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Guidelines for developing One-Stop-Shop business models for energy efficient renovation of single family houses

Synnøve Aabrekk, Segel AS, 6770 Nordfjordeid, Norway, synnove@segel.no
Trond Haavik, Segel AS, 6770 Nordfjordeid, Norway, trond@segel.no
Erwin Mlecnik, Passiefhuis-Platform vzw, Gitschotellei 138, B-2600 Berchem, Belgium & TU Delft, OTB, E.Mlecnik@tudelft.nl;
Satu Paiho, VTT-Technical Research Centre of Finland, Finland, Satu.Paiho@vtt.fi
Irena Kondratenko, Passiefhuis-Platform vzw, Gitschotellei 138, B-2600 Berchem, Belgium, irena.kondratenko@passiefhuisplatform.be;

Abstract
There is a big potential for energy savings in existing single family houses, and today the homeowners are faced with a variety of single renovation measures promoted by a range of different suppliers. Depending on their knowhow and interest of energy efficient holistic renovation supply side actors propose works varying from installing a heat pump to major renovation. As the homeowner lacks competence in choosing the right measures, it seems that a full market introduction of holistic and energy efficient renovation has to start with the supply side. This is needed in order to achieve required reduction of CO2 emissions.

One of the goals of the project “One Stop Shop” [OSS 2012] was to stimulate such supply side market development for sustainable renovation of single family houses. As a result of a work package in “One stop shop” we developed a guideline for companies which intend to define business models for such renovations. This can be used as a tool to define and develop more appropriate and customer-oriented holistic renovation services for single family houses. This paper summarizes the key issues developed in these guidelines.

Introduction
The main objectives with the One Stop Shop project are to overcome barriers such as a major fragmentation of renovation offers from supply side and lack of a structured way to get information concerning decisions on renovation solutions for the homeowner. This missing link was also concluded on in IEA SHC Task 37, and is hindering the wider uptake of sustainable renovation across Europe. One of the strategies to reach this goal, is to cluster innovative technologies to reduce fragmentation of the renovation process and specifically for SME’s to increase their knowledge, skills, capacity and competitiveness towards offering holistic and cost effective renovation solutions.

The project was set up under the European ERA-NET Eracobuild programme and coordinated by the Passiefhuis-Platform in Belgium. The other research partners contributing are: Belgian Building Research Institute, the consulting company Segel AS from Norway, Danish Technical University, VTT Technical Research Centre of Finland and VCB, Vlaamse Confederatie Bouw from Belgium. The project followed up issues studied in the Nordic research project SuccessFamilies which was coordinated by VTT. [SUCCESSFAMILIES 2012]

In one of the work packages (WP 4) in the One Stop Shop project we developed a guideline for how the supply side could set up a successful business model for holistic renovation of single family houses, based on experiences from pilot models in both the One Stop Shop project and the project SuccessFamilies. In the latter project one of the main objectives was to develop new business concepts which should combine both the technical solutions, financing services as well as promotion to overcome the behavioural, organizational, legal and social barriers that exists for sustainable renovation.
Research approach

Several business models for single-family house renovation have been studied in these two projects, and guidelines were developed around the detected examples of new business models. These examples included description of stakeholders involved and company in charge, cooperation, product and services offered, marketing and educational programs, as well as responsibility and quality assurance. These issues were discussed as such for the development of related topics in guidelines for developing One-Stop-Shop models, offering information about different professions involved in renovation towards the homeowner, - all in one place. The information has been collected in personal meetings as well as from workshops and seminars where also representatives from the governmental level have attended. The seminars have been very fruitful in order to get an overall picture of the market situation for holistic renovation of single family housing. A special attention was given to introduction of governmental measures into the market in order to push holistic thinking rather than sub optimizing.

The researchers from the One Stop Shop project mainly used the Bolig Enøk AS business model as an inspirational source, which was the Norwegian pilot in the project. Bolig Enøk AS was established in 2010 and started developing a One stop shop service which was defined as a “project manager” approach in 2011. In developing the guidelines we have both discussed and tested different strategies and measures with Bolig Enøk in order to get as close to a realistic One Stop Shop development as possible.

In the project SuccessFamilies and One stop shop we established cooperation with pilots developing different types of business models. These different models involve different stakeholders from various levels in the value chain, and their product range mirrors the companies involved as well as the company in charge of the business. Next to the Norwegian case, national cases of One Stop Shop business development were defined in Belgium (a “consultant” approach), Denmark (an “energy service” approach) and Finland (a “retail” approach). These cases were used to understand if the guidelines developed would also be applicable to other countries and for other starting situations of business development.

In addition to the cooperation of the researchers with the different pilots of business development, a set of different methods have been used in this information gathering process, analysis, documentation and development of the guidelines:

1) Theoretical studies:
   a. Several pilot models have been described and studied through:
      i. PEST analysis
      ii. 6-forces model
      iii. SWOT analysis [SHC task 28 2006]

2) Osterwalder and Pigneur’s “The business model canvas”. [OSTERWALDER & PIGNEUR 2009]
   Workshops and one-to-one meetings with representatives from the pilot models from the participating countries
   a. Discussions regarding development of the business model

3) Workshops between the researchers and with both representatives from the different pilot models as well as governmental bodies in order to identify barriers and driving forces in a successful market introduction of new business models through discussion of:
   a. Building stock analysis
   b. Different stakeholders interests in the market
   c. Educational challenges regarding holistic thinking; both for house owner and supply side
   d. Subsidies and other measures stimulating holistic offers rather than sub optimizing measures

4) Participation in a networking event held in Antwerp on 18th of April 2012 [BZOO 2012] where means of collaboration between the actors in the value chain were discussed according to a realistic renovation project, and where the actors afterwards discussed the development of a business model for the collaboration

5) Energy seminar with workshop held in Nordfjordeid 19th of June 2012. At this workshop different craftsmen discussed the renovation of two single family houses. On beforehand Bolig Enøk AS  had made energy audits of the houses.

6) Workshops with Bolig Enøk AS regarding evaluation of their model in total and regarding start-up activities in general
   a. Product development and innovation
Customer satisfaction and evaluation. The customers who have bought the energy efficiency status report of their house have been interviewed by Segel AS

Market segmentation and marketing activities

Development of educational programs; courses and training programs for professional craftsmen, employees at hardware stores and house owners

Implementation and up-scaling activities of the business model in order to go nationwide

The One Stop Shop researchers analysed all this information and derived from it guidelines on how to set up a business model for a One Stop Shop for single-family house renovation. These guidelines resulted in the definition of three consecutive steps.

**Guidelines to develop One Stop Shop pilot models**

**First step - Preparation for collaboration**

**Status Analysis**
First, a broad understanding of the competition arena in which the business model is to operate is needed. A combination of a PEST analysis and the 6-forces model is a good start. The Pest analysis is a tool for defining the most important Political, Economical, Social and Technological issues which influence the environment and framework for the business. Within this environment the 6-forces model describes the actors playing in the competitive arena; customers, suppliers, competitors, potential new competitors, substitutes and complementary businesses. Complementary companies often turns out to be important collaboration partners or actors which somehow influence the market, i.e. banks giving lower mortgage interest to energy efficient renovation. These two analysing models then form the information basis for the SWOT analysis. The SWOT analysis describes a summary of the future business model’s internal Strengths, Weaknesses, and external Opportunities and Threats, and forms the information foundation from which the business model is developing.

**Second step – Business Canvas Model**

**Business model sketching**

Based on this analysis, the company in charge of the future business collaboration is recommended to draw up a business model for the activity using A. Osterwalder & Y. Pigneur’s “Business Model Canvas”, consisting of the following nine blocks: customer segment, value proposition, key activities, key partners, key resources, customer relationship, channels (communication, distribution and sales), cost structure, and revenue stream (Figure 1). These building blocks, which form the basis for a tool called “business model canvas” [OSTERWALDER & PIGNEUR 2009] is used to discuss a full service or one-stop-shop concept for energy efficient renovation.

![Fig.1: Osterwalder & Pigneur’s “Business model canvas”](image)

[OSTERWALDER & PIGNEUR 2009]
The following figure shows an example of a resulting business model development (Bolig Enøk AS). The usefulness of the business model canvas was tested in the various partner countries. Various pilot One Stop Shop companies collaborated with the research partners in order to meet the value propositions and cover the information needed in all nine blocks. The company in charge of the business model drew up a potential business model and discussed this with future partners. The guidelines therefore recommend to continue the business model development process by having an internal one-day workshop with all (potential) collaborating partners attending. Beside a total understanding of the business model, special issues regarding the internal cooperation structure and lines of command is needed on the agenda and can be dealt with in own separate discussions between the partners.

<table>
<thead>
<tr>
<th>Key partners</th>
<th>Key activities</th>
<th>Value proposition</th>
<th>Customer relationship</th>
<th>Customer segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Building product supplier (service provider) 2. Contractors 3. Local retail stores 4. Various partners with expertise in building physics and energy and heating. (Sintef, Glava, KVT)</td>
<td>1. Marketing 2. Building inspection and energy audit 3. Present report with recommendations and energy certificate 4. Project management 4.1 Help obtain approvals from local authorities 4.2 Tendering process 4.3 Regular contact with suppliers and homeowner 4.4 Quality assurance; both price levels and product/competence/service by sub suppliers 4.5 Assist in filing of applications for subventions 4.6 Inspection when renovation is completed 5. Execution of renovation (by hired contractors) 6. Service/after sales</td>
<td>1. Provide knowledge of holistic renovation including potential extension of the house. 2. Personal visits to the homeowner 3. On site analysis 4. Technical analysis with recommendations 5. Energy certificate 6. Project management 7. Offer holistic renovation service</td>
<td>1. Dedicated personal assistance. The Project Manager is the main (only) contact to the customer</td>
<td>1. Owners of single family houses from 60-80ies in selected areas in the region of Østfold, Akershus and south east of Oslo. 2. Homeowners who have capacity to increase their mortgage loan</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Key resources</th>
<th>Value stream</th>
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</table>

<table>
<thead>
<tr>
<th>Cost structure</th>
<th>Revenue stream</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salaries to Project Managers counts for majority of the costs. Therefore effective use of their hours is the most critical factor for profitability. 2. Travel costs 3. Marketing costs 4. Administration and support costs</td>
<td>1. Analysis and Energy Certificate: NOK 6,900 incl. VAT 2. Renovation: NOK 100,000-3,000,000 NOK incl. VAT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Channels</th>
<th>Customer segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information in local newspaper (i) 2. Information in House owner Associations magazine (i) 3. Local community environment plans 4. Direct mail (i) 5. Invitation to local information evenings (ii-iv) 6. On site visit to the homeowner (ii-v) 7. Telephone (v)</td>
<td>1. Owners of single family houses from 60-80ies in selected areas in the region of Østfold, Akershus and south east of Oslo. 2. Homeowners who have capacity to increase their mortgage loan</td>
</tr>
</tbody>
</table>

| Table 1: Example of Bolig Enøk AS’ business model [Krushna et al 2012] | |
Third step - Strategic focus and implementation

Strategies and action plan
Based on the SWOT-analysis and the Business model the partnership between the actors contributing to a One stop shop must define their ambition level through a vision statement. How to reach the vision must be expressed first through their strategic choices. The main questions to answer are 1) What is to be sold (what is the uniqueness with the product/service, 2) What are the target groups? (it is recommended that market oriented persons answer this first) and 3) How should it be sold?

In addition, these main questions should be extended with some challenging question regarding how to attract interest and prepare the ground for the potential customer to buy this service. An interesting tool for facilitating this process is to use the British 4E model, developed by DEFRA and extended by Jones and De Meyere, which puts focus on how to Exemplify, Engage, Enable and Encourage the single family homeowner to become a customer of the holistic renovation service offered.

Making strategic choices also includes being clear on what you are not going to do. A typical pitfall for many companies is that they make too many compromises in order to make everybody happy.

In order to implement the developed strategies a specific action plan is needed which defines planned progress, responsibility and needed resources (financial and human).

Clarifying key issues
In the final part of the guidelines special attention is given to some very important issues related to implementation of a One Stop Shop business model for renovation of single family homes.

Competence
It is very important that the various planners, project managers and craftsmen involved are updated on the subject of energy-efficient renovations and specifically on technical and collaboration issues crossing different skills. Therefore a plan for how to secure that the right competence is at right place and time must be defined. This includes also scheduling a training program for actors who need it.

Rights and responsibilities
We have experienced that there are some potential legal pitfalls when several actors are involved in renovating a private home. After buying a product or service, the consumer may return to the seller with complaints and claim replacement, repair or compensation. If one One Stop Shop responsible invoices the complete package it is this legal entity which also take on all responsibilities for all construction work and installations executed in the house. An issue to be resolved beforehand is how to distribute the responsibilities among the involved actors? Bolig Enøk AS in Norway discovered that the liability towards a consumer lasts longer to a private consumer than between companies. As a consequence they realised that they would be held responsible for defects for a longer time than the sub suppliers’ responsibilities towards Bolig Enøk. AS legislations differ from country to country, each business model has to check out the realities in such cases and make agreements with the involved actors how such issues should be dealt with.

Quality assurance
The consequences of one bad work may be fatal for the complete final result. Therefore it is crucial to minimise risk for such situations. The One Stop Shop should clarify beforehand how each of the involved partners will assure quality of their work during the process, and how quality is assured when connected partners interact. A system and functions for construction and installation quality assurance during and after completion of the renovation must be a part of the One Stop Shop. The guideline address important questions dealing with the quality assurance.

How to benefit from positive customer experiences
Pleased customers can be a major source of recommendation towards other potential clients. Business developers should think about how to use such experiences and peer-to-peer communication for market development. The guidelines recommend that you should ask your customer if he is not satisfied to tell it to you, and if he is satisfied he should tell it to all his friends. Evaluations of all projects to find out how satisfied the costumers are and how they first time heard about the service, will give important input to improvements of the
service and how to promote it. The aggregated knowledge will also result in changing for instance marketing strategies as the market develops.

Also “after-services” should be offered to maintain contact with customers. This would include periodical supervision of installations and maintenance which also means potential additional sales for the One Stop Shop company.

**Conclusion**

The One Stop Shop resulted in an important reference book that can help companies to tap an important business potential of housing renovation. The guidelines show how companies can change their business towards a systemic offer of highly energy-efficient housing renovation, hereby specifically reaching owner-occupiers. The guidelines are based on experiences from different pilots and different sections have been systematically ordered and deployed according to modern theory of business development. By following the guidelines enterprises in any country should be able to develop a One Stop Shop in an efficient way.

The full guidelines are published before the conference at [http://www.one-stop-shop.org](http://www.one-stop-shop.org), [OSS 2012]

**Acknowledgements**

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[Jones P.T., De Meyere V. 2009] Terra Reversa, EPO, Berchem, Belgium, and Uitgeverij Jan Van Arkel, Utrecht, the Netherlands

The full papers can be viewed at the conference web site www.passivhusnorden.no after the conference. Thanks to all the paper authors that have made a valuable contribution to the conference. Thanks also to the Scientific Committee for reviewing the papers.

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