EuroPHit

D4.8_Description of one-stop-shop models

INTELLIGENT ENERGY – EUROPE II

Energy efficiency and renewable energy in buildings

IEE/12/070

EuroPHit

[Improving the energy performance of step-by-step refurbishment and integration of renewable energies]

Contract N°: SI2.645928

Co-funded by the Intelligent Energy Europe Programme of the European Union

Technical References

Project Acronym	EuroPHit
Project Title	Improving the energy performance of step-by-step refurbishment and integration of renewable energies
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Project Duration	1 April 2013 – 31 March 2016 (36 Months)

Deliverable No.	D4.8
Dissemination Level	PU/EACI/CO
Work Package	WP4_Financing step-by-step energy efficient refurbishment
Lead beneficiary	14_BRE
Contributing beneficiary(ies)	4_Mosart 9_EnEffect Group
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Date	15/03/16
File Name	Description of one-stop-shop models for step by step refurbishments

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Abstract

One of the major barriers perceived in scaling up the amount of retrofits taking place is the fragmentation of the retrofit process between measures/organisations and how clients can access the information they require. One-stop shops, where multi-disciplinary teams can undertake all elements of a refurbishment project, are considered to be a way of alleviating a number of issues in the retrofit market.

This report describes the nature of one-stop-shop models for energy efficient refurbishments, looks at work already done in this area, and outlines possible business models for their application in step-by-step refurbishments.

0 About one-stop-shop models

One of the major barriers perceived in scaling up the amount of retrofits taking place is the fragmentation of the retrofit process between measures/organisations and how clients can access the information they require. One-stop shops are considered to be a way of alleviating a number of issues in the retrofit market.

One-stop-shop models are where multi-disciplinary teams can undertake all elements of a refurbishment project, including surveying, design, construction, and financing. This may involve one or more organisations, working in a joined-up way, to provide an end-to-end offering for a client.

0.1 Features of one-stop-shop models

- Multi-disciplinary teams can undertake all elements of a refurbishment project, including surveying, design, construction, and financing.

0.2 Advantages of one-stop-shop models

- Such models can be attractive to clients because they reduce the problems that can arise of dealing with multiple parties by providing a turn-key product. There is a single point of accountability for clients. These factors make the management of a project more efficient from a client's perspective.
- Established models have experience of working together between disciplines, increasing the likelihood of efficiency and reducing the risk of errors.
- Promotion of communication and knowledge-sharing between disciplines. This should lead to more accurate working between disciplines, for example more accurate costing of works. In turn, this should deliver better value for money to the client.
- Attractive to lenders because of their efficiency in delivery providing greater certainty to lenders in terms of return on investment through better quality control and greater certainty of how long projects will take to complete.
- Potential to grow the retrofit market more rapidly through a corporate structure for the one-stop-shop models that can be replicated throughout countries providing a fast and efficient model for retrofit that is attractive to lenders.

0.3 Disadvantages of one-stop-shop models

- They could reduce the ability for a client to 'shop around' and choose their preferred supplier at each step of the refurbishment.
- There may be inflexibility in the refurbishment options available to the client due to the services offered by the one-stop-shop. This will depend to a large extent on the financial factors.
- Potential conflicts of interest between the different disciplinary elements. For example, the cost consultant is looking to deliver the best value for money, whereas the contractor is looking to maximise profits.

- Having a single point of contact on a project could create a project bias. For example, if the contact is a designer, this could create a bias towards the design over other aspects such as costing or construction on-site. This could be overcome by having multiple contacts or a neutral single-point contact for the client to engage with.
- Any issues arising from the relationship between the client and the one-stop-shop could affect the whole project, rather than just one aspect as in conventional construction projects.

1 Case study project : COHERENO

The EU project "**Co**llaboration for **h**ousing nearly zero **e**nergy **reno**vation", abbreviated to COHERENO, makes a valuable contribution to achieving the EU's energy efficiency and climate protection goals. Nine institutions from five European countries are involved in the project.

A major goal of COHERENO is to improve the quality of the construction measures by providing specific support to all stakeholders, thus increasing customer confidence. With these two key aspects, nearly zero-energy buildings (nZEB) can gain credibility and acceptance, and win a higher market share.

The project intended to show how existing barriers to effective cooperation can be eliminated and better services for different customer segments can be developed. While technological solutions for nZEB renovation are available at a demonstration level.

1.1 Background

The United Nations Framework Convention on Climate Change forms the basis for international climate policy. It was ratified by 192 nations and entered into force in 1994. The Framework Convention on Climate Change governs international cooperation in research into global warming and the united quest for ways to mitigate climate change and manage its consequences. The 1997 Kyoto Protocol supplements the Framework Convention on Climate Change. It specifies binding reductions in greenhouse gas emissions for the countries which signed it.

The EU's current energy and climate programme is rooted in "Europe 2020: a new European strategy for employment and growth". It also includes the EU's "20-20-20 targets". For example, they require a 20 percent reduction of greenhouse gas emissions compared with 1990, reduction of energy consumption by 20 percent and an increase in the percentage of renewable energy in the energy mix to 20 percent by 2020.

On this basis, the European Commission has launched a variety of support programmes: **Intelligent Energy Europe (IEE)**, Enterprise Europe Network (EEN), Eco-innovation and Marco Polo.

The COHERENO project is funded as part of IEE. The COHERENO aims to achieve better collaboration between enterprises involved in innovative business schemes to realise nearly zero-energy building (nZEB) renovations of owner-occupied single-family homes.

Among the described EU energy efficiency goals, refurbishment of existing buildings plays a key role, as it offers particularly significant potential energy savings. The recast EU Directive 2010/31/EU on the energy performance of buildings (EPBD recast) is intended to advance the overall energy efficiency of buildings and building sections. As a result, EU Member States are obliged to specify corresponding minimum requirements for energy efficiency, which are reviewed every five years. The goal of the directive is that as of 01/01/2021, only nearly zero-energy buildings are to be built throughout the EU.

1.2 Consortium partners

A total of nine project partners from five European countries are cooperating in energy refurbishment from a single source in the EU COHERENO project. They are research

institutes and advisory bodies. They are supported by the European Commission as part of the EU Intelligent Energy Europe programme. TU Delft is coordinating COHERENO.

- Delft University of Technology, Netherlands
- Passiefhuis-Platform vzw (PHP), Belgium
- Flemish Institute for Technological Research (VITO), Belgium
- Austrian Society for Environment and Technology (ÖGUT), Austria
- SEGEL Consulting Company, Norway
- German Energy Agency (DENA), Germany
- Buildings Performance Institute Europe (BPIE), Belgium
- Flemish Constructors Federation (VCB), Belgium
- SINTEF Building and Infrastructure, Norway

1.3 Target groups

The EU COHERENO project is comprehensive and focuses on a variety of target groups. It is intended for all stakeholders involved in refurbishment who contribute to satisfaction of house owners throughout the construction process and its results. In order to guarantee consistent high quality of refurbishment to nearly zero-energy buildings, and thus to promote their establishment on the refurbishment market, the COHERENO partners are committed to developing and expanding successful business models.

1.1.1 Small and medium enterprises (contractors)

Efforts are undertaken to target an innovator group of contractors, contracting home-owners, acting as the key responsible actor for the nearly zero-energy building (nZEB) renovation. They can employ other contractors and are important contact points for home-owners.

1.1.2 Planners (consultants)

Consulting actors consult the home-owners and provide technical specifications, cost calculations, energy saving calculations etc. They can typically include architects, engineers, quality assessors, energy performance certificate advisors and providers of passive house certificates. Also actors who inform and advise home-owners on a general basis but do not provide offers including technical specifications and costs are part of this target group. Typically these can be home owner associations, non-profit organisations, material and building products suppliers, real estate agents and financial agents.

1.1.3 Policy makers and financiers

Financing and policy actors can influence volume market development. Banks, grant providers, energy agencies and policy makers on local, regional, national or European level are typically part of this group.

1.4 Project outcomes

During the first stage of the COHERENO project, examples of nZEB single-family house renovations in the five partner countries have been used to identify experienced actors.

A set of criteria was developed to identify the different types of nZEB renovation, including holistic renovation, renovations close to nZEB levels and deep renovation of building components (e.g., walls, windows, roofs etc.) that can lead to an entire nZEB house renovation. Criteria are based on national market conditions in each country using existing instruments, such as Energy Performance Certificates (EPC), to track relevant projects in a practical and simple way. The toolbox of instruments was defined and detailed individually through intensive dialogue between project partners and national stakeholders; these stakeholders comprise national advisory boards in each country.

The radar has a scale for nZEB renovations ranging from 1 to 4, with 1 being the best.

The general goal of the COHERENO project is to increase the potential for successful collaboration between contractors and other supply actors that are involved in nearly zero-energy building (nZEB) single family home (SFH) renovations. The goal is to detect key barriers and opportunities for stepping into collaboration for nZEB SFH renovations and to identify characteristics of emerging supply-side collaboration structures (in this case innovators) that act similar in ways relevant to business modelling.

Findings of COHERENO project

The start-up of activities in nZEB SFH renovation is not obvious for the companies. An important barrier on the supply side is that not many contractors are experienced or have the right knowledge to deliver such renovation or to guarantee profitable energy savings. These companies need to understand the necessity for collaboration, the customer values and the role of different actors in collaboration. Also, the companies need to develop their own good examples of demonstration projects to attract customers for nZEB SFH renovation.

Collaboration with experienced professionals or consultants makes sense to attract the right knowledge and to develop first projects. Also, the awareness rising of customers and companies is key to the nZEB SFH renovation market development. The highest success for start-up can be expected when marketing is coupled with bottom-up initiatives, as costs for communication and convincing homeowners can be reduced.

One actor has to take the lead and act as the 'reassuring' contact point for the homeowner, maintaining a permanent relationship. Stronger attention is needed in order to attract customers, but at the same time advice and design is a service that somehow has to be paid for. From the country experiences it is suggested that it is imperative that collaboration structures include or refer to 'independent' actors, such as architects, certified energy auditors, institutes, non-profit organisations, and so on. From on-going developments, the importance of One Stop Shop and customer web portals, Open House Days and physical renovation stores, is expected to increase.

The experiences in the partner countries illustrate that **lead actors** that organize their collaboration for the nZEB SFH renovation market can be – as suspected - general contractors, turnkey suppliers and project managers. It was found that architects/

planning offices, an energy advisor, a broker, renovation stores and a hardware store organized structures for nZEB SFH renovation. Also, a national policy maker, a provincial collaboration and a municipality were found to be able to facilitate collaboration structures. Contractors thus appear to compete with various other collaboration structures who take the lead for organizing nZEB SFH renovation.

The **actors that collaborate with the lead actors** are typically contractors and product suppliers that provide components or services, general contractors, architects/ planning offices, independent professionals/ experts. Some lead actors have found collaboration with more unusual partners such as a bank, renovation brokers, a marketing company, or specific suppliers. Furthermore, some structures have agreements with policy makers, or with an educational facility or a non-profit organization to guarantee a high quality standard. On the more holistic level, some lead actors also actively engage a Chamber of Commerce, a federation or a development company. Some collaboration structures also engage experienced homeowners in their collaboration structure as a marketing instrument.

In practice difficult to balance independency and a total integrated service. However, the homeowner only tends to trust **independent advice**. Independent knowledge is needed which can be found by collaborating with competence networks and by involving independent/experienced/certified advisers or offering labelled advice. The business model needs to make sure that advice is paid for.

On the one hand, construction processes can be made more efficient by **training** of all actors involved and regular checks. On the other hand, it is important to have a single trusted contact point for the homeowner; it can be recommended that this person fulfils specified goals (energy performance, timing, information transfer) and manages and coordinates the process. In each case, attention is needed for quality assurance and a performance-based approach, linked to sticks and carrots. The performances should be specified from the beginning and followed up with monitoring.

Stronger collaboration and trust-building is still needed between ‘traditional’ partners such as contractors, designers and consultants. Also, collaboration can be expected with new types of actors such as renovation advisors, project managers, renovation stores, One Stop Shops, non-profit organisations and/or specific institutes. In each case, actors that address the nZEB SFH renovation market will benefit from good visibility in portals and supported listings.

Experience shows that country-specific actors’ lists can provide suitable tools to increase collaboration of market actors for deep renovation. Lists enable people to identify relevant and experienced actors and simplify the initiative. COHERENO highly recommends establishing similar lists and mapping frontrunners in countries not involved in the project. The methodology to identify frontrunners can be used in an analogically in all countries due to its high flexibility. It is especially suitable if no other tools exist. The experience of actors is proven automatically when contacts are identified via completed projects.

2 Case study project: ERACOBUILD

European and national ambitions for renovation lead to the prescription of increasing energy performances, including objectives such as reaching the Passive House standard, zero-energy building or CO_2 neutrality. The awareness grows that, considering energy-efficient renovations, the market structure will change, both in volume and necessity for the execution of more thorough renovations. Innovative solutions are needed to reach different target groups and to find solutions for technical bottlenecks and enterprise collaboration.

At present throughout all European countries (to higher or lesser degree) advanced renovations of residential buildings is an emerging market, implemented in demonstration projects only (typically financially supported by subsidies). SMEs that are involved are the front-runners on the market /trend setters in renovation activities of the residential sector. An important supply side barrier to increase integrated renovation activities is the fragmentation of the renovation process that is shared between many SMEs doing fraction of a number of renovation measures. On the demand side, the homeowner lacks a possibility to find in a structured way all information needed to decide on renovation solutions, to contact experienced building companies and to assure quality and financial support.

Eliminating these supply and demand problems are the core of this project, by specific actions towards clustering innovative technologies to reduce the fragmentation of the renovation process for single-family houses, and increase competences, knowledge and innovations by SMEs; and development of the one stop shop (tool) as platform for both homeowners and companies offering holistic renovation solutions.

2.1 The One Stop Shop Project

The main objectives of the One Stop Shop project are to overcome barriers such as the major fragmentation of the renovation business on the supply side and the lack of a structured way for homeowners to obtain information for the purpose of decisions on renovation solutions. This missing link, which was also identified in IEA SHC Task 37, is hindering the wider uptake of sustainable renovation across Europe. One of the strategies for attaining this goal is to cluster innovative technologies so as to reduce fragmentation of the renovation process and, specifically, for SMEs to increase their knowledge, skills, capacity and competitiveness with a view to offering holistic, 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 project followed up issues studied in the Nordic research project entitled SuccessFamilies, which was coordinated by VTT.

One of the work packages (One Stop Shop business models for holistic renovation) in the One Stop Shop project was devoted to developing this 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 SuccessFamilies project. In the latter project, one of the main objectives was to develop new business concepts which combined technical solutions, financing services and promotion so as to overcome the existing behavioural, organisational, legal and social barriers to sustainable renovation.

2.1.1 Objectives

The overall project aim is to facilitate market penetration (volume market) of housing renovations for single family houses of very high energy standard while providing superior comfort and sustainability to occupants. The following hypotheses will be investigated within the project: By clustering the different innovative technologies, the client receives a less fragmented renovation process. The clustering also assures a structured transfer of innovations to SME's.

The development of a 'one-stop-shop' tool as platform for both client as company, gives the opportunity to create demand and offer for holistic and integrated retrofit solutions. The clustering of innovative technologies can give SME's the opportunity to develop skills, knowledge, capacity and a competitive marketing formula for holistic and cost-effective retrofit solutions. A 'one-stop-shop' tool for sustainable renovation can give house owners the opportunity to form a well-informed investment decision. It simplifies the access to quality-oriented constructors and companies. Together these companies offer integrated retrofit solutions.

The communication about project results and the dissemination of these results can convince clients and SME's to implement innovations.

2.1.2 Research Approach

Several business models for single-family house renovation were studied in these two projects, and guidelines were developed around the examples of new business models that were detected. These examples include descriptions of stakeholders and the company in charge, cooperation, product and services offered, marketing and educational programs, as well as responsibility and quality assurance.

These issues were discussed for the purpose of developing related topics into guidelines for One-Stop-Shop models, offering the homeowner information about the various professions involved in renovation, all in one place. The information was gathered in one-on-one meetings and in workshops and seminars, which were attended by government-level representatives. The seminars were very fruitful in providing an overview of the market situation for holistic renovation of single family housing. Particular attention was given to the introduction of governmental measures in the market in order to push holistic thinking rather than sub-optimal solutions.

The researchers from the One Stop Shop project drew inspiration mainly from the business model of Bolig Enøk AS, the Norwegian pilot project. Bolig Enøk AS was established in 2010 and started developing a One Stop Shop service, defined as a "project manager" approach, in 2011. In developing the guidelines, we both discussed and tested different strategies and measures with Bolig Enøk in order to get as close as possible to a realistic One Stop Shop development.

In the SuccessFamilies project and One Stop Shop, we established cooperation with pilot projects 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. In addition 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 whether the guidelines developed by this project would be applicable to other countries and other initial situations of business development.

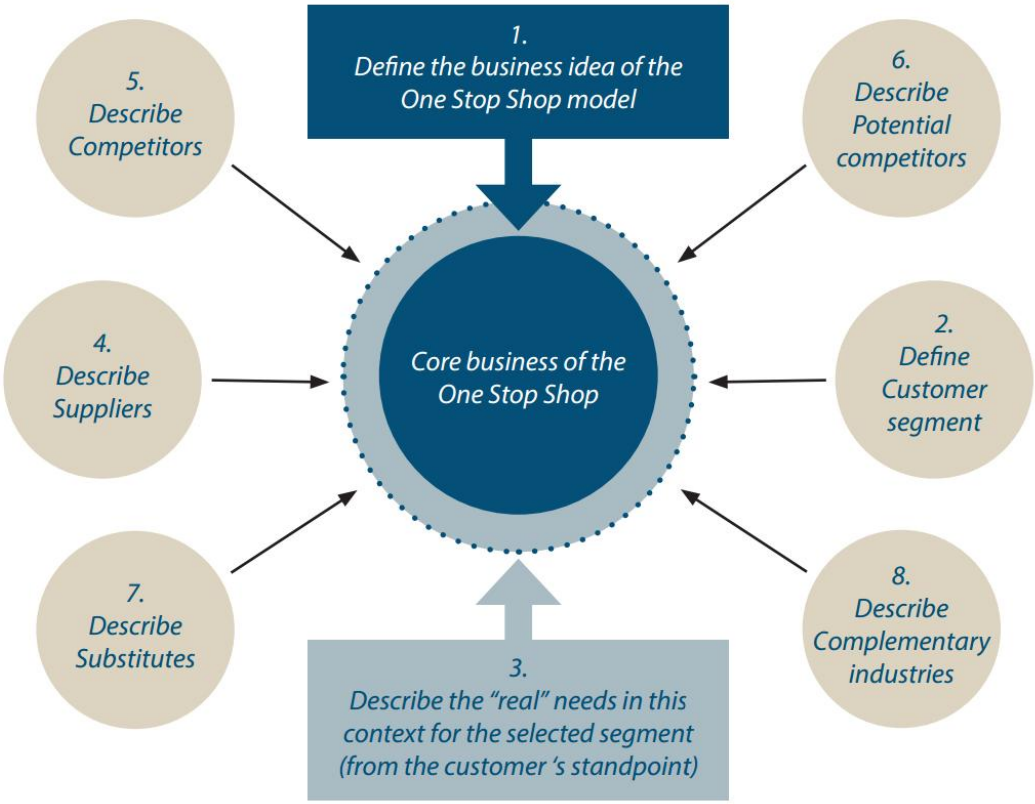
2.2 Project Partners

The project was co-ordinated by PHP, with five other partners involved from across the EU. The partners:

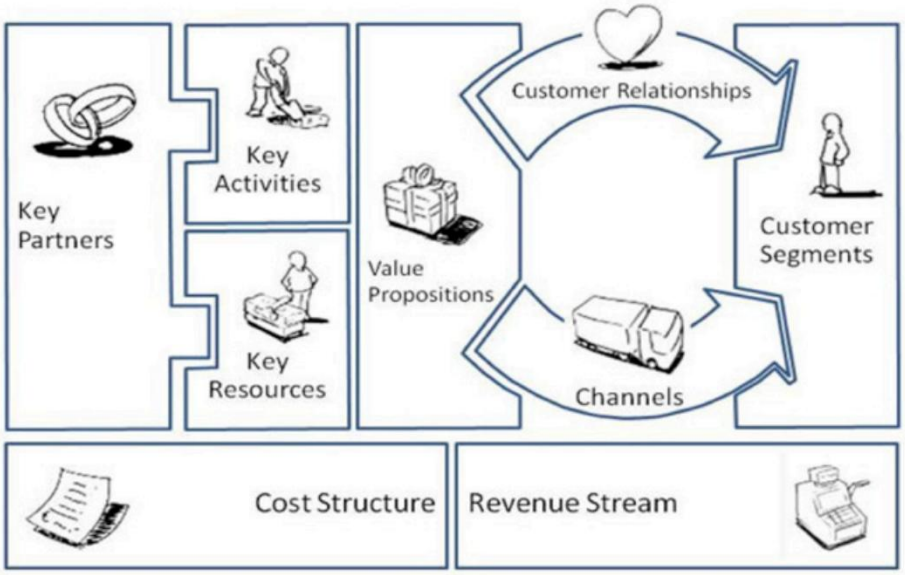
- PHP, Passiefhuis-Platform, Belgium, non-profit organisation. www.passiefhuisplatform.be
- BBRI, Belgian Building Research Institute, private research institute. www.bbri.be
- Segel AS, Norway, consulting company. www.segel.no
- DTU, Building Physics and Services, Denmark, DTU Civil Engineering. www.dtu.dk
- VTT, Finland, VTT Technical Research Centre of Finland. www.vtt.fi
- VCB, Vlaamse Confederatie Bouw, Belgium (Flanders), federation of constructors. www.vcb.be

2.3 Project outcomes

Factors influencing a One Stop Shop model:



2.3.1 Defining the business model



Source: http://www.businessmodelgeneration.com/

Value proposition:

- What kind of product and service are we offering our customers?
- What additional value do we deliver to the customer?
- Which of our customer's problems are we helping to solve?
- What customer needs are we satisfying?
- What bundles of products and services are we offering to each customer segment?

Channels:

- Through what channels do our customer segments want to be reached?
- How are we reaching them now?
- How are our channels integrated?
- Which ones work best?
- Which ones are most cost-effective?
- How are we integrating with customer routines?
- Channel phases:
    1. Awareness: How do we raise awareness about our company's products and services?
    2. Evaluation: How do we help customers evaluate our organisation's Value Proposition?
    3. Purchase: How do we enable customers to purchase specific products and services?
    4. Delivery: How do we deliver a Value Proposition to customers?
    5. After-sales: How do we provide after-sales customer support?

Customer relationships:

- What type of relationships does each of our customer segments expect us to establish and maintain with them?

- Which ones have we established?
- How costly are they?
- How are they integrated with the rest of our business model?

Revenue stream:

- What value are our customers really willing to pay for?
- How would they prefer to pay?
- Examples of different types for One Stop Shop:
    - Fixed or variable price for an audit of the house
    - Fixed or variable price for the renovation project
    - Combination of a fixed price and a variable price tied to the energy savings
    - Commission from product suppliers
    - Also, the payment terms influence the business cash flow and impact its funding needs
    - Many companies within the building industry demand that customers pay a percentage of the total upfront.

Key resources:

- What key resources do our value propositions require?
- Our distribution channels?
- Customer relationships?
- Revenue streams?
- These key resources can be further categorised as follows:
    - Physical
    - Intellectual/knowledge
    - Human
    - Financial

Key Partnerships:

- Who are our key partners?
- Who are our key suppliers?
- Which key resources are we acquiring from partners?
- Which key activities do partners perform?
- It can be useful to distinguish between three motivations for creating partnerships:
    - Optimisation and economies of scale
    - Reduction of risk and uncertainty
    - Acquisition of particular resources and activities

Cost Structure:

- What are the most important costs inherent in our business model?
- Which key resources are most expensive?
- Which key activities are most expensive?

3 Example organisations

3.4 Renova

Renova is a dedicated home renovations company serving Dublin and surrounding counties, specialising in the renovation and deep retrofit of homes. Using their own staff, they project manage and carry out the entire home renovation. Services carried out:

- Planning and designing the renovation
- Managing the construction process
- Carrying out all the building works with certified staff
- Certifying the complete house

The Renova team work to improve the insulation, heating, air tightness, ventilation and electrics as well as the layout and functionality of bathrooms, kitchens and design of homes.

Approach from a consumer perspective:

1. Consultation:
    a. Visit showroom.
    b. Establish understanding of the renovation process.
    c. Establish a cost estimate for the project.
2. Home survey and budget estimate:
    a. Arrange a survey.
    b. Produce detailed specification and fully priced schedule of works.
3. (Building Energy Rating) BER assessment and final proposal:
    a. Select materials and finishes.
    b. Draw up a contract sum for the project.
    c. Draw up detailed specification of energy efficiency works.
    d. Receive final proposal that includes projected BER assessment on completion, in addition to a detailed works programme and payment terms.
4. Contract:
    a. At this stage, each party commits to the project at the price and specification agreed, and a binding contract is signed.
    b. After the contract is signed, work is carried out on the design specification and selection of materials.
5. Programme of works:
    a. Works are not commenced until all materials are in storage and ready for use.
    b. All trades are pre-booked to ensure availability.

c. The duration between contract-signing and commencement on-site is usually determined by the choice of windows, as these have the longest lead-in time.

6. Works completed:
    a. A removals company pack and move housing contents to secure storage in order to commence the works.
    b. Works carried out.
    c. Works finish with removal company replacing belongings and a professional cleaning service.

Many successful projects have been delivered by the company since 2002.

3.5 Energysprong

Energiesprong is a market led programme for net zero energy refurbishment of houses.

dedicated home renovations company serving Dublin and surrounding counties, specialising in the renovation and deep retrofit of homes. Using their own staff, they project manage and carry out the entire home renovation. Services carried out:

- Planning and designing the renovation
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The Renova team work to improve the insulation, heating, air tightness, ventilation and electrics as well as the layout and functionality of bathrooms, kitchens and design of homes.

Approach from a consumer perspective:

7. Consultation:
    a. Visit showroom.
    b. Establish understanding of the renovation process.
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Many successful projects have been delivered by the company since 2002.

4 One stop shop model considerations for step by step refurbishments

Based on the lessons learned from the case studies this section summarises considerations for developing a one stop shop business model for high efficiency step-by-step refurbishments.

1. Business plan and Programme

In order to put together a business plan for a One Stop Shop model, there is a need to define key aspects of the offering and market, as discussed in 2.4.3. Asking these key questions should ensure that a more considered model is developed and elaborate actions on the following two key aspects:

a. Financial model

b. Establishing the market demand

2. Project management and delivery

a. Establish the delivery process

The following outlines a process of undertaking a step-by-step refurbishment through a one-stop-shop solution.

- Client enquires about undertaking refurbishment works
- Survey undertaken on building(s)
- Develop 'health plan' over the life of the building(s), outlining which refurbishment steps should be undertaken and when
- Develop technical specification of refurbishment steps
- Cost refurbishment steps
- Determine financing solution
- Undertake retrofit steps
- Complete refurbishment works

b. Forming a consortium of organisations to offer technical support

- Check if there is any existing group of experts delivering near Zero Energy (nZEB) to avoid overlap.
- Involve national associations and federations of contractors, consultants and representative homeowners to ensure their support.
- Set up transparent criteria regarding who is accepted on the list to become part of the group delivering the one stop shop model.
- Ensure that all listed actors meet the required criteria.
- Highlight and promote the benefits of actors being on the list.
- Ensure regular updates and maintenance of the list.
- Include a tool for comments and recommendations by and for homeowners.

- The organisation or consortia of organisations offering a one-stop-shop solution should work to a particular code of conduct, which is publically available. The code of conduct should cover:
    - Credentials of organisations involved
    - Services provided and excluded
    - Step-by-step solution
        - Survey
        - Develop 'health plan' over the life of the building
        - Determine financing solution
        - Undertake retrofit steps
    - Communication and transparency between disciplines/teams/organisations
    - Communication plan with client
    - Pricing structure

3. Stakeholder engagement and assessment of social needs

4. Project Delivery

a. Initial assessments stage

i. Energy efficiency opportunities

ii. Masterplan for step-by-step refurbishment

b. Contracts

c. Construction stage

i. Ensuring quality of construction

d. Operational stage

e. Maintenance

f. Post-project performance monitoring

5. Communication

- Make the list easy to access and understandable for each target group.
- Provide all necessary information while ensuring data protection.

5 Summary

This report has described the nature of one-stop-shop models for energy efficient refurbishments and outlined possible business models for their application in step-by-step refurbishments.

6 For further information

A number of other projects have explored this issue to varying degrees. The following projects may be of interest:

- COHERENO http://www.cohereno.eu/
- ERACOBUILD http://www.one-stop-shop.org/node/21
- Low Energy Housing Retrofit www.lehr.be
- IEA SHC Task 37: Advanced Housing Renovation with Solar and Conservation http://task37.iea-shc.org/
- Success Families: Piloting models for holistic renovation of single family houses http://successfamilies.vtt.fi/