gross common denominator for them.

However, the business model is introduced by public actors (as a pilot), it is designed with the goal to create a private market. Challenges are to overcome supply/demand issues (questions such as: "Will it be successful with homeowners?", "Will the supply cooperate in this new approach?", ...) Ideally, if successful, the market should be able to create a similar business model, and a new market should be opened.

Real value creating is only expected starting in CJ step 4 and continuing until and including step 11 – based on the renovation job being initiated and completed. However there seems to be a challenge "fueling" the customers during steps 1 – 3, they should ideally be motivated by (business) independent society/community/municipality platforms and by the (independent) single-point of contact supporting the customer along the step 4-11 of the journey. Now, step 1-3 are strongly supported by public actors, but also by whoever has interest in getting homeowners to step 4 as part of their policies (housing quality, climate, (energy) poverty issues). In the setup-phase of the compelling offer, much attention goes to these first steps, necessary to create the first demand. Once the compelling offer is better known, mouth-to-mouth appraisal and recommendations will ensure further market uptake.

The below business model canvas focusses mainly on step 4-11 of the customer journey (RenovationCoach). First experiences of the RenovationCoach from Leiedal during 2017 (pilot), shows that financing cannot be covered by contribution of homeowners alone (but they are definitely willing to pay), but that also other partners can contribute (e.g. DSOs, local government, optionally contractors...).

Leiedal's business model is visualised in Figure 18 below.

<p><b>Key Partners</b></p> <ul style="list-style-type: none"> <li>Local governments</li> <li>Governments that provide subsidies (local, provincial...)</li> <li>DSOs</li> <li>Pool of contractors: (1) their offer (icing on cake), (2) financial contribution (not at start-up)</li> <li>Producers of building materials: (1) call for privileged partners; (2) financial contribution (not at start-up)</li> <li>Wider network around renovation in Flanders, regional "Warmer Wonen"-network (Optional / 2nd phase) pool of experts to outsource services e.g. EPC-certification, value estimation, architect...</li> </ul>	<p><b>Key Activities</b></p> <ul style="list-style-type: none"> <li>Renovation coaching @ home</li> <li>Services menu chart</li> <li>Recommend building solutions &amp; contractors (e.g. website)</li> <li>Continuous communication for recruitment</li> <li>Networking &amp; cooperation with partners</li> <li>Monitoring</li> <li>Back-office Q&amp;A</li> </ul>	<p><b>Value Proposition</b></p> <ul style="list-style-type: none"> <li>Renovation coaching through whole renovation process</li> <li>Independent, reliable,</li> <li>Integrated advice: technical, financial, practical, legal...</li> <li>Optimalising subsidies</li> <li>Trustee, 1 single point of contact</li> <li>Guidance to fitting building contractors</li> </ul>	<p><b>Customer Relationships</b></p> <ul style="list-style-type: none"> <li># visits @home by renovation coach</li> <li>Renovation coach as dedicated contact person (telephone, mail...)</li> <li>Confidence through leads by local governments</li> <li>Custom Relationship Management system (back-office)</li> <li>Contract with homeowners to provide services</li> </ul>	<p><b>Customer Segments</b></p> <ul style="list-style-type: none"> <li>investment €10.000-€60.000 (av. €35.000)</li> <li>2-3-4 measurements at once. Not: full renovations (if architect is mandatory) or light renovations (e.g. single measurement).</li> <li>Middle class income homeowners.</li> <li>Homeowners aware of climate/environmental issues</li> <li>Dwellings in reasonable general condition.</li> <li>Bad energy performance of dwelling.</li> <li>Dwellings in region South-West-Flanders</li> </ul>
	<p><b>Key Resources</b></p> <ul style="list-style-type: none"> <li>Renovation coach</li> <li>Customer Relation Management (CRM) &amp; administrative support</li> <li>Optimised RenBEN-tool and other tools.</li> <li>Communication campaign (e.g. MyEnergyCompas.be</li> <li>Pool contractors/building professionals</li> </ul>		<p><b>Channels</b></p> <ul style="list-style-type: none"> <li>Communication channels of local governments.</li> <li>Press</li> <li>On-line: MyEnergyCompas.be / warmerwonen.be</li> <li>Communication moments of regional partners on housing / living / renovation...</li> </ul>	
<p><b>The Cost Structure</b></p> <ul style="list-style-type: none"> <li>Staff: front offices &amp; back-office</li> <li>Cost of home visits (mobility)</li> <li>Communication &amp; marketing</li> <li>Digital applications</li> </ul>		<p><b>Revenue Streams</b></p> <ul style="list-style-type: none"> <li>Homeowners</li> <li>Subsidising governments</li> <li>Grid owners</li> <li>Contractors &amp; building material suppliers (not in start-up)</li> </ul>		

Figure 18: Business model of Leiedal's renovation package

### 4.2.2 Description of the resulting compelling offer

The box below provides a summary of Leiedal's compelling offer. This is followed by an in-depth description of the main services in the offer: Mijn Energiekompas, De Renovatiecoach and the Warmer Wonen website.

<p><b>Compelling offer name BE#1:</b></p> <p><b>De Renovatiecoach</b></p> <p><b>Selected segment (target group)</b></p> <p>Single Family houses (including Young Families and Empty Nesters) in the region of South-West Flanders</p>
---

**Short description**

Leiedal offers full support during the renovation process, by offering a renovation coach service. The renovation coach is an independent party who will provide tailored-made advice, guidance and support during the renovation process and the building sector. Tools Mijn Energiekompas, website Warmer Wonen and a database of selected contractors will make sure that homeowners find their way to technical resources, financial information and skilled building professionals.

**Market value potentials in country**

There are 2.104.892 single family houses in Flanders. More in detail, 42% of the single-family houses consist of detached houses. Terraced houses and semi-detached houses make up for 31% and 27% of the single-family houses, respectively. More than 80% of the single-family houses was built without any obligations regarding energy performance<sup>17</sup>.

**Timing of intervention**

The purchase of the house or necessary maintenance of the house

**What needs to be done (the job)**

Two to four renovation measures in short-term, without jeopardizing a nZEB home in the long-term

**Value proposition to target group**

Meet the Renovation Coach in your home and feel safe! Carefree renovation with professional support.

Free service: Online information via website Warmer Wonen, preliminary renovation advice via tool Mijn Energiekompas, access to the list of selected contractors, first contact by the renovation coach

Paid service: Technical support of the renovation coach (tariff: 50 €/h)

The service targets investments between €10.000 and €60.000. As the renovation coach services works on a case-by-case basis, expected savings and payback time of the renovation depend on the house and home-owner's needs.

The service links with the neighbourhoodgrant (burenpremie) offered by the Distribution System Operators (DSOs) in Flanders, as Leiedal's Renovation Coach qualifies as the NZEB-renovation coach which is required for this grant. A part of the fee for the Renovation Coach can be funded through this channel (up to 400 € per household) Furthermore, in addition, the DSOs offer additional grants for individual renovation measures, with increasing rates if more than 3 to 7 measures are executed in a period of five years (up to 4.750 € for a single-family house)

Finally, the website Warmer Wonen includes links to all other regional and/or national tools and services which can be combined with this package.

**Customer journey implications**

Mijn Energiekompas specifically targets the first part of the customer journey (step 1 to 4) while Renovatie Coach targets the second half (step 4 to 10).

The Pool of contractors is developed to support the CJ step 6.

The website Warmer Wonen complements Mijn Energiekompas in the beginning of the customer journey (step 1 to 4) but also plays a role in the end of the journey (step 10 to 11) as it includes best-practices on the website and can motivate homeowners to want more.

**Business model implications**

<sup>17</sup> See REFURB deliverables D4.2 Local tailoring and D4.3 Supportive financial constructions

The Renovation Coach does not replace other building professionals such as architects or energy experts but rather makes cooperation possible, by forwarding homeowners to these building professionals (e.g. in case of deep renovations when building permit is required etc.). Collaboration between the Leiedal renovation coach and the architect was discussed in-depth at the Belgian focus group for the supply side (see below). Architect associations are willing to develop solutions.

### QA Quality measures integrated (referencing the REFURB quality measure table)

1. The building: roadmap renovation highlighting benefits of the higher comfort and indoor climate (European standard). New buildings passive houses can be guaranteed (safe factor)

1.1. Roadmap: How to ensure the plan is followed and is the correct one, avoid lock-ins?

- The renovation coach can make use of several tools developed in a previous project (RenBEN) by Bostoën and partner Ghent University.

An integrated renovation advice, showing the steps to take in an optionally staged renovation (also to avoid lock-ins). See picture below.

The REN2BEN-app, created by Bostoën, showing the optimal measurements. The technically best order of execution of works to avoid lock-ins is also an output of this tool. This is an integrated path for all quality improvement of the dwelling (thus not only on energy performance, but also on safety issues etc.).

The Optitool, created by the Ghent University, which defines the most cost-optimal renovation measures, without taking the technical measurements into account.

Huidige situatie	De woning is bijna niet geïsoleerd. Er is geen centrale verwarming en warm water wordt geproduceerd door een gasflesser. Een ventilatiesysteem is niet aanwezig.
Dringend aan te pakken	Om in orde te zijn met de wooncode moeten volgende werken zeker gebeuren: <ul style="list-style-type: none"> <li>– de elektrische installatie moet nagezien en in orde gesteld worden (volgens de opmerkingen genoteerd in het technisch verslag van de bevoegde ambtenaar Wonen Vlaanderen)</li> <li>– de gasflesser dient conform en vakkundig geïnstalleerd te worden alsook stabiele oplossing van de gasflessen; er dient permanente verluchting voorzien te worden in deze ruimte</li> <li>– de woning moet voorzien worden van dakisolatie</li> <li>– aanpak vochtschade aan de buitenmuren</li> <li>– de keldertrap en de trap naar boven moeten voorzien worden van een trapleuning</li> <li>– het aanbrengen van een borstwering aan de trap boven</li> <li>– de afvoer van de douche werkt niet naar behoren</li> <li>– de gaskachel in de leefruimte moet vakkundig aangesloten worden op de schoorsteen en er dient permanente verluchting te zijn in de leefruimte</li> <li>– de dakgoot achteraan moet hersteld worden</li> </ul>
Aan te pakken	Om de woning naar BEN te brengen zijn volgende stappen nodig. Bij uitvoering is het belangrijk om lock-ins te vermijden of deze stappen in 1 keer uit te voeren.
Stap 1	Het hellend dak isoleren
Stap 2	Ventilatiesysteem installeren.
Stap 3	Ramen en deuren vervangen.
Stap 4	Isoleren van de gevels en muur naar schuur
Stap 5	Vervangen verwarmingssysteem en productie warm water.
Stap 6	Isoleren van de vloer.
Mooi resultaat	Uw woning is BEN!
Stap 7	PV-panelen of zonneboiler.
Schitterend!	

Figure 19: extract from an example of the integrated renovation advice. The first column contains the description of the main stages if the deep renovation is staged. The second column describes the measurements linked with each stage. It starts from the “current situation” (huidige staat), over “the most urgent works” (dringend aan te pakken) to be in line with the national code on basic dwelling quality; to “tackle” (aan te pakken) about bringing the dwelling to NZEB-level, to “nice result” (mooi resultaat) and ends with fantastic (schitterend).

- Personal expertise of Renovation coach. Right profile, right skills are necessary

1.2. Proposed work for the house is correct: coach may ensure that the technical measures are correct ones.  
Methodology. Training for roadmap creators

- this is a challenge in future, as currently no control mechanisms are developed to check the quality of the work of the renovation coach (still in pilot phase, too small scale). The renovation coach has experience as contractor on the field, is trained (e.g. additional training for EPC-labeling), and gets supporting tools (see tools above).
- Possibility in future to create a 'learning network' of renovation coaches in a wider area (e.g. on Belgian level), to facilitate the knowledge exchange
- In the future: create a certain standardized training or requirements so the "renovation coach" is a "protected title/label" that not everyone can have (e.g. training in Germany)
- In case of one-step and/or deep renovations: the renovation coach redirects the homeowner towards an architect who is expected to do the quality control. However, not all architects are specialized enough in nZEB yet.

1.3. Quality of installation: supervision (no detail per technology)

- On the field, done by the renovation coach.
- In the future: Continuous training of the renovation coach in several [new] techniques and fields (carpeting, sanitary, electricity, masonry...), e.g. by following courses or trainings of product suppliers
- A pool of contractors is proposed to the homeowners (but not obligatory). Contractors in this pool are selected based on quality criteria (certificates etc.)
- Review and guidance of works in case of DIY (do-it-yourself) by the renovation coach.
- In case of one-step and/or deep renovations: the renovation coach redirects the homeowner towards an architect who is expected to do the quality control.

1.4. Quality of maintenance (step 9 CJ)

- At this moment, no experience of the renovation coach (pilot phase).
- A follow-up visit could be offered as a part of service (e.g. 6 months after finishing the works)

1.5. training supply on technical (nZEB) and communication skills

- None, but there is a stronger lead towards trained and certified contractors (pool of contractors)

1.6. indoor quality/comfort?

- The tool "Scorecard" + the expertise of the renovation coach should secure this (+ pool of contractors as well)

1.7. sensors for monitoring the indoor comfort, energy savings, behavior? For a while for deep renovations

- Not foreseen

2. Consumer: behavior guidelines, no control on the human behavior, training of user with usage as motivation.  
Manual of the building

2.1. lower effect of rebound. There is no guarantee on specific energy savings

- Homeowner can rely on the "energiesnoeiers" (energysavers) to audit the house to look for "small interventions" for saving energy. But usually, this is done before real renovations, and they have no service for renovated dwellings.
- As "rebound-effects" are inherent (real savings are lower than estimations – due to the gap between calculated and real consumption in low-energy dwellings. This is mainly due to the optimist assumptions in the EPC-calculation



method), the focus in the selling proposition is not the cost saving but rather increase of comfort. This way, expectations with end-users are realistic.

2.2. Guidelines (see 8 steps of better housing) Manual. Training on usage/settings of equipment

- Not foreseen

2.3. indoor quality/comfort?

- Not foreseen

2.4. visit of the coach after 6 months after works are done

- A follow-up visit could be offered as a part of service (e.g. 6 months after finishing the works), not foreseen yet.

3. Training of financial institution, real estate agents and other stakeholders

- Permanent interaction (feedback – reporting...) with (mainly public) stakeholders in the stakeholder network “Warmer Wonen”.

#### **Market uptake tools integrated**

The following market uptake tools have been integrated in the BE#1 Compelling offer:

- Mijn Energiekompas
- Warmer Wonen

Other market uptake tools integrated are listed on the Warmer Wonen website

#### • **4.2.2.1 *Mijn Energiekompas***

Mijn Energiekompas is briefly analysed in REFURB deliverable D4.5 “Online customer tool and market approach”. A detailed breakdown is provided further in this report.

Mijn Energiekompas is a user-friendly tool which offers the homeowner three options:

- Check on the energy performance of the dwelling
- Discover on how to improve the energy performance
- Get help with the renovation of the dwelling

All issues will be resolved by running through the tool, notwithstanding the option is chosen from the first screen (runs through different trajectories).

When choosing the first option, a map is shown with rough estimates of energy labels, based on a statistical analysis of the EPC-database. Home-owners can find their dwelling on the map.





Figure 20 screen captures from questionnaire of MijnEnergiekompas

Then, homeowners have the option to improve the estimate of the energy label of their house. They have to run through a questionnaire. The text is short; icons are used to make the questions intuitive.

After running through the questionnaire, an infographic with the results is shown. An improved estimate of the energy label is calculated by a back-office module, based on an in-depth analysis of the EPC-database. The energy cost of the homeowner is benchmarked.

Homeowners can download a tailored-made renovation report.

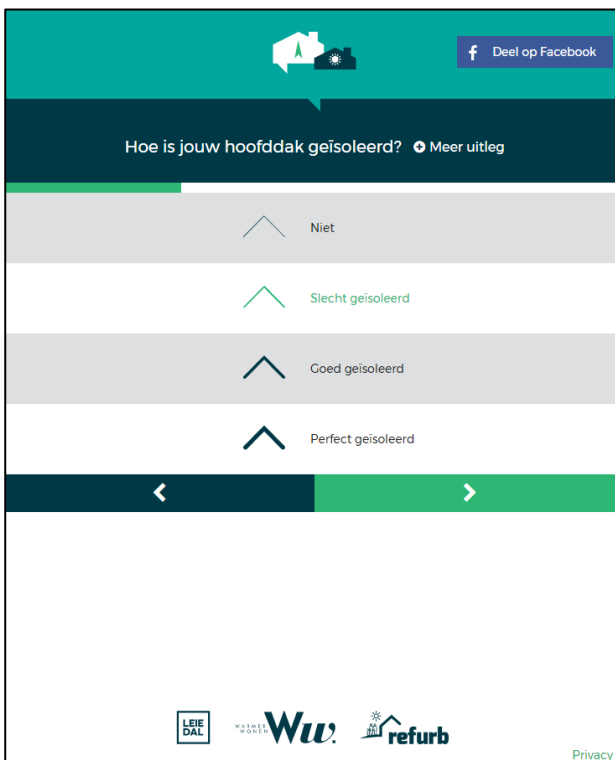


Figure 21: download of the tailor-made renovation report of MijnEnergieKompas.




In the tailor-made renovation report, homeowners get another infographic with a resume (e.g. the top 3 of renovation measurements needed).




On the 2<sup>nd</sup> page, they get an advice on how to make their dwelling future-proofed (nZEB). Per building element (wall, floor, roof, installations...) they get an advice on the possible improvement, the priority it has, and the non-energetic advantages it brings (e.g. extra comfort, new look of the house...).

On the last page, they get an advice on how to act. Where to find the information on financial solutions, where to find someone to help with the renovation (RenovationCoach), how to improve comfort, etc.

**MijnEnergiekompas**  
Jouw renovatieplan op maat

**meiweg 15  
kortrijk**






<p> <b>Woning</b> Jouw woning</p> <p><b>C: goed</b></p>	<p> <b>Energiekost</b> Jouw energiekost</p> <p><b>GEMIDDELD</b></p>
<p> Uw woning hoort bij de 9% beste in de regio</p>	<p><b>Top 3 maatregelen</b></p> <ol style="list-style-type: none"> <li>1. Energiezuiniger verwarmingssysteem</li> <li>2. Kleine energiebesparende maatregelen</li> <li>3. Hoofddak grondig isoleren</li> </ol>

**MijnEnergiekompas**  
Maak je woning toekomstbestendig  
Start nu

Je vindt dat jouw woning dringend aan verbouwingen toe is, dat een grondige verbouwing zich opdringt. De energieprestatie van jouw woning is gemiddeld, er is dus nog marge voor verbetering. Met welke ingrepen maak je een warme, gezonde en comfortabele woning? Hoe zorg je dat ze haar waarde behoudt en je energiefactor onder controle blijft?

Hier vind je maatregelen om jouw woning "BEN" te maken (Bijna-Energie neutrale Woning). BEN is de norm van de toekomst, voor nieuwe woningen en bij renovaties. Ga mee met de tijd.

	Je hoofddak bij-isoleren is de hoofdprioriteit. Dit slecht geïsoleerde dak laat zeer veel koude binnen, vooral als je de ruimte eronder gebruikt. Een perfect geïsoleerd dak geeft je veel meer wooncomfort. Reken op minstens 12 à 20 cm isolatie. Je bijdak bij-isoleren is geen prioriteit, tenzij je van plan bent het bijdak te vernieuwen.
	Je weet niet of je volle muren of spouwmuren hebt, maar wel dat ze niet geïsoleerd zijn. Laat nagaan of je een spouwmuur hebt. Een spouwmuur kan eenvoudig geïsoleerd worden, maar het isolatieniveau is beperkt. Bij een grondige verbouwing ga je voor minstens 10 à 16 cm isolatie, waarop een nieuwe gevelafwerking komt.
	Een perfect geïsoleerde vloer zorgt voor warme voeten. Je hebt een kelder, dus het is mogelijk om via het kelderplafond de vloer van jouw woning (of een gedeelte ervan) eenvoudig bij te isoleren tot minstens 7 à 11 cm isolatie. Zo moet je de vloer niet uitbreken voor een nog comfortabel en warmer gevoel.
	Je beschikt al over superisolerende beglazing. Deze laat 3 keer minder koude binnen dan dubbele beglazing, en 10 keer minder dan enkel glas. Dit zorgt voor een warm gevoel omdat de ramen veel minder koude uitstralen en winddicht zijn. Zorg dat je ventilatiesysteem goed werkt om vocht- en gezondheidsproblemen te vermijden.
	Hout of pellets zijn een duurzame vorm van verwarming. Maar zorg vooral dat de woning voldoende geïsoleerd is. Zo vermijd je energieverbruik, en dat is het belangrijkste voor de energieprestatie van jouw woning.

+

+

-



**MijnEnergiekompas**  
Maak je woning toekomstbestendig  
Zo pak je het aan

**Meer comfort**

Jouw energieverbruik is lager dan gemiddeld. Een renovatie van je woning zal jou vooral een groter comfort opleveren zoals een aangenaam en gezond binnenklimaat in elke ruimte.

**Eerste hulp bij renovatie van je huis**

Omdat elk huis anders is, komt de RenovatieCoach ook bij je thuis kijken. Zo zoek je samen met een expert naar een duurzame oplossing op maat. [Lees alvast in deze brochure](#) hoe de RenovatieCoach te werk gaat en wat hij voor jou kan doen.

**Besparen hoeft niet altijd veel geld te kosten**

Wel soms een verandering van gewoontes, een beetje van uw tijd of een kleine moeite. Wat kan je doen aan je verwarming? En in de keuken? En met elektrische toestellen? Lees de eenvoudige besparingstips op <http://www.energiesparen.be/tips>

**Ik heb nog concrete vragen**

Neem contact op met de RenovatieCoach. Hij geeft je gratis via [renovatiecoach@warmerwonen.be](mailto:renovatiecoach@warmerwonen.be) of **056 24 16 19** snel een antwoord, vanuit zijn ruime netwerk vol ervaring.

Hoe verdergaan	☎ 056 24 16 19	renovatiecoach @warmerwonen.be
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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649865

Figure 22 download report for the customer from MijnEnergieKompas

• **4.2.2.2 Renovation coach service**



Figure 23: leaflet invitation to use Bart – the renovation coach

Under the motto “Carefree renovation with professional help”, the renovation coach offers different services:

- Free services, e.g. MyEnergycompass, access to a pool of contractors, answer to questions via e-mail and telephone...
- A quick scan: a house visit of 2 hours (intake). The RenovationCoach gives tips about the house, how to renovate, how to improve comfort, how to save energy... He concludes with a set of points of attention and relevant measurements. This also is for free.
- He creates a tailor-made trajectory, based on the wishes of the homeowner. This is an integrated advice, not only focussing on nZEB but on the total renovation. The cost will depend on the package the homeowner wants. E.g. if the homeowner is a DIY'er, he can get adapted services.
- An advice on how to get the dwelling to nZEB-level.

To create this tailor-made package, the RenovationCoach runs through 5 steps with the homeowner:

1. Inventory of the wishes of the homeowner. How his ideal house does looks like? What are the expectations during the renovation process? What is he intending to do, and when? Who is involved in the process?
2. A renovation scan. An in-depth analysis of the dwelling. A description of the works, an estimate of the budget, the timing, etc.
3. Approach. Help with tendering the offers of contractors, and with evaluation.
4. Execution. Follow-up and quality control of the works
5. Delivery. Administrative round-up of works, loans, subsidies, etc.



Figure 24: the customer journey described to the homeowner in a few easy steps

The renovation coach is a paying service, costing €50 per hour. The intake (2-hour session) is for free. The package of services of the renovation coach towards the homeowner can vary. For some groups (e.g. low income), some municipalities reduce the price.

The renovation coach also qualifies as a “BENOVatiecoach”. BENOVatiecoach is an initiative of the regional DSO and the Flemish Government. Collective NZEB renovations with a scale of minimum ten households

can receive a grant to fund a project coordinator: the BENOvatiecoach. This financial contribution can be up to €400 per household<sup>18</sup>.

The competence profile of an independent renovation advisor is subject of the REFURB Deliverable D5.6 “Recommendation on quality point of contact for nZEB renovations”.

- **4.2.2.3 Online portal “Warmer Wonen”**

This portal is a one-stop-shop with all relevant renovation information for homeowners. All services offered by the national, regional and local government is structured in several categories, from the point of view of the homeowner. Homeowners can find best-practice examples, a selection of dedicated contractors (who are member of a pool), discover the offer of MijnEnergiekompas and the RenovatieCoach, etc.

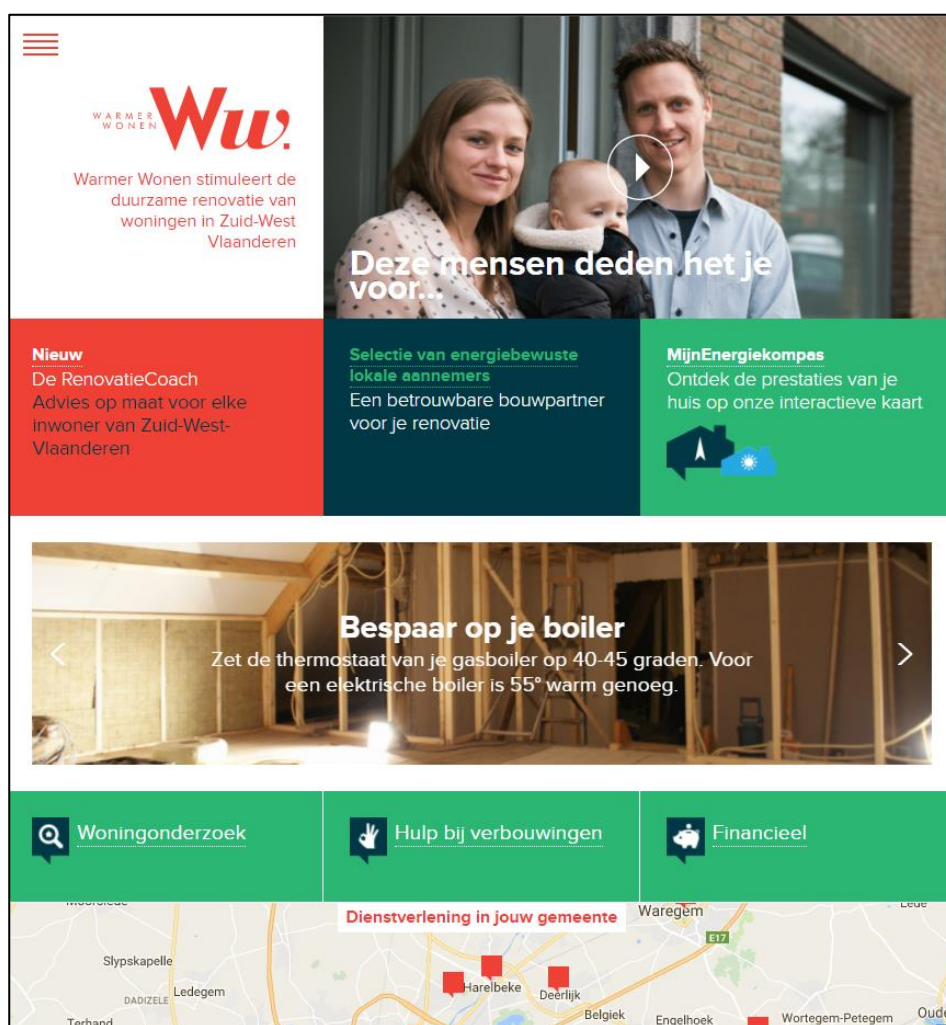


Figure 25: Promotion leaflet – promoting the warmer homes (Warmer Honen) concept

<sup>18</sup> See REFURB deliverable D4.3 Supportive financial constructions for more information

### 4.2.3 Conclusion

#### 4.2.3.1 Lessons learned

Even though it is too early to evaluate the tools MijnEnergiekompas and RenovatieCoach, some conclusions can be made. For the development of the tools, a “soft launch” was foreseen. This means that the offer was tested in focus groups, in interviews, with stakeholders, etc.

To test the concepts on their technical, financial and organizational feasibility, the Belgian partners invited a consultative group. The participants had expertise in deep energy renovations and represented the supply side (building firms, renovation advisors, architects, professional associations), the government and the research sector.

The success factors and pitfalls of the compelling offers were discussed during the workshops, as well as potential partnerships with different actors of the supply side. The latter led to interesting insights, not only on what the actors of the supply side could offer to the compelling offers, but also on what is in it for them. The valuable feedback received from this expert group will be taken into account in the further development of the compelling offers.

The success factors are:

- Unburdening
- Single point of contact
- Home-owners get activated

The pitfalls are:

- What about the responsibilities of the RenovatieCoach (e.g. for an architect, this is regulated)
- The task-package is ambitious
- The knowledge of the RenovationCoach is a key element.

#### 4.2.3.2 Recommendations for scaling up the compelling offer

To accelerate the renovation rate and increase the NZEB-ambitions within renovation, the market introduction of the concepts of “RenovatieCoach” and “MijnEnergiekompas” is very interesting. They target a latent potential of homeowners. Bringing them knowledge and tailor made advice is a key to activate these homeowners.

The offer must be low-threshold, easy to understand and use, and be independent.

The integration of this offer is the catalyzer of the homeowners’ nZEB-ambitions. Homeowners are aware and willing to embrace these ambitions.

A local/regional cooperation is essential to be successful. Many stakeholders offer related services. A good understanding between all these stakeholders, and the search for synergies is important.

## 4.3 COMPELLING OFFER BE#2: BOSTOEN

### 4.3.1 The methodology used for creating the compelling offer

#### 4.3.1.1 Customer segment

The target group of Bostoен are young families, aged between 25 and 45. They can be singles or couples, with or without children. They just have bought a house to renovate. They are both full time workers and they have no time left to do or organise the renovation themselves. So, they are looking for a contractor to unburden them. Moreover, they have no budget to rent another place during the renovation. Thus, they want to stay in their house during the renovation.

#### 4.3.1.2 Value proposition

##### 1) Customer Jobs

- Renovate the house: prepare and organise the renovation
- Look for temporary housing
- Feel good in the house, also during the renovation
- Be unburdened in renovation process

##### 2) Customer Pains

- House is not energy efficient and this cost money
- House needs renovation
- Renovation costs too much money
- Renovation can cause a lot of stress

##### 3) Customer Gains

- A comfortable temporary staying
- No worries during renovation
- A warm and comfortable house
- A nice renovated house
- Energy cost savings

The young families often buy an old house that needs renovation. As they have no time left to organize the renovation themselves, they are looking for someone they can trust to unburden them. Moreover, they want to stay in their house during the renovation to economize costs.

Bostoен developed a turnkey solution for renovation works to unburden the homeowners in their renovation process.

The concept incorporates a number of building component solutions in its toolbox of deep energy renovation measures. Examples are:

- Timber frame modules with integrated techniques, insulation, windows, stairs etc. In only one day, these prefabricated modules can be assembled on the building site as an extension of existing houses. Only the foundations of the module and the exterior finishing needs to be executed on the building site. This results in a very short construction time.





Figure 26: Illustration of timber frame module in production (source: Bostoer)

- Integrated wall- or roof components: for instance, Isofinish<sup>19</sup> where multiple manufacturers collaborated to offer a wall solution including insulation and exterior finishing.

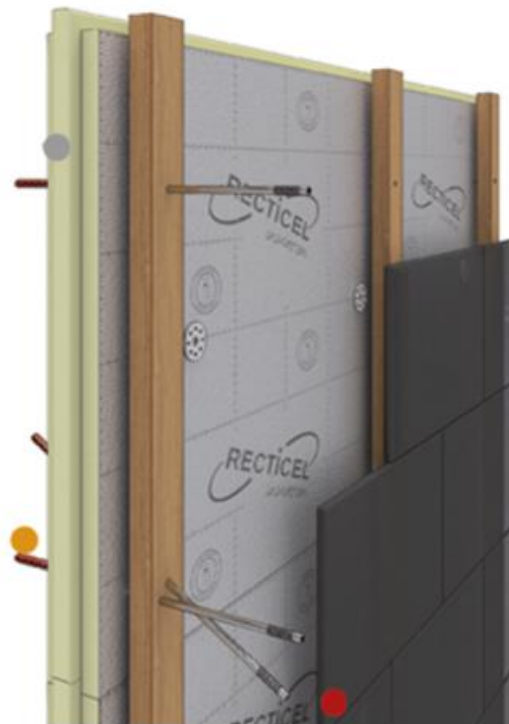


Figure 27: Illustration of Isofinish, an integrated wall component (source: Recticel)

## 1) Products & Services

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<sup>19</sup> <http://www.isofinish.be/nl>



Bostoen offers a turnkey solution with different prefabricated building component solutions. Two parts can be distinguished in Bostoen's approach:

- Deep renovation of master volume of the dwelling, possibly by step-by-step approach
- Prefabricated module as a finished extension which could also serve as temporary housing during renovation.

Furthermore, a clear point of contact will guide the homeowners through the renovation process.

- One deep renovation with: finished extension, insulation of the pitched roof, insulation of the walls, PV-panels, ...

## 2) Pain Relievers

This turnkey renovation is responding to five drivers and barriers of the homeowner:

1. Budget control. (Guarantee for cost)
2. Participation of the homeowner before and during the building process. (Comfort in process)
3. A clear point-of-contact for the homeowner (for all questions about the renovation). (Comfort in process + Communication tailored to the individual home-owner)
4. Clarity about the process and planning (roadmap). (Support in organisation/planning + Trust in planning)
5. Masterplan. Audit on dwelling to set up a masterplan for an energy efficient renovation. This renovation can be conducted in different phases, spread over a couple of years. (Support in getting tailored advice)

## 3) Gain Creators

- Possibility to do a staged renovation in different phases
- Unburdening through the whole process of renovation
- On the long-term possibility to adapt or re-extend the extension of the house
- One personal contact who follows up your renovation
- A comfortable temporary staying
- No worries during renovation
- A warm and comfortable house
- A nice renovated house
- Energy cost savings

### *4.3.1.2 Customer journey*

To unburden the client in its renovation process, Bostoen determined a roadmap for renovations:

1. First acquaintance: Bostoen gathers info on the project onsite.
2. Sketch & estimate: Answer to ideas/questions of the homeowner.
3. Study agreement: Together with an architect a calculation and technical studies are executed for the renovation.
4. Proposition: Detailed offer and plans are presented to the client.
5. Contract: Starting date of the construction work is fixed/determined.
6. Final plans: The client chooses the finishing materials.
7. Execution: The construction work for the renovation is started.
8. Provisional acceptance/delivery: Termination of the construction work.
9. Service guarantees: Unburdening of the client after the execution of the renovation.

Bostoën’s compelling offer focuses on the step 4 (considering the offer) till step 11 (wanting more) of the Customer Journey. The customer is already interested in a renovation to nZEB and becomes active by contacting Bostoën for a compelling offer.

Challenges experienced throughout the steps of the journey (for the chosen customer segments) are the following:

- to get the customer interested and active to look for a compelling offer for an nZEB renovation of their dwelling (step 1-2-3)
- to get the customer interested in the value proposition of Bostoën (step 4)
- to make the customer able to finance the investment of the nZEB renovation (step 5)
- to get satisfied customers to share their positive experiences with new potential customers (step 10)
- to get satisfied customers who want more steps of an nZEB renovation to be executed by Bostoën (step 11)

As further explained in REFURB Deliverable 5.3 “Continuous improvement Customer journey” Report, the marketing and sales department of Bostoën uses four tools to secure continuous improvement of the customer journey (connected to different phases of the customer journey):

1. Marketing automatization
2. Salesforce as Customer Relations Management (CRM)
3. Client-corner application
4. Control of Customer Satisfaction

These tools are based on the stages in the sales funnel and are used to follow up and optimize.

#### 4.3.2.4 Business Model

Bostoën’s business model is visualised in figure 28 below.

<p><b>Key Partners</b></p> <ul style="list-style-type: none"> <li>• Real estate agents</li> <li>• <b>Jumatt</b> as main manufacturer of finished wooden modules (sister company)</li> <li>• Selected manufacturers for deep renovation: <b>Recticel</b> (insulation of roof and facades), <b>GDE</b> (PV-panels), ...</li> <li>• mandatory consultants (architect, engineers, energy expert, ventilation expert, safety coordinator)             <ul style="list-style-type: none"> <li>○ subcontractors</li> <li>○ structure</li> <li>○ envelope</li> <li>○ HVAC and electricity, lighting</li> <li>○ interior</li> </ul> </li> </ul>	<p><b>Key Activities</b></p> <ul style="list-style-type: none"> <li>• marketing &amp; sales</li> <li>• pre-cost estimation and offer</li> <li>• study agreement and design (incl. cost estimation)</li> <li>• technical design</li> <li>• building permit</li> <li>• interior design</li> <li>• construction of module in factory</li> <li>• construction on site</li> <li>• customer relationship management (CRM)</li> </ul>	<p><b>Value Proposition</b></p> <p><b>PRODUCT</b></p> <ul style="list-style-type: none"> <li>• Total renovation to nZEB with improved comfort and luxury in different stages:             <ol style="list-style-type: none"> <li>1. Finished extension for temporary housing (nZEB module)</li> <li>2. Deep renovation of master volume, possibly by step-by-step approach</li> </ol> </li> <li>• tailored to the customer</li> <li>• light construction</li> <li>• prefab construction made in factory =&gt; quality controlled + short construction time</li> <li>• easy adaptable/extensible with other nZEB modules in next stages</li> </ul> <p><b>SERVICE</b></p> <ul style="list-style-type: none"> <li>• single point-of-contact (SPOC) for the total renovation</li> <li>• unburdening</li> <li>• security of costs</li> <li>• ease during construction (short duration, temporary housing)</li> <li>• quality assurance <b>inenergy</b> savings</li> <li>• quality assurance by co-operation between selected contractors and <b>manufacturers</b></li> </ul> <p><b>BRAND</b></p> <ul style="list-style-type: none"> <li>• experience in building sector, nZEB</li> </ul>	<p><b>Customer Relationships</b></p> <ul style="list-style-type: none"> <li>• general contractor or architect as single point-of-contact (SPOC)</li> <li>• relationship based on confidence, trust</li> <li>• quick response, efficient communication</li> <li>• dedicated client space</li> </ul> <p><b>Channels</b></p> <ul style="list-style-type: none"> <li>• information moments at places where customer segments meet: in hobby/sport clubs</li> <li>• advertisements (e.g. <b>Humo</b>)</li> <li>• <b>flyering</b> in neighborhoods where houses are for sale</li> <li>• visibility on the building site</li> <li>• demonstration building</li> <li>• fairs</li> <li>• social media</li> <li>• websites manufacturers</li> <li>• online tool via real estate agents</li> </ul>	<p><b>Customer Segments</b></p> <p>Young families:</p> <ul style="list-style-type: none"> <li>• typically 25-44 years old</li> <li>• young couple with children (or a children’s wish)</li> <li>• Middle class or higher income</li> <li>• moment: just purchased a small existing house to renovate and extend</li> <li>• interested in building ecologically and/or sustainably</li> <li>• Single family house with a low energy performance</li> </ul> <p>Location:</p> <ul style="list-style-type: none"> <li>• nationwide</li> </ul>
<p><b>Cost Structure</b></p> <ul style="list-style-type: none"> <li>• materials</li> <li>• personnel</li> <li>• overhead</li> <li>• subcontractors</li> <li>• risk provisions</li> <li>• margin</li> </ul>		<p><b>Revenue Streams</b></p> <ul style="list-style-type: none"> <li>• customer payment for the extension and renovation works</li> <li>• manufacturers involved in system for deep renovation</li> </ul>		

Figure 28: Business model of Bostoën’s renovation package

### 4.3.2 Description of the compelling offer

Bostoen's prototype concept consists of prefabricated building component solutions in combination with deep energy renovation measures.

<p><b>Compelling offer name BE#2:</b></p> <p><b>Selected segment (target group)</b></p> <p><b>Short description</b></p> <p><b>Market value potentials in country</b></p> <p><b>Timing of intervention</b></p> <p><b>What needs to be done (the job)</b></p> <p><b>Value proposition to target group</b></p> <p><b>Customer journey implications</b></p> <p><b>Business case</b></p>	<p><b>Turnkey nZEB renovation for single family houses</b></p> <p>Young families who recently purchased a house with a low energy performance.</p> <p>This prototype concept consists of prefabricated building component solutions in combination with deep energy renovation measures.</p> <p>There are 2.104.892 single family houses in Flanders. (See compelling offer Leiedal section 2.2.2). The Young Families segment is estimated to represent around one third of the single-family houses <sup>20</sup>.</p> <p>The purchase of the house and a period of two yours afterwards.</p> <p>Young families want to renovate their dwelling, but they have no time to follow up the renovation and they do not have enough financial possibilities to live in another dwelling during the renovation. Thus, they need a carefree nZEB renovation and a place to stay during their renovation.</p> <p>The offer includes:</p> <ul style="list-style-type: none"> <li>- a total renovation to NZEB in different stages with prefabricated building components;</li> <li>- a possibility for temporary housing in a finished extension of the dwelling;</li> <li>- a single-point-of-contact for total unburdening of the customer.</li> </ul> <p>The renovation can include an extension to the house (e.g. with a timber frame extension) or be limited to the master volume of the house.</p> <p>This renovation package targets investments &gt; €60.000.</p> <p>DSOs offer additional grants for individual renovation measures, with increasing rates if more than 3 to 7 measures are executed in a period of five years (up to €4.750 for a single-family house)</p> <p>This offer focuses on the step 4 (considering the offer) to step 11 (wanting more) of the Customer Journey.</p>
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<sup>20</sup> See REFURB deliverable D4.3 supportive financing constructions

The key stakeholders for this compelling offer are manufacturers of building component solutions. They can be motivated to add their building component product for renovation to this compelling offer with the creation of additional business and revenue streams. Additionally, their building component and company will be promoted through the marketing of the total compelling offer.

Finally, a collaboration with energy experts and architects is necessary in order to be able to offer a turnkey renovation.

**QA Quality measures integrated (referencing the REFURB quality measure table)**

Bostoën uses four tools to secure continuous improvement of the customer journey (connected to different phases of the customer journey): Marketing automatization, Salesforce as Customer Relations Management (CRM), Client-corner application, Control of Customer Satisfaction.

**Market uptake tools integrated**

Existing channels are used (website, promotion material).

### 4.3.3 Conclusion

#### 4.3.3.1 Lessons learned from testing the offer

Testing the nZEB renovation packages was done by presenting the package to different focus groups: two for the demand side and one for the supply side.

##### Focus group supply side

The Belgian REFURB partners invited an expert group to ask for feedback on the prototype renovation concepts of Leiedal and Bostoën.

To test the concepts on their technical, financial and organizational feasibility, the Belgian partners invited a consultative group at the Recticel offices. The participants had expertise in deep energy renovations and represented the supply side (building firms, renovation advisors, architects, professional associations), the government and research sector. The success factors and pitfalls of the renovation packages were discussed during the workshops, as well as potential partnerships with different actors of the supply side. The latter led to interesting insights, not only on what the actors of the supply side could offer to the renovation packages, but also on what is in it for them. The valuable feedback received from this expert group will be taken into account in the further development of the renovation packages.

Received feedback from stakeholders is listed here:

- ➔ By focusing on the extension of the house as a possible component, homeowners are not motivated to make their house more compact and consequently less energy consuming.
- ➔ Financial incentives should be clear, e.g. added value of the dwelling after the renovation.
- ➔ The option to realize an extension with a timber frame extension will only appeal a selected number of homeowners and consequently only trigger a part of the homeowners. Nevertheless, also other focus groups (e.g. empty nesters) could be interested in this offer.

##### Focus groups demand side

Bostoën invited in two sessions homeowners who would possibly renovate their house in the (near) future to present the renovation package of Bostoën. Afterwards, the invitees were asked to give feedback on the positive and negative elements of the offer.

Received feedback from the home-owners:

- ➔ For homeowners, the possibility to do the renovation in stages is a positive point.
- ➔ To have a temporary housing solution during the renovation works sounds attractive for the homeowners. Could this also be used and removed after the renovation?
- ➔ Homeowners would be more motivated to accept this offer if financial solutions are added to the offer.

## 5 German compelling offers

### 5.1 NATIONAL APPROACH

The German REFURB partners have decided to focus on Segment 6: **homeowners of multi-apartment dwellings** of the six segments identified in REFURB WP2, especially housing companies and housing cooperatives. From this perspective, the company is the *owner* of the building, while the tenants, depending on the organisational/legal structure of the landlord, might have certain rights of determination, but are mainly bound to the decisions of the owner.

There are several reasons for choosing this segment: First, both German partners have extended experience in this field. Bauverein is a housing cooperative, the work of ISW has been focused on different projects regarding urban development, the rental market and energetic renovation. Moreover, the segment is very important in Germany, since the German rental market is big in comparison to many other European countries. In addition, the work on WP4 is also preparatory for upcoming tasks in WP6, especially the transferability plan for the social housing sector.

The housing stock of the companies differs very much. Many housing companies own stocks of different ages and styles, built in different eras. Although renovation measures have been taken in many buildings, there is still a huge potential for increasing energy efficiency in the housing stock of housing companies.

It is important to notice, that the circumstances of private owners of single-family-houses, who carry out a (nZEB) renovation differ fundamentally from those of housing companies. In contrast to private owners of single-family-houses, who will mostly make a (nZEB) renovation for the first and probably even for the last time, they usually are very experienced in this field. The housing companies have already done a lot of renovations and will do a lot more in the future. Probably, they already have an established renovation-process, they carry out every time. The danger of this is, however, to miss out on new possibilities and technologies, to be dependent on partners, who might not always know all the options and make the best offer and to stop thinking 'out-of-the-box' and thus miss out on opportunities to improve the established renovation process.

### 5.2 COMPELLING OFFER DE#1: ENERGETIC RENOVATION OF HOUSING STOCK

The German REFURB partners have decided to focus on Segment 6: **homeowners of multi-apartment dwellings** of the six segments developed in REFURB WP2: especially housing companies and housing cooperatives. From this perspective, the company is the *owner* of the building, while the tenants, depending on the form of organisation of their landlord, might have certain rights of determination, but are mainly bound to the decisions of the owner.

#### Creating compelling offer using the REFURB toolbox

At first, to create a common knowledge foundation, general drivers and barriers for (nZEB) renovation for housing companies or housing cooperatives as owners of multi-apartment dwellings will be described.

Those drivers and barriers describe the general situation of housing companies doing renovation projects. These are active in the background of every renovation decision and are the basis for the value proposition.

Drivers	Barriers
<ul style="list-style-type: none"> <li>• Need to preserve the buildings</li> <li>• Need to stay competitive by offering modern dwellings with high standards</li> <li>• Expensive and increasing energy bills are a burden for tenants – risk of residents being driven out</li> <li>• Social/cooperative housing: supposed to provide good, affordable and safe housing for people (with low incomes)</li> <li>• Profit-oriented housing companies: high energy bill limits possibilities of rent increase for the housing company, may increase fluctuation</li> <li>• Contribute to reduction of emissions (political goals or intrinsic motivation)</li> </ul>	<ul style="list-style-type: none"> <li>• Energetic renovation is expensive and the costs can be passed on to the tenants only limitedly due to legislation</li> <li>• Housing companies can not participate in energy savings resulting from the renovation, it is the tenants who can save on operating expenses</li> <li>• Norms and regulations on energetic renovation demand very high standards, which are often not economically justifiable</li> </ul>

Figure 29: drivers and barriers for renovation projects in German housing companies

Those drivers and barriers were condensed in a Value Proposition for the segment ‘owners of multi-apartment dwelling’, especially housing companies:

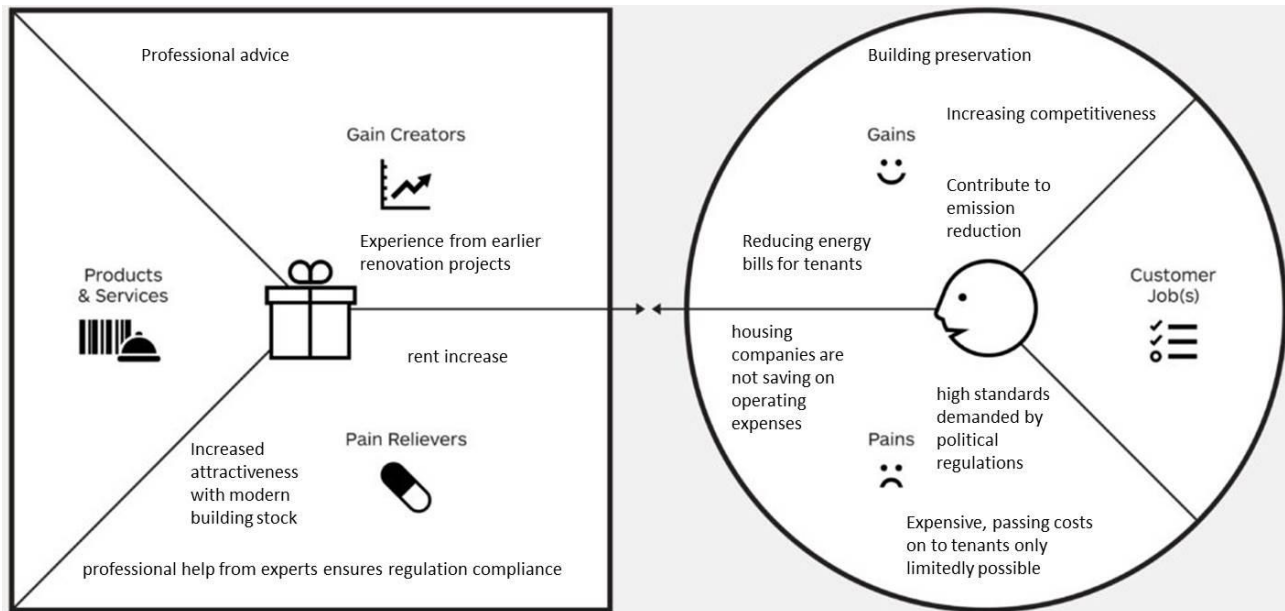


Figure 30: value proposition for “owners of multi-apartment dwellings”

The Customer Journey model used in the REFURB project is not fully applicable for segment 6 ‘homeowners of multi-apartment dwellings’. In this terminology, the housing company would be the ‘customer’,

consuming energetic renovation services. The Customer Journey Model originally describes a process that private owners of single-family houses go through, when considering (nZEB) renovation. In contrast to private owners, housing companies have usually been active in the field of renovation for a long time and are quite experienced. Relationships with partners (planners, architects, contractors, suppliers...) are well-established. They do not make the 'journey' from scratch every time they start a renovation project.

### Non-compliance assessment with the REFURB Customer Journey

The remaining question is which aspects of the customer journey can still be used for the segment/offer. The role as house owners/customers differs from that of private homeowners in many aspects. Therefore, many of the steps of the Customer Journey are not equally important for housing companies, as they are for private homeowners.

In order to explain the differences, a short outline of every step of the Customer Journey is given below.

1. **Becoming aware:** Awareness is not a problem with housing companies/housing cooperatives.
  - Competition as well as maintenance needs force them to keep their building in a modern state, legislation requires certain standards when a renovation is started
2. **Becoming interested:** see above
3. **Becoming active:** if action will be taken depends on a number of factors, especially the priorities, as energetic refurbishment is only one goal of the company amongst many
  - Possible triggers: appeal to companies' responsibility with regard to climate protection/achieving political goals, stress comfort and health issues for tenants and the competitive advantage of a modernised building stock
4. **Considering the offer:** there is not an extensive decision-making process, housing companies are aware of advantages and financial options, they have knowledge of the relevant technical issues and can make well-informed decisions
  - Possible triggers: exchange of experience in housing associations can be motivating to try new approaches: there is a technical section of the association, where a professional group discusses new technologies, approaches etc. and suppliers present new products
5. **Financing:** the financing process is established, there are longstanding relationships with financing partners for projects of different volumes, usually renovation projects are predominantly financed by own resources
6. **Selecting a supplier:** there are basically two options, a tender where the whole project is given to one contractor (which hires subcontractors as needed) or to authorize a professional planner to invite tenders for every renovation step and supervise the process
7. **Installation and payment:** installation dates are part of the tender and are coordinated by the professional planner/architect
  - possible barriers: tenants might not agree with the renovation or the inconvenience connected to it and take opposition to it
8. **Experience:** not applicable
9. **Organising:** service and maintenance contracts for some products are compulsory; architect/planner is familiar with project and is point of contact for problems
10. **Sharing:** see 4., exchange with others in housing association



11. **Wanting more:** see 4. and 10., exchange with other members of housing association and suppliers keeps companies informed on news

The key issues in the customer journey for housing companies are, to conclude, the decision for or against a renovation project for a specific building/apartment block in general, which will be made after careful consideration in the frame of complex portfolio management decisions.

Once a project is decided for, it still needs to be adjusted to the specific circumstances.

By exchanging experience with other housing companies, planners, contractors and other stakeholders, the process will be further improved.

The created compelling offer consists of a renovation package, which is described below supplemented by additional services. The process of identification of useful additional services is described below.

#### *5.2.1 Renovation package (example)*

The Customer Journey and the drivers and barriers described are the foundation for the renovation practice of housing companies. As the housing stocks of housing companies differs very much from one another, and circumstances such as location, income and social status of tenants, vacancy rate... are never completely comparable, there are no renovation packages (meaning combinations of renovation measures) which work for every building or building complex of a certain type. Nevertheless, the following case<sup>21</sup> of an exemplary deep renovation process carried out in the south of Halle (Saale) by Bauverein Halle & Leuna eG in 2010, is supposed to give an impression on how a big renovation project might be carried out (e.g. which measures were taken) and what were the results. This project is a good example since it was a deep renovation, including façade, windows, additional insulation for roof and basement ceilings and installation of a totally new heating system.

#### *5.2.2 Additional services*

Finding the appropriate combination of renovation measures is only one side of the whole renovation process for housing companies. In order to find the additional services needed to turn a renovation package into a compelling offer, it was necessary to find out about the renovation practice of housing companies and the problems and ideas connected to it.

That is why, in the framework of REFURB task 6.1 (WP6), a focus group was composed of management board members, managing directors and other responsible contact persons in housing cooperatives and housing companies from all over Germany. These contact persons were individually interviewed by phone (45 to 60 minutes) and presented with a set of questions from a guideline developed in advance. The interviews were held in an open form, so the interviewees could answer freely and bring up or stress subjects they felt were important<sup>22</sup>.

The interview partners, who were recruited from the professional network of Bauverein Halle & Leuna eG, included:

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<sup>21</sup> See Annex 'Renovation Package for Multi-Family Houses'.

<sup>22</sup> The overall process and concept of developing the compelling offer with the help of the focus group will be described in more detail in WP6, D6.1.



*Figure 31: list of key people being interviewed*

After the interviews, the answers were collected and interpreted. As a result, three approaches for additional services, that could complement the technical renovation package, were tested.

The first approach is an **Online-Tool** which makes possible to insert important building data and receive information regarding renovation options, financing and funding possibilities, an estimation of expected energy savings and possibilities to pass on the renovation costs to tenants. This idea was presented to the focus group in the course of the interviews and generally accepted. The interviewees also came up with some interesting ideas on usability, contents and possible data sources that can be used for further developing the concept.

Since the interviews were part of an open-ended process, all statements of the interview partners were screened for additional ideas. In the end, two more services were created from the interview results: the second idea is a **concept for a workshop or event**, which brings together housing companies with relevant regional stakeholders (local energy agencies etc.) and the supply side. It creates an opportunity to network and exchange experience with other housing companies as well as to be informed about technical developments regarding energy renovation.

The third idea was to **focus on district solutions**. There are many districts in which the building stock is not only owned by one, but by two or more housing companies. If they, although being competitors, decide to cooperate in a district project, the best and most efficient renovation solution for a whole district can be found and put into practice. This applies to districts owned by only one company as well.

For these three approaches, detailed concepts were developed.

Online Tool	Workshop/Event	District Projects
<p><b>•What is it?</b></p> <ul style="list-style-type: none"> <li>•A fact-based comparison between different renovation options and their economic viability, including a contemplation of norms and regulations that apply</li> <li>•A simple and easy way of considering renovation options quickly could help decide if it is worth looking into a project more deeply</li> </ul> <p><b>•Why is it needed?</b></p> <ul style="list-style-type: none"> <li>•Prior to renovation projects, it is hard to make well-grounded and thorough decisions considering all factors.</li> <li>•There is no easy and quick way for a reliable pre-analysis of renovation projects.</li> </ul>	<p><b>•What is it?</b></p> <ul style="list-style-type: none"> <li>•Updates of current developments in the area of nZEB renovations could be combined with networking opportunities and information on new products and technologies in an event</li> </ul> <p><b>•Why is it needed?</b></p> <ul style="list-style-type: none"> <li>•It is hard to always be up to date on technological developments, subsidies, norms and regulations etc.</li> <li>•There are not many opportunities of getting in touch with the supply side on 'neutral grounds'.</li> </ul>	<p><b>•What is it?</b></p> <ul style="list-style-type: none"> <li>•The most efficient solution for a whole district could be a common efficient heating system and a good renovation standard in all buildings.</li> <li>•This applies to districts with single or multiple owners.</li> </ul> <p><b>•Why is it needed?</b></p> <ul style="list-style-type: none"> <li>•There are districts in which the housing stock is owned by several companies who do not cooperate.</li> <li>•Using economies of scale can contribute to reaching a good price for the renovation.</li> <li>•The combination with other measures can improve the quality of life and sustainability of the district.</li> </ul>

In order to test the three approaches developed based on the interview output, experts were asked for their evaluation in an interview conducted by phone or personally. The following experts were consulted:

<p><b>Wohnungsgenossenschaft UNITAS eG, Leipzig</b> Management board member Steffen Foede</p>	<p>Kai Lukowsky, Halle Structural engineer</p>	<p>Gösta Ahrens, Halle Architect</p>
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The feedback on the three approaches for the compelling offer was differentiated. It turns out that the Online-Tool, despite all expected difficulties with realisation, is generally considered a useful and promising idea, which housing companies could use as a 'quick check' for pre-planning. For example, if they want to figure out which potential renovation project is the best to pursue. It is important to note that focus group as well as experts share the opinion that the tool could never replace actual architects or planning services, once the renovation has been decided upon, but could be a very useful method to get an overview on renovation options and costs for a specific project or to compare different renovation possibilities.

The idea of the Workshop/Event was not favoured by the experts, because the management of housing companies attends all kinds of events, workshops and fairs all the time. It is really hard to create a concept of an event so unique, that it is really attractive for housing companies to attend. There are enough opportunities for networking and exchange of experience in the framework of other events that the management of housing companies will attend anyway. The channels of getting in touch with the supply side and other stakeholders like e.g. energy agencies or financing bodies, are considered sufficient.

The idea of district projects was considered very promising by the experts. District solutions, in their opinion, will become more important in the future, as they have a great potential for reaching very efficient energy savings in many dwellings at the same time. The aspect of competing housing companies cooperating for a district solution was assessed to be challenging but useful.

Due to the feedback of the experts, it was decided to stop elaborating on the approaches of the workshop/event and to further pursue the development of business models for the online-tool as well as the district projects as additional services for the compelling offer.

The online-tool, according to interview partners, should most efficient be hosted and provided by the German Housing Association (GdW) in cooperation with the development bank KfW. It could be useful for orientation and comparison of options in the early stages of planning renovation projects and for portfolio decisions.

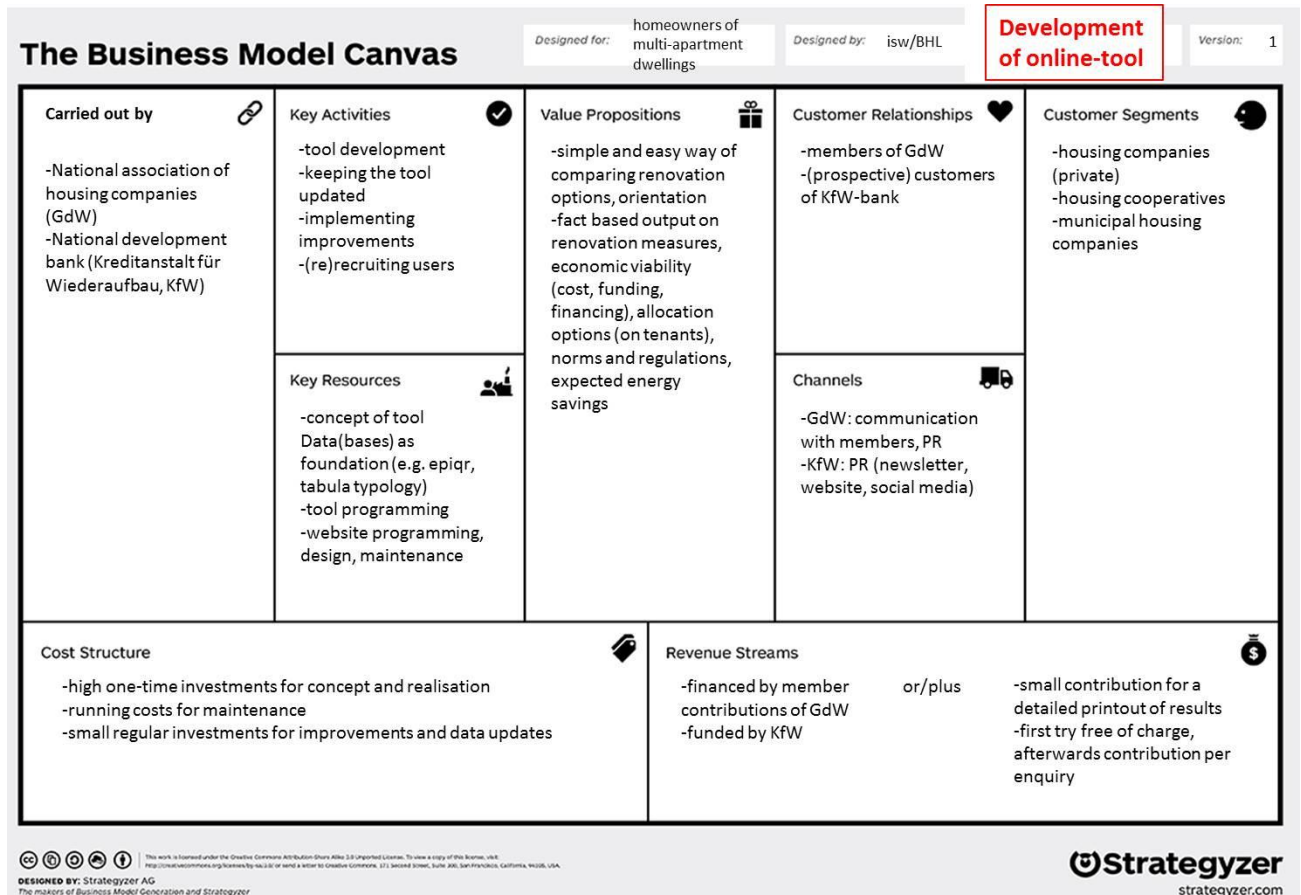


Figure 32: business model for development of customer tool

Managing district projects is an activity that can be performed by consulting firms/planning offices in the sector of urban development or real estate management. This service provider could do all the initiating work, the moderation of the process and fulfil organisational task as well.

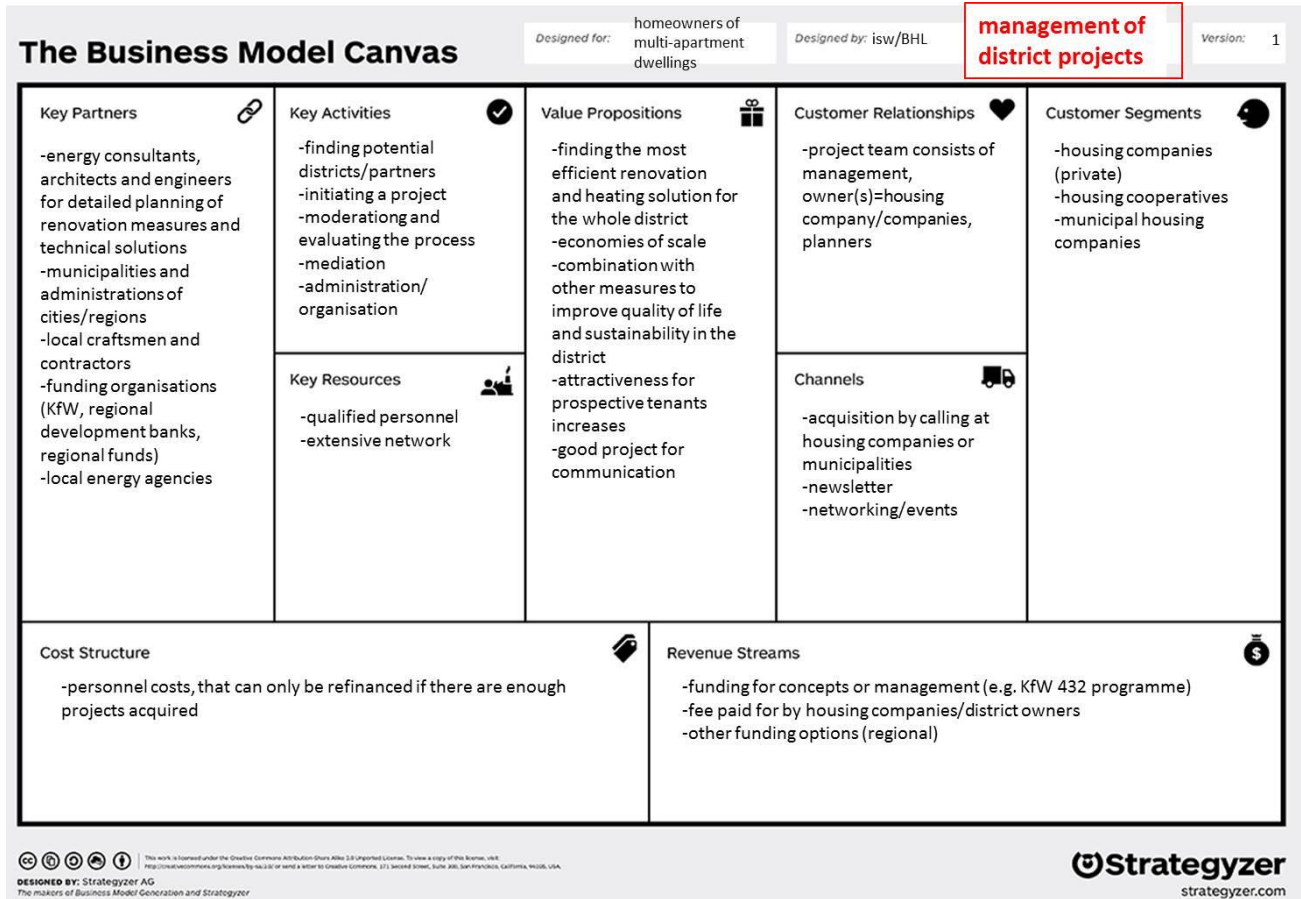


Figure 33: Business model for management of district projects

## 5.3 CONCLUSIONS USING THE COMPELLING OFFER TEMPLATE

The above conclusions have below been translated into the REFURB compelling offer template.

<b>Compelling offer name DE#1</b>	<b>Energetic renovation of housing stock</b>
<b>Selected segment (target group)</b> Owners of multi-apartment dwellings (housing companies and cooperatives)	
<b>Short description</b> With regard to their general portfolio management decisions, housing companies decide which building in their housing stock are up for renovation.	
<b>Market value potentials in country</b> The building renovation market focused on the German rental market is large and varying from region to region. Approximately half of the German households live in rented apartments/houses.	
<b>Timing of intervention</b> Depending on portfolio decisions.	

**What needs to be done (the job)**

Renovation measures in accordance with laws and regulations that improve energy performance of the building and quality of life of the tenants, always considering the limited possibilities of rent increase after renovation and the social responsibility

**Value proposition to target group**

Keeping housing stock attractive and modern to increase competitiveness, maintenance of housing stock.

**Business case for the housing company**

KfW-funding options, payback time depends on measures taken and circumstances

**Customer journey implications**

The initial steps of the customer journey are not that relevant for housing companies, as awareness is the unburdening that housing companies might challenge through the additional measures (online-tool, district project)

**Business model implications**

Potential 'hosts' of additional measures (online-tool, district project) can make a business out of it (e.g. consulting firms that bring partners together for district projects) or use it for attracting customers to use other services they provide (e.g. KfW-bank).

**QA Quality measures integrated**

The overall quality of the (technical) renovation works and of the installation is guaranteed by the responsible party, which would either be the professional planner or the contractor in charge of the renovation project. The performance of single components is guaranteed by the supply side.

When using KfW-funding for a renovation project, there is the obligation to reach a defined KfW-standard, which is reached by using the right components and has to be proven afterwards.

It is safe to assume, that the quality of renovation works carried out by housing companies with the help of professional planners or contractors, is generally high. Since all involved parties are experienced and since inherent quality controls are integrated in the process, there is less room for mistakes and wrong decisions than there is during the renovation of a single-family house.

As the tenants cannot decide on the renovation themselves, it is even more important to get them 'on board' and to motivate them. Otherwise, there might be too little acceptance of the renovation resulting in complaints, low tenant satisfaction and eventually even increased fluctuation. Communication is key here and should start long before the renovation starts. Tenants should be informed on the details and goals of the process and should be made aware of the advantages that come with an energy renovation: not only the reduced energy bill, but also additional benefits like improved indoor climate, comfort and health issues.

When it comes to energy savings, the tenants living in the apartment units are the ones responsible for their energy consumption after the renovation. They usually want to make use of the new qualities of their apartment and realize the energy savings that were promised to them, but often are not sure how to deal with the new characteristics of their apartment or are not aware of the rebound-effect. Nevertheless, energy savings and the right user behavior are also in the interest of the housing company: they want to avoid damage to their building stock caused by inappropriate heating and venting, they want to prevent dissatisfaction amongst their tenants due to high energy bills after the renovation and they want to avoid fluctuation.

The housing company has several means to help the tenants save energy and feel comfortable in their renovated apartment:

- The first step for housing companies is reducing the monthly preliminary payment for operating expenses of their tenants after the renovation is finished. The reduction is based on projections and comparisons with similar cases and thus an important part of quality assurance. This reduction happens simultaneously to the rent increase and makes the tenants directly experience the decrease of their energy bill. Ideally, they pay the same or even less for a more comfortable and modern apartment.

- In order to show the improved indoor climate, a demonstration by a technical expert, who measures air quality and talks about health issues, combined with tips on the right user behavior regarding heating and venting with a focus on indoor climate and health, can be held in the building.
- Information on user behavior with a focus on energy saving can be given in a workshop for the tenants, combined with easily understandable information material to take home.
- Workshops and demonstrations like that can also be a feature in the newsletter or the company magazine and thus reach tenants in other buildings as well.
- A service of the housing company can be to look at the last energy bill before the renovation and the first after the renovation and compare the outcome. This could be combined with an incentive (for example a coupon), if a certain percentage of savings is reached. In district projects, there could also be a common goal with a common incentive (e.g. improvements of the residential environment).
- In addition to hiring external experts on indoor climate or user behavior, the regular staff of the housing company, which is regularly in contact with the tenants, could be trained in the foundations of energy renovation, comfort and health issues and how to save energy. This way, useful advice can be given in day-to-day contact, independent of special events.

**Market uptake tools integrated**

The district project concept will assist market uptake.

## 5.4 CONCLUSION AND CONSIDERATIONS FOR DE#1 SCALING UP

The main conclusion from the work on the compelling offer creation process is that the process and needs of housing companies differ fundamentally from those of private homeowners when it comes to energy renovation.

Housing companies do not generally have a need for advice whether to renovate or not. The most important for them is to make responsible and sustainable decisions regarding their portfolio management. Once a renovation is decided for, the renovation process starts; which for most companies is part of their every-day-work.

The technical measures taken in a specific building depend highly on the building typology and the specific circumstances, as well as on compliance with regulations and the possibilities of rent increase after the renovation is finished.

There are, however, key issues, where additional services could support cost efficiency and improve quality of the renovation process. The Online-Tool described above can help with portfolio decisions by giving a well-grounded estimation on the cost of a certain renovation project, as well as on expected energy savings, funding and rent increases. Being hosted by public, not profit-oriented bodies, this tool is credible and trustworthy. By using this tool, the decision-making process for housing companies could be simplified significantly.

Another promising offer is the organization of district projects. Economies of scale can enable companies (or consortiums of companies) to realize ambitious and prestigious renovation projects.

The technical quality of the renovation works is generally ensured. Emphasizing the additional benefits of energy renovations in the communication with tenants is useful for motivation and appreciation of the renovation, even if the actual savings are not quite as high as they might have wished for. Nevertheless, when it comes to actually saving energy and saving money on the energy bill, communication with and



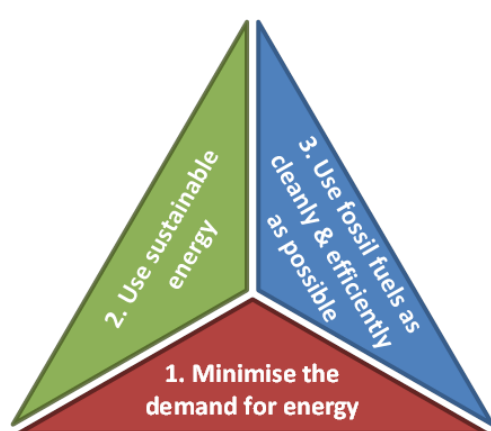
motivation of tenants is the most important factor. In order to avoid the rebound effect, information and training of the tenants could help and is at the same time of interest to the company. Additionally, it can strengthen the social cohesion in the neighborhood.



## 6 Dutch compelling offers

### 6.1 NATIONAL APPROACH

The Dutch national government has set clear targets for the built environment (see REFURB Deliverable D5.4 "Ensure performance nZEB renovation packages" Report). One of these targets is that all dwellings need to be energy neutral by 2050. This means that existing Dutch dwellings need to be renovated to an even higher energy performance standard than nZEB as they are to be transformed to zero energy. This national target now works as a good breeding ground for innovative approaches being instigated and created by various stakeholders.



Three innovative approaches from the Friesland area have been selected and used as basis for each of the three compelling offers. The three compelling offers each have a different approach catering to the various needs of homeowners. Together they are expected to reach a wide range of homeowners and in this sense also supplement each other. The three innovative offers are also expected to cause a ripple effect that enables their regional and national rollout (up scaling).

Considering our national target, energy neutral by 2050, all three compelling offers follow the Trias Energetica principle designed by Delft University in the Netherlands<sup>23</sup>(see Figure 34).

*Figure 34 Trias Energetica principle TU Delft Netherlands*

Following the Trias Energetica principle usually means that dwellings first need to be insulated as much as possible.

The energy behaviour of the homeowners will also need to be monitored, evaluated and adjusted (for instance low hanging fruits, replace regular light bulbs with LED lights).

Next step is to ensure that the dwelling produces enough renewable energy to satisfy the homeowner's demand, and preferably a little more than that, as the aim is not to transform to an nZEB dwelling but to a zero-energy dwelling.

Lastly, the use of fossil fuel/ natural gas is to be phased out as soon as possible and certainly in due time. If this cannot yet be achieved in a cost-effective manner, the use of fossil fuels needs to be as clean and as energy efficient as possible. As soon as cost-effective sustainable energy measures are available to replace the fossil fuels, these will be implemented as soon as possible.

The compelling offers has been reviewed using the Refurb D4.4 methodology: "Constituting the compelling offer" Report and will, in the following be described using the compelling offer template.

<sup>23</sup> <http://www.eurima.org/energy-efficiency-in-buildings/trias-energetica>

## 6.2 COMPELLING OFFER NL#1: EMPOWER YOUR ‘MIENSKIP’, GO ENERGY NEUTRAL TOGETHER!

The first compelling offer appeals to the Frisian sense of ‘mienskip’. Mienskip is a Frisian term meaning so much as ‘together, we can cope’. Via a bottom-up approach, villagers feel inspired to become independent of fossil fuels and to become self-sufficient. In the early days, villagers would establish a village windmill, but nowadays they mostly resort to forming a local energy cooperation. Via the energy cooperation, local and collective production of sustainable energy can be made possible, for instance by establishing large solar fields. Currently, the largest collective solar field (with 27000 solar panels) in Fryslân is located near the village of Garyp and is situated on an old landfill.

Next to collective production of sustainable energy, collective renovation of dwellings of local homeowner is also a desirable step forward towards becoming energy neutral in 2050. Compelling offer –NL #1 aims to offer energy cooperatives an innovative approach for collectively funding of tailored energy renovation of several privately-owned local dwellings.

The village of Harkema in Friesland has compiled a vision towards becoming energy neutral by 2050, has established a local energy cooperation and has helped to develop this compelling offer. The first pilot project therefore also takes place in Harkema<sup>24</sup>.

Below the general Business Canvas for this compelling offer:

Business Canvas Compelling offer NL#1 Empower your ‘mienskip’, go energy neutral together!				
<b>Key Partners</b> <ul style="list-style-type: none"> <li>Municipalities</li> <li>Local energy cooperations/ local ESCo BV</li> <li>Catalysers/ supporters (all intermediaries supporting the energy cooperations)</li> <li>Local supply partners: alliance</li> <li>Regional revolving fund</li> <li>Province</li> </ul>	<b>Key Activities</b> <ul style="list-style-type: none"> <li>Inspire local energy cooperations into taking action to collectively renovate dwellings</li> <li>Inspire local homeowners into becoming self-sufficient/ energy neutral</li> <li>File for bundled ESCo financing</li> <li>Draw up individual energy performance contracts</li> <li>Ensure quality (energy performance), guarantees and follow-up, to reach zero energy</li> </ul>	<b>Value Proposition</b> <ul style="list-style-type: none"> <li>Independent guidance and advise from trusted neighbours/ friends</li> <li>Energy cooperation provides knowledge and advice, supported by catalysers</li> <li>Local suppliers do the work and ensure quality</li> <li>Homeowner gets insight in energy performance and energy behaviour</li> <li>Potential profits are invested back into local society</li> <li>Guaranteed energy savings /return on investment</li> <li>Village takes step towards becoming self-sufficient and independent fossil fuels</li> <li>Aiming for regional ripple effect among the many other Frisian energy cooperations</li> </ul>	<b>Customer Relationships</b> <ul style="list-style-type: none"> <li>Contact via local ambassadors from energy cooperation</li> <li>Neighbourhood approach (could be via Buurkracht)</li> <li>Contact with local municipalities</li> </ul>	<b>Customer Segments</b> <ul style="list-style-type: none"> <li>Inspired and enthusiastic villagers/ homeowners, already organized in a local energy cooperations</li> </ul>
<b>Key Resources</b> <ul style="list-style-type: none"> <li>Collective loan received from revolving fund</li> <li>Homeowner pays back loan, including interest</li> <li>Pilot project has received kick- start subsidies</li> </ul>		<b>Channels</b> <ul style="list-style-type: none"> <li>Local newspapers</li> <li>Local municipalities</li> <li>Community gatherings</li> <li>Face – to – face: your own neighbours/ friends are at the heart of the process</li> <li>Independent intermediaries (and their channels)</li> <li>Local contractors</li> </ul>		
<b>Cost Structure</b> <ul style="list-style-type: none"> <li>Cost of activating homeowners; communication costs</li> <li>Cost of coordinating bundled ESCo financing</li> <li>Cost to cover interest rate revolving fund</li> </ul>		<b>Revenue Streams</b> <ul style="list-style-type: none"> <li>Homeowner pays back in monthly instalments (including interest)</li> <li>Potential profits flow back to local society to ensure liveability</li> </ul>		

Figure 35: The Business model canvas for “Mienskip” (community)

24 <https://www.dwaande.nl/uploads/bestanden/Werken%20en%20ondernemen/uitvoeringsprogramma-2017-2020-energietransitie.pdf>

**Compelling offer NL#1: Empower your 'mienskip', go energy neutral together!****Selected segment (target group)**

Villages or groups of small villages, already organised in a local energy cooperation with enthusiastic and active volunteers.

This offer focuses on homeowners that are geographically clustered in a village or villages, therefore they can be from any segment (YF/EN and any kind of dwelling).

**Short description**

This offer is designed to completely unburden the homeowner with a one-stop-shop offer, local collective ESCo funding and an 'energiebespaarabonnement' i.e. a contract that ensures the amount of energy saved.

For this offer, the ESCo company is not a commercial company but a social ESCo BV (to be established). The local energy cooperation(s) is/are shareholder in this social ESCo BV and therefore have a say in how potential profits are spend. Any profits are to be invested back into the village(s) to ensure liveability, for instance by greening local social real estate.

The volunteers from the local energy cooperation promote the offer among their neighbours, friends and family. If the local demand is in place, the local ESCo BV will arrange and apply for the collective funding for multiple local dwellings. A regional revolving fund provides the funding.

The local ESCo BV also arranges the contacts and underlying contracts with the local supplier's alliance, including the energy performance and product guarantees. Each individual homeowner is presented with a tailored offer towards nZEB.

Each individual homeowner signs a tailored contract ('energiebespaarabonnement') for their own ESCo loan, covering the investment in energy measures, including energy performance guarantees. The contract also includes 'energy behaviour agreements' for the homeowner. Before and after the energy renovation, the energy behaviour of the homeowner is monitored to determine/ check the baseline. Homeowners are expected to maintain their 'normal energy behaviour' during the term of the loan.

Note: Energy measures, that require a substantial investment, are implemented only when cost-effective. The local energy cooperation keeps track of the state of the art among energy measures and informs homeowners of the timing for its cost-effective implementation.

**Market value potential in region**

Encouraging more villages/ villagers into undertaking local action, set up an energy cooperation with the aim of saving energy and (eventually) becoming an energy neutral village. Becoming independent of fossil fuels, being able to generate enough local sustainable energy to be self-sufficient and to ensure liveability, are all major drivers in villages in Friesland and in the Netherlands.

The concept is in the scaling up phase, from 5 scheduled dwellings in Harkema to 300 dwellings in 5 villages. The regional and national potentials is estimated to be much higher<sup>25</sup>.

<sup>25</sup> <https://www.dwaande.nl/uploads/bestanden/Werken%20en%20ondernemen/uitvoeringsprogramma-2017-2020-energietransitie.pdf>

### Time of intervention

A successful implementation strongly depends on having enough devoted and enthusiastic local volunteers representing the energy cooperation as they serve as the best ambassadors for their own immediate local network of family, friends and neighbours (step 1-4 of the CJ). Therefore, it is advisable for a village to already have an energy cooperation or some other type of bottom-up initiative or aim with regard to energy saving. It is also good to already have an 'energy vision' for the village (made by the village) as this will create momentum for energy renovations.

### What needs to be done

What needs to be done strongly depends on the characteristics of each individual dwelling and the wishes/ needs of the individual homeowner. All energy measures are to lead to a zero-energy dwelling and will therefore surely include: insulation, renewables, phasing out fossil fuels and monitoring and adapting energy behaviour to boost energy efficiency.

### Value proposition to target group

The value proposition is an intrinsic part of the offer. In Friesland, you can find around 40 active energy cooperatives, but also other energy/sustainable initiatives (see Figure 36). Having local ambassadors, a bottom-up approach that empowers 'the sense of mienskip' (= 'together, we cope'), ensure liveability and having support from a (governmental) network all tick important boxes for any Frisian home-owner/ citizen. All of this is achieved while the homeowner 'pays' the same monthly amount of money (equal to old energy bill).

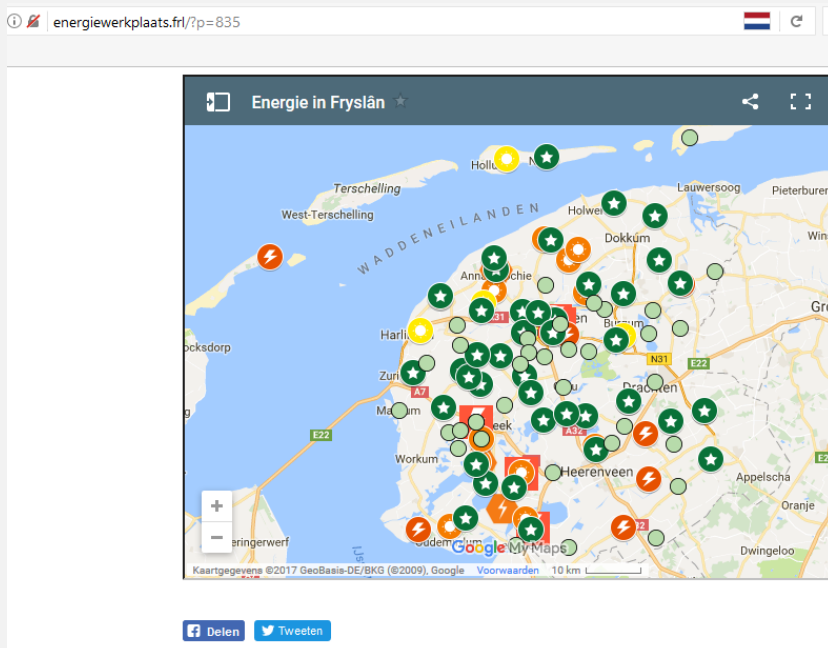


Figure 36: Energy initiatives in Friesland. The green stars represent a local energy cooperation. The yellow suns are collective solar fields. Note: Not all these initiatives are necessarily related to the 'Energiewerkplaats'. The orange flashes are active Buurkr

**Business case for the family & stakeholders**

The local ESCo construction, with potential profits flowing back to local society, can be seen as a supportive instrument. This is not so much a business offer, but a social offer that enables villagers to keep their village/ villages vibrant.

It is possible for a homeowner to reach a zero-energy dwelling within 20 years (when considering two investment moments).

**CJ Customer journey implications**

Step 1-4 of the CJ, are covered by local ambassadors from the energy cooperation, supported by the Duurzame dorpen netwerk/ Energiewerkplaats (Network of Sustainable Villages/Energy workplace) as well as the local municipality. Buurkracht can also be requested and initiated by enthusiast neighbourhoods.

In step 4 of the CJ, selecting the suppliers and in step 5-9 the installation, payment, maintenance and guarantees are arranged by the local ESCo BV and covered with the ESCo contract. The local cooperation provides support and advice.

In step 10 of the CJ, the local municipality and, of course, the local villagers themselves will share their experiences. On a regional scale, the network of sustainable villages/ Energy workplace ([www.energiwerkplaats.frl](http://www.energiwerkplaats.frl)) can disseminate experiences/ results/ lessons learned from the pilot project. Lastly, on a national scale, the VNG can share experiences/ results from this pilot project with all municipalities and national stakeholders.

Step 11 of the CJ comes in place, when zero energy has not yet been reached and the homeowner wants a second 'energiebespaarabonnement' for its dwelling. Then the steps 4-11 of the CJ are once again gone through.

**Business model implications**

See the business model generation for this offer above.

All key stakeholders benefit from their cooperation within this compelling offer. For instance: The local homeowner is completely unburdened, ensured of the energy saving and makes a positive contribution to the liveability of his/her own village. The local alliance of suppliers secures enough work without having to advertise for it much. Moreover, the village, the local municipality, the Province as well as the national government take a step forward in the energy transition.

Good experiences are expected to cause a ripple effect among other villages in the Netherlands.

**QA Quality measures integrated –referencing the REFURB quality measure table**

By signing the 'energiebespaarabonnement', the homeowner is assured of the agreed level of energy saving/energy performance. After the energy renovation is complete, the actual energy saving is monitored to ensure performance. If a discrepancy is found, the alliance of supply partners will solve this as soon as possible and to full customer satisfaction. Only after the date of completion, does the customer start paying back the loan in monthly instalments (amount equals amount of prior monthly energy bill) to the local ESCo B.V. During the term of the loan, product guarantees also apply.

Building level quality measures:

- The guarantees are gathered by the energy cooperative and bundled in an energy performance contract, signed by both the alliance AND the homeowner. The building-related energy consumption is monitored before and after the energy renovation. The homeowner is guaranteed a lower building-related energy consumption after renovation. NOTE: If the energy use goes up due to changed energy behaviour of the homeowner (due to more appliances, more people in the dwelling, etc.), this is not covered by the guarantee. This is the homeowner's own responsibility, which is also included as such in the energy performance contract. See also REFURB Deliverable D5.4 for more information.

Consumer level quality measures:

‘Cold selling’ of energy saving measures/ renovation does not work. The homeowner needs first to be intrinsically motivated to start saving energy. Preferably with a bottom- up approach, for instance on village or neighbourhood scale. Local government plays a huge role in making homeowners aware and interested in energy saving. This will pave the way for energy renovations.

- By having the homeowner start and continue the CJ with trustworthy neighbours, friends, family i.e. local ambassadors that work as volunteers on behalf of the local energy cooperative => ensuring a safe CJ.
- By having support/ advice from an independent third party, the Energiewerkplaats/Netwerk Duurzame dorpen and Buurkracht => ensuring a safe CJ.
- By having the local government involved => ensuring a safe CJ.
- By having an alliance of local contractors do the work => ensuring a safe CJ. Local companies will surely do a good job!
- The local alliance provides the one-stop- shop offer, including guarantees;
- By giving a homeowner a nice incentive for good energy behaviour. In this case, local society will benefit from any profits made within this ESCO construction.

## 6.3 COMPELLING OFFER NL#2: MODULE-WISE APPROACH TO NOM<sup>26</sup>

NL#2 Compelling offer, provides homeowners with ‘ready-made’ modules that, when combined and joint together, reach zero-energy. The Module-WISE zero-energy concept is already applied/tested in the social housing sector in Friesland, including the city of Leeuwarden (see Figure 37; zero energy rental dwellings Leeuwarden). This method is part of a national plan ‘Stroomversnelling’<sup>27</sup>.

A regional deal between stakeholders (three housing corporations, three contractors, 4 municipalities and the province) has been made to renovate 1,500 rental homes within Friesland, it is called the ‘Fryske deal’<sup>28</sup>.



*Figure 37 Zero-energy rental dwellings in Huizum-Leeuwarden (March 2017, photo Lisa Adema)*

<sup>26</sup> Dutch, NOM: Nul op de meter (zero energy bill)

<sup>27</sup> <http://stroomversnelling.nl/>

<sup>28</sup> <http://regionale-energiestrategie.nl/met-de-fryske-deal-3-000-woningen-energie neutraal-maken/>

The rental sector currently provides ‘the demand’, but the innovative compelling offer aims to target the private sector. The innovative idea is for the modules to eventually be made within an industrialized setting; to reduce manufacturing time and costs. Organising the supply in the desired way is currently a work in progress.

Below the Business Canvas for this compelling offer is shown.

The Business Model Canvas – Compelling offer NL- #2 **Module-WISE approach to zero energy**

<p><b>Key Partners</b></p> <ul style="list-style-type: none"> <li>• Three large regional building companies</li> <li>• Local contractors</li> <li>• Catalyzers, such as Stroomversnelling</li> <li>• Municipalities</li> <li>• Province</li> <li>• Coordinating company/ office (to be established)</li> </ul>	<p><b>Key Activities</b></p> <ul style="list-style-type: none"> <li>• Creating awareness and activating homeowners</li> <li>• Training of advisors and local contractors</li> <li>• Offering roadmap to homeowners</li> <li>• Customer Relationship management</li> <li>• Advise on product modules</li> <li>• Local contractors install modules</li> </ul> <p><b>Key Resources</b></p> <ul style="list-style-type: none"> <li>• Sell enough modules, reach critical mass</li> <li>• Lower costs of manufacturing via industrialisation</li> </ul>	<p><b>Value Proposition</b></p> <ul style="list-style-type: none"> <li>• All no-regret modules; combined result in zero energy dwelling</li> <li>• Homeowners get insight in future energy performance with roadmap</li> <li>• Local contractors have opportunity to upsell in 'one go'</li> <li>• Homeowner invests in house and energy efficiency</li> <li>• Guaranteed energy savings /return on investment (NOM Keur, Quality brand)</li> <li>• Easy process</li> </ul>	<p><b>Customer Relationships</b></p> <ul style="list-style-type: none"> <li>• Local contractor, personal contact</li> <li>• Coordinating company (to be established)</li> <li>• Community of Practice, share experiences with other homeowners</li> </ul> <p><b>Channels</b></p> <ul style="list-style-type: none"> <li>• Face – to – face: Local contractors</li> <li>• Open house routes</li> <li>• Community of practice</li> <li>• Stroomversnelling network;</li> <li>• Awareness raising channels municipalities/ Province</li> <li>• Newspapers/sites; Fryske Deal</li> </ul>	<p><b>Customer Segments</b></p> <ul style="list-style-type: none"> <li>• Home owners, with terraced houses and porch apartments</li> </ul>
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Figure 38: the business model canvas for the “module-wise” compelling offer

<p><b>Compelling offer NL#2:</b></p> <p><b>Module–WISE approach to NOM</b></p>
<p><b>Selected segment (target group)</b></p> <p>This offer focuses on two types of dwellings that are privately owned: terraced and porch apartments. These could be owned by both young families (YN) or empty nesters (EN).</p> <p>The innovative character of the offer is its desired rollout among <u>private</u> homeowners.</p>
<p><b>Short description</b></p> <p>The idea behind this innovative approach, is to offer local contractors the opportunity to sell ‘ready- made’ modules. The modules are no –regret and can be installed separately or all at once. The modules connect and when all modules are installed, they result in a zero-energy dwelling.</p>
<p><b>Market value potential in region</b></p> <p>The offer targets mostly terraced houses and porch apartments. There are around 125,000 of such dwellings in Friesland and 75,000 of them are privately owned.</p>
<p><b>Time intervention</b></p>



Natural moments, provide the window of opportunity:

When the homeowner has any need for some type of renovation, for instance replacing the roof, the gas burner, windows or insulation. The homeowner then consults a local contractor to do the work. The local contractor will then have the opportunity to sell one or more modules, depending on the needs of the homeowner.

For instance:

- need to replace the roof => possibility to sell the roof module (which is insulated and has solar panels).
- need for insulation/ windows => possibility to sell the facade module, including window sills and high energy glass.

#### **What needs to be done**

What needs to be done depends on the dwelling as well as the immediate needs of the homeowner.

The first step is a 'woonscan (scan of dwelling)' i.e. mapping the energetic qualities of the dwelling. In addition, the characteristics of the dwelling are determined. This information forms the basis for a roadmap towards zero energy. The roadmap provides the homeowner with a perspective on the end result and also stimulates in taking steps with one or more modules.

Next to the roadmap, the modules are:

- Facade module – Insulated facade, including new window sills and windows
- Energy module - Heat pump and ventilation
- Roof module – Insulated roof with integrated and immersed solar panels
- X –Tender module – Insulated connectable extension module for extra space, for instance for creating a lifetime house. The X- tender module has proven to be a great incentive for home-owners.

There are no sequence issues as the modules fully connect, are all no–regret and together form a zero-energy dwelling.

#### **Value proposition to target group**

Have your roof fixed and get insulation and immersed solar panels, all in one go!

The homeowner not only solves its need for maintenance or renovation, but also takes a no-regret step towards a zero-energy dwelling. As all dwellings in the Netherlands are to be zero-energy by 2050, any kind of action towards zero energy is desirable and can be considered as a good investment for the future. In addition, the work will be carried out by a local contractor whom the customer trusts. The local contractor also has a 'goodwill factor'.

The use of natural gas for cooking and heating is to be phased out in the Netherlands before 2050. With the roadmap, the homeowner gets an insight in the best timing to replace their gas burner.

#### **Business case for the family & stakeholders**

See the business model generation for this offer above.

There is no information on the ROI for private dwellings yet.

The aim of this innovative offer for private home-owners, is to considerably lower the price of the modules via automatization. Local contractors will be trained to install the modules 'on site'.



### **Customer journey implications**

The CJ for this offer starts in step 3, when the homeowner consults its local contractor. However, local municipalities, local contractors and the Province can use their communication channels to make homeowners aware of the need for zero energy and to interest them into taking steps towards zero energy.

From step 3 to 9, the local contractor carries out the work according to the roadmap. A coordinating company/office will be installed to support both the local contractors as well as the customers. Step 10, sharing, will (in the future) be arranged by this coordinating company/office. Way of sharing: Organising an open house – route i.e. inviting potentially interested (local) homeowners to see/ discuss some of these renovated dwellings.

Homeowners that have already installed one or more modules will meet up regularly as a Community of Practice (CoP) and will encourage each other to take another step. This covers step 10 and 11 of the journey, sharing and wanting more.

### **Business model implications**

Please see business model above.

All key stakeholders benefit from this offer as it contributes to the energy transition. It provides local contractors with a ready-made and step by step solution for these types of dwellings. Homeowners are provided with affordable no-regret solutions for zero-energy and a roadmap on how to get there in due time.

### **QA Quality measures integrated – referencing the REFURB quality measures reference table**

The quality of the modules and the quality of ‘the whole package’ i.e. all modules installed is ensured via the ‘NOM Keur’, a quality label, as described in REFURB Deliverable D5.4 Report ‘Quality assurance of the compelling offers’. The local contractors will also play a role in the quality assurance.

#### **Building level:**

With the NOM Keur the quality of the modules and the energy performance of the building once all modules are placed is to be guaranteed, designed within Stroomversnelling (the Dutch Energiesprong); The NOM Keur is already described in great detail in the REFURB Deliverable D5.4 Report, please refer to D5.4.

#### **Consumer level:**

By having the local contractor sell the modules when there is a natural window of opportunity; a leaky roof, the need for more space, etc.

- However, the local contractor seems to be hesitant to sell the modules when the homeowner is not interested in energy saving in general i.e. ‘just wants a new roof’ or ‘more space’. If the local contractor pushes the homeowner too much, this will automatically lead to ‘mistrust’. This lesson learned will also be discussed in the REFURB Deliverable D6.1 Report.
- One- stop- shop offer by an alliance of local contractors + SPoC; a roadmap for the dwelling is provided. When all the modules are applied, the dwelling will be a zero-energy bill dwelling (EPC= -0,42).
- Lessons learned from renovating within social housing: Assign an energy coach to the renter, for coaching before AND after the energy renovation. To prepare and educate the renter on what to and what not to do; to ensure the promised energy saving.
- Use female energy coaches; for a more holistic approach of the dwelling, the renter and the combination of both. To prepare/ guide the renters before, during and after the energy renovation.

## 6.4 COMPELLING OFFER NL#3: ORDER TAILORED ZERO-ENERGY HOME - A LA CARTE

NL #3 compelling offer, offers homeowners is an ‘a la carte’ and total package for a transformation of their dwelling towards zero-energy. it recognises the wish of many private homeowners not to pay for mass produced products and offers maximum flexibility and choice.

The Business Canvas for this compelling offer is shown below:

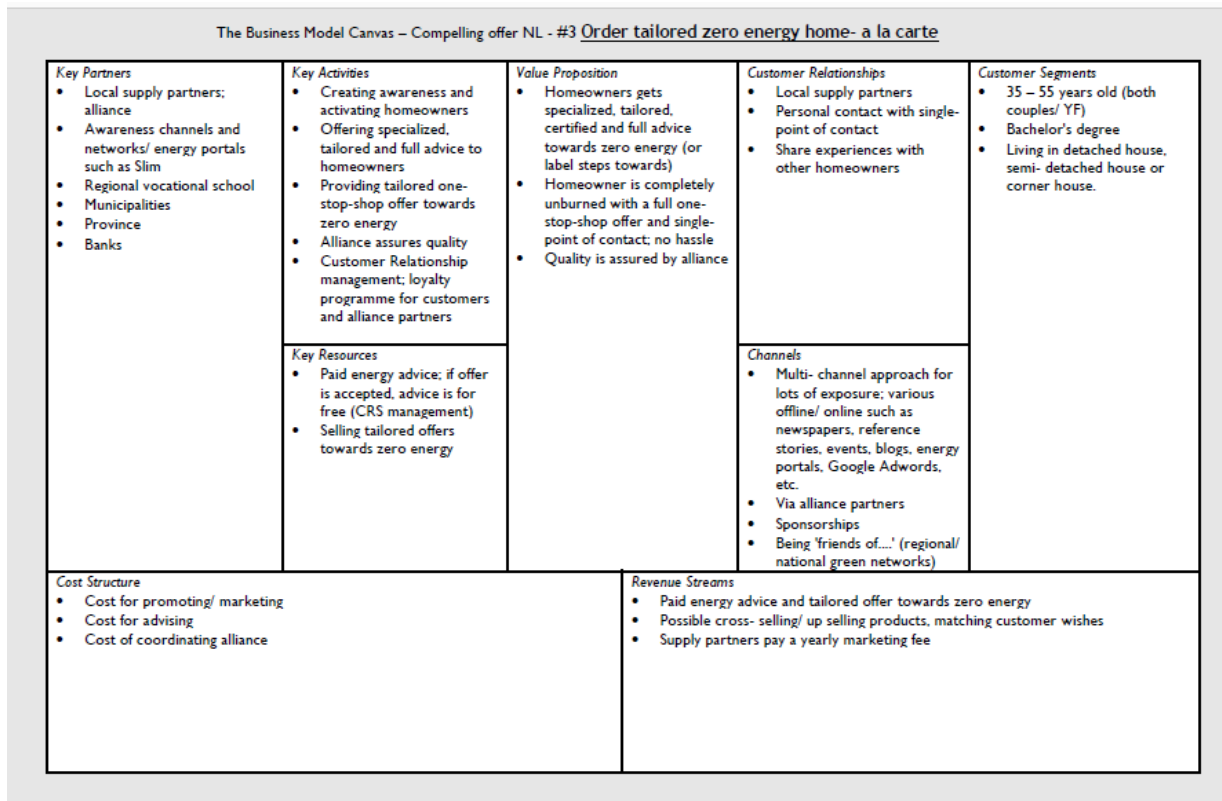


Figure 39: the business model canvas for the “a la carte” compelling offer

<b>Compelling offer NL#3:</b>	<b>Order tailored zero energy home - a la carte</b>
<b>Selected segments (target groups)</b>	
This one-stop-shop offer currently targets the early adopters that live in the North of the Netherlands, i.e. close by.	
Based on the projects that have already been implemented, the target group mostly consists of homeowners that fit these characteristics:	
<ul style="list-style-type: none"> <li>- 35 - 55 years old (both couples as well as families)</li> <li>- Bachelor’s degree</li> <li>- Living in a detached house or a semi- detached house.</li> </ul>	

**Short description**

The customer aims to be independent of fossil fuels, phase out natural gas and have a self-sufficient dwelling. This compelling offer provides customers with a tailored and 'no hassle' one-stop-shop offer for a zero-energy dwelling. Of course, it is also possible for the customer to make a step-by-step renovation.

The customer is fully unburdened as an alliance of (local) supply partners carries out all the work, from intake, the installation and afterwards. One specialised supply partner takes on the role of advisor/coordinator for both the alliance as well as the customer. This single-point of contact coordinates the work, trouble-shoots and keeps contact with the customer throughout the journey.

**Market value potential in region**

Research was carried out to gain statistics/ social economic status of the target group. In the North of the Netherlands (i.e. all three provinces) there are 460,000 privately-owned dwellings, with 40% detached and 20% semi-detached. 60% of higher educated people are willing to consider an energy renovation. 58% of the people aged 35-49 are willing to consider an energy renovation.

**Time of intervention**

Being an early adopter, the homeowner mostly has its own motivations with regard to renovating their dwelling to zero energy, including:

- Parents who want to leave behind a better world for their children;
- Customers who keep up with 'trends' and their peers, with an aim on status/ prestige;
- "Do-gooders" and nature lovers;
- People that want to be independent of commercial energy suppliers and wish to become self-sufficient.

Key is to reach the (target group) homeowners and make them aware that this 'whole package deal' is available i.e. create leads via multichannel communication.

**What needs to be done**

It is a 'a la carte' offer and can therefore include any type of energy measure (that the alliance provides) as the aim is to reach a zero-energy dwelling (or make label steps towards). This could be insulation, new glazing, renewables, energy monitoring and saving, etc.

Customers always receive a tailored and certified full advice for the energy renovation of their dwelling, including costs of the energy measures (quotations from the alliance partners), possibilities for subsidies, etc.

**Value proposition to target group**

The target group has internal motivation for wanting an energy renovation, but simply wants to be unburdened throughout the journey. The idea that a zero-energy dwelling can 'simply' be reached via this full one-stop-shop offer is what will attract these passionate early adopters. The early adopters want an energy renovation of their dwelling, but do not want 'the hassle' of having to ask for multiple quotations from several different supply partners, having to look for additional information on subsidies, costs, etc.

Tailored and comprehensive advice from a trustworthy alliance is much more appealing to the target group. With a tailored one-stop-shop offer and a single-point of contact, the customer will be unburdened and gets its desired end result (i.e. the zero-energy home).

### **Business case for the family**

See above business model generation for this offer. The business case for the family and ROI will differ from homeowner to homeowner, but all will (eventually) lead to a zero-energy dwelling.

Any potential sequence issues will be phased out by the alliance in an early stage as the alliance has specialized knowledge and experience to 'spot them'. The alliance guarantees the energy performance, zero energy, so it is also in their best interest to rule out any sequence issues straightaway.

### **Customer journey implications**

In step 1-3 of the CJ, a multichannel communication strategy, online/offline and events, is used to make homeowners aware and interested of the possibility of this one- stop-shop offer. For instance, the website of Slim/Slim-Wonen in Leeuwarden (see D5.5 Continuous improvement of the CJ) can be used for this purpose.

Step 4 – 9 are all handled by the offer-alliance, with the single-point of contact acting as a spokesperson for the homeowner.

Step 10, sharing, can once again be handled in multiple ways. Customers could for instance share their experiences via online blogs, reference stories or open house routes.

Step 11 of the CJ does not apply when the alliance provides a total package for zero energy 'in one go'. In case of label steps, a second journey is a possibility. Here the Customer Relationship management comes into place i.e. keep contact with customers and provide incentives for 'wanting more'.

### **Business model implications**

See the business model generation for this offer above.

Key stakeholders all benefit from this compelling offer. For the early adopters among the homeowners this offer provides the total package towards a guaranteed energy neutral dwelling, which satisfies all their needs.

The offer-alliance is assured of work and satisfied customers and can market this further. Municipalities and the Province(s) benefit from the fact that dwellings get renovated to zero-energy in one go, thus contributing to the policy goal set (all dwellings energy neutral by 2050). And of course, it also results in more jobs.

The local vocational school benefits because it can keep providing it students with the best training 'on the job'.

### **QA Quality measures integrated – referencing the REFURB quality measures reference table**

The alliance adheres to the quality agreements that can be found on the website of Slim Wonen in Leeuwarden (see REFURB Deliverable D5.4 Quality Assurance of the compelling offers).

The single-point of contact acts as a spokesperson for customers and will resolve any issues that arise during or after renovation.

The performance is monitored, and customers can opt for an energy performance guarantee.

Building level:

The homeowner can opt (it is paid) for a so- called EPG, i.e. Energie Prestatie Garantie;

The EPC is issued by Bouwgarant, the umbrella association for contractors in the Netherlands. This is a type of insurance between the homeowner and the contractor (or in any case, with Bouwgarant). It can be used to cover cases where the actual building- related energy saving (i.e. consumer behaviour excluded) differs from the actual building-related energy consumption (with building- related energy consumption measured via monitoring).

The EPG insurance can be applied in situations where:

- The actual building- related energy consumption differs 10% from the guaranteed building- related energy consumption;
  - The actual building- related energy production differs 15% from the guaranteed building- related energy production;
- To opt for the EPG insurance, both homeowner and contractor need to meet specific conditions (see website <https://www.bouwgarant.nl/garantie/energieprestatiegarantie>).

Consumer level:

By giving a very thorough, in- depth, specialized and holistic advice at the start of the CJ. The entire dwelling and the current energy use of the homeowner needs to be fully mapped to ensure a good advice and also to avoid lock- ins;

- One- stop- shop offer by an alliance of local contractors;
- Affiliation to Slim Wonen in Leeuwarden website – quality promises apply
- Offering a SPoC with the one-stop shop offer;
- To ensure a customer journey all the way to NOM (zero energy bill) – apply CRM, Customer Relationship Management.

## 6.5 CONCLUSIONS AND CONSIDERATIONS FOR NL REGIONAL AND NATIONAL SCALE-UP

Local and regional government should continue to support and facilitate all bottom-up initiatives regarding energy saving/ becoming self- sufficient/ energy neutral. The self-organising abilities of villages and neighbourhoods are truly a powerful asset within the energy transition;

If villages organise themselves in energy cooperation's, collective energy saving/ energy production projects are made possible. These should also include nZEB/zero energy renovations as it is a natural step in becoming self-sufficient. The more energy saved, the less renewable energy needs to be produced. Ensuring collective funding is a next step.

Restoring on the social housing sector initiative 'Module-WISE to NUM concept " to gain the 'critical mass' i.e. enough demand for an nZEB/ zero energy concept to take root and to gain possibilities of developing it further (process, product, etc.). The current nZEB concepts that are being developed in the social housing sector<sup>29</sup> are especially interesting as a concept that can be applied to private homeowners in the future. The lessons learned from this experience can be used to boost the uptake of the concept among private homeowners.

Preventing locks-in is an important consideration in scaling up these concepts. On the one-hand the 'Module-WISE to NUM concept " approach can offer significant large-scale results but requires a big commitment in an early stage. The 'Order tailored zero-energy home - a la carte' is able to offer step-by step- solutions with special attention to avoid locks-in.

Follow research results within another EU Horizon 2020 project concerning the creation of enough market demand: Transition Zero<sup>30</sup>.

<sup>29</sup> <http://stroomversnelling.nl/>

<sup>30</sup> <http://transition-zero.eu/>

Frontrunners, early adopters and ambassadors are intrinsically motivated and will want to use their own experiences to promote nZEB/zero-energy and help to develop such concepts further. For instance, by organising an open house route where they can explain their experiences 'on site'. Therefore, it is recommended to ensure good customer relationship management.

## 7 Estonian compelling offer

### 7.1 NATIONAL APPROACH

Specific renovation-needs in Estonia have their roots in history. During WWII, a large portion of housing stock was destroyed, especially in the bigger cities such as Tallinn, Tartu and Narva. Due to a need of rebuilding the cities and the simultaneous emergence of industrialization of economy in late 1950s, it was decided to adopt industrialized construction of residential areas.

This same kind of industrial construction of residential areas also took place in many other countries and areas. While during the two oil crises of the 1970s, this kind of residential building was revised and more stringent standards for insulation and heating were applied, as the effects of rising oil prices did not influence construction and heating practices in former Soviet Union. Thus, the construction of analogous poorly insulated houses was continued up to 1990s when the Soviet Union was disbanded.

Because of these circumstances and despite a slowly reviving residential construction, 75% of population at present dwells in these multifamily houses (MFH) built from 1960 to 1990. The main construction material is concrete. Most of the houses are 5 or 9 stories high. The u-value of external walls is  $\sim 1,0 \text{ W/Km}^2$  and u-value of windows is  $\sim 3,0 \text{ W/Km}^2$ . Although these houses are connected with district heating grid their heating system is outdated and out of hydraulic balance.

Due to the economic situation, no significant attention was paid to renovating MFHs up to the middle of the first decade of 20'th century; but with joining the EU, adopting EPBD and fluctuations in energy prices, it became obvious that renovation of housing stock has become an inevitability. Starting from 2005 several papers have been published analyzing the situation and need for renovation of MFHs.

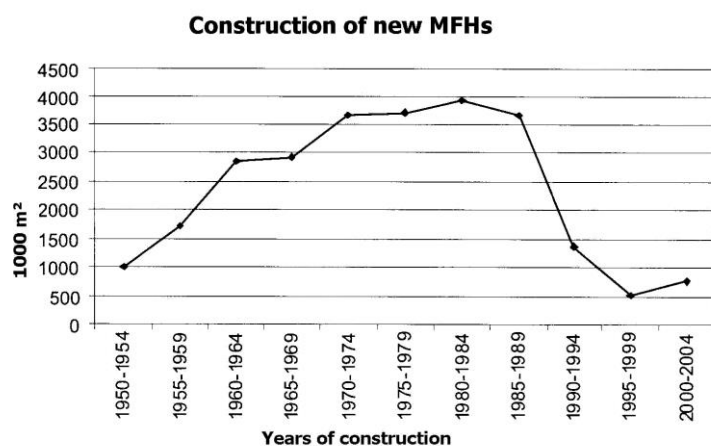


Figure 40: Construction of new MFHs in Estonia

The Estonian compelling offer has been reviewed/compiled using the REFURB Deliverable D4.4 Methodology “Constituting the compelling offer” Report and will in the following be described using the compelling offer template:

## 7.2 COMPELLING OFFER EE#1 – RECONSTRUCTION GRANT

The Estonian compelling offer describes the offer created by the KredEx Fund in 2008 and refined in 2009 with subsidy to accelerate renovation of residential houses built before 1991 based on soft loans for the purpose.

The ambition is to make it attractive and easy to commit to a “low energy house” renovation – either you are an empty nester (owner) or an absentee owner.

<b>Key Partners</b> -Renovation advisor -KredEx Fund -Energy auditor -Technical designers -Municipality -Contractors -Building inspector -Bank	<b>Key Activities</b> -Consulting Housing Association -Setting up design task -Tendering designers -Applying for grant -Tendering contractors -Applying for loan -Hiring inspection and quality assurance	<b>Value Proposition</b> -Renovation to class "A" (nZEB) or "B" (nZEB -PV) standard -Reduction of heating cost -Excellent indoor climate -Unburdening of -Housing Association management -Low maintenance -Financing -Multi level Quality Assurance	<b>Customer Relationships</b> Single point of service	<b>Customer Segments</b> -Multi Family Houses built 1960 to 1990 - low quality, low insulation, in need of retrofit -Home owners living in these houses -Key groups are Empty Nesters and Absentee Owners
	<b>Key Resources</b> -Advisors workload -Designers work hours -Contractors resources -Renovation grant (KredEx) -Commercial loans		<b>Channels</b> -Web, Newsletter -Advertising and awareness campaigns by KredEx -Local newspapers	
<b>Cost Structure</b> -40% grant for actual renovation -50% grant for concurrent services (consulting, inspection etc) -Remaining is to be financed by commercial loan		<b>Revenue Streams</b> -Living costs for homeowners remain the same for a period of loan payment. reduction of heating costs compensates loan installments. -Grant generates tax revenues from stakeholders which makes fiscal payback time less than two years. (Arjakas, M.; Kurnitski, J. jt. Eesti hoonestuse (elamumajanduse) valdkonna arengukava 2030+ lähteolukorra analüüs, Tallinn 2013.)		

Figure 41: the Business Model canvas for the EE renovation grant offer

<b>Compelling offer EE#1:</b>	<b>Reconstruction grant</b>
<b>Selected segment (target group)</b> The houses in most need of renovation were massively built starting in the mid-sixties. Afterwards, the climax of construction fell at the early eighties. Considering the scheme by which new apartments were distributed, then those families that received their flats at that time are now in the stage of life where their children have grown into adulthood and left their parents’ homes, making the homeowners <b>empty nesters</b> . Another segment of owners are people that have moved to better neighborhoods and now rent out their apartment. They are called <b>absentee owners</b> rather than landlords, because of the "grey" nature of the Estonian rental market.	



**Short description**

The underlying idea of the compelling offer is to handle and decompose complexity. It means that one single offer includes technical measures, services, reimbursement and financing and also quality assurance of both renovation works and associated services. The compelling offer is officially called "Reconstruction grant". It is also known as "KredEx Package" or "40% package".

The key to reaching a successfully solution, is a joint commitment by the house association to renovate to "low energy house" standards with readiness for installing RES, mostly PV microgeneration.

The following technical conditions must be met by the renovation:

- Total insulation of building envelope, including windows and doors with special attention on preventing thermal bridges. Resulting u-value of external walls shall be 0,12 to 0,17 W/Km<sup>2</sup> and u-value for windows shall be less than 1,0 W/Km<sup>2</sup>.
- Installation of heat recovery ventilation to ensure thermal efficiency of ventilation and to provide indoor air quality according to level II by EN 15251-2007.
- Insulating thermal bridges around windows and doors up to specified value;
- Installing a heating system that will allow to regulate room temperature apartment wise between 18 and 23 °C.

**Market value potentials in the country**

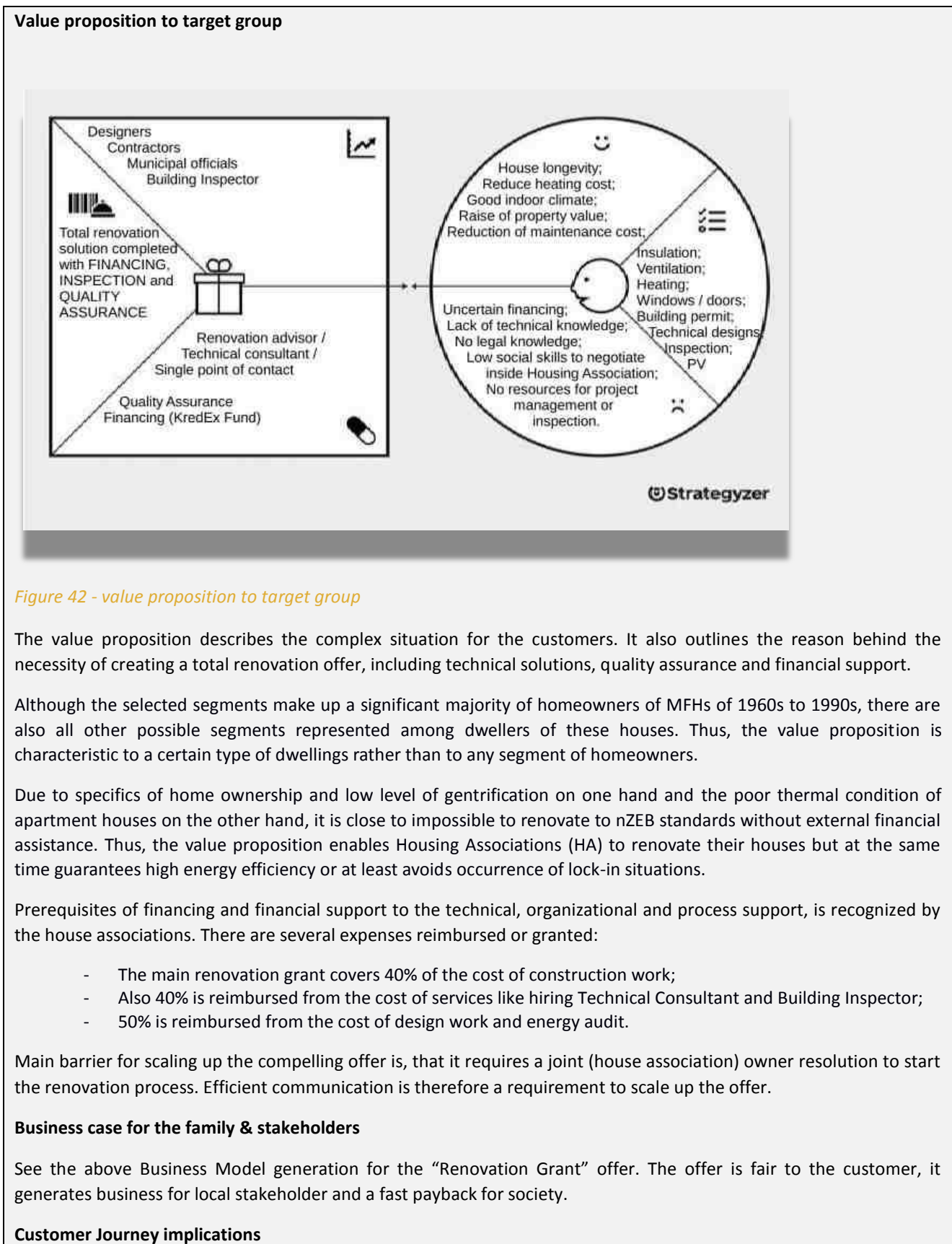
There is 27.000 apartment buildings in Estonia, about 90% were built before 1990. Even the renovation of the MFH in Estonia has been going on since 2010. There is still a large market potential for energy renovation to low energy standards and energy savings. The estimate is that still 22.000 apartment buildings are still to be renovated.

**Timing of intervention**

There is no specific timing for this intervention, however the owners have all to agree at housing block level.

**What needs to be done (the job)**

The job is in fact a safe process and include a full renovation of the old house association building (with multiple private owned flats) to the "low energy" standard and include support from energy assessment (CJ-step 2/3) to completed and audited renovation (CJ-step 9), financed by KredEX and supported.



Communication during the Customer Journey step 1–3 is provided by KredEx Fund. There are two main levels of communication:

- Marketing. KredEx Fund procures ad campaigns from time to time. The aim of these campaigns is to initiate interest among house associations toward renovating their respective house.
- KredEx Fund hires consultants to introduce renovation and financing measures to house associations. The initiative must come from house associations, who then invite a KredEx appointed consultant in their region to introduce requirements and conditions of renovation grant.

Certified specialists can also be acquired and partly financed for the following services:

- Design, including construction, HVAC and electric designs.
- Acquiring a building permit from local authorities;
- The Energy audit is a report that analyzes a building's use of energy by balancing imported energy with used energy. The audit also suggests measures to enhance the building's energy efficiency. Energy audit must be compiled by a certified energy auditor.

### **Business model implications**

Once the renovation process has reached CJ-step 4, there is a strong (technical/financial) support to keep it continuing to CJ-step 9. QA is integrated into the process and makes the journey robust.

### **QA Quality Measures integrated (referencing the REFURB quality measure table)**

Quality assurance is an integral part of the whole renovation package. The Technical Consultant (TC), is a key person in all the renovation process. The TC is a specialist with technical academic background, who has passed training specifically to work as a TC.

The TC must be hired prior to any other services and right after a Grant Agreement (given to the house association), make a decision to start renovating according to KredEx requirements.

The QA includes the following services:

- Energy auditing based on a report that analyzes the building's use of energy by balancing imported energy with used energy. The audit also suggests measures to enhance the building's energy efficiency. Energy audit has to be compiled by a certified energy auditor.
- Appraisal of design solutions. It is the designer's responsibility to calculate expected energy efficiency of a renovated building.
- This service is provided by KredEx fund and is free of charge for customer. The appraisal aims to assure the quality of design work;
- Construction process supervision by the Building inspector on behalf of the house association
- Acceptance of renovation works. This service is procured and provided by the KredEx Fund. The contractor only receives final payment if and when the renovation works are approved by an independent body.

All service-providers must be certified specialists in their respective fields. The QA-services create confidence and a safe Customer Journey especially during step 3 to 9.

### Specific Quality measures related to the REFURB quality table:

1. the Building: The Roadmap for renovation is highlighting benefits of the higher comfort and indoor climate (European standard). New buildings passive houses can be guaranteed (safe factor)

1.1. Roadmap: How to ensure the plan is followed and is the correct one, avoid lock-ins?

- Energy auditing based on a report that analyzes the building's use of energy by balancing imported energy with used energy. The audit also suggests measures to enhance the buildings energy efficiency. Energy audit must be compiled by a certified energy auditor.
  - Financing is finalized only upon completing all the planned work
- 1.2. Proposed work for the house is correct: coach may ensure that the technical measures are correct ones. Methodology. Training for roadmap creators.
- Appraisal of design solutions. It is the designer's responsibility to calculate expected energy efficiency of a renovated building. The service is free for customer.
  - A host of technical consultants is trained by KredEx Fund. To receive subsidised financing it is obligatory to hire a technical consultant who ensures that the technical measures are correct ones.
- 1.3. Quality of installation: supervision (no detail per technology)
- Construction process supervision by the Building inspector on behalf of the house association
  - Acceptance of renovation works. This service is procured and provided by the KredEx Fund. The contractor only receives final payment when the renovation works are approved by an independent body.
- 1.4. Quality of maintenance (step 9 CJ)
- Subsidized financing requires that at least five-year maintenance contracts be underwritten by the end of the building process.
- 1.5. training supply on technical (nZEB) and communication skills
- Technical consultants are certified only after passing training courses including technical and communication skills.
- 1.6. indoor quality/comfort?
- Indoor air quality is part of requirements for subsidized financing.
- 1.7. sensors for monitoring the indoor comfort, energy savings, behavior? For a while for deep renovations.
- No sensors are generally required. Overall energy consumption of renovated houses must be monitored and reported to KredEx Fund for three years.
2. Consumer: behavior guidelines, no control on the human behavior, training of user -> usage as motivation. Manual of the building
- Consumer side measures are planned upon completion of renovation and be based on feedback from customers.
3. Training of financial institution, real estate agents and other stakeholders
- No training of other stakeholders.

## 7.3 CONCLUSIONS AND CONSIDERATIONS FOR SCALING UP IN ESTONIA

The KredEx renovation scheme has been in effect for some years already. The first funding period 2010 to 2013 saw about 500 renovated houses. Results of the second period of funding which is currently

underway is likely to yield at least the same amount of renovated buildings. There are some lessons that have been learned:

- One of the most crucial elements of success is **presence of good examples**. After having one or two renovated houses in every county the work for KredEx consultant became remarkably easier;
- The **economic situation in general** might have an unexpected and unwanted side effect. In areas where prices for real estate are significantly lower than average, it is impossible to receive a loan from banks to cover remaining portion of costs. The banks are most reluctant to grant loans for house renovations where the enhancement of apartments does not affect the price i.e. where price of an apartment is close to the portion of loan applied for this apartment. This means that in such regions older apartments are impossible to renovate or even maintain and people is forced to slowly move to more "wealthier" regions. The resulting conclusion is that renovation grant works as regional policy in reverse.
- When **calculating EPC** for newly renovated houses, it appeared that Estonian calculation methods that work well for a specific energy consumption range around 200 kWh/m<sup>2</sup>year become increasingly inadequate if the consumption rate drops below 100 kWh/m<sup>2</sup>year and are totally unusable below 50 kWh/m<sup>2</sup>year. The reason for that is because certain predetermined values must be used in calculations concerning hot water consumption and household electricity which tend to exceed measured values. So reconsidering the calculation methodology is necessary.
- The current renovation grant offer includes **requirements for heat recovery ventilation**, which are rather rigid. Still they work well for bigger houses with 40 or more apartments. The cost for renovation for smaller houses to follow the same requirements is getting unreasonably high considering that insulating costs more per square meter in smaller than in bigger houses. It leads to smaller houses dropping renovation plan altogether or not using offered grants and abandon complexity and with it also quality assurance. The conclusion is that offering such grant should be more versatile in their requirements.

## 8 Slovenian compelling offer

### 8.1 NATIONAL APPROACH

The Slovenian national approach follows the existing situation regarding the energy efficient renovations of houses and apartments in Slovenia. Energy efficiency is one of the most cost-effective measures to achieve the reduction in greenhouse gas emissions and increase the share of renewable energy sources in gross final energy consumption. Energy efficiency in households is of key importance for managing the cost of living, strengthening the purchasing power and improving the quality of life – also in terms of adaptation to climate change.

A typical homeowner is aware of the described features, s/he can also read about the Slovenian Long-Term Strategy for Mobilizing Investments in the Energy Renovation of Buildings, adopted on 29th October 2015. He can get all the information about the subsidies, enabled by ECO fund, which main purpose is to promote development in the field of environmental protection. It is the only specialized institution in Slovenia that provides financial support for environmental projects. The financial assistance is offered mainly through soft loans from revolving funds and since the year 2008 through grants. In comparison with commercial banks, Eco Fund's principal advantages in the market for environmental financing are that it provides soft loans at lower interest rates than prevailing commercial market rates and it is able to lend for significantly longer periods than commercial banks.

A typical homeowner is missing information about the renovation process, about technical details of the renovation, what to renovate first, where to invest more money etc. Any kind of home renovation for an owner is already stressful with all sorts of decisions to make. These include decisions about the design of the home, heating and cooling, insulation, outdoor areas and appliances etc. Every moment when a homeowner decides to do any kind of renovation in his home, it is also a very good moment to make an investment into the energy efficient measures.

These last measures are very poorly known to an average homeowner in Slovenia. S/he usually decides to renovate those features for more energy efficient home, for which s/he can get a subsidy from ECO fund in that moment. This leads to a lot of nonsense, when people renovate their insulation first and then windows and building furniture etc. In order to avoid this kind of inefficient measures, there is a need for providing guidelines and make homeowners start thinking, acting and renovating in a way that they end up living in a healthy, environmentally friendly and also a modern home.

### 8.2 COMPELLING OFFER SL#1 – GREEN AND SUSTAINABLE BLOCKS OF FLATS

#### 8.2.1 The methodology used for creating the compelling offer

- customer segment

Based on statistical data for Slovenia, the building stock consist of single family houses 67 %, two flat houses 6 %, three and more flats in one house 25 % and 2 % houses for specific social groups.

- **Owners of single family houses**, which are expected to approach the renovation of buildings step by step (mostly using their own family savings, being rather negative towards obtaining loans for refurbishment, only some of them will use national incentives (e.g. partly (max up to 25 % so far) covering the costs of facade, building furniture, heating devices, ...)
- **Owners of flats in blocks of flats** which are expected to approach the renovation of buildings step by step (based on the joint decision of all owners of flats and with agreement of the building manager).

This offer creation will focus on blocks of flats, because of the specific procedure of decision making and all other procedures in renovation.

- Value proposition for segment

The most important driver for the homeowners of the “flats in blocks of flats” is definitely every year repeating subsidy from ECO fund, reserved for this type of buildings. ECO fund offers up to 15 % - 25 % of subsidy for the holistic energy renovation of the block of flats. It is a unique opportunity for flat-owners to receive a subsidy for their building renovation and also attach different other construction works to this renovation for increase of the energy efficiency of the building and higher the price of their real estate.

- Customer journey

The customer journey related to the Slovenian segment is somehow different from the 11-step REFURB Customer Journey described in the REFURB Deliverable D4.4 methodology “Constituting the compelling offer” Report. The reason is that a resolution to renovate a multi-storey building require joint home-owner participation, but also that the ECO FUND (as a main activity driver) by its formalities require more coordination activities.

INFORMATION regarding renovation of the Building

- media information on savings by energy renovation: articles, commercials, ...;
- enabled resources: calls of ECO fund, other local solutions;
- information provided by ONE STOP SHOP: free counselling office for transfer of knowledge.

INFORMATION provided for renovation of the building

- one stop shop experts: knowledge transfer to the home owner on savings, costs, renovation phases, cofinancing mechanisms...;
- ENSVET experts: already existing mechanism for counselling on home energy renovations for private home owners;
- BROCHURES printed by expert private companies for energy renovations (promotion brochures);
- Documents provided by development companies, such as regional development agency (EU projects brochures, guidelines, webpage, ...).

MEETING with all apartment owners, confirmation of the renovation

- experts who work for building manager;
- home owners;

- representatives of the homeowners as support to the building manager.

EVALUATION of the builder's phase – decision about who will be able to do the renovation work

- expert contractors who renovate according to nZEB;
- ECO FUND: providing the information on the contractors.

ADMINISTRATIVE phase – preparation of the documentation for the subsidy

- building manager: prepares all the necessary documentation for the submission of the application to the tender of ECO fund (for multiapartment buildings)
- external administrative company for investor

APPROVAL PHASE: co-financing of the investment approved

- ECO FUND

RENOVATION PHASE: Building renovation start

- expert contractors who renovate according to nZEB
- ECO FUND: co-financing

EVALUATION of the results achieved with the renovation-information on savings

- building manager; technical and building consultants

- Business model Canvas

Construction companies are interested in being part of the apartment buildings renovation, normally they are following the ECO fund calls and send offers to the building managers, regardless of the buildings renovation plan. In the REFURB project customer journey, it is important to get the best companies on board for the nZEB renovations. Therefore, companies will be invited to present their business proposal offers before the preparation of the tender for the renovation of the building. However, price should not be the main selection criteria. See below (figure 43) the Business Model canvas for the SL-offer.



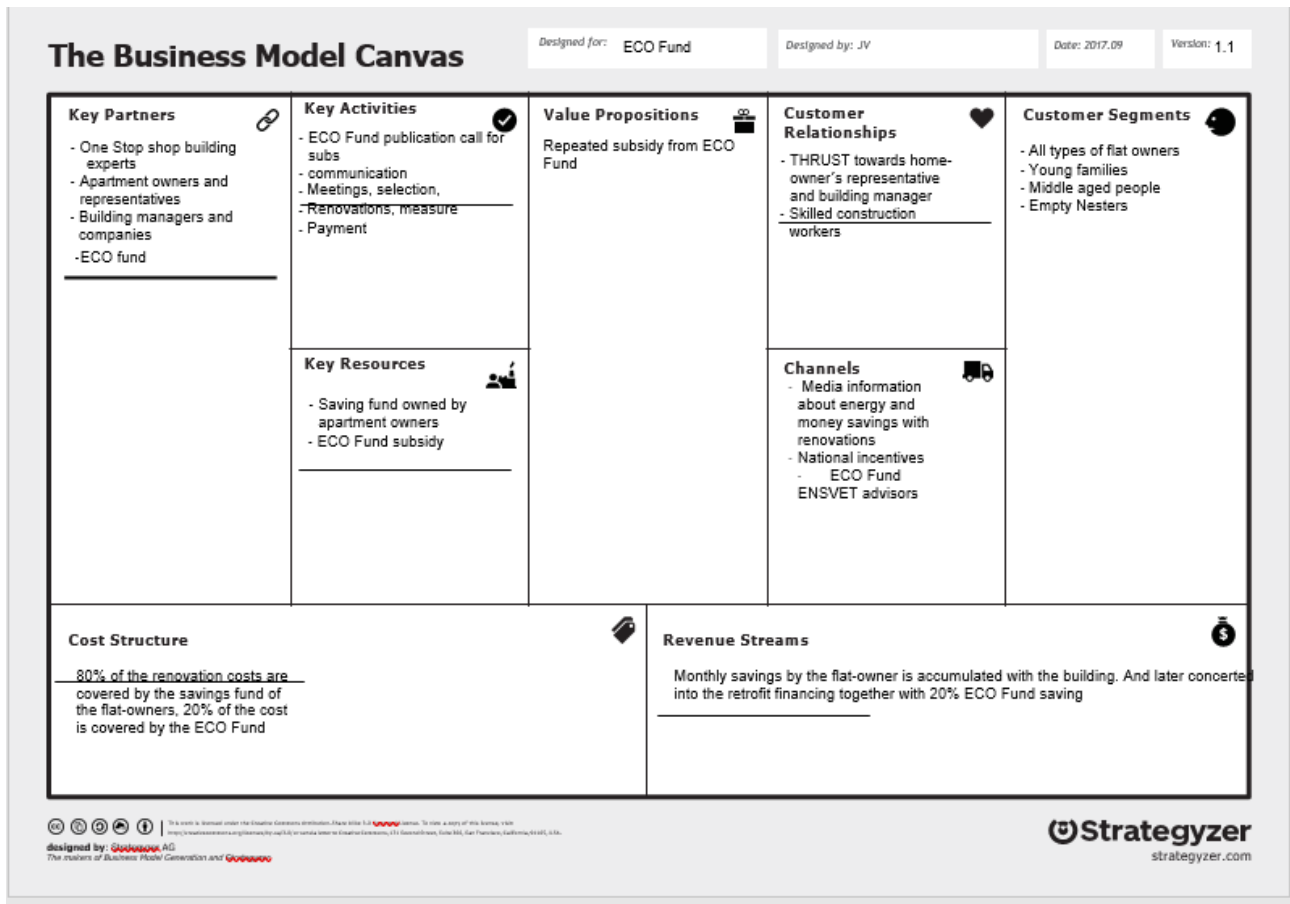


Figure 43: The Business Model canvas for the SL renovation offer

## 8.2.2 Description of the offer

<b>Compelling offer name</b>	<b>GREEN AND SUSTAINABLE BLOCKS OF FLATS</b>
<b>Selected segment (target group)</b>	Owners of flats, all ages and all situation
<b>Short description</b>	<p>The blocks were built in the eighties and nineties, but reconstruction is needed which is not only of an energy nature. The owner's representative chooses 70% of the owners' votes for a complete renovation, which can include the replacement of the façade, windows (common and proprietary), the isolation of the porch and cellar. In collaboration with the building manager, documentation for applying for an ECO Fund tender is prepared, which subsidizes such renovations in the amount of 15 to 20 percent. After approval of the documentation and approval of co-financing, we will include entrepreneurs, builders who are implementing the renovation in order to improve their offers in order to become more sustainable, to enable almost nZEB renewal. For the energy renovation of the building, it is possible to add the replacement of the existing infrastructure, staircase, entrance doors, etc. This also ensures aesthetic improvement of the building.</p>
<b>Market value potentials in country</b>	<p>The market potential is significant. First of all, because the subsidy provided by the ECO fund allows owners of apartments to decide on a comprehensive renovation and construction companies get jobs this way, they can improve their standard offerings in a more sustainable and environmentally friendly manner. On the other hand, dwellings that</p>

are energy-wise restored in the market are more interesting and have a higher value. The social potential is that both homeowners, builders and potential buyers are aware of the importance of the energy efficiency of the property for our health, as well as for our savings and last but not least for the environment. This raises consciousness.

#### **Timing of intervention**

Not relevant. Flat owners are in different life stages.

#### **What needs to be done (the job)**

Most common energy renovations of the multi-apartment buildings are: façade renovation, insulation of the roof, insulation of the cellar, change of the windows in entire building and change of the heating device.

The compelling offer should bring the whole picture to the homeowner in a very simple, approachable, and reasonable way. The whole picture on what should be renovated, in which order and why, which benefits will this kind of renovation bring to the flat owner, should be presented to the homeowner. Addressing their quality of living and also to their valorization of the apartments, why the prices of the same apartments will be higher after the renovation and also why and how the savings will be made. Including a presentation of those construction and renovation companies which experienced renovate according to nZEB and why is good to hire those. Homeowners should be introduced to what the ECO fund subsidy means and how to do the renovation in case that flat owners do not have enough money in their saving fund (which is regulated by the law), by offers of the construction and renovation companies. A clear picture of the benefit, will improve the owner representative's coordination of the decision making.

#### **Value proposition to target group**

The most important driver for the homeowners of the flats in blocks of flats is definitely every year repeating subsidy from ECO fund, reserved for this type of buildings. ECO fund offers up to 15 % - 25 % of subsidy for the holistic energy renovation of the block of flats. It is a unique opportunity for flat owners to receive a subsidy for their building renovation and also attach different construction works to this renovation to increase the energy efficiency of the building and increase the price of their real estate.

#### **Business model for the family**

Multi-apartment buildings are being renovated according to nZEB in Slovenia by initiative from managers of the multi-apartment buildings, which present the opportunities of co-financing mechanisms for the energy renovation of the building to the representatives of the flats owners.

Co-financing mechanisms always involve ECO fund, which subsidizes a whole range of environmentally beneficial actions, amongst them actions regarding energy-efficiency and renewable energies. For the period 2008 – 2013 the fund awarded 31.606 incentives on renewable energy and 27.321 incentives for efficient energy use. Next step is to collect approvals of the at least 70% of the apartments owners in the multiapartment building for further investments in renovation of the building. Meetings and negotiations with owners are done by representatives of the owners and manager of the multi-apartment buildings about further steps, public procurement rules, plan of the reconstruction etc.

These actions are followed by the public procurement done by the manager of the buildings, and finalized by choosing the right company to complete the construction work. Managers of the buildings have competences to prepare the table of needed construction works and also an application to the call for co-financing, published by the ECO fund.

Usually all the planned activities are co-financed from 15% to 25% by national ECO fund.

Housekeepers are obliged to save a fixed amount in a common saving-fund on a monthly basis. This amount is related to the size of the dwelling. At the moment when the owners of apartments decide to renew the building, the amount of funds in the saving-fund is of key importance. It is possible to agree with the contractor to receive the pre-paid amount in advance, while for the rest they agree to postpone the payment, which means that the amount collected

by the owners for the saving-fund is sent monthly to the contractor. This is, of course, dependent on the craftsman, but it is one of the key elements in deciding which one to perform renovation. In this way, it is not possible for residents to take a loan, but such a financial instrument, such as a loan, would considerably facilitate the process of selecting the contractor, as owners could focus on the quality of performance, rather than on the means of financing. In a medium-sized residential building, 27 apartments, 3 storey's, with a deferred payment and advance payment of €30,000 from the savings fund, the investment could be repaid in five years. This includes comprehensive renovation, including cosmetic repairs to the building.

#### **Customer journey implications**

The customer journey for this type of building is slightly different than the main 11-step Refurb Customer Journey. Especially the front end of the customer journey must be strengthened and coordinated – in order to prepare a robust journey for a “block of homeowners”. There is a need for identifying a homeowner representative in each multi-storey housing block, and work with him to get the other homeowners on board the process.

A one stop shop concept will make the coordination easier. The financial tools seem to be available, but there is a need for improving visibility of what should be done (the job) and who can do the job.

Having retrofitted a building, there is also a need for telling the story at local level and to reach out to new homeowners.

#### **Business model implication for key stakeholders**

Construction companies are interested in being part of the apartment buildings renovation, normally they follow the eco fund calls and send offers to the building managers, regardless of the buildings renovation plan. In the REFURB project customer journey, the ambition is to get the best quality suppliers on board the nZEB renovations. Therefore, the companies will be invited to present their business proposition offers before the preparation of the tender for the renovation of the building. Price of financing model should not be the main selection criteria.

#### **QA Quality measures integrated**

In the Slovenian offer, major QA-roles are played by the representative of the owners and the company, who manage the building to be renovated. Together they will prepare the renovation plan from a technical/solution building and financial point of view. They will prepare an application form to receive the subsidy from the ECO fund (slovenian national fund) for the renovation. While preparation of the renovation plan, also theoretical savings are calculated in order to be (later) presented to all apartment owners, where they together will decide to start the renovation or not. Technical knowledge on building level and saving calculations will be provided by the building managing-company, which has engineers and architects employed, so that expected savings will be calculated accurately.

If apartment owners will decide to do the renovation, quality check of the building activities, will be monitored and also checked by the official supervisor, certified to do the supervision for construction works. At the finalisation of works, real savings will be calculated and also compared to the calculated, theoretical ones, which were one of the key criterias for the flat owners to enter the Customer Journey.

In order to minimize the gap between planned and actual savings, building manager and representative of the owners will together engage a building expert with many social skills, who will motivate the flat owners by organising workshops on behaviour in renovated building. The building expert will promote the necessity of the flat-owners to adress daily behaviour - to achieve the planned savngs. This task is a challenge, since flat-owners are used to behave in certain way and change of the habts is a very challenge to implement and monitor.

As part of the renovation plan, the new indoor-climate quality and comfort will also be presented. When the renovation is completed, apartment owners will give their real experience feedback through questionnaires, disseminated by the building manager and apartment owners representative. This will enable third party to provide a quality check if the assumptions in renovation plan were correct. It is however important to notice, that different owners in different life stages do have different perceptions of the indoor quality and comfort.

REFURB Quality Measures summary:

- building phase: monitoring of the building and construction works;
- preparation and finish phase: calculations of the savings; measured indoor quality and comfort;
- after renovation: workshops to maintain a new attitude and behaviour.

**Market uptake tools integrated**

The tools are already operational, national support from the ECO Fund, information by the building manager, interest by the owners for reconstruction, interest with the building construction companies for reconstruction and test calculations with the energy consultants after the renovation.

## 8.3 LESSONS LEARNED & RECOMMENDATIONS

Slovenia, seems to face major challenges regarding energy efficient building renovations:

- Information provided for potential renovators on energy savings is very weak;
- A one stop shop is a must;
- Lack of legislative frame for renovation according to nZEB;
- Lack of approved list of contractors, who renovate according to nZEB
- There is a lack of organisation at national or local level to support homeowners retrofit their private homes;
- There is not enough exhaustion of the available subsidies of the ECO fund

However also a one stop shop face challenges:

- Not enough visits of the homeowners;
- Not enough information on one stop shop existence;
- Not enough knowledge for nZEB renovations.

# Annex 1 – Housing company renovation in Halle/Germany

## Example: Renovation Package for Multi-Family Houses



Ensemble from Bauverein housing stock in the south of Halle (Vogelweide)

- Buildings erected in 1931
- 87 small apartments
- 4.500m<sup>2</sup> living space
- Stove heating only
- Old windows, except for some windows renewed in 1995 for noise prevention
- 45% vacancy, all remaining tenants were relocated before renovation started
- Renovated apartments were rented out to new tenants





Energetic renovation measures (compliance with EnEV 2007):

- Installation of thermal insulation composite system
- New windows
- Insulation of attic and basement ceiling
- Connection to district heating
- Roof had been renewed a few years previous

Additional measures:

- Modification of layouts (less but bigger flats)
- New floors, doors, bathrooms
- New balconies
- Parking space in the yard instead of old garages



**Total renovation costs: 1.865.000€**





	Before renovation	After renovation
Living space in m <sup>2</sup>	4500	4746
Number of flats	87	66
Vacancy in % of flats	45%	0%
kWh/m <sup>2</sup> /year	250	76
CO <sub>2</sub> emissions/m <sup>2</sup> /year	82	6
Costs for heating and warm water/m <sup>2</sup> /month	2,02€	0,67€
Rent (excl. costs for water, heating, service etc.)/m <sup>2</sup> /month	ca. 3,00€	5,70€ - 6,70€





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