Funded by the Horizon 2020 Framework Programme of the European Union

INNOVATE

Inventory of best practices for setting up an integrated energy efficiency service package including access to long-term financing to homeowners

Extensive analysis of the existing energy efficiency services operators and long-term financing schemes

Vesta Conseil et Finance

February 2018

About INNOVATE

The objective of the INNOVATE project is to upgrade or develop and roll-out integrated energy efficiency service packages in 11 target territories (UK, NL, CZ, CY, ES, LV, BE, DK, IT, SE)

Programme	Horizon 2020
Coordinator	Energy Cities
Partners	Vesta Conseil&Finance (FR), KAW Holding BV (NL), Municipality of Frederikshavn (DK), Institut Bruxellois pour la Gestion de l'Environnement (BE), Riga Energy Agency (LV), Municipality of Litoměřice (CZ), Municipality of Aradippou (CY), Linnaeus University (SE), Municipality of Mantova (IT), Municipality of Heerlen (NL), The Extremadura Energy Agency (ES), Parity Projects (UK)
Website	www.financingbuildingrenovation.eu

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1 Introduction

Why does INNOVATE project concentrate on one-stop-shop services for integrated[1] refurbishments of private housing?

At European scale, according to Euroconstruct 2015, the construction sector represents 960 billion euro per year, the share of renovation is 57% of the market and energy-efficient refurbishments are deemed to represent only 15 % of all refurbishments.

Increasing the market share of such deep energy-efficient refurbishment[2] is a hard-to-reach objective as the market is fragmented. Indeed, more than 90 % of companies in the construction sector have less than 10 employees.

However, it is key to find appropriate approaches to the market and leverage both demand side and supply side, as there is a consensus that these deep refurbishments are an opportunity to improve energy efficiency by 50 to 80%, which may be lost for 30 or 40 years if consumers do not choose appropriate works.

The concept of "one-stop-shop" (OSS) is a business or office where multiple services are provided so as to offer customers all they need in just "one stop". Local authorities may also use this term to describe a facility offered to residents.

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[1] Such integrated refurbishment may be staged in 2 or 3 coordinated steps, according to households' constraints.

[2] The definition of "deep" refurbishment may vary according to locations. In 2013, the Global Buildings Performance Network issued a report "WHAT IS A DEEP RENOVATION DEFINITION?" (see: http://www.gbpn.org/reports/what-deep-renovation-definition-1).
The authors acknowledged that there is no common definition of deep refurbishment established, neither at a regional or international level. According to the survey, in Europe, experts use the terms "renovation" whereas experts from the US generally use the term "retrofit". Generally, the definition relating to a deep renovation aimed for the deepest reductions of all the terms, these improvements mainly concern the buildings envelope. The definition of a retrofit focuses mainly on the building's mechanical systems.
In Europe most definitions focus on heating, cooling, ventilation and hot water and the general understanding is that these should lead to an improvement of at least 75% after the building has been renovated. Most commonly, DR in the US calls for improvements in the range of 30% – 50%, however, this is based on full energy consumption including plug load. The relative targets or the final energy consumption after a deep renovation / retrofit project will range within the values mentioned in the definitions depending on climate zones, loads and type of buildings and should be specified at local level.
In the context of the Innovate project, each participant specifies the scope of renovations it intends to develop and consider as "deep enough" in order to match with local authorities objectives in terms of energy efficiency in buildings.

This concept seems attractive in order to lead people to perform energy-efficient refurbishments, as it would be a way to bridge the complexities of such projects for households and to overcome the fragmentation of the refurbishment market. But such one-stop-shop services are currently lacking, or still in an emerging phase, in most parts of Europe.

Objectives of this study

This document proposes an in-depth analysis of different aspects of the existing pilot models and the services they offer to homeowners.

These features are hereafter presented with reference to the successive steps of the OSS "customers' journey" proposed in the study "*One stop shop Service for the Sustainable Renovation of a Single-Family Home*" which was carried out in 2012 by a team composed of the University Mid-Sweden, DTU and VTT[3].

For each feature, likely to be qualified as "good practice", we propose a brief description and additional information that could facilitate building an OSS.

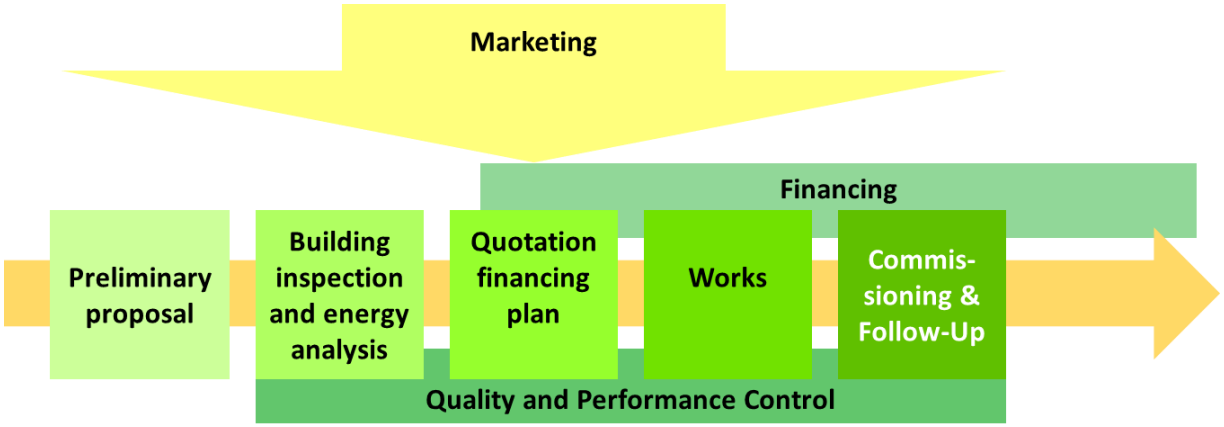
Our ultimate objective is to understand the overall functioning of these organizations, to assess their economic sustainability and to evaluate their effectiveness. For example, in addition to the information on the number of refurbishments achieved, we also want to know what the distribution of costs of works and level of energy efficiency achieved after the works are. When asking for the description of the service, we also ask for the breakdown of consulting activities costs, the scope of IT tools set up, their implementation cost, possibility for other OSS organizations to access to it, etc.

The sources of information that we used to present this summary are listed in Appendix 11.

[3] One-stop-shop service for sustainable renovation of single-family house - Summary Report. Nordic Innovation Publication 2012:21© Nordic Innovation, Oslo 2012ISBN 978-82-8277-044-6. Authors: Krushna Mahapatra, Leif Gustavsson, Mid Sweden University; Trond Haavik, Synnøve Aabrekk, Segel; Lies Vanhoutteghem, Svend Svendsen, DTU; Satu Paiho, Mia Ala-Juusela, VTT. Main editor: Krushna Mahapatra, Mid Sweden University. http://www.nordicinnovation.org/publications

2 The facets of the on-stop-shop offer for deep refurbishments

Our analysis is broken down in "stations" of the customer journey, as presented in the following scheme:



The marketing and quality and performance control activities are transversal to the OSS steps which the homeowner has to go through in order to efficiently refurbish its home:

- Working on preliminary proposals, the work plan for energy-efficiency refurbishment.
- Building the tentative work plan and adapting it further to a building inspection, setting-up a financing plan and getting a final quotation of works.
- Securing the financing.
- Performing the works according to the work plan.
- Commissioning the works and follow-up quality and energy performance in the long run.

Before focusing on each of these bricks of an OSS offer, it is important to consider the positioning of public authorities regarding the settings of OSS offers on their territories, and to consider potential variations to the customers' journey.

2.1 The positioning of public authorities, application of European state aids regime and national competition regulations

The positioning of public authorities regarding the setting-up of OSS on their territory may be different, depending on national context. It is not an easy decision-making process and it may take time, as witnessed in France.

Experience shows that basically, local authorities positioning may be to set-up OSS operators which are fully considered as players in the market, or to act as facilitators to induce existing players to set-up such an OSS service. In this respect, they have to take into account the

regulations regarding competition and namely to precisely define the scope of activities that may be financed by public subsidies versus market-based activities. A 5-years hindsight on the law-making process and the adaptation of local authorities and state agencies positioning in France may be useful to consider in this matter.

Inspirational examples

Scope of OSS activities that can be financed by public authorities and offered to citizens free of charge (France)

A parliamentary report has been recently issued in France[4] to set the scope of public services consisting in helping people to undertake energy-efficient refurbishments.

The Energy Transition and Green Growth law passed in August 2015 stated indeed that such an activity is a public service and should be provided to citizens for free. But its scope and interactions with professionals was not precise enough. In addition, the law made it compulsory for local authorities to make the service accessible to citizens on the entire national territory, but it did not indicate how it should be financed.

This recent report usefully clarifies the notions of: information, advice, orientation and accompaniment, and which of these activities fall within a public service and should be proposed for free to citizens and which are in the economic sector and should therefore be charged to avoid distortions of competition.

- Within the marketing activities, a **first step is to raise awareness of consumers and to generate demand**. In addition to this free-of-charge service, the French law considers additional activities to bring together offer and demand, such as **mobilising the banking sector, helping professionals access trainings and guiding potential customers to competent professionals. But this service should be limited to providing a list of professionals showing a certain level of qualification**. Going further would lead to the stage of accompaniment presented below.
- **A second step is when households begin to elaborate their project** and take the lead to seek answers to their questions.

  This **orientation stage encompasses delivering specific advice to homeowners regarding their project, online, by phone or by appointment**. All citizens should have access to such

4 See : http://regions-france.org/actualites/actualites-nationales/la-region-au-coeur-du-nouveau-service-public-de-la-performance-energetique-de-lhabitat/

advice, which should be neutral and free (under French Law).

Regarding the audit, providing an online simulation service and informing households about available incentives and subsidies may be considered as instrumental in order to induce homeowners to take into account energy saving objectives when they start to define the scope of their refurbishment project.

This type of simplified audit, which is not requiring a visit to the home to be refurbished, should be distinguished from the building inspection and energy performance analysis which has to be performed on site, in order to make specific recommendations regarding the scope of works (and which is part of the accompaniment process distinguished below).

All these activities are part of a public service, the public sector being vested with a status of trustable third party between the customers and the professionals. As such, these activities undertaken by the public sector should also encompass the organisation of events etc.

This is considered as consistent with the European Union rules on state aid, public procurement and the internal market to services of general economic interest (SGEI), and in particular to social services of general interest[5] **(SSGI)**. Indeed, it is within the area of responsibility of public authorities to guide citizens to lower their energy consumption and improve the building quality.

- Then, **the accompaniment stage encompasses all activities helping the homeowners in defining their project**, select installers and/or general contractors, define their financing plan and obtain a loan, follow-up the works completion and handover, measure energy usage and help the occupants to monitor it. This stage corresponds to the building inspection and energy efficiency analysis.

  This support is particularly useful for comprehensive renovation works. It can go up to architectural, engineering and technical services such as thermography, energy audit, air tightness tests … **Such accompaniment is therefore clearly an economic activity in the**

[5] See: document ref. SWD(2013) 53 final/2: http://ec.europa.eu/competition/state_aid/overview/new_guide_eu_rules_procurement_en.pdf. This guide states at point 28: "*When a public authority provides information and advice to citizens within its area of responsibility, does it engage in an economic activity within the meaning of the competition rules?*" that: "The provision of general information by public authorities (at national, regional or local level) concerning the way in which the competent bodies apply the rules under their responsibility is inextricably linked to the exercise of their public authority. This activity is not regarded as economic within the meaning of the competition rules."

field of services open to competition.

When the works are meant to be performed in several stages, this energy audit is a basis for a "building renovation passport"[6] which characteristics is to be transferable to the following owners and to record successive works that have been performed. In France, the implementation of such passport (called "*le carnet numérique de suivi et d'entretien du bâtiment*") is supposed to be implemented gradually to new buildings and then to existing ones[7].

To distinguish this stage of accompaniment, which falls under competition rules, from the previous ones which may be delivered as a free –of-charge, neutral and independent service, the authors of the report consider that **the accompaniment starts when the homeowners have decided to undertake the refurbishment**. Indeed, when they reach this stage of decision process, they have in mind to afford a more or less heavy investment and should be prepared to pay for a service allowing them to realize their investment in good conditions.

The public sector is not prevented to propose such an accompaniment offer as a SGEI and assign its operation to a public utility but such activities must be performed in the frame of a contract passed with the individual customers in the same conditions as with a fully private company.

A public sector-controlled body may not take advantage of public subsidies or aids in order to perform the service. Otherwise, the private sector would suffer from such a competition distortion.

Typically, when performing such activities, a public sector-controlled company should be able to show analytic accounts evidencing that the public means it may receive to perform its public service missions are not used to finance its market-based activities.

2.2 Potential variations to the customer journey

This report is based on a review of the different activities that must be integrated in the OSS.

Before undertaking this analytical process it seems important to stress out that some of these activities may be performed very differently, and have consequences in terms of costs incurred and on the scope of quality checks. The choices made in designing different steps of the OSS

[6] See also part 2.2.2 below.

[7] The building renovation passport is mentioned in the Energy Transition and Green Growth law published in July 2015 and is presently at experimentation stage.

should therefore be carefully thought of according to the characteristics of the buildings typology and the targeted depth of the refurbishment.

2.2.1 At the stage of building inspection and energy audit

To ensure a coordinated renovation, it seems necessary to have an inspection of the house and present a plan with recommended energy efficiency measures, in line with the budget of the owners.

In some cases (depending on the typology of the buildings and the targeted energy performance), it seems possible to estimate accurately the work plan without having to carry out an on-site visit. But it may have an adverse impact on the appropriateness and consistency of works prescription that should be carefully assessed.

It is also important to link the definition of the scope of work with an appropriate typology of buildings and a set of technical prescription adapted to each of these building types. The OSS service objective is to bring supply and demand together based on quality standards. Therefore, the OSS should elaborate or take part in the elaboration of state of the art's, technical guidelines and rule books **in order to implement quality checks**[8].

2.2.2 At the stage of quotation and financing plan

The refurbishment works may be carried out in a single or several stages, to make the first batch of works affordable to the homeowners.

If the energy performance target is to be reached in more than one batch of works, the risk is then to lose contact with the households after this first partial refurbishment. We see in France that OSS tend therefore to consider that this first stage of works should allow for a minimum energy savings target of - 40 to - 45 %, or reach at minimum C EPC-label. It means that OSS service could encompass works that may not be considered as deep refurbishments per se. It also means that the OSS process should allow to follow-up the households not only in view of quality checks but also to plan the following steps of the renovation in order to reach the final energy performance target.

The Building Renovation Passport (BRP) is meant to facilitate such follow-up. Implementing such a BRP can be considered as part of a public service, as this passport could be connected to

[8] See below the example of the quality check process by Picardie Pass Renovation.

geographic information systems of local authorities and bring them accurate data regarding the status of building stock refurbishment on their territory[9].

We have not identified yet any example of such passport being fully operative regarding private housing. But an experimentation is undergoing with two regional energy efficiency services operators developed by Regional Councils in France (ARTEE in Nouvelle Aquitaine region and Picardie Pass Renovation) in order to use a BRP prototype as a targeting and follow-up tool.

3 Operational examples of implementation of the bricks of the OSS for deep refurbishments offer

For each of the stages of the "service journey" and bricks of the OSS service, we hereafter present elements of the offer and organization of the one-stop-shop, based on existing examples.

3.1 Marketing

Meeting the housing renovation demand is tricky because it means facing a fragmented demand. In addition, the objective of energy efficiency does not correspond to the customers' demand: all surveys show that energy consumption is not the right entry point to convince people to carry out the works, it is rather their needs and inclinations. It is therefore key to leverage on such needs and inclinations to convince people who are considering such a project to take advantage of it in order to improve the energy efficiency of their homes as a "good deal".

3.1.1 Raising awareness about the OSS dedicated to energy-efficient refurbishments

To specifically target people who might be doing heavy renovations with a view to reduce their energy use, many criteria need to be considered so as to focus efforts on households that have a high enough probability of doing so.

The REFURB study reminds us that the decision to implement a refurbishment at home is a change process that is likely to pass through 6 stages, as shown in the table below[10]:

[9] Buildings Performance Institute Europe (BPIE) website shows reports established regarding the setting of building renovation passports further to 3 experimentations in Belgium, France and Germany. In BPIE perspective, the building renovation passports should be considered as "Energy Performance Certificates 2.0", and lead to their implementation as a compulsory element of the EU Energy Performance of Buildings regulatory framework. See : http://bpie.eu/publication/renovation-passports/

[10] REFURB study – Deliverable D2.1 Demand side segmentation in EU and Regions.

Table: The trans-theoretical model presents the change as a process of six stages. Source: World Bank

1. Pre-contemplation	People are not intending to change or take action in the near future (next 6 months)
2. Contemplation	People are intending to take action within the near future, but are not ready to take action; doubts about the effectiveness of action and of uneven costs and benefits may stall people at this stage for some time (in a state of "chronic contemplation").
3. Preparation	People are intending to take action in the near future, they are very aware of the costs and benefits of change and some behaviour change may already have taken place, including having a plan of action.
4. Action	People have made or are making specific overt modification to their behaviour.
5. Maintenance	People are actively working to prevent a relapse to the previous behaviour.
6. Termination	Changed behaviour has become normative, there is no chance of relapse.

During the possibly long stages of pre-contemplation and contemplation, it is important that consumers can identify the OSS offer. However, as stated in many market gap analysis, it is difficult to avoid such an offer being lost in a mass of information.

Local authorities generally have a key advantage in terms of differentiation from private offers: i.e. they are vested with trust and accountability and OSS for deep refurbishment should take advantage of it.

We have identified the characteristics of the following offers as potential best practices:

Inspirational examples

Municipality of Frederikshavn (Denmark)

A special "energy renovation info truck" visits targeted neighbourhoods

What is the purpose of this truck?

"The truck was used especially during the launch of the communication campaign to raise citizens' awareness on energy retrofits in villages and in larger cities' residential districts. We park the truck in a particular district 4-5 days before opening it for advice and guidance about energy refurbishment. We distribute letters in the houses' mailboxes within a radius of 100-meter telling when homeowners can visit the truck.

The truck is also used during community events (autumn parties in villages, peat days and other festive occasions), where we know the likelihood of meeting many citizens is high."

How much does it cost?

"The mobile office was originally a used artisan carriage, which Frederikshavn municipality renovated and put into service. The total price of the truck is 9,500 €. The operating costs include costs in connection with transport of the truck from one place to another (200 € per time, return and distribution of letters to mailboxes, according to contract with the municipality's employment department), the mandatory view of the truck and maintenance, so the vehicle meets the applicable legal requirements, (estimated amount 400 €/year).

Letters are delivered to homeowners' mailboxes (30 € per residential area) There are no costs associated with "staffing" of the truck as employees register their time consumption as part of their function and employment contract.

The total cost per "visit" would then be approximatively 250 € per operation."

Frederikshavn municipality, through Energy City Frederikshavn (the local utility), pays the costs associated with the use and maintenance of the mobile office as a prescribed operating cost.

Is it successful?

We have not carried out a study of the impact of using the mobile office, but we have learned that the citizens find us and come to us when we take the truck out. The idea of the mobile office has been well received by the local media, which referred the initiative as an extended hand from the municipality to the citizens, where we meet citizens at eye level wherever they are.

3.1.2 Building a competitive advantage through a specialized approach

Segmentation criteria can be determined in relation to the anticipation of a competitive advantage. In most examples, it leads operators to concentrate on a specific type of buildings:

Inspirational examples
Energies POSIT'IF[11] was created to concentrate its offer on large condominiums with central heating because this specialisation would entail a competitive advantage in a large enough market (such as Paris Region).
SUNSHINE project in Latvia This project has the same strategy in terms of targeting a very homogeneous building portfolio with high potential for energy savings (min 200,000 m² of multifamily buildings)

3.1.3 Targeting tools

As indicated in the table above showing the change process, you can't expect that homeowners will consider your offer unless it is the right time for them. In addition, two very different attitudes can lead to refurbishment works and these attitudes will lead to an impact on energy efficiency that will be very different:

- either the owners are undertaking works further to an impulsive purchase or an urgent repair, and then, they are looking for a quick and easy solution or;
- they are considering a long-term development project and they are more receptive to a proposal for coordinated works, with sales arguments concerning not only design or standing, but also a measurable impact on air quality, thermal comfort and energy savings.

As stated by Parity Project team, "*the cost effectiveness of a scheme is dependent on an ability to convert a high proportion of initial leads into converted customers. Any customer lost on the journey is a wasted cost in resource time*." It is indeed important to consider the economic balance between the cost incurred for marketing (even more if it is not covered by public resources) up to accompaniment phase and the ability to charge a fee for it.

Convincing people to realise single measures and spend less on renovation may seem easier than inducing them to perform heavier works, but their willingness to pay anything in such case is also much lower than in cases where they need to be comforted by technical advice.

The brokerage model brings together buyers and sellers, helping the buyer to find the seller who would have the offer best fitted to its requirements, and helping sellers to find buyers. Usually, the broker takes a fee or commission on successful transactions.

[11] See Energies POSIT'IF benchmark form.

When adapting the brokerage model to refurbishment markets, it has to take into account this market reality, i.e. very low willingness from construction companies to pay for this service and even lower willingness from consumers. **We see that brokers base their business model on very light advice, whereby fees are paid by the professionals according to leads brought to them, and not by the consumer.**

Inspirational examples

The REFURB study

In the framework of the REFURB project, a study[12] was published in December 2015 on the demand-side segmentation of the energy-efficiency refurbishment. This study tackles the problem of fragmentation of renovation offers and responsibilities by the concept of a 'one-stop shop' for nearly zero-energy building (NZEB) renovations.

According to this study, a key targeting criterion could be the fact that the owners acquired their housing recently.

The Refurb study mentions (page 42-43) that a "*Danish research (Mortensen et al., 2015) showed that deep energy renovations are most likely to happen before the homeowners have lived for one year in their house, since the investment limit is lowered as time goes on, and these homeowners have proven willing to pay more than average for the same benefits and savings*."

La Poste, Picardie Pass Rénovation third-party financing operator fully controlled by **Hauts de France Region, France and ARTEE,** third party financing operator controlled by **Nouvelle Aquitaine Region, France**[13]

Example of targeting prospects through public postal service:

La Poste, the French national mail service, has developed a database allowing to prospect households that could be involved in a renovation project, in partnership with Picardie Pass Rénovation (PPR) and ARTEE. This offer, called "DEPAR" by *La Poste*, is composed of four distinct phases:

- First, households are targeted using a mapping tool developed by La Poste (allowing to

[12] http://go-refurb.eu/wp-content/uploads/2016/04/REFURB_D2.1_Demand-side-segmentation-in-EU-and-regions.pdf

[13] See Picardie Pass Rénovation and Energies POSIT'IF benchmark forms

combine data coming from the national EPC data base or from a pre-existing client file).

- Second, a team of postal carriers carries out up to two visits in the identified dwellings in order to submit a flyer presenting PPR / ARTEE service and a 10-questions questionnaire that allows to evaluate the motivation of households to renovate their home. The postal carriers may, in case of households' agreement, set an appointment with a technical advisor from Picardie Pass Rénovation / ARTEE in order to make a general audit of the dwelling.
- *La Poste* offers a pricing for this service to PPR / ARTEE (or any local authorities) which depends on the performance achieved (i.e. the number of appointments secured).
- Finally, all the information collected and the results of the campaign are transferred to PPR / ARTEE.

This prospects detection offer from *La Poste* Group is particularly adapted to reach rural regions where postal carriers are credited with a high level of confidence by local residents. As local and trusted actors they are also able to convey messages about the energy renovation to the population, engage some of their contacts into the "contemplation phase" described above and to bring a flow of contacts to the operators.

In New Aquitaine, ARTEE tested a panel of 1,158 households at the end of 2016. 15% of this target group (170 households) agreed to go further in the process by giving their contact information and 3% (34 households) made a direct appointment with ARTEE for a visit and technical audit. In the spring of 2017, ARTEE renewed *La Poste*'s offer by expanding the number of households from 1,158 to 2,000 households. 24% of the original target (479 households) agreed to give their contact details and 153 households (8% of the panel) made an appointment with ARTEE.

Finally, the ratio of households initially contacted via *La Poste* offer who did perform works with ARTEE and PPR is in the range of 3 %, considering a 1-year lag time between the first contact and the implementation of works. This ratio may be compared with the average rate of building renovations in France which is around 1 %. Also, these first figures show that the prospection operations may be further fine-tuned to increase this ratio.

3.1.4 Partnership with specialized professionals

In addition to adapting the service to the types of buildings and the variety of households' needs, it is important to target the right moment when households are ready to go ahead with refurbishment. It is therefore very interesting or even key to build up a partnership with professionals who are in contact with the households when they enter into such favourable

phases of their life, i.e. when they have a real estate purchase project, when they expect a child, when they prepare their retirement or when they have to help their own ageing parents to adapt their living conditions.

Many professionals are therefore potentially concerned: **real estate agents, pension funds advisors, notaries, and of course, banks**, which are most often consulted for the subscription of a loan. Craftsmen and building contractors are themselves very important advisors.

Inspirational examples

Municipality of Frederikshavn (Denmark)

Strategic cooperation with banks

The municipality started dialogue with all local banks with the purpose of engaging them in the process of energy renovation of private homes. Eight banks showed interest in offering low-interest loans and entered into cooperation that obliged them to:

- Increase the loan portfolio dedicated to energy retrofits.
- Develop low-interest loans with more attractive terms than loans under normal market conditions.
- Promote energy renovation and encourage their clients to invest their savings in energy refurbishment of their home.
- Participate actively in the launch of low-interest loans together with the municipality and other market players.
- Convince the banks' headquarters to further develop the new business area and spread the concept at national level.

The arguments used by the municipality were that the banks would not only develop a new business area for themselves but also for their customers: local artisans, building materials suppliers and real estate agents. It was the expectation that the new loan type would create growth in the local economy and create jobs. In addition, customers' homes would increase their market value. Another advantage was that banks could mobilize homeowners' passive capital in a time of financial stagnation.

A challenge was to reach an agreement on the loans' fixed interest rate. The banks determine the interest rate based on the creditworthiness of individual homeowner (e.g. annual income, existing debt, housing value, age, etc.). The banks agreed to offer loans better than the standard terms but rejected a fixed interest rate agreement.

RetrofitWorks cooperative (United Kingdom)

Due to the multi-faceted nature of the benefits arising from a retrofit scheme and the need to connect into the community to realise them all, a cooperative model could work well as a trusted organisation that all stakeholders own. A multi-stakeholder cooperative with members including small to medium enterprises, community based organisations, councils and other organisations will bring both the supply and demand side of the retrofit market together.

RetrofitWorks' cooperative model is operating in London. It was developed with and supported by leading national trade associations, professional institutions and local authorities as a reliable delivery model for good quality building retrofit – both low carbon and general improvement works - using local resources.
RetrofitWorks is run for and by each local community, building on existing local supply chains and services, and ensuring more economic and social values – wealth, jobs and skills – are retained in the local area. It has achieved this with two groups of members that drive and deliver renovation:

- Practitioners: those seeking work be they trades or professions.
- Advocates: organisations representing the interests of groups of householders or tenants. They understand needs and want to develop the market for retrofit to help them.

Both groups contribute to converting leads. Indeed, among the "Practitioners", contractors are efficient "salesmen" of the co-operative scheme they participate to, and among "Advocates", there are municipalities, community groups who can be strongly involved to reach customers.

Municipality of Aradippou (Cyprus): partnership with the Chamber of Commerce and Industry

Larnaka Chamber of Commerce and Industry (LCCI) serves as an umbrella organisation for the building contractors and a bridge between the municipality and the private sector. LCCI is a strong and valuable partner for Aradippou and it will be the main vehicle through which energy efficiency investments of high-quality will materialize. The operations of LCCI members are closely monitored by both LCCI and the municipality for them to conform to the expected high quality standards. The upgraded service will be provided by building contractors through a One-Stop-Shop.

Inspirational examples

Archenergie (Bordeaux area, France):

Archenergie is a general contractor founded in 2011 by two young engineers in thermal engineering[14]. They have built-up an energy-efficient refurbishment one-stop-shop offer.

They prospected real-estate agents in Bordeaux area, targeting mainly suburb areas with the housing stock built in the post 2nd world war period up to the 70s. The architecture of this now ageing housing is not appealing anymore but its location is potentially attractive to young couples interested in living not too far from urban centres.

Archenergie succeeded in persuading some real-estate agents that they could facilitate transactions in these areas. They proposed a service level agreement whereby potential buyers addressed by the real estate agents are proposed to be accompanied by Archenergie counsellors. Archenergie then provides a comprehensive refurbishment proposal in a brief period of time, which allows potential buyers to take into account the cost of works in their price negotiation with the sellers and in their loan application to their bank.

This accompaniment is charged by Archenergie to potential buyers at a price that does not fully cover the time spent. But it may be caught-up if the transaction is closed and the works are performed. The first study may also be re-used with other potential buyers addressed by the real estate agent.

Archenergie is currently working on an agreement with ARTEE in order to jointly cover all steps of the OSS service, ARTEE concentrating on the financing plan and follow-up of works and Archenergie on the audit and realisation of works.

3.1.5 Focus on brokerage actors

Among professional actors, brokers have a special status, as they present themselves as internet-based market place or as an OSS. They can also provide their service through Do-it-Yourself, hardware stores and insulation material producers brands, who have much more impactful marketing abilities than craftsmen and installers. Energy utilities are also important players: they stepped in the refurbishment market in countries where they must fulfil Energy Efficiency Obligations (as in France).

14 See Archenergie Benchmark form.

Brokerage actors in the field of refurbishment works must generate added value which is limited to selling potential customers' contacts to SMEs and craftsmen. We notice that this business model does not allow spending time with potential clients unless they are charged a fee, which is difficult to sell and therefore the brokerage business model is not really leading to deep renovation projects.

3.1.6 Specific targets: houses for sale

Home vacancy may become a major concern of local authorities, in terms of economic unattractiveness and territorial disequilibrium, leading to social unrest.

In Cyprus, and specifically in Aradippou city, a large number of buildings is still for sale after the 2008 crisis.

In France, the governments and local authorities are concerned about the decline of city-centres in small towns all over the country. Commercial and trade activities have been implemented in commercial areas out of city centres for more than 40 years. Estates have been developed with no attention to the dependency on automotive and land use. One of the many adverse consequences of this lack of anticipation is the decline of small towns' city centres with occupancy rate far below 70%. To reverse this trend, a national plan has been drawn to revitalize city-centres. The French National Home Improvement Agency (ANAH) is distributing subsidies to refurbish and adapt the buildings in these areas (called *Centres-bourgs*), in conjunction with other actions in favour of the revival of retail trade and small industries.

These are two examples among many others where public money must be spent at a stage where damages are already experienced.

We would like to point out some interesting examples of policies designed in order to foster households' decision to re-invest in the city centre's buildings.

Inspirational examples
ExpéRENOS experimentation lead by ADEME (The French Environment and Energy Management Agency) ADEME is presently coaching 3 different local energy agencies - in Grenoble, Isère valley, Alps; Saint-Brieuc, Britany and in Alsace. The agencies' teams are willing to explore partnerships with real-estate brokers where a purchase mandate and a precise estimate of works to be performed could be bundled together to convince potential buyers that they can take advantage of low prices in order to have a comfortable and up-to-energy-standards home.

These approaches could be inspired by the example of Archenergie in Bordeaux (see above).

3.2 Preliminary proposals to households and condominiums

3.2.1 Intervention of publicly funded advisors in the preliminary and local public utilities in the accompaniment phase

Publicly funded advisors generally have two main missions:

- to give independent and free advice to all consumers, primarily on public incentives and aids and,
- to help low-income households who are eligible to specific public programmes.

In many cases, public incentives appear to be complicated to access for households, with various conditions to fulfil and specific processes to follow while designing the project. A paradoxical result of this complexity associated with public subsidies is that it can make people hesitate even more to undertake works.

We can see that the positioning of free and independent advice is very useful as an entry point but not enough to help people overcome the complexity of their project. As stated above, these advisors may not extend their service very far, because they would enter into market activities. In addition, they would take responsibilities as advisors and would need a professional liability insurance contract.

It seems that building an appropriate assembling of a free of charge, neutral and independent advice service and of an accompaniment of homeowners by market-based actors in a one-stop-shop-service is not so easy to realise.

No simple recipes may be proposed to achieve this, except for always cautiously distinguishing between "in house" and market-based activities.

Inspirational examples

Frederikshavn (Denmark)

Frederikshavn has successfully set up a **network of actors** who provide advice to homeowners.The network consists of 8 local banks (housing loan advisors), 22 real estate agents, three clusters of artisans (a total of 22 artisan companies) and 5 energy consulting

firms that exchange information about homeowners and, depending on the homeowners' needs, refer them to the right instance in the network.

In addition, Energy City Frederikshavn established a citizen group called "My Energy City", consisting of well-known active citizens, who convey the Energy City's messages, including the call for energy renovation of houses, to their local communities.

Riga (Latvia) and Frederikshavn

Both consider the intervention of public utilities which would perform part of the OSS service.

Third party financing operators in France: at the market gap analysis and development stage

Picardie Pass Rénovation

The initial finding of Picardie Region when performing its market gap analysis was that the renovation sector was as fragmented as elsewhere and no private actor could be identified to provide an integrated service to homeowners.

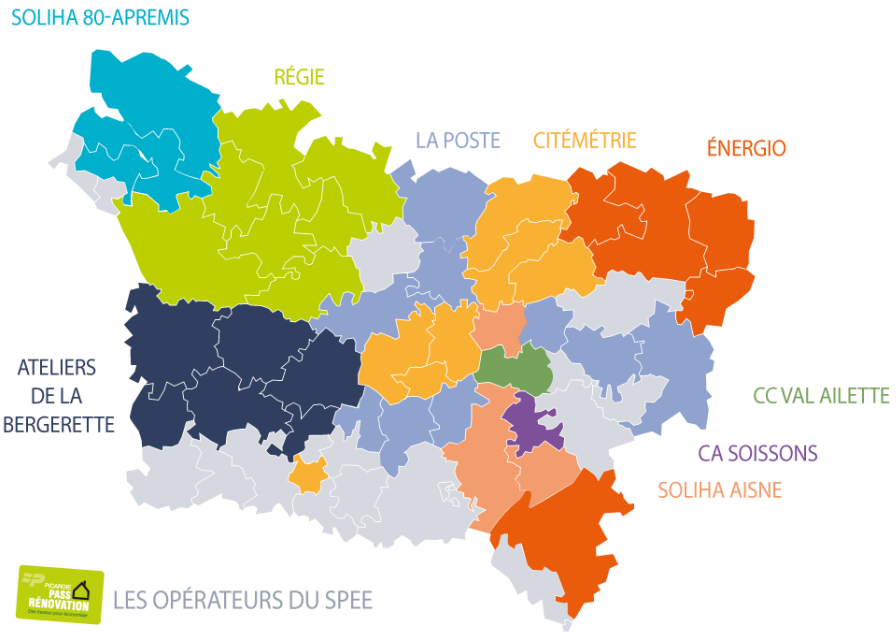
At the same time, the Region acknowledged that the network of associations it had been financing for 12 years together with ADEME as "Energy Info Centre" structures formed a large pool of skills adapted to offering households accompaniment. EIE advisors were generally frustrated after a few years of experience because their status of free and independent advisors prevented them to go further in their advising activities.

At implementation stage of OSS, the various third-party financing operators tested different ways to proceed:

- *Picardie Pass Rénovation*, as a public utility fully controlled by the Region, passed agreements with each local authority to organise the relationship and activities with local advisors already funded by them (and ADEME) to raise awareness among consumers and deliver them free advice. Then, it launched public tenders to recruit local partners to carry out the orientation stage defined above and to accompany homeowners through the further steps of the refurbishment journey. Such tenders were allotted according to different districts, so as to make it easy for local associations (which are usually the employers of publicly funded advisors) to answer at least to their local lot. The terms of payment of this public tender were composed of:
    - a fixed sum to cover the marketing tasks, and
    - "per contact" tariffs (unitary fee to be earned by the local advisors' organizations) that had to be quoted by tenderers regarding the engagement of homeowners up to

the stage of the on-site visit and energy audit, and then up to the proposal of refurbishment works.

These public contracts have finally been attributed to quite different players: not only local associations in charge of Energy Info Centre, but also engineering consultants, municipal utilities and La Poste Group.



Once signed, these contracts are followed up by PPR executives. PPR organizes the training of local advisors who must use a shared information system. This IT tool also allows the continuous monitoring to be formalized regarding the financing activities.

- ARTEE, which started its activity later, also organised a public tender to select their local partners. But the tender was fully awarded to a single firm which had developed a network of local advisors. This situation led to two issues: first, the geographic coverage of this actor was not as wide as it had claimed and second, all other associations and local actors were upset. ARTEE started talks with ADEME, the main local authorities and local actors, in order to increase and diversify its local partners' network. Such talks also aimed at avoiding double financing for the same tasks, from ADEME, local authorities and ARTEE.

3.2.2 From getting in touch with consumers to taking action

Consumers' incentives can be cross-referenced with sociological categories: people can be sensitive or allergic to environmental stake, to savings, to aesthetics and design, to standing and self-image conveyed by their house… The specific commercial approach of leads has to seriously

consider these incentives. The best way to know how to use the right arguments is to begin with taking time listening to people and letting them express their desires… this obvious recommendation appears to not always be applied by advisors, who have a natural tendency to focus on energy efficiency stake.

Inspirational example

RetrofitWorks (United Kingdom)

In the Smart Homes scheme, RetrofitWorks fielded a large number of allocated customers that expressed interest in the scheme offer. It demonstrated the high impact of cooperative members in converting leads with existing contacts, namely installers, compared with generic postal marketing.

3.2.3 Specific approach for condominiums

Energies POSIT'IF applies the same rationale as PPR, being an integrator of technical and financial service.

Inspirational example

Energies POSIT'IF (Ile de France region, France)

Approaching condominiums is very specific. The first advisory stage can be very long and cannot be started unless the condominium is mobilized enough to follow the project. We see that public money is needed to cover this phase where the project governance within the condominium has to be built-up.

It is all the more important for OSS to take advantage of publicly funded initiatives that help structuring a "project-minded" team of co-owners in order to make the refurbishment project take off. In addition, tools like CoachCopro® developed by the Paris Climate Agency, which is mainly funded by Ville de Paris and ADEME can help to save time and efforts during this preliminary phase.

But the Energies POSIT'IF experience shows that establishing effective relationships with "pure publicly funded organizations" is not that obvious for an OSS set-up as public-private companies.

Local associations such as Energy Agencies financed by local authorities tended to consider Energies POSIT'IF as pure market player and showed little interest in collaborating with them.

This tendency could not be balanced by the perspective of payments from Energies POSIT'IF for services performed by these associations, since Energies POSIT'IF did not need them to contact condominiums, nor to perform the following steps of the refurbishment project.

This situation has been eased by regular contacts of Energies POSIT'IF staff with the City of Paris and other local authorities which are among its shareholders.

3.3 Building confidence

Households are often suspicious because of their lack of knowledge regarding the refurbishment, the standards and legal obligations. They will always have doubts regarding the fair price for works, about the quality and performance of works. Such suspicion and fear may also concern disorders through poorly executed works, or day-to-day perturbation and delays regarding works completion.

First of all, OSS will have to reassure consumers about their trustworthiness and convince them that the large investment they are about to make will bring value and comfort, that works will be properly done and in case there is any issue or alteration, they will be able to fix it. Indeed, it is even more important to defuse anxiety, anticipated difficulties and risks.

It is also necessary to fight against fraud or unfair selling practices.

Inspirational examples

Examples of fraud or unfair selling practices in France

The consumers association "*UFC- Que Choisir*" recently issued an article about fraud in the energy refurbishment sector. This article has had a significant impact and the government had to announce new measures in order to halt these rogue practices.

For instance, in the Calvados department (Normandy) a company contacted households to convince them that renovation works were mandatory. Near Paris, companies used the same method, using the official state letter template.

Some companies named their website in order to cause confusion with official government websites (for instance a so called "www.isolation-gouv.com").

It has been reported that some households paid up to 1 300 € by credit card due to fake letters and phone calls claiming they were appointed by the Prefecture.

3.3.1 Public intervention to engage the construction sector towards rationalisation and more transparency

A way to move forward is to assist customers in their choice, and help them with quality checks (see below).

As we saw, up to 90 - 95 % of workforce in renovation are craftsmen and SMEs, and therefore the renovation market is dominated by handicraft-based individual solutions with an obvious lack of standardisation.

Marketing is minimal because it is rather the clients who are looking for suppliers. But the cost of transaction is nevertheless a big issue for craftsmen: since each project is specific, craftsmen feel that their skills are looted by consumers, each time they make a diagnostic, give an advice and realise a quotation, they risk that people go to a do-it-yourself store, or consult competitors based on their quotation.

It is also very difficult for customers to evaluate if the price quotations they receive are relevant:

Inspirational examples

The PROFIL study[15]

PROFIL is a study performed by French Technical Centre for Buildings (CSTB) and EDF, including a benchmark on the United Kingdom, Germany and Belgium on how professionals set their quotation prices.

It indicates that craftsmen generally set their price by both computing their costs and adding-up a general expense and margin ratio on a case-by-case basis, according to their own assessment of the customer's willingness and ability to pay for the works and of the risks associated with their own ability to master delays and payment recovery.

Craftsmen' lack of resources entails that offers for training and improved qualification have an impact limited to only a few companies, even when they are heavily subsidised. It is only when SMEs see trainings as a means to enter into a growing and profitable market that they are ready to invest resources.

This is typically what OSS should provide them.

[15] PROFIL study performed by CSTB, EDF and co-financed by ADEME call for proposal "Bâtiments responsables à l'horizon 2020" Axis 4 "Socio-économie appliquée à la rénovation ».

A few craftsmen cooperatives and consortia of SMEs who offer different individual energy renovation solutions are emerging. Some general contractors, i.e, companies with a slightly larger number of employees, are also emerging with a specialisation in energy efficient renovations (such as ARCHENERGIE in Bordeaux Region).

Of course, architects and engineers have the best expertise to elaborate preliminary proposals. They are also best positioned to perform building inspections, energy analysis and generally speaking, to improve the quality of works. However, we see that in fact they are not present in most individual housing refurbishments.

These actors, when they become more numerous, may have a strong impact in terms of introducing standardisation, process management and marketing in the sector. They can play an interface role between craftsmen, who are rather willing to focus on their craft specialty, and the customers, in order to achieve coordinated works.

These actors have high expectations vis-à-vis local authorities, as they are the most active prescribers of energy-efficient refurbishments.

The set of actors may be very different according to market gap analysis. It is important to assess if such actors may act as full OSS service providers, as it will be an essential element to consider the orientation of an OSS:

- either to **set up a new operator** (such as a fully municipality-owned utility, a private-public partnership),
- or to act as **catalyst/facilitator** and leverage on these existing market players willing to establish an OSS.

3.3.2 Dealing with the coordination of works and quality checks

The co-operative model: Among experienced Innovate project partners, RetrofitWorks is showcasing its own development model, leveraging on the engagement of local players already integrated into existing supply chains and local services:

Inspirational examples
RetrofitWork A co-operative can lower costs: • Buy products in bulk => lowering construction costs

- Buy services in bulk => lowering overhead costs

A co-operative can align the interests of its members:

- Full investment or distribution of surplus

A co-operative can reduce market barriers for its members:

- Building common tools
- Propose training
- Allow for peer-to-peer discussions, and co-production

3.4 From service design to product design?

The construction sector is expected to evolve in a fast way under the influence of the introduction of the digital tools (apps, BIM) and the prefabrication. However, SMEs are slower to adopt these innovations; OSS should not only coordinate existing services but also figure out how to change the customers' experience and lower costs with a wider usage of these technologies.

Inspirational examples

Reimarkt (The Netherlands)

- Reimarkt – 'the convenient store for sustainable living' intends to offer house and apartment owners **ready-made products via usage of BIM and work with installers on prefab solutions**. Its objective is to:
  - ⇨ Increase homeowners' willingness to order products
  - ⇨ Reduce costs
- Critical success factors identified are: the provision of products fit for individual apartments, as well as products for renovation on building level.
- Smart design of customer journey support.

It is to be noted that this evolution may also be pushed by initiatives focussing on the tertiary sector and social landlords, where it is possible to apply industrialized approaches to large scale renovations: see part 10.5.

4 Building inspection and energy analysis

This stage is important for directing the prescription of works and estimating, in a reliable way, the energy savings which can be realized.

For this purpose, it is necessary to pay attention to the fact that tools and procedures should be standardized and fit to the quality control process (see part 7).

Up to our knowledge, there is no convergence at European level on a standardized tool allowing to perform property diagnoses or to check consistency of works with thermal regulations.

Inspirational examples

France: Example of IT tools used by STF in order to perform energy audits and simulate post-works energy performance

First Third-Party-Financing operators chose to use DialogIE a thermal simulation tool that had been developed by ADEME with the objective to have all Energy Agencies and Energy Info Centres use the same tool.

This tool is adapted to individual housing, as it is possible to adapt the tool to different levels of users' expertise, including non-engineer users, and to precisely describe the occupancy features and the various heating systems used namely in fuel poverty situations. The tool is based on a French standard called 3CL which is used for property diagnosis.

In order to check consistency of works with regulations (based on a standardized approach of building usage), it is necessary to use other simulation tools based on a regulatory methodology.

For condominiums, we identified at least a dozen different methods and tools used by thermal engineering firms, auditors and architects…

Choosing the right tool is therefore quite tricky…

5 Quotation and designing the financing plan

5.1 Setting the financing plan

It is important to be able to discuss the financing plan with potential customers as soon as refurbishment scenarios are discussed. Otherwise, homeowners will be more likely to perform step-by-step improvements

The more the works are costly, the more availability of financing becomes an issue to be tackled by the OSS in order to make works affordable.

In France, the experience shows that when people have to pay more than 100 – 150 € per month, the challenge is to reduce as much as possible the monthly costs, hence the need to extend the repayment period and consider energy savings as additional income.

Indeed, chances to convince people to perform works are much higher, if a monthly fixed amount is affordable for the households.

Inspirational examples

Third-party financing actors in France

The technical and financial offer proposed by the third-party finance operators is based on a detailed study of the households' financing capacity. The technician who conducts the interview with homeowners must establish a preliminary financing plan that respects the estimated costs of the works that have been proposed. The financing plan includes different incentives and subsidies available to the households such as the tax credit, premiums and grants extended by the National Housing Agency.

Technical advisors may not go beyond designing the preliminary financing plan.

Indeed, the **legislation regarding the protection of consumers** requires that the OSS has a status of **intermediary in banking transactions** in order to prepare loan proposals (and check consumers' bank account statements). In the case of direct third-party financing, only employees of the operators may perform these tasks.

5.2 Applying for a consumer credit licence and/or entering into a partnership with credit brokers

Brokerage via Internet has also had a deep impact on the lending market and the positioning of banks. In most countries, the majority of consumers first consult credit brokers before consulting their own bank. We strongly recommend to explore potential collaboration with banking retail networks but also with such brokers.

OSS may also themselves apply for a consumer credit licence, as contemplated by RetrofitWorks.

In general, it is compulsory to apply for a **consumer credit license** issued by the Banking National Authority in order to be allowed to put consumers in relation with banks, or to assist consumers in the preparation of a credit application.

Inspirational examples
RetrofitWorks (United Kingdom) A co-operative also can act as a channel through which money can be raised and distributed. It could apply for a consumer credit licence and provide finance and financial advice on behalf of its members to customers.
Normandy Region[16] (France) Normandy Region set up a coordination scheme based on interactions of 3 clusters grouping professionals who agree to interact and participate to the Region's scheme: - Energy auditors, thermal engineers, architects - Construction companies and craftsmen - Financial institutions and insurance companies Normandy Region realized that local credit brokers were more receptive to the Region's clustering efforts than banking networks which have more constraints regarding their marketing and offering settings. It is to be noted that Normandy Region makes its incentive scheme (an eco-energy voucher) conditional to the fact that works are performed by chartered professionals further to an audit which has to be conducted according to a regional charter.
ARTEE (Nouvelle Aquitaine Region, France) ARTEE, in addition to developing a direct financing offer as Third-Party Financing operator, has acquired the status of intermediary in insurance contracts so as to be able to propose death and disability insurance cover to their customers through a partnership with a mutual fund whereby it will receive a remuneration as intermediary.

6 Proposing a financing for the renovation project

Regarding banks, except for vendor financing (when financing is offered by a seller) adapted to installers of specific measures such as windows, boilers, etc., we have not identified yet any commercial bank actually developing an integrated offer for the financing of deep energy renovations.

This is not a wonder because banks are not faced with significant demand for financing, specific to energy-efficient refurbishments. And generally speaking, banks are not willing to develop specific

[16] See Benchmark form related to Normandy region Scheme (Rénovateurs BBC)

products because their management processes are fit to large credit portfolios which are split in two separate categories of credits: personal loans and housing loans.

The loans proposed for housing renovations, both by retail banks and by specialized banks, correspond to either of these two categories, which are defined by law (and in accordance to European directives).

- Personal loans: quick to set up, which are not covered by collaterals and are proposed for short term durations and are applied relatively high interest margins.
- Housing loans: are proposed for long durations, with lower interest rates, are covered by mortgage or other guarantees and more complex to set-up.

We see that in France, it is not easy for average customers to obtain long term loans for amounts in the range of 20 to 50 000 €, as housing loans are generally proposed for larger amounts covering the housing acquisition.

There should be an opportunity to integrate a portion dedicated to energy refurbishment in the housing loan, even if the renovation works are not carried out at the same time as the house acquisition.

To actually manage to seize this favourable moment, OSS should be in a position to propose a precise renovation offer with a final quotation in a few days, so as not to jeopardize the negotiation of the sale and its financing (see the example of Archenergie – Section 3.1.4).

6.1 Specific loans set-up by banks

Inspirational examples
Heerlen PV loan (The Netherlands) Heerlen municipality has a soft loan on PV panels (15 years duration), guaranteed by the municipality. Heerlen borrows at a 0.7 % interest rate to the national bank, and offers a 1.5% interest rate loan to citizens who install solar panels.
Aradippou PV Loan (Cyprus) The city of Aradippou has signed an agreement with AstroBank, in order to offer citizens a loan for the purchase of photovoltaic systems. This loan is decidacated to private individuals and companies who wish to purchase and install photovoltaic systems up to 20 KW.

This loan can range from 5 000 € to 60 000 €, the interest rate is variable. The duration of the loan may go up to 15 years.

Other conditions:

- The total tenor does not exceed the 70th year of the applicant's age.
- Grace period of up to 6 months on capital

The loan instalments are covered, to a large extend by:

1. the government sponsorship from the Ministry of Commerce, Industry and Tourism
2. the receivables from the sale of electric energy to E.A.C (the national electricity utility).

6.2 Integrated financing as an exception to banking licence obligation

In all European countries, lending is a regulated activity which is controlled by the national banking authorities (for small and medium banks) and by the European Central Bank for the biggest banks.

Some exceptions are generally granted for specific lending activities which have a lighter set of compliance rules to follow. For instance, for crowdfunding, inter-company credit or micro-credit, lighter reporting rules are generally applied.

Inspirational examples

Experience in France

The attempt to obtain an exception to banking licence obligation has been launched first by Picardie and Ile de France regions in 2013. Previously many Regional Councils had set-up soft loan schemes with retail banking sectors, the forerunner being Picardie Region in 2006 with zero-interest loans dedicated to roof and walls insulation and distributed by banks with which the Regional Council had signed agreements (ISOLTO loans).

This soft loan scheme was quite successful as it was launched before the government decided to launch a nation-wide zero-interest loan in 2009. The regional ISOLTO loan scheme was stopped in 2010 because of the national Eco-Zero-interest loan launch, and also because the Regional Council realized that most of the loans distributed by partner banks were distributed to rather high-income customers and dedicated to light refurbishments whereas the Regional Council wanted to facilitate access to credit to low-income households.

After this experience, Picardie Region was in favour of testing a fully integrated offer where advice and financing would be directed to their specific targets - i.e. low and medium income households - to allow them to perform heavy works.

At the same period (2008-2009), Ile de France Region had also performed a study together with Caisse des Dépôts, about the feasibility of an ESCO model approach adapted to condominiums. In this model, a third-party investor performs a refurbishment and is paid back via long-term charges (a service fee), amortizing a loan. Indeed, the market survey showed that no ESCO was positioned on comprehensive renovations of condominiums, only on boilers and heating system replacement.

Both studies concluded that the ESCO model faced two issues: (a) the status of the long-term charges in order to repay the renovation could be considered as a loan or a lease and therefore subject to banking regulation and (b) if considered as a lease, in addition, the charges paid by the condominium should be subject to VAT at a standard rate (about 20%) while VAT applicable to renovation works paid directly by the condominium was eligible to a reduced VAT rate (10%).

Hence, the third-party financing concept was developed from 2012 to 2015 as a turn-key offer: advising, service and works payments are bundled, and they are made affordable thanks to long term repayment term and low interest, which covers the cost of accompaniment in addition to the cost of works. And in order to establish this long-term repayment option, the Regional Council's services and councillors decided to request a change in national regulation allowing to comfort the ESCO model status regarding banking regulation.

Finally, this offer is operative thanks to the Energy Transition for Green Growth law passed in July 2015. It introduced third-party-financing as an exception to banking licence obligation. Third-party finance operators have to obtain an agreement and are controlled by the banking national supervisor, with adapted guidelines. Also, third-party financing operators must be supervised by local authorities and have a capital of min. 2M €.

Three third-party financing operators have been set up so far: the first one was Picardie Pass Renovation in 2016, the following two (ARTEE in Nouvelle Aquitaine and Energies POSIT'IF) received an agreement in October 2017, and should start their financing activity in early 2018. Three more third-party financing operators could be set up by 2019.

The structure of third-party financing operators' **balance sheet** may be described as follows:

- Their **equity resource is mostly funded by Regional councils** and other local authorities. They are also looking into using European Fund for Regional Development (ERDF) in form of a financial instrument.

Private shareholders should represent at least 15% of the capital of public-private partnership (as defined by law). Identifying private partners to become shareholders is quite a difficult process. Private shareholders of Energy POSIT'If are banks: Caisse des Dépôts et Consignations[17] and Caisse d'Epargne d'Ile de France. ARTEE's private shareholders are energy utilities and actors of social and solidarity-based economy.

- **Long term debt** is currently provided by the **European Investment Bank**, backed by the guarantee from the European Fund for Strategic Investments that was launched under the Juncker Plan.

The financing scheme is similar to infrastructure financing, with a 15/85 distribution of equity and debt. This leverage ratio is conservative compared to banking standards, i.e. Basle 3 capital cover for retail financing.

Picardie Pass Rénovation was the first to structure on-lending to home owners and condominiums. Energie Posit'IF and ARTEE have tried to develop **partnerships with banks** in order to help their customers obtain financing. But the key is to extend direct financing in order to make their offer really attractive. Indeed, coordinating their offer and the banks' financing offer is generally considered as too complex.

Third-Party Financing operators are jointly securing partnerships with guarantee and insurance companies to cover their direct loan portfolios.

6.3 Setting-up a guarantee fund

The rationale of setting up a guarantee fund is to induce banks to extend loans:

- to end-borrowers they would not be willing to lend to on a stand-alone basis because the default risk is estimated too high, or
- in terms of maturity (longer duration) and possibly lower margins than on a stand-alone basis.

[17] Controlled by French State but considered as a private sector company under French Local Government Code.

Inspirational examples

Experience in France

In 2014 - 2016, Regional Councils such as Midi-Pyrénées or Rhone-Alpes, explored the possibility to set-up guarantee funds in order to induce banks to offer long-duration loans to condominiums or low-income households.

None of these projects have succeeded yet. We have identified **two main reasons**:

1/ **the guarantee fund targets potential customers which are not attractive to banks**: credit activity in retail sector is considered as a means to attract clients and establish long-term relationship allowing banks to propose additional services; it is not considered as attractive per se. Regarding condominiums specifically, only very few banks propose loans to condominiums and are satisfied with this niche market. Traditional retail banking networks are not willing to consider co-ownership structures such as condominiums as a safe and profitable business.

2/ **the design of the fund**: as a first-loss full cover or as a sharing of risk? These options could not be tested because at the same time, the government had announced a national guarantee fund for energy-efficient refurbishments. This guarantee fund has even been mentioned in the Energy Transition for Green Growth law adopted in July 2015, but it has not been implemented yet.

7 Execution of works and quality insurance

The EU funded project "Qualicheck" tackled the concerns regarding the reliability of Energy Performance Certificate (EPC) declarations and the quality of the works. It relies on strong commitment from authorities and other major players, as well as sufficiently broad societal support. This project aimed at identifying issues in respect to existing procedures and highlighting best practices for easy access to reliable EPC input data, delivery of improved quality of the works, as well as more effective compliance frameworks ("lead people to do what they declare") and finally engaging relevant stakeholders.

Inspirational examples

QUALICHECK

To measure the quality of works means to measure the gap between works that have been performed and works that have been specified in a contract or in another kind of reference document/benchmark. Furthermore, the quality of works may be considered as good only if

works do not degrade the building performance; quality is not a unique and static notion, it may be measured compared to needs and to expected performance

QUALICHECK consortium worked on operational elements of the quality control process.

Question 1: What is the extent of the conformity frame?

The objective is not to cover all the aspects of the works in detail, but to concentrate on aspects which appear the most critical, which can be identified by answering three questions:

- Is it necessary to undergo a training in order to implement specific features (such as: identifying and stopping heat flows? How to implement devices in order to avoid direct exposure to sunbeams?)
- Is it necessary to check the competence of professionals in order to deal with these specific features?
- Is it necessary to control the works regarding these specific features?

Question 2: At which level should a conformity framework be implemented/imposed?

The EPC conformity frame is generally set at national level. But as stated above, it may appear not appropriate. An additional quality check framework may be implemented in a more flexible way, working on various action levers in addition to regulatory obligations. For example:

- Conformity frameworks may be applied by private actors (such as real estate developers) or by professional unions or co-operatives to their members: in order to prevent risks and to differentiate themselves from other offers.
- Conformity frameworks may also be applied by local authorities to access to subsidies.

Question 3: What kind of requirements? Which type of control could be helpful?

If under-performance or non-performance is to be anticipated, controls could be made on:

- Qualifications, certifications or accreditation of professionals or firms.
- The declaration of services/works that have been performed, which may be completed with a report on performance achieved post-works.
- The conformity with professional/technical rules (concerning for instance the data collected, or the implementation of a specific device, for which rules or standards must be followed.

The requirement level and the kind of control to be implemented have to be thought on at the same time for the sake of consistency

- Direct controls allow any actor to undertake works provided the control on results is satisfactory.
- Indirect controls regarding qualification and liabilities of the professional (evidenced by a completion certificate) is less costly than direct controls.

Mixed control schemes may be contemplated, based for instance on compulsory trainings ending with certificates of qualification for professionals that perform the works, the certification of companies and on-site controls on a sample of refurbishments in order to check the most critical risks.

Question 4: Which processes must be fulfilled?

The compliance framework should not leave any ambiguity regarding the conformity of services and works, which entail 4 different actions:

1. Regarding works that are performed: the compliance framework should define either processes or performance criteria, or both.
2. To define other required criteria such as, for instance: independent third-party inspection, use of tools or specific products, manufacturers or retailers' certificates, qualification of professionals that have performed the works.
3. Define processes allowing to prove compliance, for instance: professional qualification certificates, tests reports, invoices, dated and geolocation-based pictures.

   These processes have to be easily formalised: any missing proof results in a default of compliance. If compliance is the result of an on-site visit, the compliance framework must mention which results ranges are acceptable and how litigious cases should be treated.
4. Check the consistency with national and European regulation. The compliance framework should not create barriers to competition or to innovation.

Question 5: Which processes should be implemented to detect non-conformities?

Compliance frameworks should allow to perform controls, attribute responsibilities and provide for sanctions.

1. Allow to perform controls: plan who undertakes these controls, if such professionals or entities should themselves go through an approval process, which rules have to be applied regarding conservation of control evidences.
2. Attribute responsibilities: professionals in charge of the compliance of the service or the works must be easy to identify, meaning they must be appointed before the works start.
3. Provide for sanctions: any interference with judiciary institutions should be avoided as much as possible. The sanctions scale may be for instance: warning, obligation to make reparation or to compensate, obligation to follow an additional training, a penalty, withdrawal of the qualification certificate, withdrawal of licence.

Question 6: How is the compliance framework implemented?

It requires to act according to the following axes:

- To obtain adherence of professionals and consumers: namely by making them to

participate in the design of control processes, then by communicating about the results of the compliance control.

- To update processes according to regular evaluations of controls efficiency and the costs/benefits balance.
- To ensure that the processes do not turn out to be barriers of entry in the market, or barriers to innovations. It means that the procedure should allow for alternative evaluation for innovative processes, based on equivalence criteria.

The setting-up of such a compliance framework requires a clear signal from policymakers: this political will should materialize in an organisation and allow to follow an action plan. A prefiguration phase should evaluate costs, identify competences to hire and means needed to deploy the compliance framework. At implementation stage, professional actors should have enough time to adapt to the compliance framework.

The framework should also provide for claims processing.

And lastly, the compliance framework should also provide for an evaluation of the framework itself, to enhance the feedback and experience gained.

8 Commissioning & Follow-up

Inspirational examples

Picardie Pass Rénovation (France)

Further to the commissioning of first renovation works, PPR has been able to review actual results in terms of energy savings after works and compare them to anticipations in July 2017, for the first time.

Considering that these first results have been reported on a small number of files, a quite significant percentage of files show that savings are bellow anticipated results, which indicates room for improvement regarding the preliminary analysis, and confirms that a follow-up after the works is valuable.

The objective of the proposed monitoring made once the works are complete, is to help the owners to optimize their investment and to prevent a potential "bouncing effect". It also allows Picardie Pass renovation to evaluate its own activity, according to its objectives and to reinforce the relationship with its customers in order to monitor its credit risk.

A phone survey is realised with PPR's customers, within two months after the works end. This contact is an opportunity to propose an online digital energy consumption monitoring, which is performed thanks to a project support by ADEME. This project is based on comfort sensors installed inside and outside the building, connected to a dedicated tablet. If the customers do not agree to use this equipment, the monitoring is performed via the energy bill examination during a yearly visit.

The digital tool available on tablet and computer allows:

- to observe the daily load curve
- to determine the electric consumption
- to appreciate the temperature curves
- to assess how the households feel comfortable in the house
- to coach households regarding energy consumption reduction

Before being used by PPR, this tool had been tested on a panel of 3,200 people, who had not performed refurbishment works :

- The energy savings made by the families represent 7,7%
- The comfort assessment is seen as an essential element of the tool
- The households prefer to use the tablet rather than the website on their own computer or phone
- Accompaniment and follow-up are necessary during a long period for families suffering

from energy poverty

- The preferred functions of the tool are the daily consumption report over the last seven days, the comfort appreciation and weather data.

Picardie Pass Renovation has carried out a survey on 90 folders (where renovation works had been commissioned more than one year ago) including 37 that had been equipped by the digital kit. This survey showed that 89% of households were satisfied with the impact of the renovation work on their comfort. The smaller sample of 37 equipped with the digital kit, experienced difficulties in using it in some instances. However, 1/3 was still satisfied by the service, 1/3 has no opinion and 1/3 thought it had no interest.

Picardie Pass Renovation performed a survey on energy consumption after works on a sample of 360 refurbished houses. On this sample, the energy savings are around 49.8% and the average monthly loan repayment coverage by the energy savings is 71%.

A comparison between the forecasted works and the results has been carried out on 45 cases :

- the energy savings after works were below the anticipation (39% vs 41.6%) in 10% of cases
- on average, savings on the energy budget represent 38%

This monitoring allowed to focus on difficult points regarding the home inspection phase before the works:

- It is particularly difficult to estimate the impact of the refurbishment works for buildings built before World War II
- It is also difficult to estimate energy sources such as heating systems using hoods due to the high variability of use.

9 How do you reach a consistent business model for a one-stop-shop service?

Building a business model, which can create, deliver and capture value, for a one-stop-shop service focussing on energy-efficient renovations, requires a solution that sounds trustworthy, and that can overcome a low willingness to pay for advisory service ahead of works implementation.

Advisory service encompasses a preliminary audit of the building and accompanying households in the maturation of their project. If this service is considered by the households as the first stage of works, it will then be easier to overcome their low willingness to pay for advice before the works are performed.

The service may be lighter and adapted to households who want to be autonomous, with most of the service proposed via internet. Then the design of the service is based on coordination rather than integration.

In all cases, you need to gain and retain clients' confidence, and you need to make the refurbishment you propose affordable to them.

9.1 Financing the advisory activities

The main challenge is to find resources for the advisory activity in such a fragmented market. Unlike other service activities, the renovation market is not yet a "meta-market" where a set of complementary products and services can be sold in a coordinated manner, such as in case of weddings. In the wedding market, for example, hotels, department stores, travel agencies, etc., can develop enriched and differentiated offers, where each partner of the offer mutually benefits from the distinctive services of the other partners. It does not really work that way in the renovation sector, although we can see that do-it-yourself superstores, building materials trades are ready to establish affinity relationships with artisans and consumers.

We reckon that the public sector can be a catalyst for initiating a move from the renovation market to energy efficiency, as the public sector is considered as a sponsor with a direct interest in developing energy efficiency. In addition, communities enjoy a higher level of trust than market players. Public sector players can also invest directly in creating new actors to develop the One-Stop-Shop service, with a long-term vision and moderate financial performance expectations.

This is how the idea of third party financing emerged in France in 2011 – 2012, with a business model based on a long-term relationship, starting with technical advice, interface between the consumers and the craftsmen, quality checks and follow-up after completion of works. A long-term financing offer incorporated in the offer acts as the bundling factor, as it covers the service as well as the works.

9.1.1 Integrating Energy Saving Certificates and other indirect resources

However, service costs may not be fully covered by households' contributions. One-stop-shop service resources can also come from additional revenues, such as white certificates (or energy saving certificates).

The service offered by third-party finance companies is very expensive because it is very time-consuming. It is generally estimated that in France, the full service costs around € 3 000. To reduce the bill as much as possible, it is necessary to take into account all possible aids. Among these are the energy savings certificates that can be distributed to individuals to pay part of the

service. These energy saving certificates account for about 6% of the cost of works related to energy efficiency. Thus, for a complete energy renovation (around 30 000 € in France) the energy saving certificates can represent up to 2000 €.

9.1.2 Set an appropriate billing of service

Inspirational examples

Archenergie (Bordeaux area, France)

Archenergie, as a general building company presents itself as an "Energy Renovation Integrator" with a dual expertise in thermal engineering and coordination of the works carried out internally (66% of works) or externally (subcontracting in 33% of cases).

The services offered are:

- A complete turnkey and tailor-made offer
- A precise vision of the impact of energy savings
- A single interlocutor
- A guarantee of performance (reaching a new EPC energy class)

On average, the work budget amounts to € 20,000 per house.

Customers may choose "à la carte" services:

- to have an audit carried out, with no commitment regarding the renovation work. It is charged 695 € TTC.
- if further to the audit the household chooses to have the works done by Archenergie, the price of the audit is deducted from the price of the integrated offer (works + assistance).

Charging the audit to the customers makes it possible to "select" the most motivated households. This is the opportunity to design the project globally.

Archenergie has progressively optimized its processes for carrying out audits that cover energy, airtightness (infiltrometry), thermography and air quality (CO_2, humidity, temperature). The pricing applied today makes it possible to cover the costs of this service.

Archenergie observes a conversion rate of audits in works of 90%, but taking into account a very

variable time period between the audit and the final decision (which can often exceed a year).

The approach of Archenergie is not to set a goal of heat gain, but to determine the work according to the budget financeable by the household and prioritizing the work so as to allow an optimization of energy consumption reduction, taking into account further works to be performed.

Archenergie offers a contractual guarantee to reach the anticipated Energy Performance Certificate.

Picardie Pass Rénovation

The direct cost of the service offered to households (time spent, success rates, qualifications of companies, etc.) is estimated at around € 1,500 per file. This contribution collected from households in return for the service rendered, is incorporated into the financing in the case where the work is directly financed by PPR, or is paid upon receipt of work. The fact that the service is billed to the households but payable at the same time as the works is seen as important for customers.

9.2 Selling points regarding quality and value for money should be backed by evidence and showcases

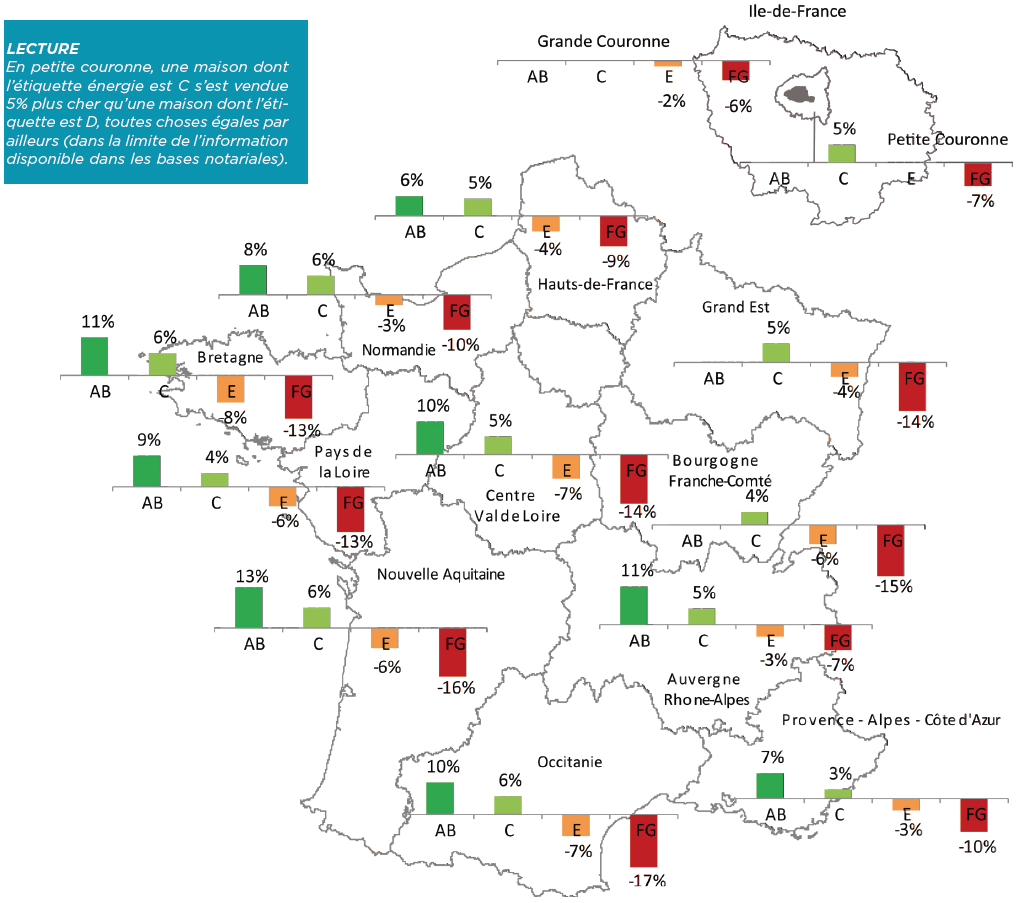
It is very important to link post-works monitoring, marketing actions and inducing customers to become ambassadors of the OSS and spread word of mouth.

Post-works monitoring allows to improve all stages of the OSS service and helps to be more effective in the commercial approach.

OSS operators are positioned on the market to aggregate data from retrofit works and build showcases.

The first evidence is data regarding energy savings post-works, which provides an instantaneous advantage to homeowners. It also allows for assessment of the financial output of the project.

The second evidence is the improvement of the house market value. We see that in France, the market is progressively taking into account the EPC labels in real-estate prices, as shown by the latest survey performed by notaries[18], showing "green value" and "brown discount".



The survey shows that buyers are now looking for houses and apartments with energy performance above C label.

These pieces of tangible evidence can be measured by the OSS locally and precisely with a large panel of projects.

And the third selling point is comfort. This criteria may be appreciated individually only. OSS such as ARTEE are involving their customers into their marketing communication campaign (testimonies).

[18] Etude statistiques Immobilières – La valeur verte des logements en 2016 – Actualisation de l'étude menée par l'association DINAMIC sur les données des bases immobilières notariales de 2014.- Notaires de France.

9.3 Need to convince and train craftsmen

The role of OSS is not to set-up or invest in professional information and training programmes but rather to leverage on programmes already set-up and/or financed by professional organisations and public programmes.

Inspirational examples
Experience in France Successive national programmes (Action plan for the quality of the construction work and of the energy transition) aim at facilitating access to technical regulations and guidelines to all stakeholders. These programmes allow SMEs and craftsmen to be updated on advanced technics. They make available in a single document base all building regulations and provide clear and readable documents which could be used as pedagogical note books. This corpus is also aimed at being a resource for insurance companies and brokers involved in construction risks covers.
The Picardie Pass Rénovation When setting up the OSS service, PPR hired thermal engineers to provide technical assistance to all PPR stakeholders. Their mission included: 1) Technical assistance for PPR advisors. 2) Auditing a sample of house inspections performed by PPR advisors. 3) Constituting a corpus of technical records adapted to each type of buildings identified in Picardie. These documents allow PPR to provide technical guidance to construction firms from the price quotation phase up to the works realisation. It also helps to have a good communication between PPR advisors and construction firms. 4) Facilitating a database regarding works quotations, taking into account the technical variation due to the building typology. The PPR "toolbox" presently includes: - A note book for PPR advisors regarding the building inspection. - Detailed prescriptions regarding sensitive works in order to prevent potential risks (such as dew points).

9.4 Leveraging on the engagement of local players already integrated into existing supply chains and local services

Inspirational examples

RetrofitWorks (United Kingdom)

This is the distinctive approach of RetrofitWorks, who acts as the connecting point of two kinds of local actors:

- on the one hand, Practitioners looking to increase their activity volumes.

- on the other hand, the Advocates: who represent the interests of owners or tenants (i.e. local charity, Council, architects, letting agents, social workers…), who understand their needs and want to develop the renovation market.

RetrofitWorks provides both groups of actors with an online tendering portal, access to finance and grants and continuous professional development and training.

9.5 Financing the starting phase

An experimentation phase is necessary in order to test all components of the offer and strengthen the OSS ability to master all interface risks. This phase generally requires a large initial investment before reaching a level of activity sufficient for self-financing.

Inspirational examples

Picardie Pass Renovation

Since it started operation in 2015, Picardie Pass Renovation achieved 4,500 contacts, performed 2,400 initial audits, is engaged in 1,500 home refurbishments for a total amount of 32 M€. 2/3rd of its activity concerns condominiums.

To set up such a service, the region applied for ELENA-EIB technical assistance.

The ELENA program aims to support projects related to European environmental policy by providing technical assistance. This assistance is in the form of a grant of up to 90% of the costs for setting up the service. The eligible expenses concern the entire upstream phase but not the operational phase of the project. It may be internal (salaries) or external expenses (service provision or development of the information system).

The condition for obtaining the technical assistance is to achieve a leverage ratio of min. 20. For example, if an OSS receives a grant of € 1,000,000 it will have to show evidence of renovations

works performed up to 20,000,000.

ARTEE will also benefit from ELENA-EIB technical assistance in 2018.

ELENA program budget amounts to € 30,000,000 for both private and public projects (for more information: http://www.eib.org/products/advising/elena/index.htm?lang=en).

9.6 Reaching a sustainable profitability

In order to reach an equilibrium between costs incurred by the service and resources, the outcome of Energies POSIT'IF and Picardie PASS Renovation may be summarized as follows:

- There is a learning effect for the first projects regarding all aspects, and namely the selection of construction companies and craftsmen. It has an obvious impact on efficiency.
- The cost of transaction for individual housing may go up to 2 to 4 man-days. And regarding condominiums, since advisory entails fixed costs, the size of the condominium is a key criteria to reach financial equilibrium: the bigger the condominium the lower is the impact of such fixed cost on the fee invoiced to each homeowner.
- Since the advisory service may be invoiced only partly when it is completed, it is important to monitor the hit ratio as much as the time spent per file.
- Additional sources of income such as Energy Saving Certificates or specific subsidies may have an adverse effect if they are not stable enough; which was the case in France for 2015-16.

10 Advocating changes in national policy to facilitate the set-up of integrated services

10.1 Building a public brand

It would be important to create a public brand for energy-efficient refurbishments, helping people to be oriented. But when such a brand is set up at national level, such as the Green Deal in the United Kingdom, or "*Reconnu Garant de l'Environnement*" in France, the level of requirements may appear to be too low.

This quality brand has to be supported by rules formalized in operational documents provided to all stakeholders, for instance professional recommendations or technical documents. It is the responsibility of local authorities to organize the local communication in order to highlight the actions of OSS and show the impact of energy-efficient building renovation on the territory.

10.2 A step-wise long term national plan for increasing energy-efficiency requirements of buildings

A step-by-step long-term national plan for energy efficiency improvement of buildings has to be conveyed to all stakeholders, so that they realise that action has to be taken.

It is also important that efficient works and preliminary advice are more incentivized than partial ones.

10.3 Implementing financial products

And last but not least, it is important to enlarge the offer for long-term loans in order to finance both the service and the works.

In Germany and the UK, this has been settled at nationwide scale.

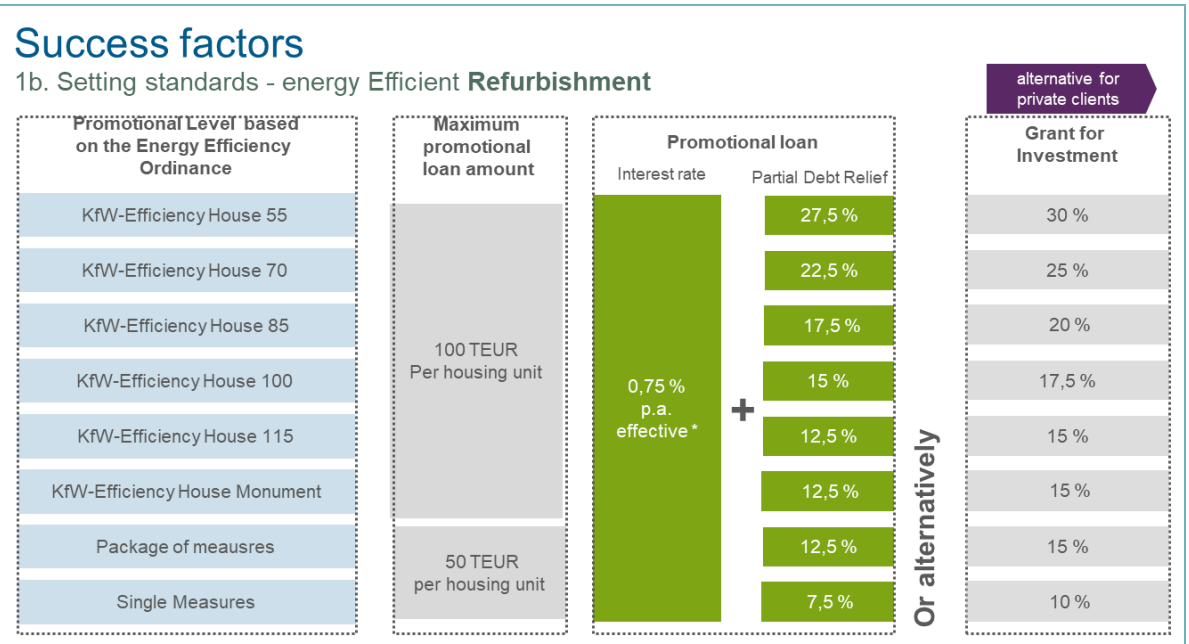
Inspirational examples

KfW (Germany) : a nationwide efficient financing scheme

In order to stimulate investments in EE refurbishments and to focus public subsidies on the poorest households, Germany has implemented for 20 years an attractive mechanism, managed by the KfW (the public development bank of Germany).
Since 2006, KfW subsidies represent on average 1,5 billion € per year.
The estimated number of global EE refurbishments in Germany would be between 60 000 and 130 000 per year, while we count 36 million dwellings in Germany. The EE refurbishment rate would be of 1% for the private residential buildings, including 0.3 % for the global high performance EE refurbishments projects.

The most widespread incentives are interest subsidies and subsidies for renovation works implemented by the KfW (some lenders add-up local subsidies) :

- Most subsidies are paid as loan payment reduction.
- The higher the energy savings achieved, the higher the subsidies. The maximal expected energy consumption is around 80 kWh/m².year. For this level, households get a subsidy corresponding to 7.5 % of the costs of the renovation works (the maximum subsidy is 9 375 €). The most ambitious level entitles to a 17 % subsidy on the cost of the renovation works (maximum of 13 125 €).



- Loans are long-term loans (very often 20 years, sometimes even 30 years); interest subsidies are limited to the first 10 years.

Commercial banks have become important promoters of the "EffizienHaus program" and the KfW soft loan.

10.4 Providing data to market players and customers

Inspirational examples

Effinergie Database in France

Effinergie association was founded in 2006. Almost all French regions are part of this association which objective is to develop a market dynamic for energy-efficient, comfortable and environment-friendly buildings. Other members are technical clusters, research centres, banks and professionals such as architects, etc.

Effinergie aims at developing a label for energy-efficient buildings, highlighting regional dynamics and ensuring coordination between national and regional initiatives.

Effinergie launched the Effinergie label in October 2009 and then an observatory of energy efficient buildings, aimed at assessing the cost of operations with the Effinergie label or comparable standards.

So far, more than 450 operations are precisely described, including feedbacks after work completion.

The challenge of the observatory is to keep the data consistent with the evolution of the standards.

10.5 Promote an industrial approach for easily reproducible renovations to achieve economies of scale

Inspirational examples

EnergieSprong (The Netherlands)

The EnergieSprong approach was initiated in the Netherlands by a team of market developers supported and financed by the government (a budget of 40 million euros in 2013-2015) in order to change the market and accelerate the energy transition. This structure has hired a team of consultants independent of market players, social landlords and the government under an associative format.

The goal is to develop a new market for the refurbishment of housing stock and achieve a drastic reduction of costs. It also aims at reducing disruptions entailed by the refurbishment and providing a guarantee of energy performance over 30 years. In addition, EnergieSprong seeks to make renovation attractive to the occupants (choice of facades, renovation of the kitchen "offered" ...)

The EnergieSprong method is based on economies of scale. It therefore focusses on large building owners, i.e. social housing landlords.

It has adopted an open competitive dialogue procedure with medium-large construction companies: it gathers large landlords in the social housing sector so as to constitute large housing building samples allowing homogeneous technical proposals. Tenderers have full discretion to reach results. All requirements are expressed in terms of performance targets such as a maximum duration for return on investment. The consultation results are presented in a public meeting where all proposed solutions are showcased.

For the next housing building sample, the former technical solutions proposed are all gathered and available to tenderers to improve their offer and adapt it to more demanding criteria than for the previous rounds of consultation.

European funding is dedicated to the feasibility study of the replication of this approach in France, UK, Germany (see: http://www.energiesprong.eu/).

10.6 Join forces at national level to reach economy of scale and improve coordination

Inspirational examples

French Experimentation Programme of the *Plan Urbanisme Construction Architecture* (PUCA)

The third-party-financing operators have joined their forces and their experience in a programme hosted by the national Sustainable Development and Housing Administration.

The applied research program is an opportunity to promote on the ground, revise the policies implemented by state agencies with local authorities to adapt the various subsidies schemes.

Local authorities are also willing to adapt their schemes to allow retail banking networks to better account for the quality criteria of the refurbishment work, while taking into account the constraints of banks in terms of transaction costs and scale of marketing.

These works are presented in a larger circle than to the partners of the PUCA programme.

Workshops are open to all stakeholders involved in the dialogue with local authorities, especially banking networks.

Exchanges among the third-party-financing operators, may also lead them to joint tenders so as to converge towards shared solutions.

PUCA has drawn an action plan in 2018, regarding the third-party financing development:

Credit risk assessment tools are also essential for third-party financing as a financial innovation. The objective is to develop a track record of the portfolio of receivables, based both on financial criteria (cost of risk, maturity of receivables for early repayments related to the sale of housing) and environmental impact.

For PUCA, the next step for the first third-party financing operators action plan is to reach an agreement on the structure of a database that will consolidate data management and statistical processing at experimental stage, taking into account the objective of supplying the European DEEP base.

Once the architecture of the database has been validated the prototype will be fed by the operators' files, which should make it possible to ensure the consistency of the data collected.

At the same time, from 2018 PUCA program will develop other actions consistent with the government plan: the major stake to boost the market of energy-efficient refurbishment is to guarantee the quality of the work. Energy performance is strongly correlated with the quality of

the work and quality control also helps to reassure individuals about their own investment.

PUCA partners are defining implementation procedures as part of their offer, to define and reach the level of quality for works. This corpus of quality checks and procedures can be set at each regional level, and a consolidated framework should also be available and consistent with the Ministry and its agencies regulatory works.

The quality commitment of integrated energy renovation services could then take the form of a guarantee agency, for instance.

11 Bibliography

A number of projects funded by the European Union have already contributed to building up tools in order to cope with market reality and to showcase forerunner initiatives.

The following works have been used or should be further used to build-up Innovate partners' local OSS Schemes, regarding the various aspects of the Energy Efficiency service design:

11.1 Infinite Solutions project (Intelligent Energy Europe programme)

In the framework of this project, five local authorities - Brussels-Capital Region (Belgium), Frederikshavn (Denmark), Riga (Latvia), Parma (Italy), and Bordeaux Metropole (France) - in partnership with 18 local banks and financing institutions have developed soft loan financing schemes to motivate homeowners to invest in energy renovation. Soft loans are accompanied by non-financial incentives, such as technical assistance to homeowners.

Among the partners, 3 are part of Innovate project - Brussels-Capital Region (Belgium), Frederikshavn (Denmark), Riga (Latvia).

More information: http://www.energy-cities.eu/spip.php?page=infinitesolutions_en

11.2 Citynvest project (Horizon 2020 programme)

Citynvest project performed a review of local authority innovative large scale retrofit financing and operational models. Out of the 24 initiatives they studied, 10 are dealing with the residential sector, including 7 which have a focus on refurbishment (others deal with renewable energy):

- **Energies Posit'IF, in Ile de France region** provides a full one-stop-shop service to condominiums only,

- The **Bulgarian Energy Efficiency and Renewable Sources Fund** (EERSF) with the same scope,
- The Save your bUildiNg by SavINg Energy (**SUNSHINE**) project which also aims at deep retrofit of Multifamily Buildings in **Latvia**. This project is linked to the Latvian Baltic energy efficiency facility (LABEEF).
- **Warm-up North** relies on British Gas to deliver the service under a contract with a consortium of **Northern England** local authorities under the lead of Northumberland County Council. It acts in the framework of the Green Deal Nation-wide programme and is adapted to single family homes
- Service Public de l'Efficacité Energétique operates under the **Picardie Pass Renovation** trade mark. It covers both condominium and single-family home segments with a full one-stop-shop approach.
- **KredEx Revolving Fund** for energy efficiency in apartment buildings is based **in Estonia** and offers a service scope comparable to Energies POSIT'IF, EERSF and SUNSHINE
- **Padova's apartment building retrofit programme** encompasses a scope of service comparable to the previous programmes focussing on condominiums and is based on the selection of an ESCO to perform it further to a preliminary work of identifying buildings to be refurbished.

More information: http://www.citynvest.eu/

11.3 REFURB Project (Horizon 2020 programme)

REFURB project gives an overview of one-stop-shop models and proposes a methodology to set up business models. This project gathered partners from Belgium, the Netherlands, Denmark, Slovenia, Estonia and Germany.

The studies carried out in the framework of the project provide a good overview of issues related to designing the full service and main sources that can be used. The first step, regarding the market analysis and decision making about which segment to target, is well documented in the REFURB project report. For example, the study suggests that for criteria regarding the building stock itself, it is important to use a building typology in the OSS area. It allows to forecast the average amount of works to be performed to achieve a target energy performance, on methodological grounds that are consistent at European level.

More information: http://go-refurb.eu/

11.4 EPISCOPE Project

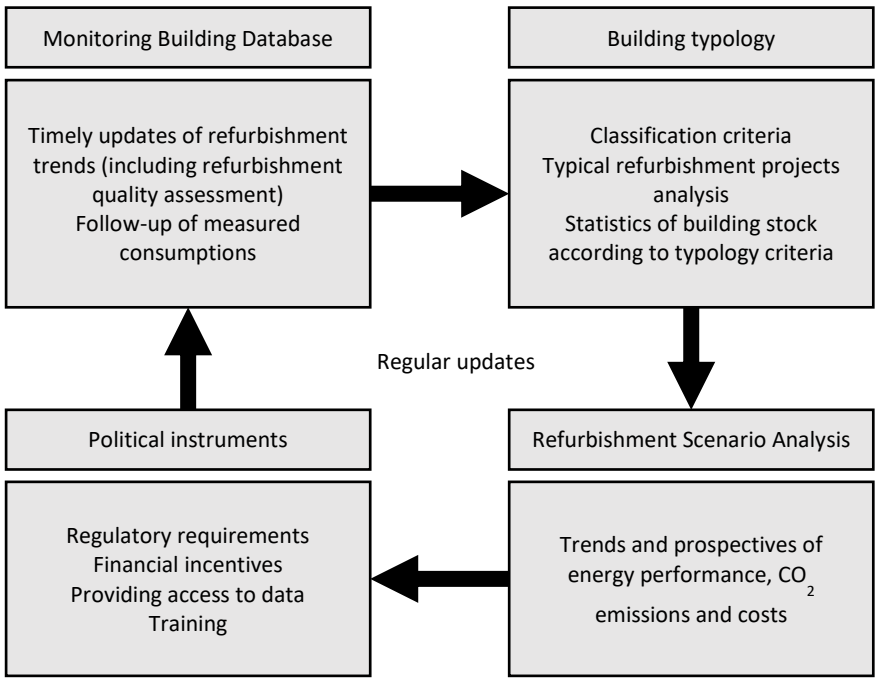
Episcope project was the first pan-European attempt to build-up a housing building typology. It has been implemented to previous European programmes DATAMINE and TABULA, which developed a shared data structure regarding housing buildings, typology of such buildings in the partners' countries and computation methods regarding estimates of heating and domestic hot water consumption and potential for savings related to energy-efficient refurbishments. It has been followed-up by national programmes. For instance, in France, the EPISCOPE Project led to the programmes RAGE (*Règles de l'Art Grenelle Environnement*) in 2012 and the presently undergoing PACTE programme (*Programme d'Action pour la qualité de la Construction et la Transition Energétique*) presented above.

Such tools are part of the long-term strategy that Member States must establish pursuant to Article 4 of the October 2012 Directive on energy efficiency:

> *"Article 4*
>
> *Building renovation*
>
> *Member States shall establish a long-term strategy for mobilising investment in the renovation of the national stock of residential and commercial buildings, both public and private. This strategy shall encompass:*
>
> *(a) an overview of the national building stock based, as appropriate, on statistical sampling;*
>
> *(b) identification of cost-effective approaches to renovations relevant to the building type and climatic zone;*
>
> *(c) policies and measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations;*
>
> *(d) a forward-looking perspective to guide investment decisions of individuals, the construction industry and financial institutions;*
>
> *(e) an evidence-based estimate of expected energy savings and wider benefits.*
>
> *A first version of the strategy shall be published by 30 April 2014 and updated every three years thereafter and submitted to the Commission as part of the National Energy Efficiency Action Plans.*

Such typology is instrumental to the design of energy performance audits and certificates and to establish energy savings regulations.

The objective of EPISCOPE projects and its further applications in Member States, was to make energy refurbishment processes more transparent and efficient. It allowed to ground EU State



members' policies complying with Article 4 of the EE directive.

11.5 COHERENO project

COHERENO project concentrated on improving the quality of the construction measures, thus increasing customer confidence.

11.6 IMEA Interreg project

IMEA Interreg project is a useful resource regarding how local and regional authorities may take a pro-active role in improving the energy efficiency of the built environment; it can be additional to CITYnvest analyse and comparison framework.

12 List of acronymes

ADEME	French Energy and Environment National Agency
BRP	Building renovation passport
EPC	Energy Performance Certificate
GBPN	Global Buildings Performance Network
OSS	One-stop-shop
PPR	Picardie Pass Rénovation

13 Benchmark forms

13.1 KAW Holding BV: Reimarkt

13.1.1 ID of the project

Project name/brand	Reimarkt
Country	The Netherlands
Territory / region	Groningen, Overijssel, Noord-Brabant, Zuid-Holland, Drenthe
Project start-up date	06-06-2014
Legal status of the project company / of the leading entity	Private limited company
Project sponsors	KAW, municipalities, National Government, Ten Hag Makelaars
Financial partners	Ten Hag Makelaars, SVn
Present status (number of clients/refurbishments performed, present trend…)	About 1.200 houses refurbished, shop locations in 6 cities (Enschede, Den Bosch, Delft, Groningen, Zoetermeer, Hoogeveen).
Service content (for consumers? For contractors? For other third-parties?)	Consumers (private home owners).

13.1.2 Context of the creation of the project

As we all know, reducing energy use is central in our sustainability goals and the existing building stock is one of the biggest energy users. Therefore, efforts to reduce energy use in the existing building stock are an important aspect of the Dutch sustainability policy. The goal is to create a completely energy-neutral built environment by 2050.

To achieve this goal, the biggest challenge lies in privately owned houses. Even though homeowners are already implementing measures to improve energy efficiency, the rate of improvement is far too low to achieve our goals as a country. We need to find ways to significantly increase the speed at which homeowners invest in energy efficiency improvements.

With Reimarkt, we take a clear neo-liberal approach to this: we believe that we cannot enforce homeowners to do so, but we need to create a serious market for home improvement. This because we know that technically, houses can already be improved. Economically, it also makes sense: most improvement can be earned back within ten years. The main reason why homeowners do not invest at this moment, is in the market failure that exists in the field of EEI (Energy Efficiency Improvements). The information about EEI measures is scattered and unclear, companies do not offer clear product and prices and you need to be an expert to understand proposals and choose the best one for your specific house.

Who initiated the proposal first?

Reimarkt was initiated by KUUB and KAW addressing the challenge put forward by two social housing agencies and the municipality of Enschede.

Who supported the idea (local governments, national governments, public national agencies, other public sector actors, private sector actors, NGO and civil society)?

Local governments and national government have supported Reimarkt with start-up subsidies.

What were the main milestones of the creation of the project? Date of official start-up? Date of implementation?

- 19-04-2013: start concept formation.
- 24-09-2013: first project signed in Enschede.
- 06-06-2014: Store opening 1 (Enschede)
- 01-05-2015: Store opening 2 (Delft)
- 19-02-2016: Store opening 3 (Den Bosch)
- 01-10-2016: Store opening 4 (Groningen)
- 01-04-2017: Store opening 5 (Hoogeveen)
- 20-05-2017: Store opening 6 (Zoetermeer)

How was the design of the project organised? Has any study been performed? If yes, who did these studies? Which actors have been associated to the service design phase? How were they involved?

Design has been done by five senior experts of KUUB and KAW: Reimar von Meding, Ellen van Acht, Henk Kieft, Alfred Middelkamp and Marco van Dalfsen. The concept is based on practical experience in the field of energy efficiency improvement, mainly by the exploitation of Energy Desk services (informing homeowners and stimulating suppliers in the name of the municipality).

What were the conclusions of this/these studies (if any)?

Energy Desk services help to motivate homeowners to invest in energy efficiency, but suppliers are not able to fulfil the customer service quality that is needed to convert interest into a deal. Besides, no self-sustaining model can be formed without taking control of the actual execution of measures. Supply is unclear and hard to compare to the homeowner.

Could you describe the provisional business model at the beginning of the project, and how it has evolved?

The provisional business model (start-up phase) is supported by a start-up subsidy from the municipality and/or a guaranteed supply of renovation projects from the social housing organisation. A Reimarkt store is designed to be self-supporting in three years, based on a 10% fee on sales price on measures to homeowners.

What were the objectives of the project at the beginning? Had you defined quality standards (in terms of quality of the works, and energy efficiency performance)? And quantitative objectives (for instance in terms of number of renovated housing)?

All Reimarkt stores have separate targets, based on the startup capital and years of existence. In a self-supporting end state each store is responsible for around 1.000 renovations per year. Quality standards are designed by Reimarkt itself and focus on technical quality as well as service quality (for example: percentage of calls returned within 24 hours).

13.1.3 Modalities of intervention

What are the services that your project offers? Does it include technical and / or financial supports? In which ways?

Reimarkt offers full customer journey support, which means support in orientation, advice on what to do, financial advice and support, deal making, execution, evaluation, ambassadorship, after sales and remarketing. In total we offer 67 distinct services to support our product offers.

From a legal perspective, how are relations formalised between all the stakeholders (user, service provider, project manager, building contractors, local municipalities, etc.)?

Reimarkt has a contract relation with its client before execution starts. Reimarkt also closes contracts with subsidy suppliers (municipality, national government) and social housing organizations defining rights and obligations from both sides. KAW is the sole owner of Reimarkt. Frame contracts are negotiated with contractors for the execution of the work.

Could you describe, or draw a diagram of the script of service proposed to the consumer/user who steps-in your project?

1. Orientation
2. Advice on possibilities
3. Contracting
4. Financing
5. Renovation
6. Evaluation
7. Ambassadorship
8. Remarketing (back to 2/3)

Have you incorporated a quality check procedure throughout the service scenario? How does it work?

At this moment we arrange our own on-the-spot checks on quality. Service quality is system-monitored in our CRM-database, technical quality checks are done after execution on site. We are thinking about a more structural way of doing this.

Do you provide all the services or do you partly or totally outsource the services? If yes, who are the subcontractors?

Execution is subcontracted to Plegt-Vos and a second partner. Furthermore, we work together with several partners in every local entity.

What are the results of the project implemented (number of realisations, quality of the projects, transformation rate, etc.)

1.200 refurbishments to date, projections are to reach 1.133 refurbishments in 2017.

13.1.4 Financing

What is the current business plan of your project?

Reimarkt needs start-up subsidies to be self-supporting in three years, at which a service fee of 10% on all sales is sufficient for a solid business case.

Do you partly or totally charge your services to the users?

Totally, in a 10% service fee.

If so, how are the advisory services included in your project's offer priced? How are they paid (cash? Spread by instalments over the refurbishment? ...)

We make an effort of lowering advisory costs as much as possible by focusing on product development, eliminating the need of constantly inventing tailor-made solutions to generic problems. More explicitly: we reached the point where we can sell projects without even going to the house. All services are included in a flat 10% fee and are paid directly to Reimarkt by the homeowner or through a loan service.

How do consumers get financing for their refurbishment project? What are the general conditions regarding this financing (percentage of works financed? Fixed/variable interest rate? Duration? Flat fee?) Is it covered by an insurance/guarantee (which risks may be covered?)

Options are:

- Savings of the homeowner
- Energy efficiency subsidies
- Energy Loan (Energiebespaarlening) provided by national government
- Mortgage renewal
- Private loan
- Experimental loan systems

Energy Loans have a going rate of about 2-3% fixed rate, 7-10 years pay-back time. Green mortgages give more financial space for energy renovations (up to 27.000 euros above house value / loan limit).

Does your project rely on public subsidies? On tax-related resources? If so, which public body is granting subsidies? Which kind of expenses can be covered by subsidies? How may the business model of your project evolve in case of subsidies shortage?

Reimark requires start-up subsidies as to evade liquidity issues and as business loans are not granted to start-ups. Subsidies are given in the form of a performance contract through local subsidies (75.000 – 300.000 euros per store) and in the form of innovation subsidies by the national government (in the order of around 2.000.000 euros total). After starting operations with a start-up subsidy the Reimarkt model is self-supporting within three years.

13.1.5 Operation

How many people work on the project?

Around 30 people are working on the project, around 5 per store and 10 in the main office with overlaps between people (not all positions are a complete FTE).

What is the status of these workers (employees, etc.)? What kind of contracts do they have?

Employees are detached from KAW or employed by Reimarkt, most of them are on temporary contracts as the project is in start-up.

What is the organizational chart of the project?

Reimarkt Concept (Main office) consists of four departments:

- Staff (Finance, HRM, IT), headed by Marcel Tankink
- Stores and operations, headed by Machiel Groot
- Product development, headed by Josien Kruizinga
- Marketing, headed by Alfred Middelkamp

Each location is headed by a store manager.

What is the role of each worker?

- Product developers (4) develop product offer.
- Marketing employees (6) develop customer proposition, marketing communication and customer journey support.
- Head of operations (1) is the linking pin to the stores.
- Staff (4) is responsible for staff services finance, HRM, IT.
- Store manager (5) is responsible for local operations and cooperation with local stakeholders.
- Salesmen (8) are responsible for sales and customer support.
- Store marketing employee (2) implements marketing communication scheme on local level.

What is the budget of the project?

Around € 2.000.000 in operating costs and around € 7.000.000 in project volume (refurbishments), total amounts to around € 8.300.000 for 2017.

13.1.6 Key learning points

SWOT matrix

	Internal *(within organisation)*	External *(outside organisation)*
Positive	**Strengths:** - Strong position as the first viable business case for private house renovation. - Complete customer journey support. - Product offerings give competitive advantage. - Scope broadening to other arguments (comfort, aesthetics).	**Opportunities:** - Ambitious municipalities want to partner with Reimarkt. - Other sectors (apartment buildings, offices) can be addressed. - Regional impact from local organisations.
Negative	**Weaknesses:** - Still in state of development. - Depending on start-up subsidies. - Quick rollout gives high external capital demand. - Relatively expensive to consumer due to service fee and process and product quality.	**Threats:** - Energy refurbishment is a finite market by definition. - Likely to be copied by competition. - Government policy on energy efficiency is highly dynamic and might hurt the Reimarkt business model.

13.2 Frederikshavn's municipality

13.2.1 ID of the project

Project name/brand	
Country	Denmark
Territory / region	North Jutland
Project start-up date	07.06.2017
Legal status of the project company / of the leading entity	Local Authority
Project sponsors	Horizon 2020
Financial partners	Local banks
Present status (number of clients/refurbishments performed, present trend…)	2015: 146 Households carried out energy refurbishment 2016: 179 Households carried out energy refurbishment
Service content (for consumers? For contractors? For other third-parties?)	Homeowners are offered energy consultancy and preparation of energy saving report free of charge. Energy consultants guide homeowners to their banks. Bank advisors are trained to comprehend the content of the home energy report, upon which the bank offers soft loan to the homeowner.

13.2.2 Context of the creation of the project

Who initiated the proposal first?

Energy Cities Network

Who supported the idea (local governments, national governments, public national agencies, other public sector actors, private sector actors, NGO and civil society)?

Senior Project manager recommended the City Council and the Lord Mayor to support the project and to join Innovate project cooperation.

The national government, represented by the Danish Energy agency, would be very interested in the aim and the result of the Innovate-project cooperation.

What were the main milestones of the creation of the project? Date of official start-up? Date of implementation?

- Market analysis of the financial sector's structure for offering energy efficiency services.
- Mapping Key stakeholders (Banks, energy advisers, Craftsmen Estate Agents, construction markets, DIY, Kitchen- and Bathroom suppliers, Home appliances source markets etc.)
- Dialogue and negotiation with key stakeholders, organization of key actors by sector and setting up cross-sectoral cooperation.
- Training of key stakeholders by sector and together (cross-sectoral training).
- Mapping and analysis of stakeholders barriers for the promotion of energy renovations
- Dialogue and negotiation with key stakeholders upon "one stop shop"-initiatives.
- Information to citizens. Organization of citizen-Information meetings

Start-up date: 7th of June 2017.

Date of implementation: December 2017- March 2019.

How was the design of the project organised? Has any study been performed? If yes, who did these studies? Which actors have been associated to the service design phase? How were they involved?

All project partners contributed to the design of the entire Innovate-project, the main purpose, led and coordinated by the Energy Cities Network.

Energy city Frederikshavn has carried out a market study of the financial sector, the estate agencies, home energy advisors and artisans within the construction sector. Energy city Frederikshavn has carried out the entire design of the service phase, also named as "the model of Frederikshavn". Energy city Frederikshavn contacted each group of key stakeholders to dialogue meetings, designed the training sessions and the entire information campaign for the target group (homeowners) related to the launch process.

What were the conclusions of this/these studies (if any)?

The conclusions were:

- That the majority of homeowners would have their own savings for energy refurbishing, if they knew the benefits of refurbishing their houses.
- That homeowners did not dare to either use their own savings or to take out loans for energy refurbishment of their houses due to the feeling of insecurity as a result of the financial crisis.

- That key stakeholders will assume responsibility to convince homeowners about the benefits of energy conversion, because there were also economic benefits for key stakeholders (more earnings, business expansion/ business development).
- That homeowners wouldn't appreciated house energy consultancy much, if they had to pay for the service.
- That homeowners appreciated house energy advisory, if the energy advisory service was impartial and free of charge.
- That intensive, but unpolarised and credible information for the citizens (target group) is essential to attracting homeowners' interest towards energy refurbishment.

Could you describe the provisional business model at the beginning of the project, and how it has evolved?

At the beginning of the previous project, we had a goal to motivate at least 250 homeowners to refurbish their homes during the project period. Since many homeowners had their own savings in the bank, our focus was on motivating citizens to refurbish their homes rather than using soft loan schemes.

What were the objectives of the project at the beginning? Had you defined quality standards (in terms of quality of the works, and energy efficiency performance)? And quantitative objectives (for instance in terms of number of renovated housing)?

By the end of 2016 there were 325 private properties that had refurbished their homes, compared to our goal of refurbishing 250 houses.

The quality of work was ensured by:

- The independent energy advisor being in possession of an advisory liability insurance, to assure that the advisor's possible error assessments could be covered by the insurance and not by the homeowner.

- The fact that all involved craftsmen, who had to carry out the practical work, were specially trained to carry out qualified energy refurbishment work. The craftsmen should also be members of the craftsman's guarantee scheme, which made them legally responsible for the quality of the work done.

13.2.3 Modalities of intervention

What are the services that your project offers? Does it include technical and / or financial supports? In which ways?

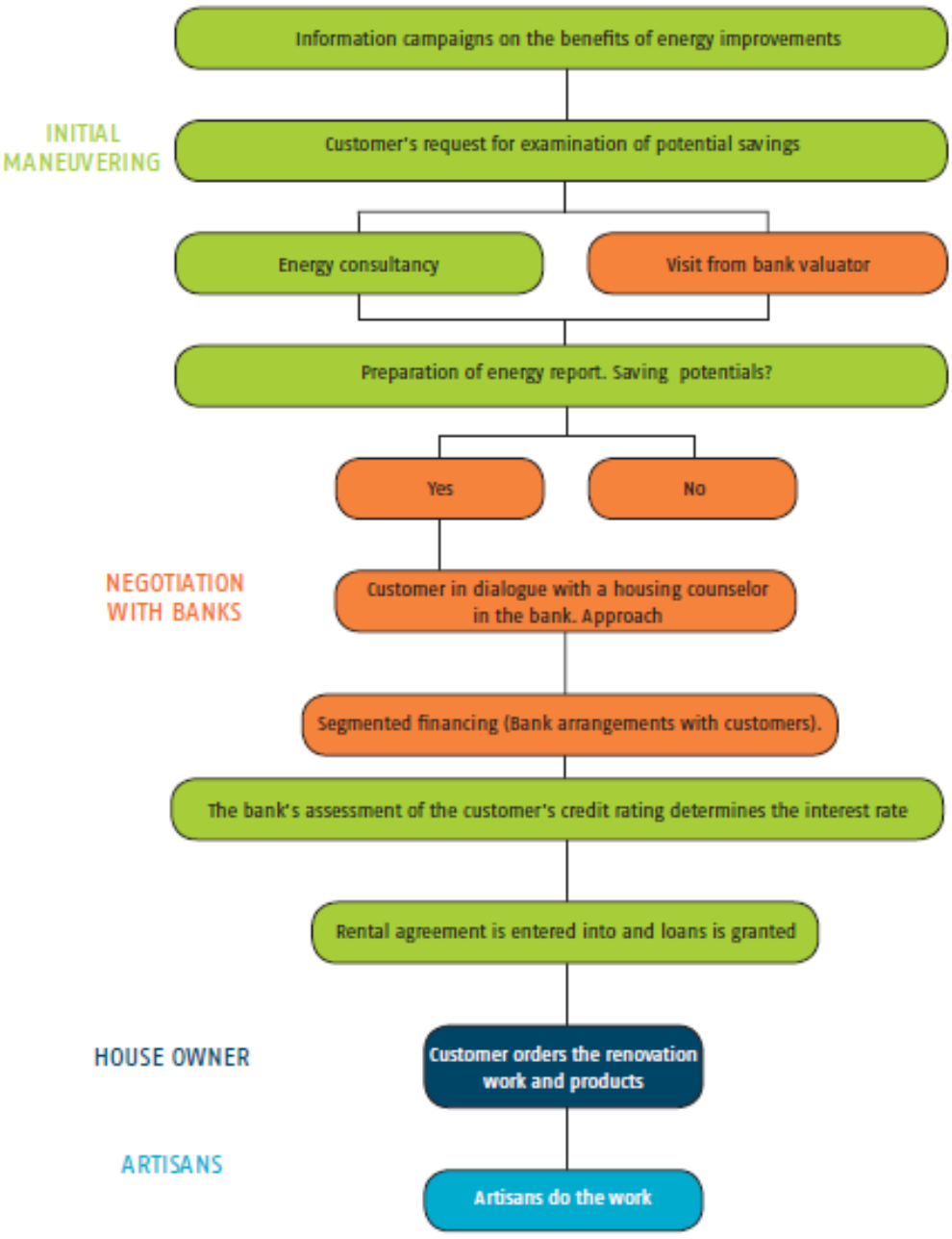
Our project offers further development of existing partnerships with the private sector for the promotion of energy refurbishment in private property, as well as knowledge and information sharing to private homeowners, attracting their awareness and motivating the mind-set of the target group towards energy retrofit. Our offer includes all existing schemes from a homeowner,

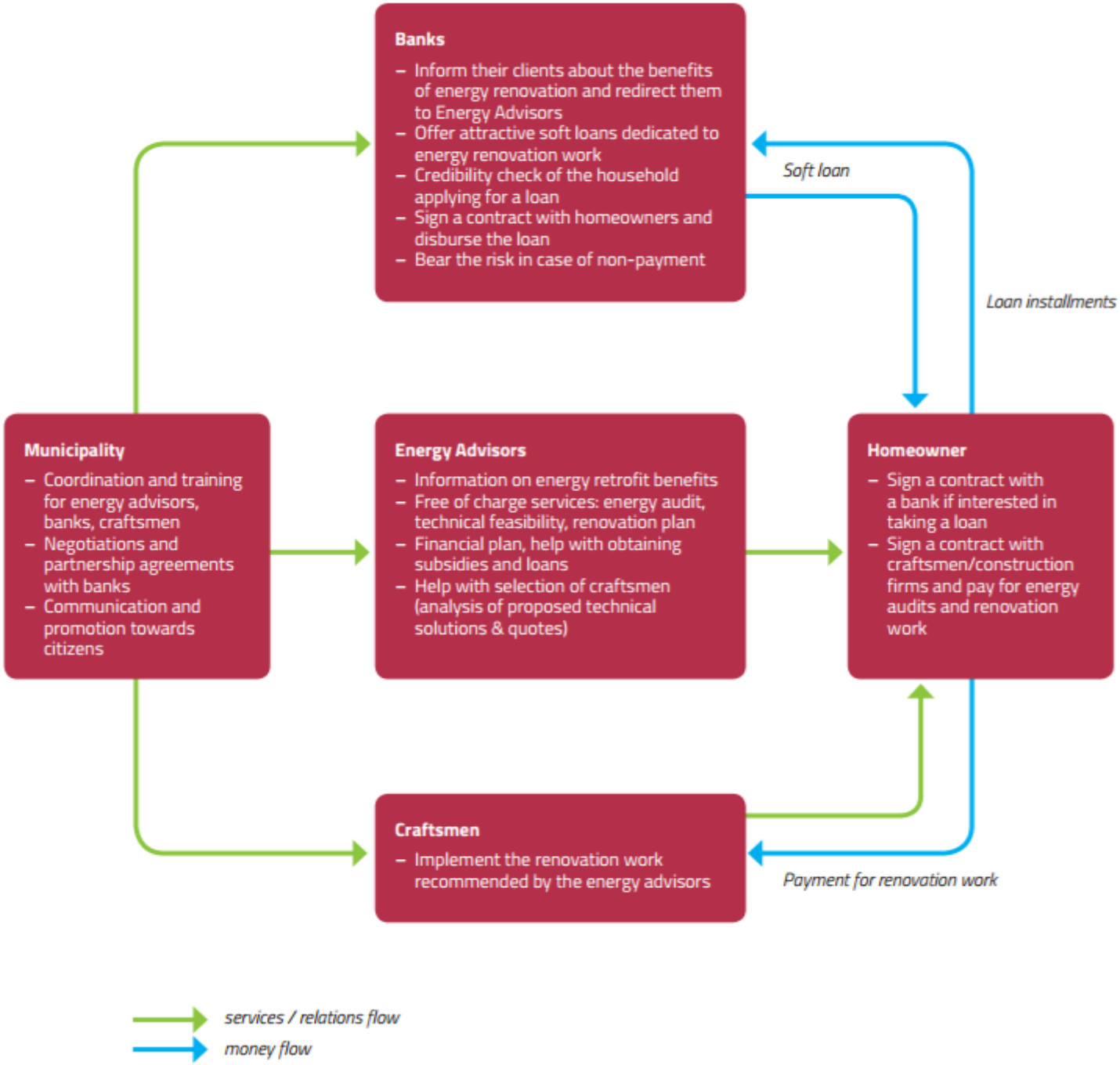
deciding to clarify whether there are potentials for energy savings in their property (technical assistance, visualization of the economic and comfort benefits) to the guidance towards favourable loan schemes and specialized craftsmen for conducting the practical refurbishment work.

From a legal perspective, how are relations formalised between all the stakeholders (user, service provider, project manager, building contractors, local municipalities, etc.)?

Frederikshavn Municipality, as a local authority, acts as a catalyst and link between the parties involved so that all key wardeners as well as end users (owners of private property) can see the benefits in working together to meet project objectives.

Could you describe, or draw a diagram of the script of service proposed to the consumer/user who steps-in your project?

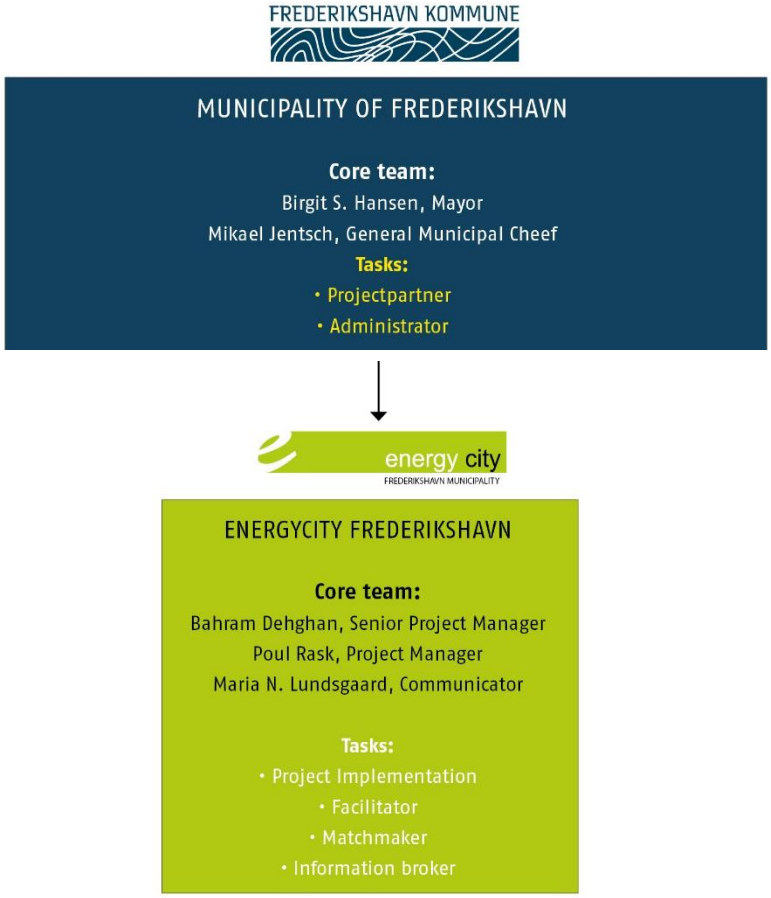



Banks
– Inform their clients about the benefits of energy renovation and redirect them to Energy Advisors
– Offer attractive soft loans dedicated to energy renovation work
– Credibility check of the household applying for a loan
– Sign a contract with homeowners and disburse the loan
– Bear the risk in case of non-payment
Soft loan
Loan installments
Municipality
– Coordination and training for energy advisors, banks, craftsmen
– Negotiations and partnership agreements with banks
– Communication and promotion towards citizens
Energy Advisors
– Information on energy retrofit benefits
– Free of charge services: energy audit, technical feasibility, renovation plan
– Financial plan, help with obtaining subsidies and loans
– Help with selection of craftsmen (analysis of proposed technical solutions & quotes)
Homeowner
– Sign a contract with a bank if interested in taking a loan
– Sign a contract with craftsmen/construction firms and pay for energy audits and renovation work
Craftsmen
– Implement the renovation work recommended by the energy advisors
Payment for renovation work
services / relations flow
money flow

What is the status of these workers (employees, etc.)? What kind of contracts do they have?

All of the aforementioned employees are permanent employees of Frederikshavn Municipality. Since they are all public employees, the labour contracts follow the individual employee's agreement.

What is the organizational chart of the project?



What is the role of each worker?

- Senior Project Manager is responsible for the project, including project reporting, design and clarification of actions, project budgets and financial management.

- Project Manager is involved in most of the project-related affairs.

- The role of communications officer is to give sparring in connection with the preparation of the project communication plan and the practical implementation of the communication plan.

- The role of the account holder is the registration of the resource consumption of the project, in accordance to Senior Project Manager's recommendations. The account holder is also responsible for preparation of the project financial statement at least every six months.

What is the budget of the project?

For the Innovate project, Frederikshavn Municipality has been allocated a budget of 213,508€.

13.2.5 Key learning points

SWOT matrix

	Internal *(within organisation)*	External *(outside organisation)*
Positive	**Strengths:** • The local government does not need to interfere with banking business. • There is no limited funds, when the private finance sector is involved. • Homeowners trust the "independent energy advice" that the municipality itself has facilitated.	**Opportunities:** • The banks consider "green loan schemes" as a new and innovative bank business area. • From the homeowners point of view the local government is a trusted body that gives the soft loan schemes a very high credibility. • External partners (banks, energy consultants, real estate agents and craftsmen) have recognized the benefits of cooperation and coordination work within the project framework in order to attract the owners' interest towards the loan schemes.
Negative	**Weaknesses:** • It takes a long time between homeowners receiving information about the benefits of energy refurbishment and them responding to it and taking action, therefore attracting homeowners' interest towards energy refurbishment does not quantitatively meet expectations during the project period	**Threats:** • If we are unable to recount the benefits of energy innovation continuously and untiringly, we risk that key stakeholders lose interest in cooperation. • The municipality's reputation may also be in danger if the project does not fulfil its objective.

13.3 Brussels Environment: the Brussels Green Loan

13.3.1 ID of the project

Project name/brand	**Prêt vert Bruxellois / Brussels green loan**
Country	Belgium
Territory / region	Brussels
Project start-up date	2008
Legal status of the project company / of the leading entity	Bruxelles Environnement, the public administration in charge of the Environnement of the Brussels Capital Region
Project sponsors	Bruxelles Environnement
Financial partners	Crédal, financial cooperative Housing Fund of the Brussels Capital Region
Present status (number of clients/refurbishments performed, present trend…)	+/- 850 loans 2008-2016, for more than 8 million of investments
Service content (for consumers? For contractors? For other third-parties?)	Credal and Housing Funds give only a financial service. But we also have 2 technical services dedicated to consumers. For the small condominiums, "Homegrade", initially Energy House, gives advice about energy renovation and "Sustainable building facilitator" for large condominiums. The 2 services cover the entirety of the condominiums in Brussels. The facilitator also works for all building professionals.

13.3.2 Context of the creation of the project

Who initiated the proposal first?

The Brussels Capital Region

Who supported the idea (local governments, national governments, public national agencies, other public sector actors, private sector actors, NGO and civil society)?

Regional government

What were the main milestones of the creation of the project? Date of official start-up? Date of implementation?

Identification of needs → market analysis to find the good financial operator → call for an expression of interest → start of the project in 2008.

How was the design of the project organised? Has any study been performed? If yes, who did these studies? Which actors have been associated to the service design phase? How were they involved?

The project was design by the administration based on a study made one year before. The study aimed to define the content of the call for proposals. A market study was carried out to determine what incentives already exist to motivate citizens to invest in energy renovation work and the market gaps.

What were the conclusions of this/these studies (if any)?

The market study recommended setting up two different financial products: one soft loan for medium income households and another soft loan for low and very low income households.

Could you describe the provisional business model at the beginning of the project, and how it has evolved?

See page 60, http://www.energy-cities.eu/IMG/pdf/guidebook_softloans_web.pdf

What were the objectives of the project at the beginning? Had you defined quality standards (in terms of quality of the works, and energy efficiency performance)? And quantitative objectives (for instance in terms of number of renovated housing)?

Facilitating Financing Mechanisms for High-Performance Renovations. But this objective has been revised down to just good energy renovation. To have a loan, you must respect the criteria of the energy premiums defined by the Brussels Capital Region.

13.3.3 Modalities of intervention

What are the services that your project offers? Does it include technical and / or financial supports? In which ways?

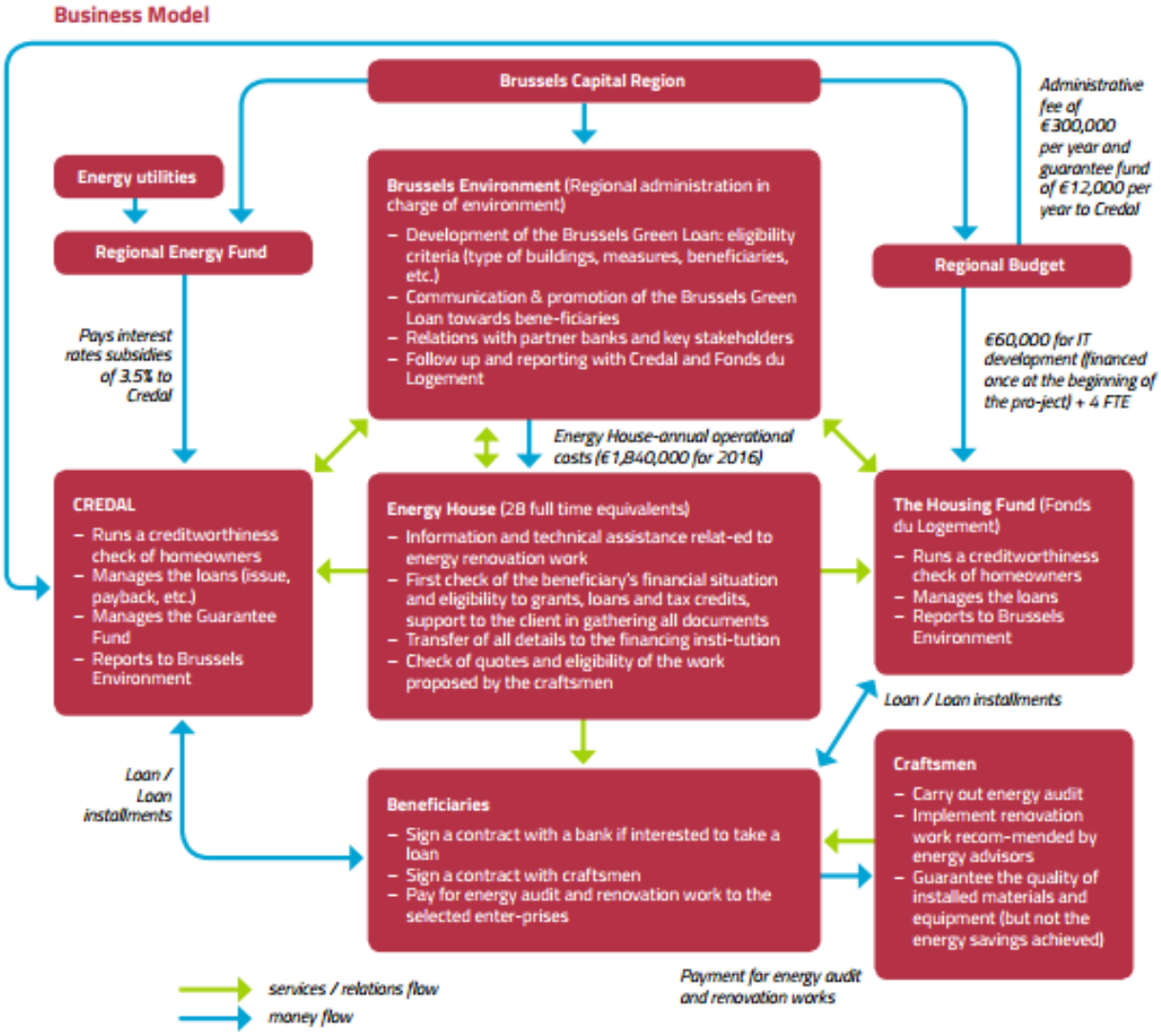
The project offers financial advices and technical advices, but with different actors. Homegrade (Energy House) gives information and technical assistance related to energy renovation work; checks the beneficiary's financial situation and eligibility to grants, loans and tax credits; supports the client in gathering all documents; transfers all details to the financing institution; checks quotes and eligibility of the work proposed by the craftsmen. Crédal and Housing Funds run a creditworthiness check of homeowners; manage the loans (issue, payback, etc.); manages the Guarantee Fund and report to Brussels Environment.

From a legal perspective, how are relations formalised between all the stakeholders (user, service provider, project manager, building contractors, local municipalities, etc.)?

It depends on the actors. Between Bruxelles Environnement and Crédal, Homegrade and Housing Funds, the relations are formalised through a grant (for each) (Offical term: Contrat de gestion). Between the final users and the financial operators, it is a simple bank contract.

Could you describe, or draw a diagram of the script of service proposed to the consumer/user who steps-in your project?

See page 60, http://www.energy-cities.eu/IMG/pdf/guidebook_softloans_web.pdf



Have you incorporated a quality check procedure throughout the service scenario? How does it work?

Not really a quality check, but only reporting from Crédal and Housing Fund

Do you provide all the services or do you outsource partly or totally the services? If yes, who are the subcontractors?

No service is provided by the administration. Everything is outsourced. With Crédal, Housing Fund and Homegrade via different grants.

What are the results of the project implemented (number of realisations, quality of the projects, transformation rate, etc.)

Since 2008, Crédal has issued 857 loans for more than 8M€. For the Region the cost per loan is €2,221. This means that €1 invested by the Region into the Brussels Green Loan has triggered private investment in energy efficiency measures of €4.8.

13.3.4 Financing

Income of less than or equal to:

	1st Category	*2nd Category*	*3rd Category*
Crédal short-term consumer loan (duration, max 10 years)	46.653€	72.572€	72.572€
Housing found long-term mortgage (duration, max 30 years)	46.653€	57.021€	72.572€

Min 500 max 25.000€ can be borrowed

Interest rate subsidy: the Region subsidizes the interest rate of the Brussels Green Loan in order to reduce it and make it more attractive for homeowners. The subsidy is fixed with a 3.5% interest rate, as requested by Crédal. This means that if the beneficiary gets a 0% loan, the Region pays an interest rate of 3.5%. If the beneficiary gets a 1% loan, the Region pays a rate of 2.5%.

The Region has set up a guarantee fund to cover any payment defaults (failure of a homeowner to pay the interest or principal on a loan or security when due). The Region is thus bearing the financial risk related to non-payments. The guarantee fund is managed by Crédal.

Does your project rely on public subsidies? On tax-related resources? If so, which public body is granting subsidies? Which kind of expenses can be covered by subsidies? How may the business model of your project evolve in case of subsidies shortage?

The project depends on public subsidies. The expenses allowed in the public subsidies are: overhead costs, human resources.

For the questions about the case of no more subsidies, it is difficult to answer. As an administration, we depend on the government and if the next government decides to stop the project, we will no longer have another solution.

13.3.5 Operation

How many people work on the project?

Crédal : - 3 Full Time Equivalents (FTEs) for the loans + 1 FTE for general coordination – 300.000 €

Housing Fund: The internal funds allocated by Housing Fund to the Brussels Green Loan come from the early reimbursement of mortgages. The Region has provided a single budget of €60,000 for Information Technology developments and 4 FTEs for management of the loan. The Region also pays the difference between the interest rate paid by the beneficiary and the variable rate of approximately 2.5%

What is the status of these workers (employees, etc.)? What kind of contracts do they have?

Employees of the 2 structures

What is the organizational chart of the project?

See page 60, http://www.energy-cities.eu/IMG/pdf/guidebook_softloans_web.pdf

13.3.6 Key learning points

SWOT matrix

	Internal *(within organisation)*	External *(outside organisation)*
Positive	**Strengths:** - decision making power - leverage (effet de levier) - independance - financial resources	**Opportunities:** – Tailor-made advice for homeowners – Attractive interest rate (0-2%) – Accessible to low and very low income families – Very low risk (1 case since 2008) – Ambitious energy efficiency targets to obtain grants
Negative	**Weaknesses:** - Expensive for the Regional budget – Risk borne by the Region – Absence of a procedure to monitor the results in terms of CO2 emission reduction – The Brussels Environment internal communication team does not have the expertise to communicate on financial issues – A substantial number of people involved: can slow down the process – heavy validation process little efficiency, - irregular budget depending on the goodwill of the government, so difficult to have a long term vision	**Threats:** – Time-consuming for the bank advisors to carry out a financial check and provide information to homeowners (on average 16.5 hours for Crédal). – The fact that two lenders are involved in the financing scheme makes it more difficult to set up simple common procedures and conditions - only the low incomes are concerned - high turnover in the structure Homegrade (Energy house), so regularly training is needed – A substantial number of people involved: between Crédal, Housing fund, final users, Homegrade, … - In reality, only single family homes request a loan.

13.4 Riga Energy Agency: the revolving fund

13.4.1 ID of the project

Project name/brand	Riga Municipal Revolving Fund
Country	Latvia
Territory / region	City of Riga
Project start-up date	2017
Legal status of the project company / of the leading entity	Municipal initiative led by the Agency or/and department
Project sponsors	Municipality of Riga
Financial partners	International banks
Present status (number of clients/refurbishments performed, present trend…)	250 energy audits done as a preparation action
Service content (for consumers? For contractors? For other third-parties?)	Multi apartment building deep renovation.

13.4.2 Context of the creation of the project

The idea of the Revolving Fund was triggered by the H2020 project Infinite Solutions. Thus, Riga Energy Agency proposed to establish a Revolving Fund, where local government supported the idea. However, due to political decision-making process complexity, the establishment is still in status to be approved.

Recently, on 23rd May of 2017 Riga City Council has approved a programme for renovation which is available in a form of a grant to multi apartment buildings (more than 10 flats). Budget of the programme is 500k euro and is funded by the City Council of Riga.

Programme is managed by REA and is considered to be a pilot project prior to the establishment of the Revolving Fund. Even though the actual mechanism is not sustainable as it is planned with the Revolving Fund, it is still highly important to establish procedures for applying for renovation, matching with necessary stakeholders and obviously make selection, as it will not be possible to fulfil the demand from the very beginning.

Initially, in order to come up with a relevant model, REA performed multiple studies on business models, different countries experience, other projects, etc. Most of the studies were performed by the REA.

After conducting the studies, we came up with understanding of:

1. What are the main needs for the city of Riga;
2. What is feasible for the city of Riga in terms of multi apartment building renovation;
3. How it can be organised;
4. How it can be funded;

The most important conclusion was that the establishment of the Revolving fund can solve a large-scale problem, and most importantly do it in sustainable manner.

At the beginning we were looking for a simple and transparent model with opportunity to attract structural fund (ERDF) financing to provide soft loans with lesser grants.

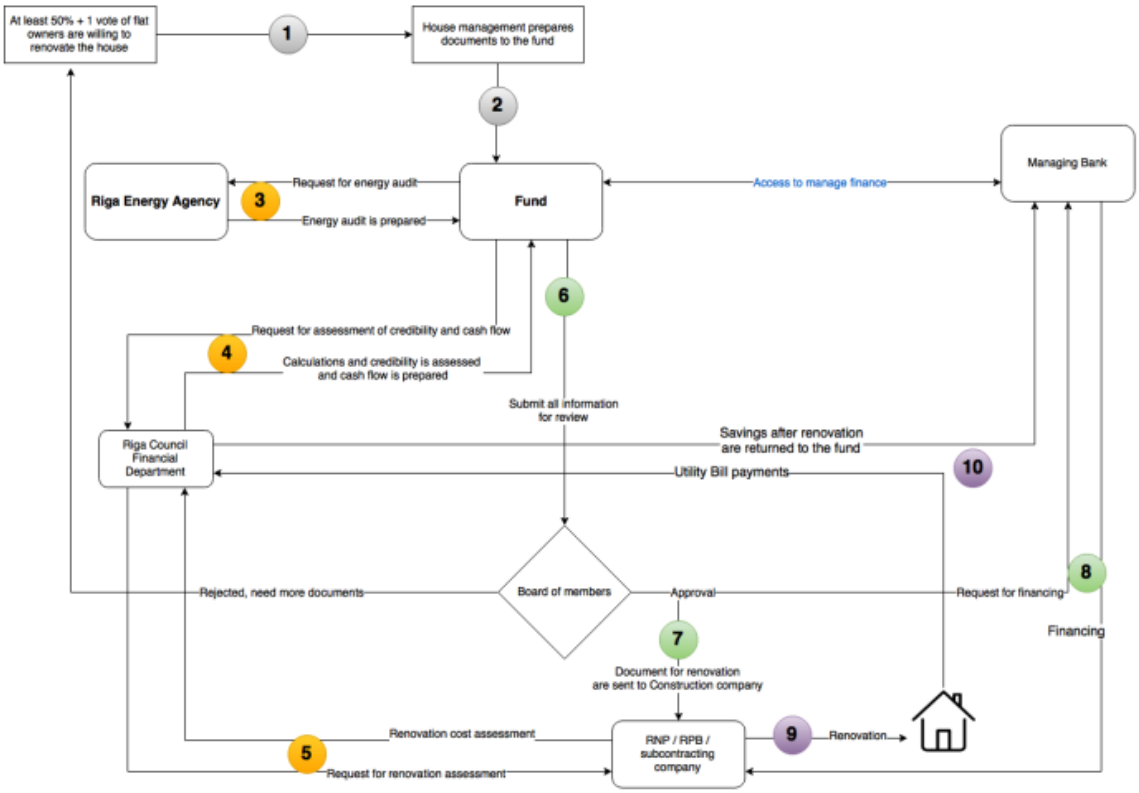
It was also planned to replicate an innovative financing model developed by the project's leading partners within existing building standards in order to renovate at least 10 multi-apartment building or about 25 000 m2.

13.4.3 Modalities of intervention

RF is planned to offer full cycle for households to conduct renovation, incl. co-financing (85% energy audit), technical documentation development, financing, construction works.

It should be mentioned that RF would have multiple partners for each step of the renovation process. Thus, some parts would be outsourced to municipal companies, while some externally.

Stakeholders involved are municipal units, thus from a legal perspective, partnership is based on the decision of the City Council and internal cross-institutional cooperation agreement.



Quality service check is not yet incorporated. However, the experimental programme that will be launched in September is meant to work through such procedure.

At this point we finalized necessary procedures to proceed with implementation.

13.4.4 Financing

It is planned that the RF will start with initial funding of the Riga City Council, while further there will be a loan from the European Investment Bank.

Users will be totally charged to use the service. However, it is not restricted to use any other grant programme that is available.

As RF is not planned to operate as a profitable organisation, all expenses incl. advisory will be calculated and costs will be included in the interest rate that will be applied to users.

In order to get the financing, users need to vote and at least 75% of flat-owners need to commit. Then, the house manager can prepare all necessary documents and apply.

RF is to provide 100% financing for renovation.

13.4.5 Operation

Main tasks of the Fund include management of renovation projects and financial coordination of issued loans. In addition, it is necessary to communicate with the public (provide public consultations, citizens' participation, promotion of renovation options), as well as preparation of new renovation projects and supervision.

It is projected that the fund would start operations with six employees in the administrative capacity, including:

1. Project manager;
2. Chief Specialist department (financial);
3. Specialist (construction work controller);
4. Specialist (communications);
5. Specialist (secretary).
6. Energy auditor

Such a team should be able to organise daily communication, as well as coordinate and monitor up to five renovation projects, which should be enough for at least the first pilot projects of the Fund per year.

Operational costs, including salaries, premises and office expenses, is approximately 90 000 per year. Calculation also includes annual bonuses and sick-leaves for 5 employees.

13.4.6 Key learning points

SWOT matrix

	Internal *(within organisation)*	External *(outside organisation)*
Positive	Strengths: • Transparent model • Administrative capacity • Efficient way of city's house stock renovation • Stimulating cross-field cooperation • Monitoring financial flows	Opportunities: • Stakeholder engagement • Easy to scale • Investor attractive • Stimulating local economy and business • Job creation • Citizen satisfaction
Negative	Weaknesses: • Lack of financial capacity • Bureaucratic issues • High reliance on political decision-making process • May have created negative impact on market competition for SMEs (e.g. ESCO).	Threats: • Economic conditions may affect sustainability (to be proved and adjusted when needed) • Difficult to convince large houses with over 70 flats • Sensitive to national legislation amendments

13.5 Parity Projects: RetrofitWorks

13.5.1 ID of the project

Project name/brand	RetrofitWorks
Country	England
Territory / region	London primarily but able to nationalise
Project start-up date	2012
Legal status of the project company / of the leading entity	Industrial and Provident Society
Project sponsors	Haringey Council, various Trade Associations
Financial partners	Haringey Council commissioned the business plan
Present status (number of clients/refurbishments performed, present trend…)	Retrofitted over 300 individual properties. Delivered to date, including current schemes, over 8 programmes of work (schemes).
Service content (for consumers? For contractors? For other third-parties?)	We deliver energy efficiency measures to householders and small businesses using locally certified and vetted contractors. Contractors receive potential grants or finance offers for their customers and a supply of leads. Advocate members, i.e. Local Authorities, community groups or other, receive a local and reliable supply chain that is quality checked.

13.5.2 Context of the creation of the project

The concept was first generated by the Founding Director Russell Smith, who gathered support from Trade Associations, which represent over 100,000 UK SMEs. At the time of conception (throughout 2012), the UK Government was launching the Green Deal policy, whereby consumers could pay for energy saving works using a loan attached to the electricity meter and repaid using the savings generated. The policy operated around the concept of a Green Deal Provider who could access the finance to offer consumers. There was general concern that SME contractors would not benefit from the policy, and potentially lose customers, as GDPs entered the market and dominated a network of sub-contracting under their brand to deliver works. Furthermore, to

become certified as a GDP required administration and business capacities offered by larger organisations, thus eliminating SMEs for this option.

This initiated a drive for a body of local SMEs to collaborate and generate a delivery model whereby the green deal policy could operate but not dictate the process. The desire for homeowners to have more options around retrofit services, including the ability to go direct to their local tradesman for Green Deal, or other finance was also recognised. The outcome was an inception of a cooperative model that could access various finance for retrofit, including but not limited to Green Deal finance.

During 2012, simultaneously, Haringey Council were reviewing their options as a Local Authority (LA) to deliver retrofit services within their borough. Haringey Council therefore approached Russell Smith of Parity Projects and commissioned a study to create a business case to deliver retrofit services, using the concept Russell and the Trade Associations had delivered to date. It was this business case that identified a cooperative model as a viable option.

RetrofitWorks therefore established itself in April 2013 as a limited company, which then converted in July 2013 to an Industrial and Provident Society or 'Co-operative').

Shortly after the inception of RetrofitWorks, The UK Government released grant funding called the Green Deal Communities Funding. The idea of this grant was to allow green deal finance and ECO (Energy Companies Obligation) to be blended to offer consumers a fairly substantial financial offer to retrofit their properties. However, the reality of this project, due to the high percentage fees applied to Green Deal finance, many consumers simply accessed the grant element and used their own finances to 'top up' the required amount to deliver works. Thus targeting the 'able to pay' or 'nearly able to pay' market and incentivising them enough with the grant to convert the leads.

Haringey Council, along with five other North London Boroughs, won a share of the Green Deal Communities Funding. They commissioned a GDP called Insta, to deliver the grant works. RetrofitWorks were one of five organisations who worked with Insta as a network of suppliers. This grant was called the Smart Homes Grant, and was applicable only within the six North London Boroughs that participated.

RetrofitWorks delivered over £1.8million of retrofit services under this scheme to approx. 190 properties over an 18months -2 year period (project extension of 6 months but not officially advertised). There were many learning outcomes from this project, some which are politically sensitive, and the project evolved and adapted over time.

Some of the key learning points involved how customer leads were generated which is crucial to delivering a successful programme. Haringey Council commissioned a community group to generate leads. RetrofitWorks also used its network of advocate members. The conversion of leads generated via the Council's official route, was around 50%. A call centre was established to register new leads and check customer's eligibility. As the project developed, Haringey Council

allowed independent contractors to access the grant direct, as green deal finance was not being used in the majority of cases and thus the Council were no longer restricted to using a GDP (Insta). This therefore allowed RetrofitWorks to use its network of existing installer members to generate leads. The success rate for converting leads by contractors is around 80%. Although community groups are very successful at engaging the hard to reach and vulnerable customers, the leads are less likely to convert.

Quality assurance was also a major factor. Haringey Council commissioned a company to carry out a survey of the property applying for the funding. Their report was useful to some degree, although it improved and developed over time. During the initial project phase the survey was carried out once customers had registered their interest and were confirmed as eligible. However, as the project evolved it was apparent that many surveys were being commissioned, with only half of them converting. The project then changed its process whereby the surveys were only carried out once quotes had been received and were acceptable to the customer. This reduced the amount of dropouts from survey stage and saved substantial project costs.

The contractor's quotations and schedule of works were also scrutinised, and a standard template was issued to all contractors working on this scheme, to ensure certain specifications were included within their quotes. Price checks were also carried out, although there were negotiations and disagreements on price variations. The key issue being the additional administration required by the contractors to deliver work under this grant, which they argue caused their prices to increase slightly. The architect firm carrying out these checks argued the price should be typical market rates regardless of the scheme. It is worth pointing out at this point, a further benefit to using RetrofitWorks delivery model under this scheme, was the ability for the RetrofitWorks staff to carry out all grant administration on behalf of the contractor, thus enabling them to keep their prices at market rates. The RetrofitWorks model also ensured value for money as customers could access three quotes, suing one point of contact. Customers also valued the impartiality of comparing their quotes and speaking to a RetrofitWorks member of staff about them rather than with the contractors directly.

Since the Smart Homes Scheme, RetrofitWorks has delivered the below programmes;

- £1.8m in energy efficiency work for private householders for Haringey, Camden, Islington, Enfield, Waltham Forest and Hackney Councils under the Smart Homes Scheme – 190 properties.
- Around 15 properties retrofitted under the Smart Business grant for Haringey, Camden, Islington, Enfield, Waltham Forest and Hackney Councils

- Enfield Warm & Healthy Homes – 60 properties retrofitted targeting vulnerable tenants/owners in Enfield Borough only.
- Private rented sector trial for the Greater London Authority to properties across Hounslow – around 30 properties retrofitted.
- Three year contract with Viridian Housing on their Home Energy Improvement contract. Ongoing – currently around 30 properties retrofitted.
- Sutton Housing Partnership to carry out loft insulation and other work – yet to start in full. A trial project of 50 properties was surveyed, and four properties retrofitted.
- Three Community Energy Co-ops in London have just joined to deliver works funded by FiTs – yet to start.

13.5.3 Modalities of intervention

RetrofitWorks offers primarily energy efficiency measures to properties. To date, the focus has been domestic. The option of expanding the service to general construction, handyman services has been tabled. Some installer members have expanded their service offerings from eco measures only, to loft and extension services, due to a lack of demand and policy support mechanisms.

RetrofitWorks is not primarily a consumer facing product, it acts as a delivery model to run bespoke programmes of work for particular areas, using various finance options and delivery agents (i.e. advocate members). RetrofitWorks branding can be used, or white labelled, the key is building trust and reaching certain audiences using the most trusted agent. To do this, the best approach is often a Local Authority or community group. Contractors are also very effective at outreach work for self-generating leads.

Quality Control:

The vetting procedure for RetrofitWorks has been aligned with PAS91, the Green Deal Code of Conduct and other industry certifications and Trade Associations. The procedure is split into requesting business information and specific measure competencies. All members are checked when they sign up to the cooperative.

Current Membership:

Approx. 70 Practitioner members

Approx. 20 Advocate members

RetrofitWorks uses software from a partner provider called Refurbify to ensure quality control. The software provides a tendering process, whereby members can compete for work, using their pre priced schedule of rates (see pricing below). Once the job has been awarded to a contractor, the jobs are assigned to the particular on-site workers who have been set up onto the system as unique users. When installation is taking place, the onsite contractors use the app, to up0load photos before, during and after install is complete. The photos are date, time and GPS stamped. The software also allows for documents to be uploaded to particular jobs, for example site method statements, customer sign off documents, guarantees etc.

Pricing is delivered using different approaches;

- Estimates based on pre price schedule of rates, and then firm quotes post site visits. This can help reduce the need for site visits, as the customer can get three estimates, and then chose one contractor to visit site and quote. Good for busy customers who want some choice with few visits.

- Set prices, using schedule of rates, prices agreed with funder, round robin approach of contractors – good approach when measures are fully funded. Customers have no choice on contractor but have reassurance on quality. Price checks are done upfront by agreeing to a framework of set prices. Good to use a network of installers to build redundancy into the supply chain and quick turnover of work. Can be difficult to implement on complicated measures or larger retrofit projects.

- Contractors agree to pre-price schedules – a surveyor takes measurements, inputs them into the software, to get three automatically generated quotes. Good for simple measures, where little variations allowable, such as loft insulation or PV.

13.5.4 Financing

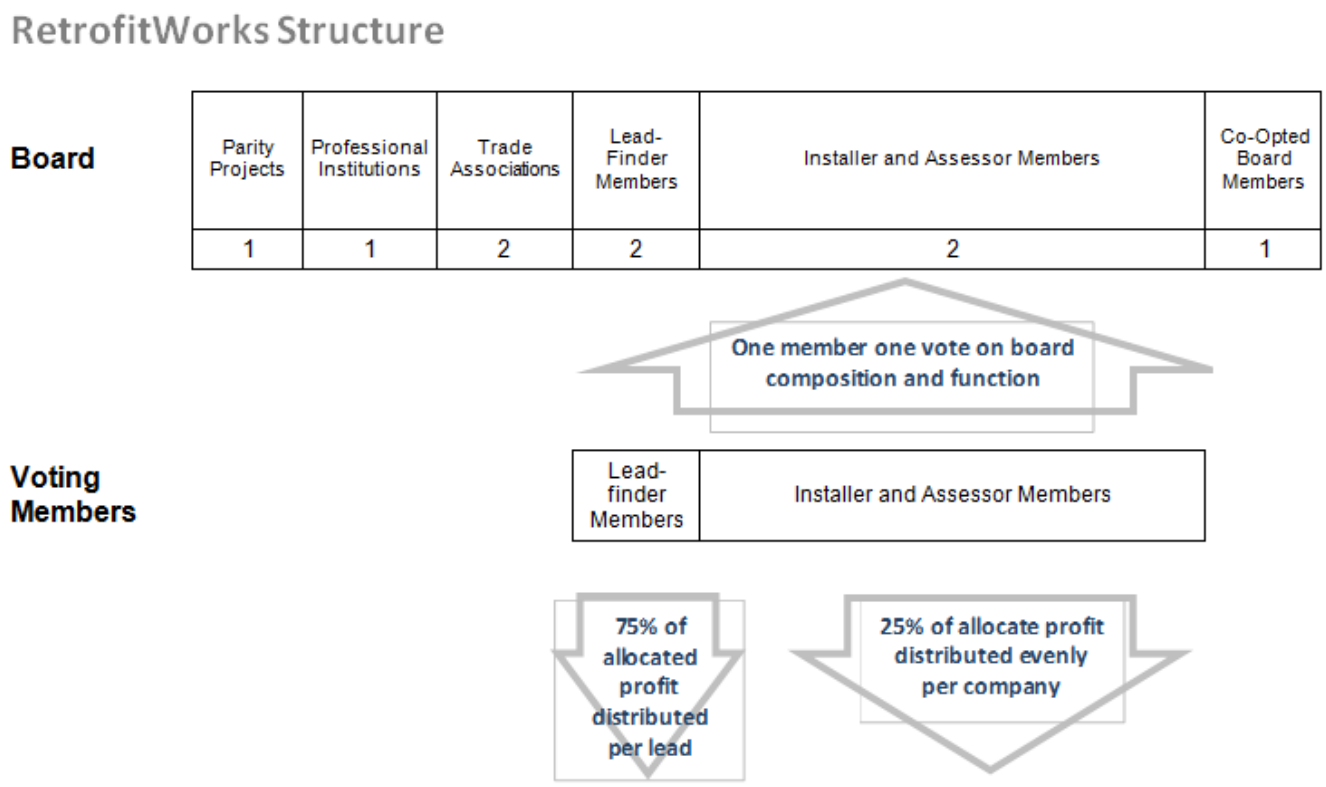
To date, the primary source of finances for the capital costs of installing the works has been government funding. RetrofitWorks has a relationship with a charity loan provider, which caters for owner occupiers with equity, with a reasonable interest rate of 6.16%, and no early repayment penalty fees. However, this offer has not been promoted and there has been very little take up to date. Many homeowners use mortgage finance to cover renovation costs.

The financial model of RetrofitWorks is the following. Members pay a one-off membership fee when they join the coop as a full trading member. This cost is to cover the administration required to carry out the vetting procedure. There is also a fee applied to installer members who carry out works through the coop. This fee is based on a certain percentage of the total cost of retrofit works, excluding VAT. The total percentage fee is calculated based on the amount of time and resources required by RetrofitWorks staff to deliver the particular scheme. Typically, these fees range from 5-10%. The model aims to provide contractors with enough leads, in that they do not need to add this fee onto their prices. This will take time to fully enable.

Being a cooperative, any profit that is generated, is fed back to the members in member services or other, as deemed by the membership. Typically to date, there has not been any profit and any small surplus has been fed back into resources to set up a new scheme/programme of works.

The current business plan is to focus on providing services and lead to existing members. In order to do this, a viable financial offer is required.

13.5.5 Operation



As a cooperative, its governance arrangements are crucial. The cooperative is governed by a set of documented rules (**we can circulate this if of interest**).

The cooperative currently has three board members and one advisor as follows;

Russell Smith

Russell founded Parity Projects in 2005 whilst carrying out his own deep eco-renovation – work which inspired the later development of the renowned Home Energy Masterplan and CROHM stock assessment advice services.

Paul Bogle

Paul Bogle came to the construction industry in 2008 after nine and a half years with leading strategy consulting firm McKinsey and over six years as a senior manager in the Tax Policy Group with one of the Big Four accounting firms, Deloitte practice and improve access to work for SMEs. Paul is also a current Director of RetrofitWorks co-operative.

Tony Rose

Tony Rose has worked in the energy sector for over 25 years. Having gained an MSc in Energy and Buildings, for which he was Winner of the Applied Energy Prize, Tony has worked for numerous organisations over the years including Croydon Council, Greater London Energy Efficiency Network (GLEEN), Advent Energy Management and his current post Ecologic-Energy.

Advisor to the Board

Barry Mortimer

Barry is Director for The FMB, the UK's largest trade association in the building industry. Barry's role is to help ensure the FMB is a source of knowledge, professional advice and support for its members by providing a range of modern and relevant business services designed to save members' time, money and give them a competitive edge.

RetrofitWorks currently has two employees, who are seconded from Parity Projects. Russell Smith, Director, Managing Director for RetrofitWorks, lead relationships developer to create new programmes of work. Megan Williams, operational manager, who carries out the project management and delivery of schemes once established. During the Smart Homes Scheme, a temporary position was filled by John Condon was employed.

To date, Parity Projects as founding members of RetrofitWorks, provide substantial support in terms of both finances and resources. The aim is the RetrofitWorks to be self-sustaining, with self-employed persons. To date, this has not been achieved due to the lack of overall consumer demand and ability to offer a viable self-sustaining financial offer to consumers.

13.5.6 Key learning points

SWOT matrix

	Internal *(within organisation)*	External *(outside organisation)*
Positive	**Strengths:** • Quality control process • Online software • KPIs • Retrofit delivery experience • Good outreach network • Efficient payment process to members • Technical knowledge • Good customer service • Independent dispute resolution process	**Opportunities:** • Currently working towards new ECO grant opportunities and low interest finance (soft loans)
Negative	**Weaknesses:** • Lack of resources • Unsteady demand/supply of schemes • governance arrangements (due to lack of resources) • Poor cash flow	**Threats:** • Lack of government policy/strategy • Unsustainable retrofit market currently • Lack of long term financial offer for customers • Lack of skilled contractors

13.6 Revolving Fund for energy efficiency in apartment buildings: KREDEX

13.6.1 ID of the project

Project name/brand	
Country	Estonia
Territory / region	
Project start-up date	2009
Legal status of the project company / of the leading entity	KredEx Foundation, a government owned non-profit provider of financial services established in 2001 by the Estonian Ministry of Economic Affairs and Communications (MoEAC).
Project sponsors	Estonian Ministry of Economic Affairs and Communications
Financial partners	European Regional Development Fund (ERDF), the Government of Estonia, the Council of Europe Development Bank (CEB) and by the KredEx Foundation
Present status (number of clients/refurbishments performed, present trend…)	
Service content (for consumers? For contractors? For other third-parties?)	

13.6.2 Context of the creation of the project

The establishment of the KredEx Fund renovation loan scheme in 2009, whose conception goes back to dialogues and collaboration in 2007 between the MoEAC, KredEx Foundation and representatives from KfW Bankengruppe, the German development bank, marked the switch of the Estonian government's energy efficiency support strategy from a focus on a grant-only scheme –such as the one in place from 2003 through 2007- to a more adequate support system based on a combination of loans, loan guarantees and grants. This strategy responded to the Estonian government's wish to align with the EU policies and directives set forth in the EU 2020 climate and energy package as laid down in the following plans and policies:

- the National Housing Development Policy adopted in 2008 with specific objective, among other things, to create a high-quality, energy efficient and sustainable residential building stock
- the Energy Conservation Target Plan for 2007-2013 specifically foreseeing the increase in energy efficiency in residential buildings
- and the National Development Plan for the Energy Sector until 2020. This new strategy was also in full alignment with the European Commission's wish to have an alternative use of the available ERDF (European Regional Development Fund) funds for sustainable urban development which were before mainly used as a grant instrument by the regions.

Setting up a support system for the renovation of the low quality and low energy efficient apartment buildings was a key measure of the Estonian Government in achieving its energy efficiency objectives. The rationale was to be found in the fact that, at that time, the Estonian building stock accounted for up to 50% of the total national final energy consumption, significantly above the average of 37.5% across all EU countries, that around 60% of the Estonians were living in apartment buildings built primarily between 1961 and 1990 (30% even before 1960) and that energy efficiency and indoor climate were especially in need of improvement. KredEx Fund's objective is to incentivise apartment building owners to reduce energy consumption and increase the energy efficiency of their homes by at least 20% and to use renewable energy by providing access to preferential loans and grants under certain conditions.

In 2009, its ambition was to renovate at least 1,000 buildings by the end of 2013 and to target energy savings of at least 20% for buildings with a net area of less than 2000 m² and at least 30% for buildings with a net area of more than 2000 m².

13.6.3 Modalities of intervention

Kredex Fund serves basically as a lending institution, through its financial intermediaries Swedbank and SEB, it provides financial products such as preferential loans and loan guarantees (for renovation of apartment buildings). Through KredEx Foundation it has two additional roles: it acts as an intermediary for reconstruction grants and grants related to efficiency audits, expert evaluation and project design documents and as promotor or marketer of energy efficiency it has put considerable effort in promoting a more efficient use of energy resources and in raising energy efficiency awareness in Estonia.

KredEx Foundation ("KredEx") is a legal person governed by private law and operates independently in the form of a foundation though manages and allocates the dedicated financial resources to energy efficiency projects in building apartments in line with the Estonian government's energy efficiency support strategy and the objectives of the "Apartment building renovation loan programme". It operates by the principles of a credit insurance provider, earning profit from guarantee fees and interest, and investment income from which losses as well as administration expenses are covered. In addition, KredEx provides for the Estonian state the administration service of available grants in the housing area. Its financial experts worked out the design of the renovation loan scheme (terms, beneficiaries, etc.), ran negotiations with the partners (CEB, ERDF, local commercial banks) and managed the relations with the beneficiaries of the dedicated Fund (Union of Housing Associations, Builders Associations,…), together with representatives from MoEAC.

KredEx Fund supports only renovation and reconstruction projects of multi-apartment buildings where at least three apartment owners want to make use of the loan possibility, preferably represented by a housing association. A minimum commitment of 20% energy savings is required in buildings up to 2000 m², while in larger buildings this increases to 30%.

As a lender, KredEx Fund has been providing renovation loans at fixed 10-year term interest rates of between 3.5% and 4.5% (the latter interest rate was applied at the beginning), the average being approximately 4.0%, for up to 20 years. For the period 2009 – 2014 the average maturity of the loans is about 17 years. A minimum own contribution of 15% is required from the beneficiaries (this can be own funds, or grants or any other loan) and the maximum amount has been capped to 1,35M € per building. There is no collateral required and the loans are mostly being reimbursed with the achieved energy savings. The building has to be insured during the whole term of the loan. The applied interest rates by KredEx Fund are below commercial-market interest rates and these favourable conditions have been possible because it received (zero cost) grants from ERDF and favourable interest rates from CEB and because, as a not for profit organisation, it does not distribute profits. The KredEx Fund only applies 0.5% to 0.75% of the loan amount as contract fee which is also below commercial market terms

Grants are available through KredEx for those housing associations who wish to undertake deep retrofit or reconstruction.

Beneficiaries can obtain grants of 15%, 25% or 35% depending on the level of energy savings achieved:

- For 15% grants the beneficiaries must meet the terms for renovation loan, achieve energy savings of 20% for buildings up to 2000m² or 30% for buildings with a size of more than 2000m², obtain energy label E and limit energy consumption to less than 250 kWh/m²;
- For 25% grants the beneficiaries need to include roof, facade, windows (Uvalue 1,1) heating system, achieve energy saving of at least 40%, obtain energy label D and limit energy consumption to less than 200 kWh/m²;
- For 35% grants the beneficiaries need to include roof, facade, windows (Uvalue 1,1) heating system, heat-recovery ventilation system, achieve energy saving of at least 50%, obtain energy label C and limit energy consumption to less than 150 kWh/m²

Beneficiaries can obtain grants up to 50% of the expenses for energy audit and building expert evaluations and project design documents. The purpose of these grants is to motivate representatives of apartment buildings to consult with an expert before planning and performing any reconstruction work, and to have the works carried out in accordance with the expert's suggestions and the Estonian Building Act.

The loan or grant application process includes basically the following steps:

1. Apartment building associations wishing to undertake retrofit need first to contract an energy audit. Up to 50% of the cost of the energy audit can be financed by grants through KredEx. Based on the energy audit the beneficiary needs to prepare the project design or building design documents (energy audit, energy consumption reports, selected energy efficiency measures, feasibility, required budget, building permit,…). Up to 50% of the building design costs can be financed by grants through KredEx. Request for price quote is being organised by the beneficiary. At least 3 formal price quotes for the works to be carried out are required.
2. Submission of the project and related documents to the intermediary bank and application for loan and/or grants.
3. Project appraisal and creditworthiness assessment by the intermediary banks. Formal decision on approval for financing by intermediary banks. Forwarding of grant application by intermediaries to KredEx
4. Formal decision on approval of grants by KredEx
5. Signatory of loan agreement with intermediaries and grant agreement with KredEx
6. The service suppliers (works contractor, project management, supervision,…) are being chosen and contracted by the beneficiary
7. During the works phase the invoices related to the works and the related services are being financed by the bank (funds made available to the beneficiary or paid directly to the service providers).

8. At the end of the works the construction grants (15%- 35%) can be paid out to the beneficiary

The KredEx Fund's final financing or grants recipients are cooperative housing associations and communities of apartment owners (built before1993) and local governments (as owner of social housing).

13.6.4 Financing

KredEx Revolving Fund got funding for a total of 72M € to be allocated as renovation loans to multi-family apartment building owners and housing associations. The available grants for renovation are not paid from the KredEx Revolving Fund but from a separate budget coming from the ERDF (€ 3 M) and from the Green Investment Scheme, which is the sale of CO2 emission allowances by Estonia to Luxembourg and in the European trade market (about 40M €).
As of today the whole funding (72M €) has been exhausted. Notwithstanding its depletion the KredEx Fund is still taking applications in the hope that it can secure new funding. The loan scheme has been successful in promoting the take-up of innovative solutions to improve energy efficiency in buildings often by as much as 40%. The fund has not really yet begun its revolving potential as it is still reimbursing the obtained loans from some of its funders (CEB and Estonian Government).

Three main sources provided initial funding of about 49M € (766M Estonian Kroon) to the KredEx Fund

- Council of Europe Development Bank (CEB), chosen through international bidding: loan of 28,8M €, guaranteed by the Estonian Government
- European Regional Development Fund (ERDF) through Regional Operational Programme 'Living Environment' (Management Authority Ministry of Finance): grant of 17,0M €
- KredEx Foundation: 3,2M €

KredEx Fund has the obligation to pay out all funds received from ERDF to projects by 31 December 2013.

May 2013 the revolving Fund secured additional funding of 16,0M € from the Estonian Government (loan) and 7,0M € from Kredex, thus achieving 72,0M € funding.

The funds have been used to provide soft loans to two intermediary commercial financial institutions, Swedbank (2/3 of the funds) and SEB (1/3 of the funds) chosen through public

tendering to administer the renovation loan scheme and to provide further lending to the intended beneficiaries.

13.6.5 Operation

Kredex Foundation has a Council whose main task is to make strategic decisions related to the Foundation's operations and the approval and amendment of documents most important for the operations (budget, strategy, activity goals, risk management, cooperation principles with credit institutions). The council also approves all projects for which the individual total amount of the loan or guarantee issued by KredEx exceeds one million euro. The council consist of maximum 7 members including representatives from MoEAC and the Ministery of Finance.

The Board is the managing body of the Fund. It is responsible for managing the daily activities of the foundation, ensuring the implementation of the council's decisions and taking responsibility for the fulfilment thereof.

KredEx has two staff dedicated to the programme through its Housing and Energy Efficiency Division, the Department Head and a Project Manager. This division is being assisted by other disciplines and departments of KredEx Foundation, especially by the internal audit unit and financial division who follow up on the implementation of the supported projects.

KredEx has been able to keep the KredEx Fund's running and administrative costs rather low, firstly because nearly all expertise is available in-house and also because a lot of the work during the loan application process is being done by the intermediary banks.

13.7 The KfW programme "Energy efficiency construction and refurbishment", Germany 107

13.7.1 ID of the project

Project name/brand	KfW programme "Energy efficiency construction and refurbishment", Germany 107
Country	Germany
Territory / region	Germany
Project start-up date	
Legal status of the project company / of the leading entity	
Project sponsors	
Financial partners	
Present status (number of clients/refurbishments performed, present trend…)	
Service content (for consumers? For contractors? For other third-parties?)	

13.7.2 Context of the creation of the project

In order to stimulate investments in EE refurbishments and to limitate public subsidies to the poorest householders, Germany has implemented for 20 years an attractive mechanism, managed by the KfW. The KfW is the public development bank of Germany.

Since 2006, subsidies for the KfW represent on average 1.5 billion € per year.

The estimated number of global EE refurbishments in Germany would be between 60 000 and 130 000 per year, while we count 36 million apartments in Germany. The EE refurbishment rate would be of 1% for the private residential buildings, including 0.3 % for the global high performance EE refurbishments projects.

13.7.3 Modalities of intervention

The German system is characterized by 4 complementary levels :

a) The incentives to renovation works

The incentives very often are interest subsidies and renovations works subsidies for renovation works implemented by the KfW :

- Most of subsidies are given as loan payment reduction
- Subsidies linked to the program increase with the energy savings expectations. The maximal energy consumption expected is around **80 kWh/m².year.** For this level, householders get a subsidy corresponding to 7.5 % of the costs of the renovation works (the maximum subsidy is 9375 €). The most ambitious level entitles to a 17 % subsidy on the cost of the renovation works (maximum of 13125 €).
- Interest subsidies loans may reach 120 k€ (for the least ambitious renovation works projects) to 175 k€ (for the most ambitious). These amounts are high because they apply to 2 to 4 dwellings, given the fact that there are many small condominiums in Germany.
- Loans are long-term loans (very often 20 years, sometimes even 30 years)
- There may be interest subsidies, only on a 10 years long period.
- The repayment deduction is given only at the end, once the quality of the work has been checked.

b) The compulsory verification by an independent counsellor

Since 2006, the KfW program is open at the condition that the renovation works are realised by professionals and validated by a certified thermal engineer (before and after the renovation works). The cost of this intervention is estimated to be between 2 % and 5 % of the cost of the renovation works. Subsidies also cover this intervention. This new obligation (implemented from 2006 to 2009) has led to the development of networks of more than 12 0000 certified thermal engineers.

c) A financing distribution through the bank networks

The soft loan is distributed by the bank networks, which are satisfied with the modalities of distribution:

- This system plans loan limits (50 000 € and 75 000 €), which favour the sale of complementary loans by the banks
- The KfW does not intervene in the customer – bank relationship, neither influences on the commercial positioning, nor on the solvability analysis, nor on the loans management.

- The bank fees (0,75% in 2013) cover the operational costs of the banks (operational costs are only invoices gathering)
- Banks are not concerned by the verification of the quality of the works, neither by the subsidies delivery and subsidies management
- Free of charge training sessions are given to bank counsellors

In fact, commercial banks have become important prescribers of the EffizienHaus program and of the KfW soft-loan , when their customers were looking for information about works renovation.

d) A national brand which orientates the works demand and works supply

The technical requirements to have access to financing become little by little energy efficiency labels, which are for instance valorised during real-estate transaction.

The label Effizienzhaus (EH) fosters a global approach to energy-efficiency. The German national environment agency targets its communication towards professionals and certified experts, for who it updates the list. Professionals and experts become in this way important communication relay.

13.8 The public-private enterprise Energies POSIT'IF (France)

13.8.1 ID of the project

Project name/brand	SEM Énergies POSIT'IF (Promote, Organize, Support and Invent the Energetic transition in Ile-de-France)
Country	France
Territory / region	Region Ile-de-France (Paris surroundings)
Project start-up date	January 2013
Legal status of the project company / of the leading entity	Private-public company (société d'économie mixte)
Project sponsors	Region Ile-de-France (regional government)
Financial partners	Capital of 5.3 million € shared between the following shareholders : - Region Ile-de-France (regional governement) : 57% - Municipality of Paris : 9% - Caisse des Dépôts et Consignations (public national investor) : 9% - Conseil Général (sub-local governement) of the Val-de-Marne: 8% - Caisse d'Epargne Ile-de-France (bank) : 6% Other participations below 2% : total of 11%
Present status (number of clients/refurbishments performed, present trend…)	In May 2016, Énergies POSIT'IF has signed 28 contracts with condominiums in Ile-de-France, including : - 4 project management contracts – at the state of construction - 11 project management contracts – conception of a programme of global refurbishment - 13 contracts for energy, architectural and financial audits This portfolio of projects represents 4450 flats refurbished in 30 condominiums, for an estimated cost of 30M€.
Service content (for consumers? For contractors? For other third-parties?)	The service content for condominiums includes : - A preparatory study : definition of construction work, energetic impact assessment, business plan - Project assistance during construction work - Reporting of energy consumptions after refurbishment - A project study (definition of works and evaluation of the

energy impact, the financing plan) when the works have been carried out, the follow-up of the consumption following the works, the maintenance and an energy performance guarantee, likewise a direct financing of the works. The quantitative objective is to 1 000 homes per year, with a targeted energy performance « BBC Rénovation »

13.8.2 Context of the creation of the project

Who initiated the proposal first?

The Ile-de-France regional council has participated with the Caisse des dépôts (public French investor), the municipality of Paris and the French Environment Agency (ADEME), to the first study on the conditions for the development of third-financing scheme. This mechanism aims to facilitate energy refurbishments in the private housing sector, in 2008-2009.

How was the design of the project organised? Has any study been performed? If yes, who did these studies? Which actors have been associated to the service design phase? How were they involved?

The Ile de France region has then carried on pre-studies for the implementation of such an operator, on the following topics: the construction work for energy efficiency refurbishment and its financing for condominiums and public buildings, the legal and financial sides preliminary to the roll-out of the regional energy operator in the form of public-private company.

Who supported the idea (local governments, national governments, public national agencies, other public sector actors, private sector actors, NGO and civil society)?

The idea was supported by local governments, the French Environment Agency (ADEME), public investor (Caisse des dépôts), banks (caisse d'épargne).

What were the main milestones of the creation of the project? Date of official start-up? Date of implementation?

- 2008 – 2009: pre-studies
- 11.17.2011: Approval by the board meeting of the regional council of the statutes of the operator, and of the investment in this operator
- 2012: Approvals by the public shareholders (local governments) from 15th of May until the 17th of July. General Assembly to set up the operator and finalisation of formal and administrative issues
- 2013-2014: development of the first projects with condominiums, depending on the rhythm of general assemblies of condominiums (one ordinary general

assembly each year). Publication of the ALUR law defining the third-financing scheme

- 2015-2016: the operator has launched a few projects but has not been able to implement the third-financing scheme. Indeed, the implementation of the third-financing scheme for condominiums implies collective loans, that require protection by a credit insurance company ("*société de caution*"). The operator Energies POSIT'IF met difficulties to convince one credit insurance company. He finally signed a credit insurance contract at the end of 2016.
- 2017: Waiting for the certification by the department Autorité de Contrôle Prudentiel et de Résolution of the French National Bank, for implementing the third-financing scheme

Could you describe the provisional business model at the beginning of the project, and how has it has evolved?

What were the objectives of the project at the beginning? Had you defined quality standards (in terms of quality of the works, and energy efficiency performance)? And quantitative objectives (for instance in terms of number of renovated housing)?

The first capitalisation of Energies POSIT'IF (5.32 million €), is sized for a technical and financing assistance of 8 to 15 refurbishments of condominiums, representing around 1000 apartments per year.

13.8.3 Modalities of intervention

What are the services that your project offers? Does it include technical and / or financial supports? In which ways?

The services include technical and financial supports: the operator helps condominiums and banks to get in touch. In the future, the financial support will include a funding offer.

Énergies POSIT'IF replies to tenders of project owners of condominiums to carry out ambitious energy refurbishments.

The operator focuses his efforts on big condominiums with collective heater. Indeed, convincing one condominium takes about the same amount of time, irrespective of the number of co-owners. The impact of refurbishments of big condominiums is consequently more efficient.

The operator influences condominiums to vote for big energy refurbishments when bringing a technical support and facilitating the financing of the construction work.

The success rate of the operator is around 15 – 20 %: this means that 15 to 20 condominiums will effectively approve the refurbishment while 100 condominiums enter in the process.

Today, the operator acts as the representative of the group of companies in charge of the renovation work. It has formed a partnership with architects, project managers and energy and thermal consulting firms to implement global audits and project management of renovation work.

The organization of the services offer

The services include:

- Definition of the project, including technical support and financing plan
- Renovation work
- In options, the services include the heating management, the energy consumption reporting, and a financing offer through the third - financing scheme.

From a legal perspective, how are relations formalised between all the stakeholders (user, service provider, project manager, building contractors, local municipalities, etc.)?

The services are formalized through the signature of a contract between the operator and the condominiums. This contract includes:

- A definite part, in which the condominium gives to the companies partnership the mission to realise project management, studies enabling to give an estimation of the cost of a works programme and an estimation of energy consumption reduction, as well a financing plan
- A conditional phase, under the condition that the general assembly of the condominium gives its approval. This conditional phase covers the renovation work with a performance guarantee which may be different depending on the context

Could you describe, or draw a diagram of the script of service proposed to the consumer/user who steps in your project?

Figure 1: The articulation of Energies POSIT'IF with the other actors of the renovation work of condominiums

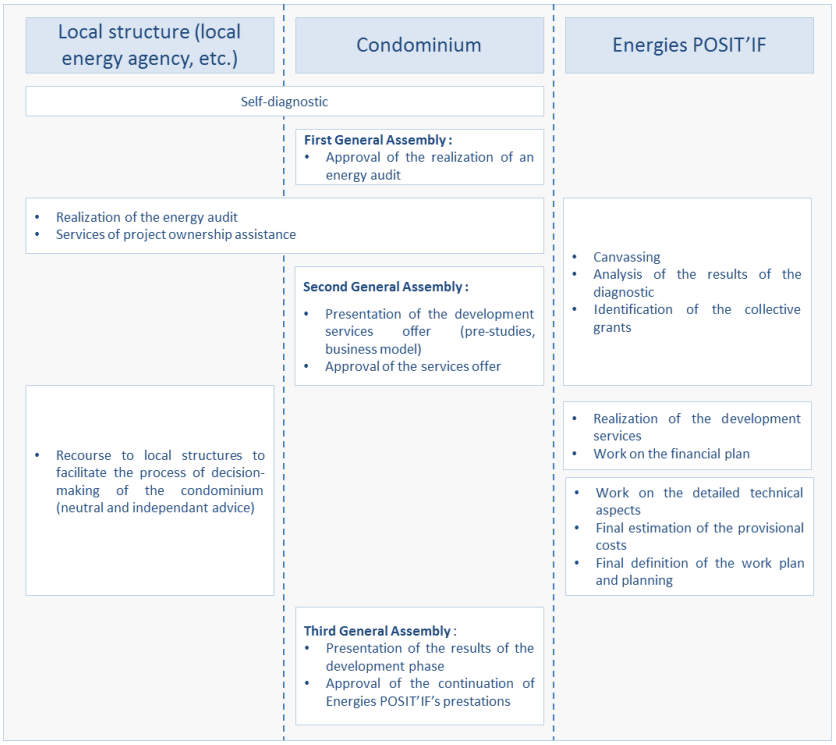
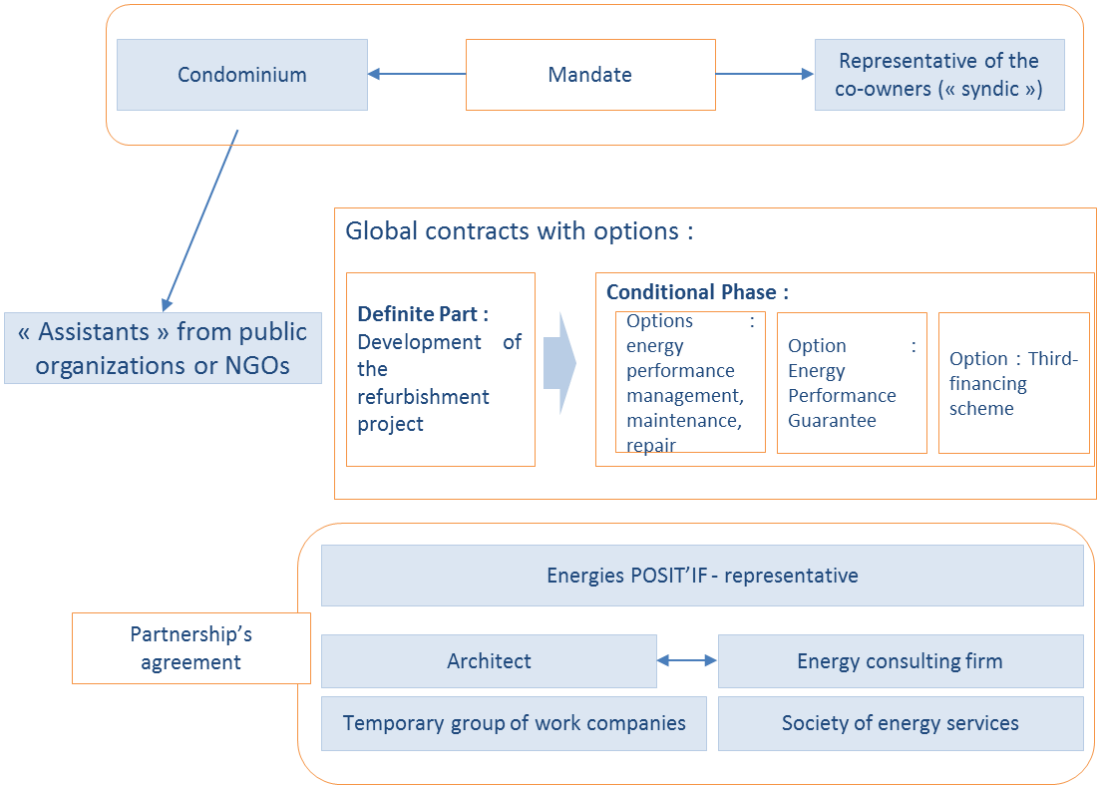


Figure 2: Formalization of relations between the different actors



Learning point:

The best angle to convince condominiums is not energy efficiency, but rather comfort and aesthetics.

- ❖ Have you incorporated a quality check procedure throughout the service scenario? How does it work?
- ❖ Do you provide all the services or do you outsource partly or totally the services? If yes, who are the subcontractors?
- ❖ What are the results of the project implemented (number of realisations, quality of the projects, transformation rate, etc.)

13.8.4 Financing

What is the current business plan of your project?

The pre-study concluded on the need for a progressive implementation of the services to reduce the operational risks.

The costs of communication and of consultancy for condominiums have been evaluated by taking into account the upstream intervention of local structures such as the Local Energy Agencies.

Modelling of the third-financing activity has been done on the basis of existing case studies of houses refurbishments leading to low-energy buildings. It includes:

- Estimation of the costs for renovation work;
- Estimation of the expenditures and revenues. Third-financing expenditures have been sized in order to include: cost of renovation work, excluding VAT, a commission corresponding to the fees of the operator, and an allocation for provisions.

Shareholder's equity

The provisional business model has evaluated a need in shareholder's equity of 14 million € for the time period 2012-2020, including 10 to 12 million € during the first 5 years on the condominiums target. The scenario expected a load increase with 100 to150 flats to renovate per trimester.

Technical Support MLEI - PDA

The Ile de France regional council got the technical and financial support from the EU, within the framework of the programme « Mobilizing Local Energy Investment – Programme Development Assistance ».

The programme has begun in April 2013 for a duration of 36 months and is focused on the development of the offer for energy improvements of condominiums. It enables to cover 75% of the development costs of Énergies POSIT'IF during the 36 months of the programme.

The MLEI grant stands at 1.5 million €. In return of this support, Énergies POSIT'IF must create at least 38 million € of investment in condominium refurbishments in 3 years.

The refinancing of the debts

Energies POSIT'IF wishes to implement the third-financing scheme and proposes a funding offer to condominiums, it needs to access to long term financing enabling it to cover its liabilities portfolio as a complement of its shareholder's equity.

The search for direct bank financing

The operator has not yet obtained the certification from the French National Bank to implement the third - financing scheme. In the meantime, Énergies POSIT'IF tries to convince banks to grant direct financing to condominiums with its assistance, in order to decrease the management costs.

13.8.5 Operation

How many people work on the project?

The organizational chart of the operator includes 8 people:

- A management team: the management team gives the orientations and fosters the activity, looks for the development of the services
- An energy counsellors team
- A support staff and quality control team: this team grows depending on the load increase of the activity. It includes an architect and a thermal engineer

13.8.6 Key learning points

SWOT matrix

	Internal *(within organisation)*	External *(outside organisation)*
Positive	**Strengths :** • As a first operational third – financing scheme, Energies POSIT'IF had access to important resources of European technical support • Involvement / Commitment of the regional council during the implementation phase	**Opportunities :** • Definition of the services offered directly after consultation of representatives of condominiums and local energy structures
Negative	**Weaknesses:** • Business model not adapted to small and medium-size condominiums • Complex management due to the high number of stakeholders from local governments • Disagreement among stakeholders concerning the constructor's status in the private-public company	**Threats:** • Coordination difficulties with the local environment agencies at the beginning of the projects • Difficulties to find a credit assurance guarantee for the collective loans in the third-financing scheme

13.9 The state-owned company: Picardie Pass Rénovation (France)

13.9.1 ID of the project

Project name/brand	Service Public de l'Efficacité Energétique en Picardie PICARDIE PASS RENOVATION
Country	France
Territory / region	Hauts-de-France (previously "Picardie)
Project start-up date	Officially : September 2013, formal approval of the regional council
Legal status of the project company / of the leading entity	Régie public : state-owned company
Project sponsors	Regional council of the Hauts-de-France region, French National Environment Agency (ADEME)
Financial partners	EU, EIB Caisse des Dépôts et Consignations (public national investor) The NEF bank The Crédit foncier bank
Present status (number of clients/refurbishments performed, present trend…)	
Service content (for consumers? For contractors? For other third-parties?)	Service content for consumers (homeowners) : ▪ Information and renovation works advice given by the delegated project owner ▪ Third-financing scheme: the operator offers loans of 15-25 years depending on the equipments and renovation works financed, the reimbursement capacity and the expected energy savings. Service content for professionals (building constructors) : ▪ Call for companies (procurement markets) ▪ Call for project managers to assist the first renovations ▪ Link with the regional cluster on eco-construction

13.9.2 Context of the creation of the project

The Picardie regional council has done a pre-study to create a system in order to improve the energy-efficiency of private residential buildings.

Two studies have been done in 2011 and 2013 to precise the legal, financial and technical aspects of the project, and to precise the needs for the services, thanks to the local energy agencies.
These local feedbacks enabled to confirm the project's objectives:

- To bring a complete global service to consumers, from information to assistance for renovation works and even after ;
- To help householders finalise their financial plan, increase the duration of the loan to orientate them towards more performing renovation works

The pre-study has shown that the business model could be balanced with valorisation of the energy obligations, and has validated the legal feasibility of such a scheme.
The operator received some technical assistance from the ELENA program of EIB, from the end of 2014 to the end of 2017. The technical assistance has represented an amount of 1.8 million €. The operator needs to reach a leverage effect of x29 on the 3 years (it is the ratio between the EE renovation works engaged thanks to the ELENA assistance and the amount of the technical assistance).

13.9.3 Modalities of intervention

The steps of the services are the following:

- A first contact (mainly, on the phone), between the customer and the operator: the goal is to do a first analysis of the project and to plan an appointment.
- The next appointment is a meeting in the decentralised office of the operator: it is a way to analyse the technical and financial aspects of the project. The customer must get a first idea of the possible renovation work scenarios, of the costs, and of the expected energy savings.
- A meeting takes place in the house of the customer to do an energy audit, complete the project's data, and validate the transmitted data. At this moment, a service fee of 300 € excluding VAT is calculated.
- The operator decides if it is possible or not to finance the customer
- The operator presents to the user the optimal scenario with a precise estimation of costs, expected energy savings. If the customer wishes to go on with the process, he has to subscribe to it and pay for the services.
- If the customer wishes a third-financing financial plan, he signs a financing contract with the operator.

- Renovation works begin
- The operator pays companies if a third-financing scheme is implemented
- The customer reimburses the operator, once the renovations works are finished.
- The energy counsellor of the operator visits the house once a year, during 5 years, to report energy consumptions and give maintenance advice.

The operator has partly internalised the services, partly externalised them (through procurement markets).

The assistance project is charged 1860 € (all taxes includes) for individual houses, 940 € for apartments in condominiums. A part of this invoice (350 €) is directly paid by the customers, while the other part is included in the renovation works financial plan.

The transformation rate (success rate) of the first contacts reaches 10-12%. This means that 10-12% of the people who contacted the operator finally engaged EE renovation works. The objective for Picardie Pass renovation is to reach 20 – 25 %.

Figure 1: steps of the services provides to homeowners

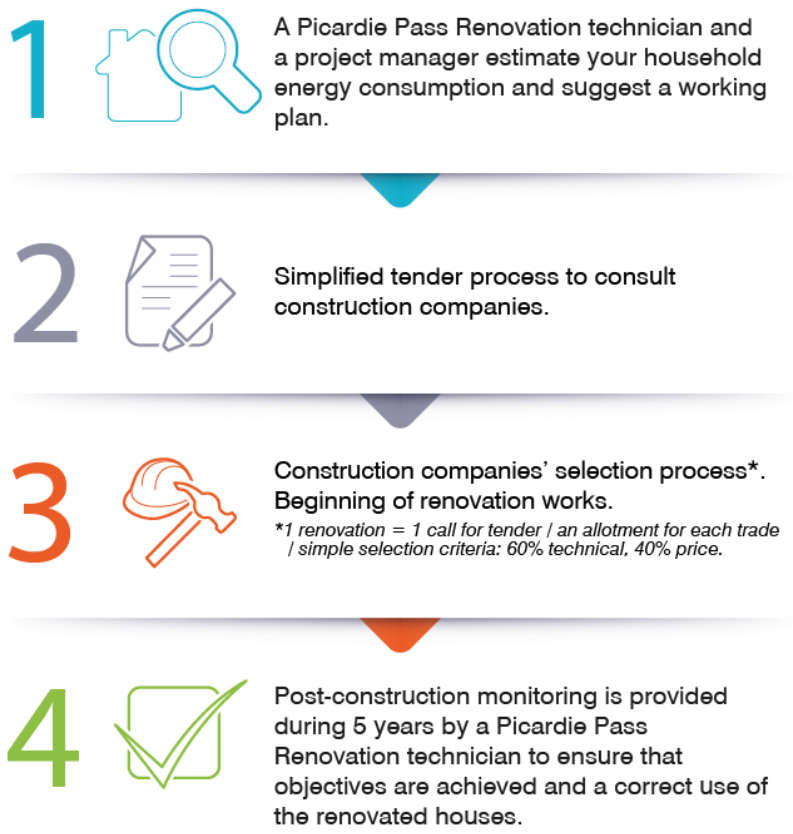
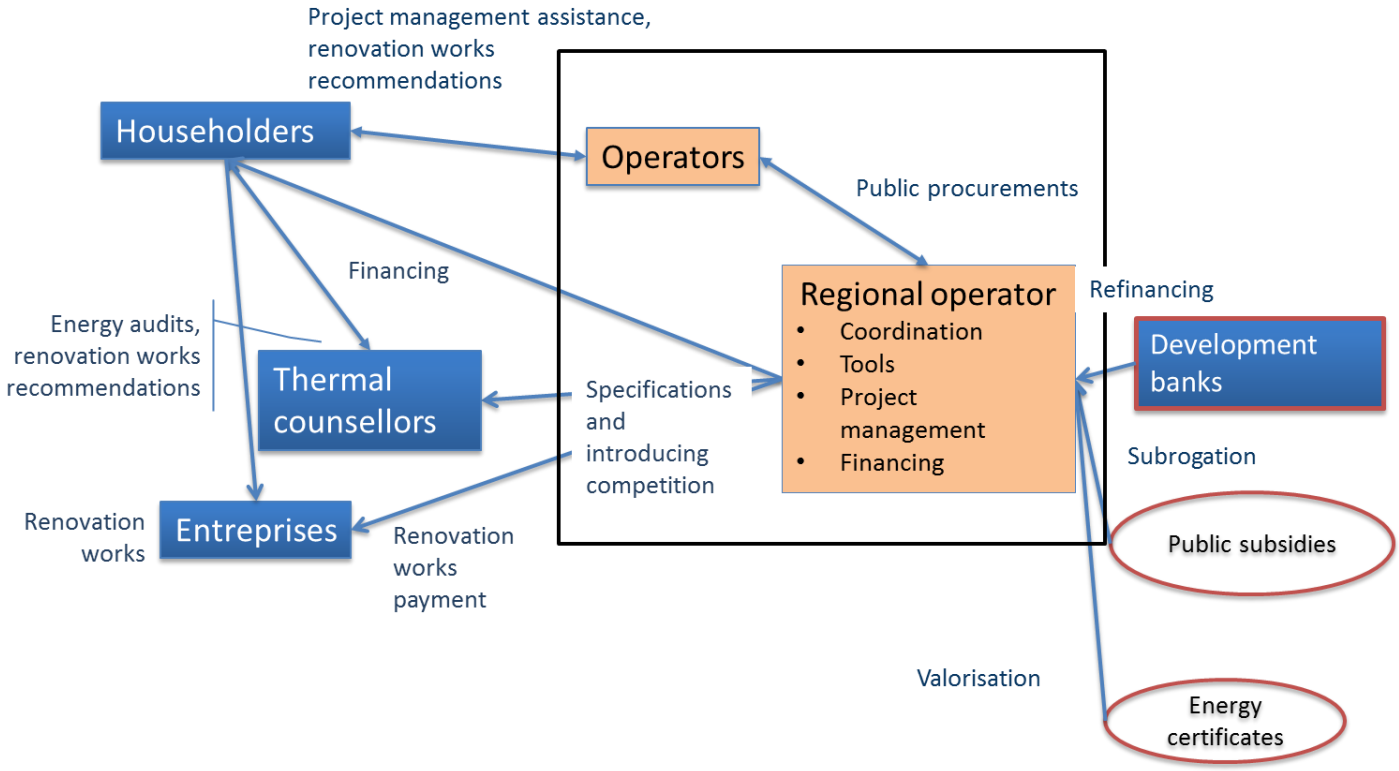


Figure 2: Functioning scheme



Results

Two years after the beginning of the implementation of the operator (in September 2016), results were the following:

- 3900 contacts
- 1 900 energy audits done
- 1 250 apartments renovated : 8 condominiums (980 apartments) and 270 individual houses
- 192 building-constructors consulted since October 2014, towards 650 referenced companies.
- 172 renovation work procurements notified
- 458 apartments renovated or under renovation
- 25 M€ of renovation works engaged

The average cost of EE refurbishment works is around 38 000 € per individual house, and 13 000 € per co-owner in condominiums.

13.9.4 Financing

The investment program

The investment program in the period 2014-2017 represents 56 million €, enabling 2000 EE refurbishment projects. This program is financed by:

- A public subsidy from the regional council of 8 million € (constitution fees, operation, 15% of the third-financing debt);
- Long-term loans from institutional banks to refinance third-financing debt, raised to 47M €

The operating costs

The operating costs of the operator and the risks cover arise to 11M€ on the experimentation period.

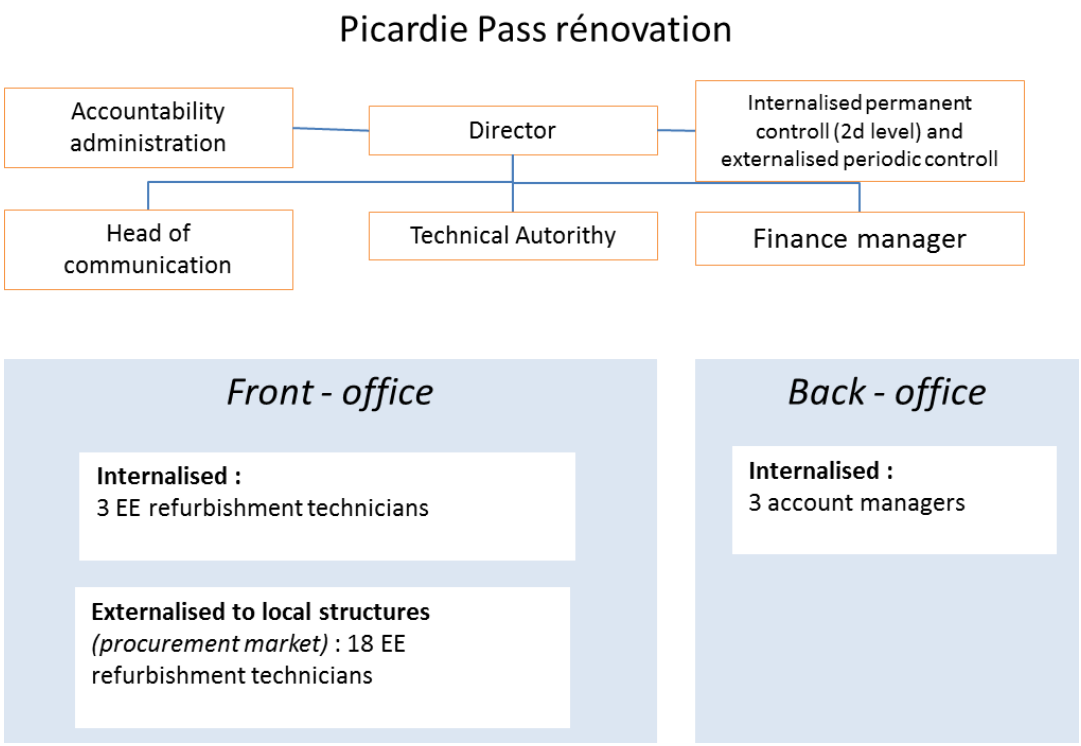
The operating resources

- Subsidies from the « Fonds Régional pour l'Environnement et la Maîtrise de l'Energie » from ADEME – regional council (FREME) and technical assistance ELENA enable to cover 3M€ of operating costs.
- Operating resource from the regional council of 0.5M€
- Valorisation of the energy obligations due to EE refurbishment, 4M€
- Services fees paid by customers: 1550 € excluded-VAT per project. It represents 3M€.

13.9.5 Operation

During the experimentation period, the estimated number of jobs is 34, mainly for assistance projects tasks.

Figure 3: Organizational chart of Picardie pass renovation



13.9.6 Key learning points

SWOT matrix

	Internal *(within organisation)*	External *(outside organisation)*
Positive	**Strengths :** • Strong political support from the regional council • First third-financing scheme experimentation on private residential buildings in France : access to important technical assistance resources from the EU • Business model based on the capacity of the regional government to : - Decrease costs thanks to an efficient organization of the actors involved in the project management process - Decrease EE refurbishments costs	**Opportunities :** • Service offers defined from experience of local energy agencies and energy counsellors • Strong political support from the regional council in favour of professional training (Praxibat platforms) and of eco-construction. • Agreement by the National French Bank in July 2016 to implement third-financing scheme.
Negative	**Weaknesses:** • The operator needs to build its own learning curve on all the interface risks (bad coordination with counsellors, companies, etc.) • The operator is subjected to public assistance project management, which implies complex company selection procedures.	**Threats:** • The first projects show that it is complicated to get company offers that satisfy price and quality expectations. • The capacity to develop a balanced business model cannot be evaluated before the end of 2017.

13.10 JESSICA: the Holding Fund in Lithuania

13.10.1 ID of the project

Project name/brand	JESSICA Holding Fund
Country	Lithuania
Territory / region	Lithuania
Project start-up date	2013
Legal status of the project company / of the leading entity	
Project sponsors	EU, EIB
Financial partners	
Present status (number of clients/refurbishments performed, present trend…)	Key figures: Major part of investments (60.4 %) goes to external walls insulation and 10.6 % to windows replacement. Average investment for one apartment ~ €5,800 Average expenses for 1 m² heated area ~ €107 Average investment for refurbishment of a multi-apartment building ~ €290,000
Service content (for consumers? For contractors? For other third-parties?)	

13.10.2 Context of the creation of the project

In Lithuania, there are more than 38,000 multi-apartment blocks and 24,000 (more than 800,000 apartments) of them need to be refurbished. 66 % of the population lives in multi-apartment buildings built before 1993 with average energy consumption of about 160 kWh/m². Apartments are 97% privately owned, only 3% represents municipal rental stock. 65% of multi-apartment buildings are served by district heating systems and average energy savings of 50% have been achieved in multi-apartment buildings renovated under the governmental renovation programme.

The Lithuanian government's JESSICA Holding Fund (Fund) was established by signing an agreement between the Ministry of Finance, the Ministry of Environment of Lithuania and the European Investment Bank (EIB) in June 2009. The JESSICA Holding Fund size is € 227 million. The Fund aims at providing loans and grants to residents for energy refurbishment of multi-family residential buildings and Lithuanian higher education and vocational training institutions for the renovation of student accommodation.

13.10.3 Modalities of intervention

The beneficiaries are Homeowners and students, for projects of Energy efficiency measures including renewable energy.

Type of financial support for the beneficiaries

- **Soft loans Multi-apartment buildings renovation:**
  - Amount lent: no limits defined
  - Interest rate: fixed for entire loan period at 3% p.a.
  - Maturity: up to 20 years
  - Guarantees: no third party guarantee requirements
  - Insurance: no loan insurance requirements
  - Grace period: 2 years, during construction
  - Self-financing: financial intermediary may require a down payment (not more than 5%)
  - Maximum monthly instalment: determined for each multi-apartment building

- **Student dormitories renovation:**
  - Amount lent: no limits defined
  - Interest rate: fixed for entire loan period at 3% p.a.
  - Maturity: up to 20 years
  - Guarantees: no third party guarantee requirements
  - Insurance: no loan insurance requirements
  - Self-financing: financial intermediary may require collateral depending on the risk level of final recipient
  - Maximum monthly instalment: 15% of total investment into energy efficiency measures

- **Grants Multi-apartment buildings renovation**
  - 100% grant to prepare renovation documentation (from national funds)
  - Exceptional 100% subsidy on all expenses for low-income persons

- 15% JESSICA loan rebate for where minimum energy efficiency level is met (class "D" level, heat energy consumption is reduced at least by 20%) + 25% grant from Climate Change Programme, i.e. sale of assigned amount units (AAUs) (in case energy efficiency class D is achieved and heat energy consumption is reduced at least by 40%)

Renovation of student dormitories:

- Grants in a form of investment for energy efficiency measures – up to 15% of the costs
- Grants for non-energy efficiency measures – up to 15% of the costs

Several features, such as borrowers, interest rate or maximum monthly instalment of renovation loan are specified in legal acts. However, main financial parameters of renovation loan had been listed in JESSICA calls for expression of interest to select financial intermediaries.

Beneficiaries of multi-apartment buildings renovation can opt for two procedures:

1. Home-owners on their own initiative prepare investment projects, take loans and implement renovation works:
    a. Projects are implemented by the Administrator appointed by the home-owners.
    b. Loan is taken by the Administrator on behalf of home-owners.
    c. Home-owners together with Administrator are organising procurement.
2. Investment projects are implemented based on the Energy Efficiency Programme approved by the municipalities
    a. Investment projects are initiated by the municipalities.
    b. Projects are implemented by the Programme Administrator appointed by the municipality.
    c. Loan is taken by the Programme Administrator.
    d. Programme Administrator is organising procurement and takes all the responsibilities related to the renovation implementation and its financial management.

Results

In 2013, municipalities provided to the Ministry of Environment the list of more than 1,500 multi-apartment buildings which could be renovated under the scheme. Out of these, the Ministry selected 914 projects to be implemented at the first stage. On July 30 2013 the Ministry has announced the second call for the municipalities to present the second list of multi-apartment buildings that should be renovated. In September 2013, municipalities provided a second list of 1,683 multi-apartment buildings of which 100% were approved for implementation by the Ministry of Environment.

At the beginning of 2014, the renovation project pipeline appears to be building up with more than 3,000 projects. Out of these, almost 1,500 have already had their investment plans approved by

HESA (totalling around €350 million) and about 1,000 have already taken a collective apartment owners' decision to go on with the renovation.

Financial intermediaries have by now approved financing for almost 800 buildings totalling some €160 million and signed financing agreements with around 200 administrators.

Typical energy savings reach 50%, one project saves on average 0.22 GW.

Increased scope of renovation projects is expected to have a substantial positive effect on Lithuanian economy with respect to the development of the construction sector and employment rate growth.

13.10.4 Financing

- Date of creation 2009
- Fund size : €227 million Financial sources
- European Structural and Cohesion Funds (European Regional Development Fund) – Operational Programme 'Promotion of Cohesion 2007-2013' -> € 127 M = 56%
- The Lithuanian national co-financing (contribution funded from the EIB framework facility signed with the Ministry of Finance in early 2009 as co-financing for Lithuania's overall 2007-2013 Cohesion funding programme) -> € 100 M = 44% Fund character Revolving Operational costs of the scheme Confidential

Organisation & partnerships

Ministries of Finance and of Environment:

They contribute to the Fund with national co-financing and European Regional Development Fund. They appoint the members of the "Investment Committee" which is supervising the Fund manager.

EIB (selected without procurement procedure):

EIB manages the Fund. It carries out important analytical tasks and prepares legal and technical procedures such as:

- Pursuit of the investment strategy;
- Develop financial products;
- Preparation of selection criteria and selection of Urban Development Funds (UDFs) / financial intermediaries, negotiation and signing agreements with UDFs;
- Monitoring and control of JESSICA operations;
- Review of the relevant EU and national legal acts.

Financial intermediaries

- Urban Development Funds: assess creditworthiness, verify projects compliance, award, administer and report on loans.
- Housing and Energy Saving Agency (HESA): provides the following services facilitating multi-apartment buildings renovation:
    - Consults with apartment owners, administrators, municipalities and other interested parties;
    - Prepares and promotes standardised structural and design elements for renovation projects;
    - Evaluates, supervises and approves technical aspects of the renovation projects; - Administers state supports mechanisms;
    - Liaises with the Fund intermediaries in Lithuania on project compliance issues.
    - Administrators of common used premises of the multi-apartment buildings: submit project proposals on behalf of multi-family buildings residents.
    - Higher education and vocational training institutions: submit project proposals in case of dormitories renovation.

Funded by the Horizon 2020 Framework Programme of the European Union

More info about INNOVATE

www.financingbuildingrenovation.eu

February 2018