

ANALYSIS OF EXISTING INNOVATIVE TECHNICAL INSTRUMENTS AND SCHEMES ACROSS THE EU

Task 4.1 Mapping innovative technical instruments
and schemes across the EU



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1. INTRODUCTION

Cities play an important role in addressing global climate change and mitigating the risk of more frequent and extreme weather events and their impact on the cities' residents. The energy used in cities' buildings accounts for approximately 40% of the city's total emission of carbon dioxide in the atmosphere, addressing building energy performance becomes fundamental to encouraging the energy transition process and, at the same time, improve the comfort of the tenants.

PadovaFIT EXPANDED brings together a strong consortium of 8 partners coming from four EU member states. The Municipality of Padova coordinates the consortium supported by Università Commerciale Luigi Bocconi, SINLOC, SOGESCA, Forum per la Finanza Sostenibile, and Climate Alliance, a European network of local authorities for sustainability. PadovaFIT EXPANDED starts from the knowledge and experience produced in the Padova area and aims at creating and piloting a one-stop-shop dedicated not only for condominiums but for all private residential buildings.

Another goal for the project is to expand the business model to the city of Timisoara, who will benefit from the work done in Italy and will adapt it to the Romanian conditions, launching and managing an OSS itself. Finally, the Bulgarian Energy Agency of Plovdiv will support the metropolitan area of Burgas and Smolyan to take the example coming from Padova to prepare the conditions for the launching of sound one-stop-shop in Bulgaria.

The objective of this deliverable is to identify the enabling conditions and EU best practices of Project Promoters (Regional and Local Governments, Energy Agencies and private Businesses) that lead technically and financially sustainable home renovation service schemes, based on public and/or private finance, supporting citizens to target ambitious energy savings.

The first part of the work regards the analysis of the JRC report "One-stop-shop for energy renovations of buildings", which represents a review of case studies of past and current OSS, with a primary focus on the EU Member States. In the report, the JRC has identified the working models and the framework conditions in which OSS are successful and the benefits they offer for the client and/or the economy, pursuing the objective to improve the energy efficiency of the buildings and, ultimately, take actions on climate mitigation.



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All of 23 OSS included in the report were evaluated and analysed, trying to identify the most interesting aspects that could be useful for future implementation in the PadovaFIT EXPANDED project. The study of every single case has been carried out in the following way: Bocconi University took care of the business model for the OSS, the Municipality of Padova of the engagement aspects, SOGESCA of the technical engineering and, finally, SINLOC of the financial engineering. At the end of this first review, a table was created to report the most interesting OSS initiative identified, and each project's partner showed the most interesting findings for the respective area of interest. The analysis focused on the key steps for the implementation process of an OSS for energy renovation: marketing, preliminary proposal, building inspections and energy analysis, quotation and financing plan, quality insurance, renovation works, financing, commissioning and follow-up. Great importance was given to the assessment of how different choices on each previous element affect the cost incurred and the success of the initiative.

A further step of the analysis of existing OSS initiatives consisted in the creation of a questionnaire to be sent to the contacts of the selected OSS, which contains question useful to conduct an in-depth analysis both in technical and financial aspects and to assess the subject regarding the engagement of all the possible stakeholders (private sector, local businesses, financial institutions, building managers and tenants). Every partner agrees that it is fundamental to collect more information about the financial viability of such structures, the various form of interaction between the supply side and the demand side, and the legal aspects regarding the set-up, the operation and the quality assurance of the OSS.



2. ABBREVIATIONS

Main abbreviations	
OSS	One-Stop-Shop
Consortium	Municipality of Padua, Università Commerciale Luigi Bocconi, Sinloc S.p.A., Sogesca S.r.l., Forum per la Finanza Sostenibile, Climate Alliance, Municipality of Timisoara, Energy Agency of Plovdiv
CPD	Municipality of Padova
Uni Bocconi	Università Commerciale Luigi Bocconi
FFS	Forum per la Finanza Sostenibile
JRC	Joint Research Center
EE	Energy efficiency
CO2	Carbon Dioxide
ESCo	Energy Service Company
EPC	Energy Performance Contract
RES	Renewable Energy Sources
SME	Small Medium Enterprises

3. GENERAL OVERVIEW OF THE EXISTING INITIATIVES

This report aims at providing a map of existing technical instruments and schemes across Europe. This map represents a key tool for the set-up of an OSS for energy performance improvement in private buildings, orienting the decision also considering the lessons learned in other similar experiences.

The mapping activity focuses on the EU Member States and is mainly based on the report developed by the European Commission, Joint Research Center (JRC) in 2018¹.

At first, the Consortium decided to focus its analysis on the cases showcased in the JRC report, considering it as a good starting point embedding critical information and data.

The JRC's report considers in detail 5 Research and innovation projects and 23 Case studies of one-stop-shops, closed or on-going. For Research and innovation projects it is meant projects whose core objective is not the establishment of an OSS, but exploring and/or developing business models utilizing the OSS idea, or disseminating knowledge and information about them. In particular, these projects are:

- Eracobuild
- One-Stop-Shop project
- INNOVATE
- REFURB
- COHERENO

¹ Boza-Kiss Benigna, Bertoldi Paolo, One-stop-shops for energy renovations of buildings, European Commission, Ispra, 2018, JRC113301



As far as the case studies are concerned, the report clusters the reviewed examples in the following categories:

- Local-government supported or initiated OSSs;
- Independent consultant based OSSs;
- Industry-driven OSSs;
- Funds or financial credit lines with the primary aim to support the financing of the energy efficiency market while they boost their services with technical assistance and/or tools.

Later, the Consortium included in its mapping also other sources of data.

3.1. Methodological approach

The Consortium show-cased 26 initiatives related to OSS, planned, or implemented.

The methodological approach adopted in the analysis consists of 2 steps.

3.1.1. STEP 1 - MATRIX

The first is a detailed analysis of the identified initiatives. In concrete terms, the Consortium created a matrix, in which each partner involved (SINLOC, SOGESCA, FFS, CPD, Uni Bocconi) has defined the relevant dimensions for its analysis. In particular, the action was divided as follows:

<i>Issue</i>	<i>Partner involved</i>
General information	All
Business Model for OSS	Uni Bocconi
Engagement and Confidence Building	CPD
Technical Engineering	SOGESCA
Financial Engineering	SINLOC, FFS

Starting from the information available in the JRC's report, the Consortium filled the matrix looking for further information also on other sources of data, mainly on the web.

The analysis of the case studies was run by the partners, considering a minimum of 4 case studies each and has been collected in a common matrix: the cells relevant to the technical analysis have been reported in the appendix.

SOGESCA analysed: Reimarkt, Energies POSIT'IF, Oktave, RenoWatt, ENRA concept, Bolig Enøk, BetterHome, Haarlemse Huizenaanpak.

1. *Reimarkt*: fully private OSS is operating in Holland since 2014. It offers services to private residential buildings with over 10.000 contacts with potential clients and delivered 1.750 refurbishment contracts. From a technical point of view, they offer turnkey solutions with both standardized and customized solutions. The OSS acts as a broker between renovation suppliers and homeowners in the renovation journey. Benefits for suppliers include support in selling their products, business development and customer care.
2. *Energies POSIT'IF*: is a public-private OSS operating in France in the "Ile de France" region since 2013. It has the form of a public-private E.S.Co. working with large condominiums. Energies POSIT'IF has created two kinds of operational models: a fully inclusive model supports the customer from the beginning to the end of the process; a simpler model where the OSS acts as a consultant. From the technical point of view, they deliver EPCs lasting 15-30 years. The OSS offers also follow up services.
3. *Oktave*: a public OSS based in Strasburg and operating since 2017 in the Alsace region, focusing on single houses. From the technical point of view, OSS compares individual offers by suppliers and pools holistic solutions, while from the suppliers' side, Oktave offers training courses for installers.
4. *RenoWatt*: it operates in Belgium in the province of Liège since 2014. It offers services only to public buildings. In 3 years, RenoWatt has worked on 136 buildings generating 34% of energy savings and 59 million euros of investments. From a technical point of view, the OSS offers EPCs or regular contracts through a single provider or a consortium of suppliers.
5. *ENRA concept*: private OSS operating in Finland and closed in 2010. It was dedicated to single houses built between 1940 and 1990. From a technical point of view, there was no significant information available.
6. *Bolig Enøk*: initiative started in Norway in 2011 and reformed in 2017 becoming a consultancy service. The OSS offers services to single houses built between the '60s and the '80s. From a technical point of view, it offers homeowners a Project Manager that keeps contacts with all interested parties; also, all products and craft services are provided through local tendering.
7. *BetterHome*: created in 2014 in Denmark by large enterprises such as Danfoss, Grundfos, Rockwool, and Velux, therefore it has a private approach whose target is mainly made by single houses built between the 1950s and 1990. The OSS offers 3 inspirational packages: Energy Package, Comfort Package, and Modernization Package; The homeowner uses an online tool to enter details about their homes and energy consumption, receiving a report and recommendations on renovation measures and offers from local suppliers. The renovation process is lead by a local representative that coordinates the work of all the installers. Benefits for suppliers (a network of 3500 stakeholders) are promotion, marketing and training.
8. *Haarlemse Huizenaanpak*: OSS created in Holland (Haarlem) in 2014 and dedicated to private residential buildings. From a technical point of view, there was no significant information available.



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Besides the above-listed initiatives, SOGESCA has analysed Energieheld (using as source the information included in Deliverable 5.1 “Report on the scenario identified” of the “Stunning” project and the Delaware Sustainable Energy Utility (DESEU) through information found in the project web site.

9. *Energieheld*: OSS active in Germany since 2012. It is dedicated to residential buildings and has 20.000 clients and 1.000 suppliers. From a technical point of view, suppliers can join the initiative via an online open list and have the opportunity to commercialize their services in a simple and targeted way.
10. *DESEU*: is a USA based initiative created by the State of Delaware, including a number of different programmes; in particular the “Energize Delaware’s Home Performance with ENERGY STAR” programme aims at improving the comfort and energy efficiency of private residential buildings. From a technical point of view, the OSS foresees the selection by the homeowners of an “energy advisor” among the ones offered by DESEU: the advisor follows the process from the initial audit till the ex-post monitoring. All suppliers are trained and have to retain a BPI (Building Performance Institute) certification.

All in all, SOGESCA reviewed 10 OSS that, along with the ones reviewed by the other partners lead to the creation of a common matrix.

This report focuses on the technical analysis of the case studies and a brief comparison with the characteristics and lessons learnt of the technical approach used in the previous PadovaFIT! action

3.1.1.1. Technical indicators for preliminary analysis

Based on the previous experience developed during PadovaFIT!, SOGESCA defined some indicators related to the technical aspects of the OSS implementation useful to investigate the technical solutions adopted. The analysis aims to understand the schemes applicable in OSS initiatives, gaining insight on which is the most suitable to be replicated in Padova or at least which are the lesson learnt in similar experiences all over Europe.

Given this objective, SOGESCA defined the following 5 key indicators to be analysed:

<i>Indicator</i>	<i>Description</i>
Contract types	Types of contracts that are offered to the customer – only from a technical point of view (i.e. EPC, regular contract, ..) and, in general, the kind of approach towards the potential customer (consultancy, turnkey solutions, ..)
Customer benefits	Technical benefits for the customer obtained by through the OSS compared to regular market-based offers

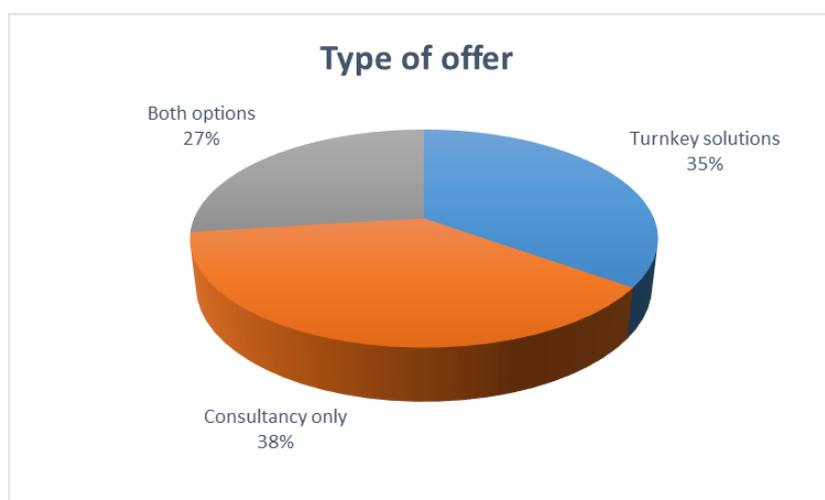
Supplier selection	Methodology adopted (if any) for the selection of the suppliers and the network of suppliers created
Suppliers involvement	Type of relationship between the OSS and the suppliers and how the supplier is involved in the refurbishment process (ie. the supplier lead an audit before and after the refurbishment measures, the supplier is involved only in the refurbishment work, etc.)
Suppliers benefits	These are the benefits obtained by the supplier in cooperating with a OSS compared to business-as-usual activities

The mapping concerning technical characteristics and instruments was fruitful but also encountered some difficulties related to the fact that not all information of interest is public or it is only available in the national language.

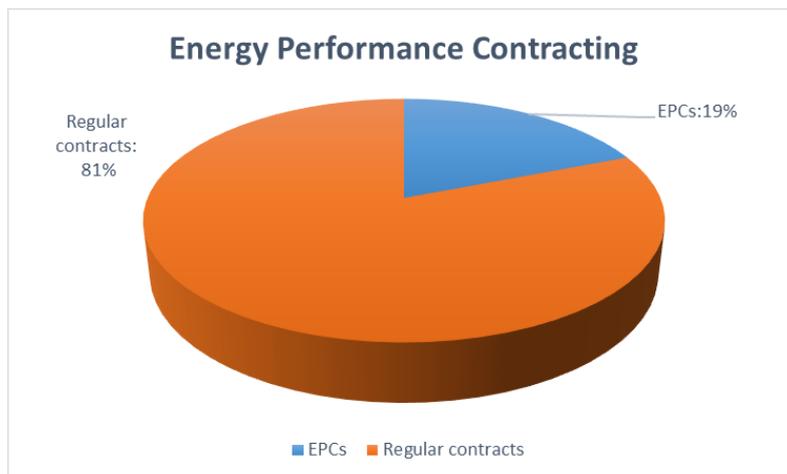
However, the case studies provide evidence of variegated methods to assist homeowners.

Contract Types / Relation to the potential customer

OSS offer technical support in two main ways: they provide independent and trustworthy consultancy, leaving the selection of the technical suppliers to the customer or they offer turnkey solutions where the OSS is directly overlooking the whole process and plays the role of the general contractor.



In some case, OSS offer both options leaving the choice to the customer.



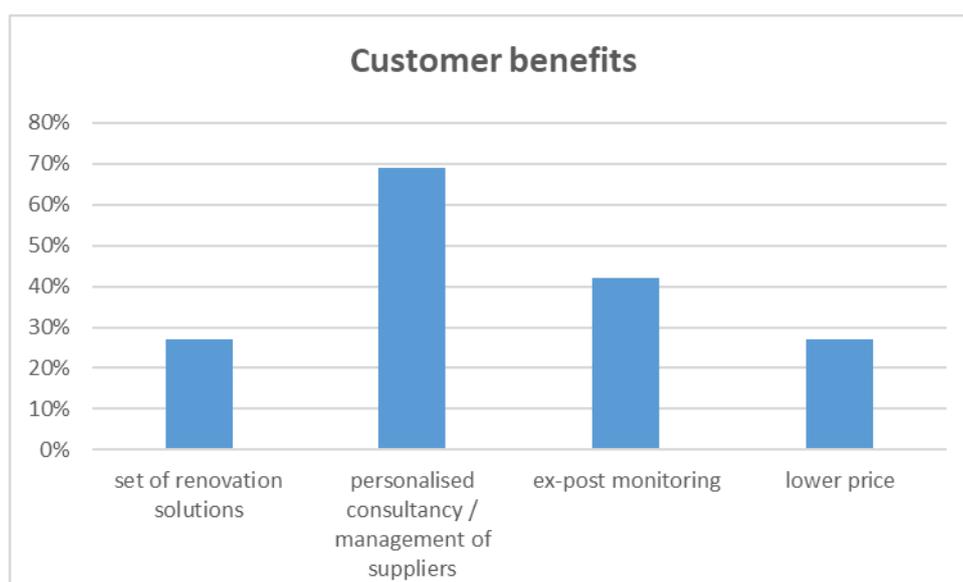
Energy Performance Contracting is part of the offer of 19% of the analysed OSS. In one case the OSS is a public-private ESCo, while in the rest of the cases an ESCo is selected by the customer among a set of options.

As to technical solutions, only 1 OSS (Reimarkt) offers fully standardized solutions (along with tailored solutions) as it tackles houses with the same blueprint built in Holland after World War II.

As to price guarantee, only 2 OSS promise an initial guarantee on the final price of the technical offer.

Customer benefits

OSS organization of the technical value chain clearly simplifies the renovation journey for the customer.



In specific, initial personalized consultancy followed by management of the suppliers represents the main added value of the technical offer.

Almost half of the OSS also offers ex-post monitoring of the quality and performance of the renovation works.

Through economies of scale and framework agreements with suppliers, some OSS are capable of offering solutions at a lower-than-usual price.

Suppliers selection and involvement

The engagement of technical suppliers is very important for the success of the OSS as receiving appropriate and transparent quotes and the quality of the delivery represent an important value for the customer and affect significantly the efficiency and effectiveness of the renovation process.

Nevertheless, limited information is available on the methods used for selecting suppliers and their specific involvement.



As to the selection process, a general approach is to have an open short list of suppliers to be contacted by the OSS and/or the potential customers in order to receive initial quotes.

In some cases, a pre-approval process is set up according to specific criteria. This can include initial agreements with suppliers related, for example, to the maximum time available to provide a quote, maximum prices for certain measure or taking part in specific training offered by the OSS.

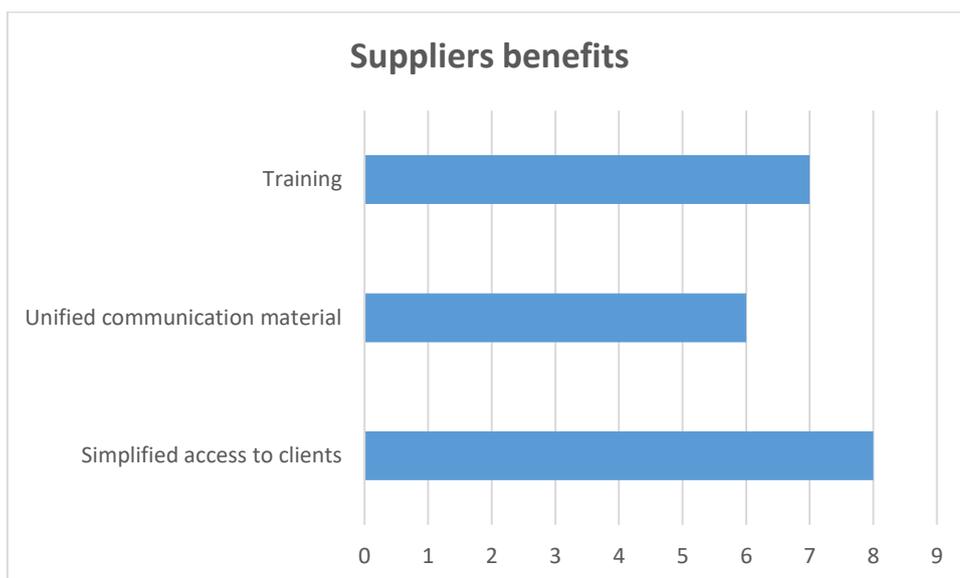
As to the involvement of suppliers, it is not always clear where the activity of the OSS ends and the activities of the suppliers begin. In many cases the OSS takes care of the initial and final phases (consultancy, audit, ex

post monitoring) while the suppliers are involved only in the delivery of the measures. In some cases the OSS has no in-house technical operative team and suppliers are involved in the whole process from initial audit to monitoring.



Suppliers benefits

Finally, we explored the motivations leading suppliers to wanting to cooperate with a OSS.



The main benefit for suppliers is a commercial one, as the OSS acts as a collector of opportunities for suppliers to expand their market and provide their services, especially in periods of crisis for the construction sector or to approach complex customers such as condominiums which can have a long acquisition process.



This activity is also supported by having unified communication material that allow the OSS and its affiliated suppliers to go out with a common brand and be more easily identifiable by the citizens and customers. A common communication approach also makes offers more easy to understand from the customer point of view.

Last but not least, some OSS offer (and sometimes impose) training to suppliers wanting to be affiliated in order to create a minimum baseline of knowledge on practices and procedures which then simplify the approach and allow economies of scale, reducing prices for customers and increasing margins for suppliers.

3.1.2. STEP 2 – QUESTIONNAIRE

In order to collect additional information, the Consortium agreed on writing a questionnaire to be submitted to the most relevant OSS.

After the mapping of Step 1, the Consortium decided to focus on a smaller set of initiatives to deepen the understanding of specific aspects of interest.

In particular, as happened for step 1, partners designed a set of questions in accordance to their competences. Questions have been shared among all the partners involved and a final version of the questionnaire was prepared.

In the following paragraphs the presented approach is described more in details.

3.2. Case studies initial analysis and selection

In order to choose which initiatives will be further analysed, among the ones collected, the consortium proceeded voting. In particular, each partner presented to the other members of the consortium which were the most relevant case studies from its point of view.

SOGESCA compared all case studies, including also the experience gained in the previous PadovaFIT! which was analysed against the 5 key technical indicators:

<p>PadovaFIT!, Italy (Padova Area)</p>	<p>Public-lead initiative. Focus on condominiums: starting with the assumption that an EPC and the ESCo approach would significantly simplify the renovation process in private residential multi-owner buildings</p>
<p>Contract types</p>	<p>Only 1 kind of contract: a template Energy Performance Contract proposed by the consortium ad used as a starting point in the selection process of the Delivery Partner.</p>

	<p>The template EPC, after the selection of the Delivery Partner, did not allow for long-term investments (max. 10 years) and imposed a significant % of energy saving (min. 30%) with at least 6% of immediate savings for the customer.</p> <p>Also, it did not allow to approach buildings with no centralized heating as single heaters do not allow ESCo to manage and monitor heating costs.</p>
Customer benefits	<p>Trained condominium facilitators led initial light energy audits free of charge. They collect information from the building manager and participating in condominium assemblies.</p> <p>The Delivery Partner, being an ESCo, offered to take on the investment and managed the whole process from the beginning to the end.</p> <p>Technical partners checked the offers proposed by the Delivery Partner in order to ensure transparency to the customers.</p>
Supplier selection	<p>The consortium selected only one ESCo (Delivery Partner) through an open public tender, finalizing a contract between the awarded ESCo and the Municipality of Padova.</p>
Suppliers involvement	<p>Potential suppliers were not involved in the tender procedure nor consulted beforehand. After the selection process, it was the Delivery Partner that involved and managed all the necessary suppliers and installers.</p>
Suppliers benefits	<p>The Delivery Partner received an initial list of condominiums already visited and engaged by the Condominium facilitators. Also, it had the support of the Municipality of Padova and the PadovaFIT! consortium during the engagement of further condominiums and in the participation in condominium assemblies.</p> <p>PadovaFIT! offered “official” support, increased visibility and a number of commercial opportunities.</p>
Aspects to be improved	<p>Involvement of potential suppliers in the definition of the <i>rules of the game</i></p> <p>No engagement of potential customers before the one-stop-shop is ready to deliver offers and works</p> <p>Select more than one supplier – don’t focus only on one company</p>

	No one-solution-fits-all approach: different buildings need different contracts with different conditions. Do not focus only on EPC and ESCo, and keep them flexible.
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3.2.1. CRITERIA FOR CHOOSING INTERESTING INITIATIVES

The selection process followed some simple criteria in order to identify the most interesting initiative from the technical point of view.

Starting from the results of Step 1, in particular given the presence of different schemes – both in terms of technical resources and actors involved – SOGESCA's goal was to identify the OSSs that deserved to be further analysed and proceeded comparing the data available against the 5 technical criteria and the needs expressed by the previous PadovaFIT!

In the end, SOGESCA selected 6 existing OSS:

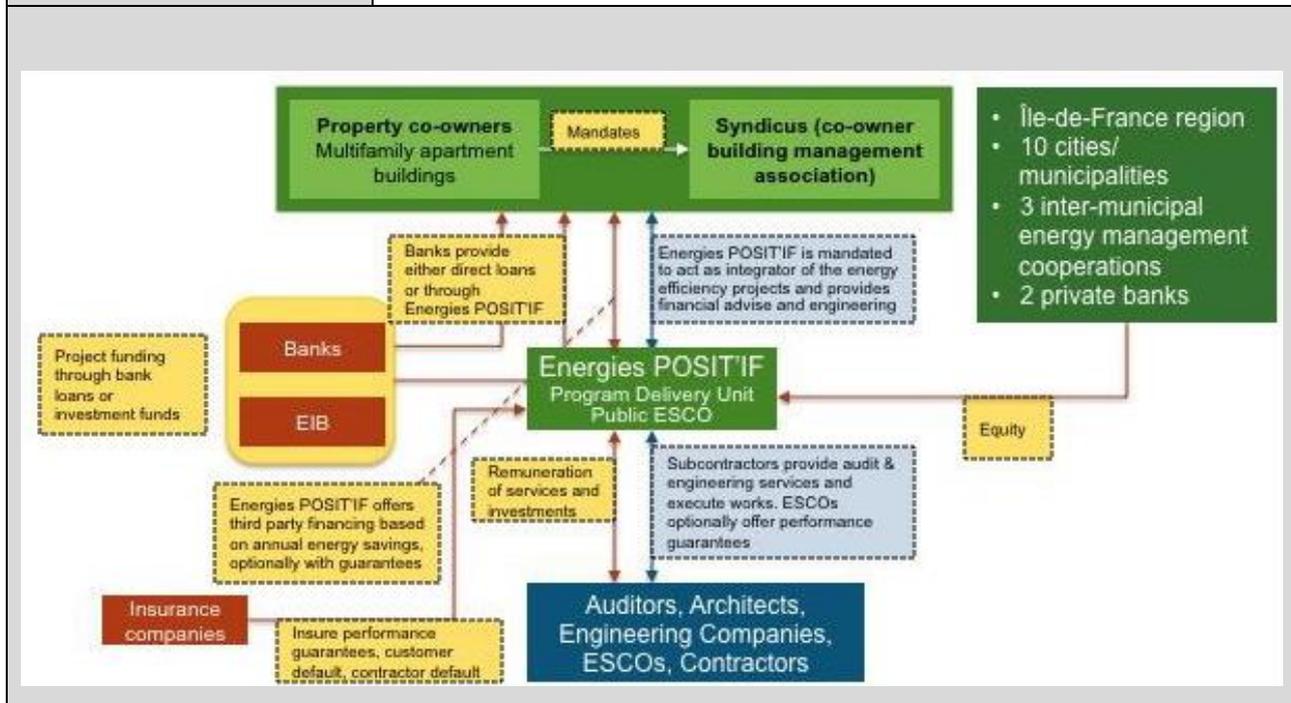
- *Reimarkt, Holland;*
- *Energies POSIT'IF, France;*
- *Oktave, France;*
- *BetterHome, Denmark (plus Sweden);*
- *RenoWatt, Belgium;*
- *DESEU – Energize Delaware, USA*

The main elements that led to the selection are summarized in the tables below.

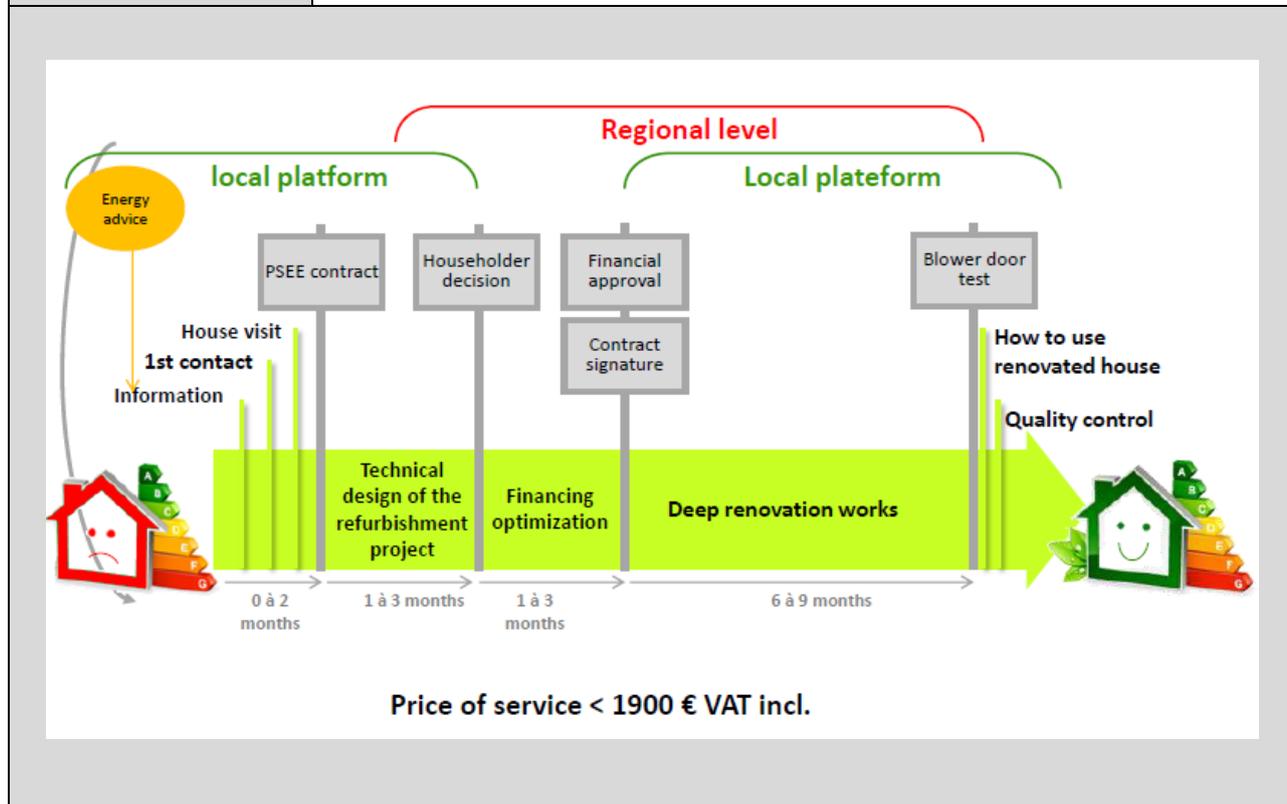
Reimarkt, Holland	<p>Fully private initiative.</p> <p>Focuses on houses built after World War 2, with same/similar blueprint and a standardised offer</p>
Contract types	Work contracts, no EPC. The OSS offers turnkey solutions with a guarantee on price, comfort level and energy savings.
Customer benefits	Tailored solutions starting from a standardized approach. Simplified procedures and one organization managing the whole process.
Supplier selection	Limited number of suppliers managed in a rigorous and efficient manner.
Suppliers involvement	N/A
Suppliers benefits	<p>Suppliers helped in selling their products</p> <p>Support to the suppliers in business development and customer care</p> <p>Brokerage between renovation suppliers and homeowners in the renovation step</p>
Main differences with the Padova context	<p>Reimarkt starting point was on a large number of very similar houses which allowed the creation of a critical mass of potential customers with the same type of offer</p> <p>It is fully private</p>
Aspects to be further explored	Supply chain development needs to be further explored



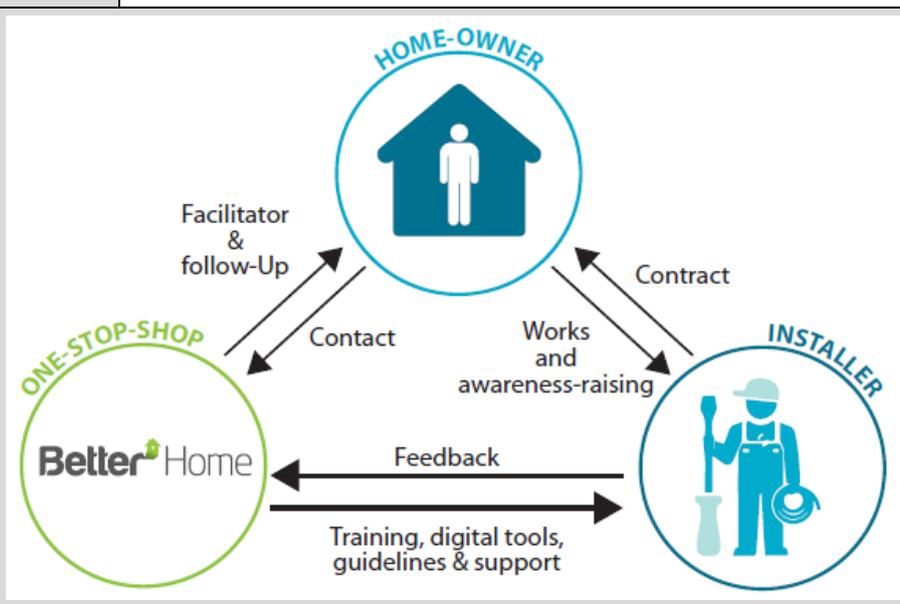
Energies POSIT'IF France	Public-private initiative. Focuses on large condominiums
Contract types	Work contracts and EPCs, usually lasting 15-30 years.
Customer benefits	Simplified procedures and one organization managing the whole process, outsourcing to architects, engineering companies, ESCOs and contractors. If requested, the OSS can act as a consultant, leaving the selection of suppliers to the customers. The OSS offers a number of options (follow up, maintenance, repair, performance guarantee, third party financing).
Supplier selection	N/A
Suppliers involvement	Training on EPC
Suppliers benefits	Suppliers helped in selling their products
Main differences with the Padova context	Very large available target of large condominiums.
Aspects to be further explored	Supply chain development needs to be further explored



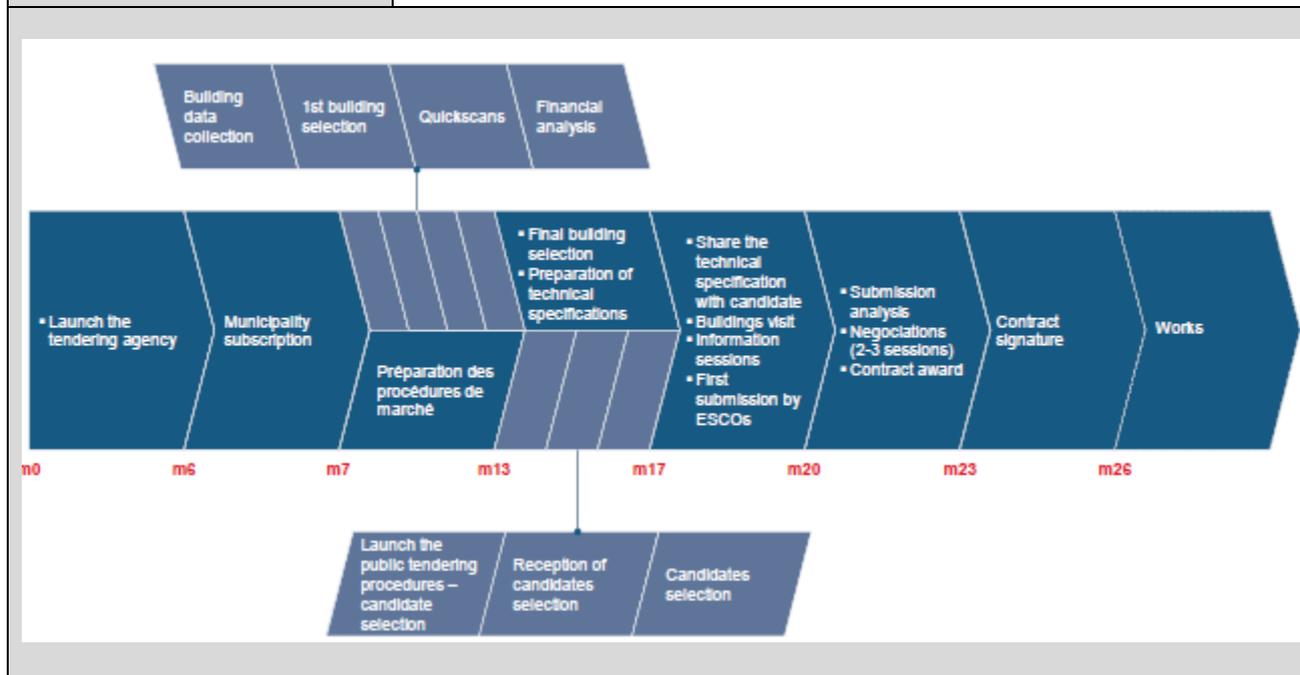
Oktave, France	Fully public initiative. Focuses on single houses
Contract types	Work contracts, no third party financing. 10 different pre-defined refurbishment packages are proposed to enable deep renovation. The OSS compares individual offers by suppliers and pools a holistic solution.
Customer benefits	One single contact from the beginning to the end of the retrofitting project Connects homeowners with qualified and referenced professionals Service combining technical support and financing of projects
Supplier selection	N/A
Suppliers involvement	Suppliers are invited to create consortia of companies in order to simplify the relationship with the OSS and their selection
Suppliers benefits	Artisans, architects and contractors receive training to work together (pool creation) and optimize prices (to keep it below 450€/m ²)
Main differences with the Padova context	Regional approach focusing only on single houses
Aspects to be further explored	Supply chain development needs to be further explored



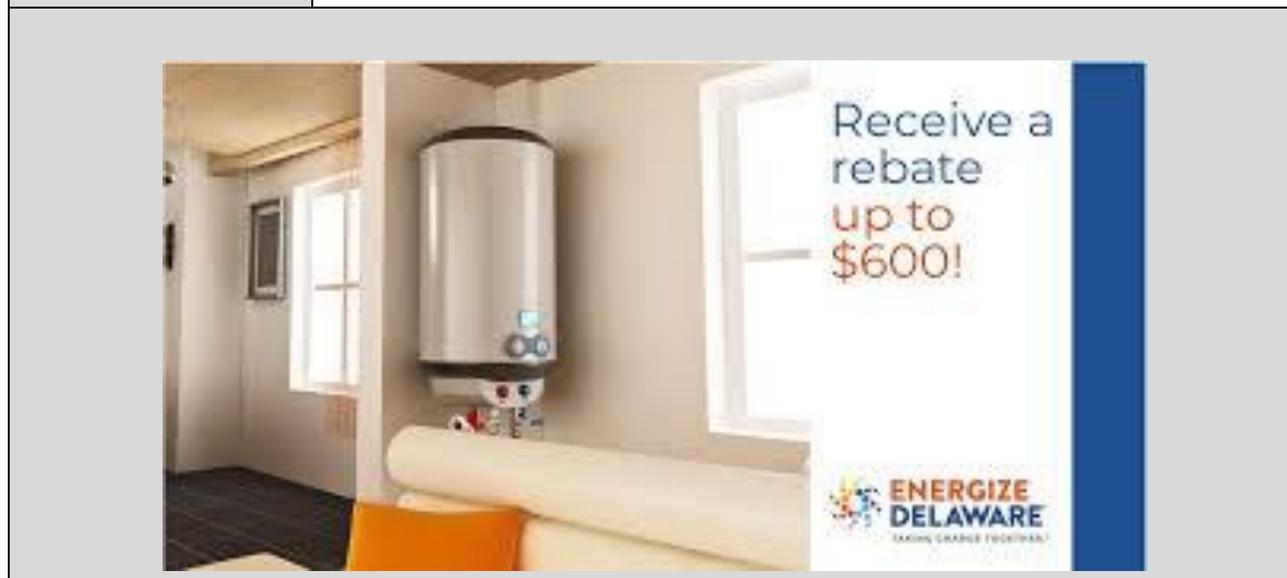
BetterHome, Denmark (plus Sweden)	Fully private initiative, industry-driven, promoted by suppliers. Focuses mainly on single houses
Contract types	Work contracts, no third party financing. Deep renovation. The contract is between the homeowner and the designated installer. OSS acts as a facilitator. The OSS offers 3 inspirational packages (Energy Package, Comfort Package and Modernization Package). Questionnaire on quality of building components, indoor air quality, lighting and comfort; building performance, heating system and source
Customer benefits	Online tool to enter initial details receiving a report, recommendations for renovation measures and offers from local suppliers. A local representative visits the households to discuss details and finalise the offer. One installer becomes the contact point for the whole process.
Supplier selection	Network of 3.500+ installers from 105+ organisations
Suppliers involvement	The OSS is based on the products of the 4 founding industries (Danfoss, Grundfos, Rockwool and Velux) and
Suppliers benefits	The main suppliers are the promoters of the OSS
Main differences with the Padova context	Fully private approach focusing on single houses
Aspects to be further explored	The rules of the game of the facilitator role of the OSS The training of the installers.



RenoWatt, Belgium	Fully public initiative. Focuses on public buildings
Contract types	Energy Performance Contracting pooling several public buildings and negotiated with ESCOs.
Customer benefits	OSS leads the initial technical audit; pooling of (public) buildings; simplification of tendering process; guaranteed savings.
Supplier selection	Only one provider (or a consortium of companies) is contracted and is responsible for all services (design, production, operation).
Suppliers involvement	ESCOs are invited to negotiate the EPC conditions through tenders
Suppliers benefits	Opportunity to work with Public Authorities in larger projects
Main differences with the Padova context	It's a tendering centre dedicated to public authorities Public-public cooperation
Aspects to be further explored	Involvement of ESCOs before the tender



DESEU, Energize Delaware, USA	State-lead initiative
Contract types	Work contracts, no EPC. The OSS acts as a consultant. The costumers is proposed a set of pre-approved contractors to hire.
Customer benefits	The customer chooses an Energize Delaware energy advisor that makes the audit and recommends energy-saving home improvements; The energy advisor conducts post-install diagnostic testing and estimates energy savings achieved State incentives and rebates on recommended measures
Supplier selection	Suppliers list by online subscription and pre-approval of contractors that need to be BPI (Building Performance Institute) certified
Suppliers involvement	Once hired by the customer, the supplier is responsible for the initial audit to the post-install diagnostic.
Suppliers benefits	Program materials designed to promote consistent messaging and reduce confusion among customers The suppliers are educated and retain Building Performance Institute (BPI) certification
Main differences with the Padova context	N/A
Aspects to be further explored	Supply chain development needs to be further explored Rebates mechanism



Gathering all the preferences expressed by the partners, the selected OSS case studies are:

	<i>OSS case study</i>	<i>N° preferences</i>
1	BetterHome	3
2	Energies POSIT'IF	3
3	RenoWatt	3
4	Oktave	2
5	Reimarkt	2
6	SPEE Picardie	2
7	DESEU	2
8	Retrofit Works	1
9	Småland	1
10	PKA	1
11	Kredex	1
12	CLEAR Project	1



3.3. Further analytical study

To deepen the understanding and the mapping of the initiative, the Consortium developed a questionnaire to be deployed directly to the OSS selected in the previous phase.

3.3.1. METHODOLOGICAL CREATION OF QUESTIONNAIRE

The Consortium decided to develop a questionnaire to be deployed to the contact person of the selected OSS initiatives to gather further information in respect of that already included in the JRC report. As mentioned before, each partner was in charge of developing a few questions concerning its field of expertise.

Three sections compose the questionnaire:

1. Technical

Developed by SOGESCA

2. Financial & Business Model

Developed by SINLOC and FFS for the financial component, while Uni Bocconi focused on understanding Business model features and replicability

3. Engagement

Developed by CPD

CPD has collected all the questions and the questionnaire is ready to be sent to the OSS in an editable form. OSS will be asked to fill in the questionnaire. The consortium will analyse the answers and will use the contents in the further steps of the project implementation to set up the OSS in the pilot areas.

3.3.2. TECHNICAL QUESTIONNAIRE

As far as the technical questionnaire is concerned, we started from the indicators shown in the column of the common matrix and, based on the information already collected, to develop a series of questions for each indicator. The areas of greatest interest have been identified in the type of solutions proposed and in the type and methodology of creating the network of suppliers. We then started from an initial list of about 60 questions, which was then reduced to 16 questions to make it more approachable. This operation resulted in a simplification of the questionnaire trying to keep all the relevant topics and have a mix of open and closed questions.

The technical questionnaire is reported below:

QUESTIONNAIRE

TECHNICAL ASPECTS

1. Which are the services offered by the One Stop Shop?

- a. Information services
 - b. Technical advisory services
 - c. Financial advisory services
 - d. Realization of intervention
 - e. Customer care services
 - f. Other
-

2. How do you offer a solution to your customers?

- a. Do you operate a comparison between different suppliers to find the best solution for your customer needs?
 - b. Can you assist your customer in selecting the best supplier?
 - c. Can the customer choose between different contractors?
 - d. Do you cooperate with your customers in any of the steps of implementation?
 - e. Are products/services provided by suppliers through tenders?
 - f. If your customer needs more than one supplier, can you act as “general contractor”?
 - g. ...Other
-

3. Who signs the contract with the customer?

- a. The One Stop Shop
 - b. The supplier
 - c. A consortium of companies (or consortium of suppliers)
 - d. Other
-



4. What do you ask your potential customer to get an offer/support from you?

- a. A fee
 - b. Some information (i.e., with a survey)
 - c. A free site inspection
 - d. Other
-

5. What kind of approach do you have with the customer?

- a. Is any data required?
 - b. Is there a person (i.e., a Project Manager) assigned to each customer?
 - c. Is there a visit through a facilitator or the suppliers make visits directly?
 - d. Is there an only service to put the data in?
 - e. Other
-

6. What are the first 3 technical solutions you offered during the last 3 years? (e.g., vertical cladding, horizontal cladding, windows, heating generator, PV system, etc.)

7. Do you perform site inspections on buildings before signing contracts?

8. Do you perform energy assessments by yourself or with external support?

9. Does your contract provide penalties for you in the case of objectives not reached? And for your customers? In which cases?

10. Can a customer contact you only for technical support or only for financial support?



11. The provider is:

- a. A single company
 - b. An association
 - c. A consortium of companies
 - d. Other
-

12. How do you involve suppliers?

- a. Is there a supplier list? Is it Closed or Open? How frequently do you update this list? Can a supplier ask to be included in the list? How?
 - b. Are the suppliers selected through calls for tenders? Who can participate in these tenders?
 - c. Do you conduct audits on suppliers?
-

13. Do you check suppliers' interventions?

14. Do you promote suppliers' products and services? Do you offer business development support?

15. Do you offer training to the supplier? In which scope?

16. Do you offer customer care services for the supplier?



4. CONCLUSIONS AND FURTHER STEPS

The most important technical activities that should be pursued by a one-stop-shop is the engagement and involvement of potential planners, contractors, suppliers, and installers supporting them in working together efficiently to provide a clear, transparent and effective service to the homeowners willing to invest in energy renovation.

To reach this goal, the one-stop-shop can be a public, private or public-private initiative.

It can have different types of roles: it can be a simple facilitator between demand and offer; a consultant providing independent consultancy or a general contractor signing a turnkey contract with the final customer.

According to its role and public or private nature, the OSS can promote standard work contracts between customers and suppliers; it can promote EPC contracts with selected ESCOs; it can offer a single contract directly with the OSS or with one dedicated supplier.

According to its role and needs, it can organize the supply chain to be a pre-selected list of providers of services or train technical stakeholders in becoming frontman for the OSS capable of accompanying customers from the initial audit to the follow-up monitoring.

The OSS can also provide training to make the renovation process more efficient and minimise costs or support stakeholders in pooling together and creating dedicated consortia of companies capable of being a single interface to the OSS or the final customer.

Finally, a OSS needs to find the right approach for the area in which it is going to act. For this reason, it is necessary to integrate also the information coming from financial engineering, customer engagement and the overall business model approach – the PadovaFIT! EXPANDED consortium has analysed all of these topics in different reports.

To integrate the main conclusions described above, the project consortium has decided to develop a questionnaire to be deployed to the contact person of the selected OSS initiatives to gather further information. The questionnaire includes a section on technical engineering. All the questions have been collected and the questionnaire is going to be sent to the OSS in an editable form. OSS will be asked to fill in the questionnaire. The feedbacks will provide a more in-depth view of case studies and will be included in the development of the further steps of the technical development of the PadovaFIT! EXPANDED one-stop-shops.

5. APPENDIX



DELIVERABLE 4.1

Name of the initiative	Location	Geographical coverage	Auspices	Host organization	Partnerships	Contracts types	Customers benefits	Suppliers selection	Suppliers involvement	Suppliers benefits
1 Reimarkt	6 locations in the Netherlands	Municipality level	Market based public company	New company, self-standing start up	n/a	<ul style="list-style-type: none"> - Turnkey solutions offered to homeowners - The solutions come with a guarantee on price, comfort level and energy reduction - Oss build on users' requirements with standardized building blocks, yet tailored full solutions 	<ul style="list-style-type: none"> - Turnkey solutions offered to homeowners - Broker between renovation suppliers and homeowners in the renovation step - Energy efficient retrofits piggybacking on other retrofits 	n/a	n/a	<ul style="list-style-type: none"> - Suppliers helped in selling their products - Support to the suppliers in business development and customer care - Broker between renovation suppliers and homeowners in the renovation step
2 Energies POSIT'IF	Pantin (Ile de France Region)	Ile de France Region	Promote, Organize, Support, Imagine the energy Transition in Ile-de-France territory	A new public-private venture, a Semi-Public Company, to develop an Energy Service Company (ESCO), to offer a whole value chain Hosted by Cité Régionale de l'Environnement	- 2 local financial institutions are shareholders (la Caisse des Dépôts et Consignations et la Caisse d'Épargne Ile-de-France) -The OSS is in contract with the bank	<ul style="list-style-type: none"> - Energy Efficiency Contracts with Condominiums lasting 15-30 years.- 2 operational models: 1) the condominiums collaborate with OSS on developing the plan ; 2) The OSS develops the operation plan. It acts as an intermediary between the owners and the technical partners. The condominiums are in direct contact only with the OSS 	<ul style="list-style-type: none"> - Follow-up 	n/a	<ul style="list-style-type: none"> - ESCo that offers a whole value chain - Professionals trained on EPC contract management among social housing companies and local governments - Advisory mandates performed for social housing companies and local governments / municipalities 	n/a
3 Oktave	Main office in Strasbourg, and 11 other places in the Region	The region of Alsace Champagne-Ardenne Lorraine (currently 9 municipalities)	Municipalities-led OSS, which was also supported by the Intelligent Energy Europe programme. It is part of the Climaxion program, a joint initiative between the Region and ADEME	New organisation, founded by the Greater East Region and ADEME (At the moment works in collaboration with the Alsace Province, but in the future it will be transformed into a Company of Mixed Economy)	- Local authorities and local contractors	<ul style="list-style-type: none"> - OSS compares individual offers by suppliers and pools a holistic solutions. 	<ul style="list-style-type: none"> - Connects homeowners with qualified and referenced professionals - Service combining technical support and financing of projects 	n/a	n/a	<ul style="list-style-type: none"> - Trainings are offered for the craftsmen
4 RenoWatt	Province of Liège, Belgium	Local/regional	Stand-alone procurement agency	GRE Liège (Provincial Development Agency)	-Public-public cooperation between the agency and the municipalities - No information about partnerships with banks	<ul style="list-style-type: none"> - Procurement of EPC's (from the draft of the specifications, to the negotiation with the ESCOs) - Only one provider (or a consortium of companies) is contracted, which offers a full range of services and responsible for all services (design, production, operation) 	<ul style="list-style-type: none"> - Simplification of the tendering process - Technical audits conducted by the one stop shop and identification of the prospective investments - Identification and pooling of buildings - Guaranteed savings 	Only one provider (or a consortium of companies) is contracted, which offers a full range of services and responsible for all services (design, production, operation)	n/a	n/a
5 KredEx	Tallin, Estonia	National	Founded under the jurisdiction of the Ministry of Economic Affairs and Communications	Stand-alone organisation, non-for-profit	-Local banks, which are financial intermediaries: Swedbank and SEB	<ul style="list-style-type: none"> - The current cycle of grants (2014-2020) requires higher expertise, and thus the employment of technical consultants. - The OSS assists in other technical aspects 	<ul style="list-style-type: none"> - Grants and loan schemes offered through revolving project finance - KredEx administers grants in the energy efficiency and housing sector on behalf of the Estonian national and local authorities 	n/a	<ul style="list-style-type: none"> - Programmes based on a holistic approach. - The financial support is combined with awareness raising campaigns, technical studies, best practice dissemination, and based on an established legal framework 	n/a
6 EBRD credit lines	Slovakia: MunSEFF, SloVSEFF Bulgaria: REECL	National	European Bank for Reconstruction and Development (EBRD)	Depending on the market and the product, channelled directly (in case of large borrowers), or through an intermediary partner (such as a bank /leasing company/ fund/ utility/ public company/ ESCO)	-Liaise with local bank when needed	<ul style="list-style-type: none"> Besides the grants and loans, clients are provided with: - technical or - informational assistance 	<ul style="list-style-type: none"> - Debt, equity, and guarantees. - The credit lines are often combined with technical assistance and support for policy dialogue 	n/a	<ul style="list-style-type: none"> - The products are tailored, and the size and conditions can change depending on the local conditions and needs 	n/a
7 Energy Efficiency and Renewable Sources Fund (EERSF)	Sofia, Bulgaria	National	'Energy Efficiency and Renewable Sources Fund' (EERSF), formerly known as the 'Bulgarian Energy Efficiency Fund' (BEEF)	Independent public private partnership	The fund encourages combination of financing with local bank offers	<ul style="list-style-type: none"> - Direct lending - Credit guarantee facility (recognised as first rate collateral equivalent to bank guarantees) - Technical assistance 	n/a	n/a	n/a	n/a
8 PKA Sustain Solutions	Denmark	National, potentially to be extended/ replicated	Danish pension fund PKA	Spin-off from PKA and partners	- Smith Innovation (experts for the renovations) - Dong Energy (largest energy company in Denmark)	<ul style="list-style-type: none"> - EPCs 	n/a	n/a	n/a	n/a
9 ENRA concept	Finland	Finland (national)	A product of a group of companies (joint venture of retailers with industries and contractors)	Core company: Rustholli	- Renovation company (service provider) - Different manufacturers: window and door, ventilation system, insulation, heat pump supplier - Energy auditor and certificate supplier	<ul style="list-style-type: none"> - A group of companies offering different individual energy renovation services or solutions in a holistic package 	<ul style="list-style-type: none"> - Follow-up by the spin-off - Funding refurbishment, making the process simpler 	n/a	n/a	n/a

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10	Bolig Enøk	Askim, Norway	Østfold, Akershus and south east of Oslo (Norway) (regional)	A daughter company of Glava AS (joint venture of retailers with industries and contractors)	Glava AS	<ul style="list-style-type: none"> - Building product supplier (service provider) - Contractors - Local retail stores - Various partners with expertise in building physics and energy and heating. (Sintef, Glava, KVT) 	n/a	<ul style="list-style-type: none"> - The Project Manager takes care of contacts with all involved actors such as main contractor, subcontractors, authorities 	All products and craft services are provided through local tendering	<ul style="list-style-type: none"> - Homeowners employ a "Project Manager", who provides technical analysis, recommendations and project management of the full renovation process 	<ul style="list-style-type: none"> - Suppliers will see an interest in developing this as a new business opportunity and unserious actors will be avoided
11	BetterHome	Frederiksberg, Denmark	Denmark, and recently launched in Sweden	Market-based, industry-driven company	Self-standing OSS, launched by supply-side actors Danfoss, Grundfos, the ROCKWOOL and VELUX Groups	Partnered with local banks	<ul style="list-style-type: none"> - The OSS offers 3 inspirational packages (Energy Package, Comfort Package and Modernization Package). - Questionnaire on quality of building components, indoor air quality, lighting and comfort - Questionnaire on building performance, heating system and source 	<ul style="list-style-type: none"> - The homeowner uses an online tool to enter details about their homes and energy consumption, receiving a report and recommendations on renovation measures and offers from local suppliers. The local representative comes to the home to discuss the details and fix the offer; - Renovation handled by one contact point; - Holistic process, single flow, single payment 	Based on the products of the four founders, brings together 3500 installers (from 105 organisations), five banks and mortgage providers and four utilities, which will help to renovate the house with these products	<ul style="list-style-type: none"> - As in a conventional process, the installer and the building owner enter a contract 	<ul style="list-style-type: none"> - The local craftsmen carry out the implementation, who are also enabled by training to ensure BetterHome standard, and can use the digital platforms to structure the works. - BetterHome trainings and guidance on how to approach the customer; - Promotion and marketing
12	Haarlemse Huizenaanpak	Haarlem, the Netherlands	Haarlem	A non-profit foundation with a revolving fund from the province of North Holland	Newly founded based on earlier initiatives on the sides of all partners, residents – who formed neighbourhood communities, locally active architects and construction businesses – who searched for local clients, municipality – adopted ambitious energy goals and acted as facilitator	n/a	n/a	<ul style="list-style-type: none"> - The process involves calling, emailing or using the online tool, followed by a home visit, based on which a renovation plan is made. - The client can choose the OSS or other contractor to implement the plan 	n/a	n/a	n/a
13	Tighean Innse Gall	The Western Isles (the UK)	Local/regional	None	Stand-alone organisation	<ul style="list-style-type: none"> - Local authority, the NHS and their Integrated Joint Board - Community planning partnerships 	<ul style="list-style-type: none"> - Negotiation with energy suppliers - Application for support from energy suppliers 	<ul style="list-style-type: none"> - The most valuable service is the personal advice in the homes. This allows the OSS to fully understand not only the technical, but also the motivational and behavioural aspects of energy use and offer corrections in all aspects. - Local = trust, understanding, available 	n/a	<ul style="list-style-type: none"> - Assists local citizens and businesses in all stages of a renovation project. They offer full implementation, but also energy advice and consultation, assistance in financing arrangements, including adding own resources - Works in close partnership with the local authority, the NHS and their Integrated Joint Board, and community planning partnerships 	n/a
14	Stroomversnelling	The Netherlands	National	The Stroomversnelling network consists of contractors, component suppliers, housing providers, local governments, financiers, DSOs (energy system manager) and other parties	n/a	Yes, but no detailed information	<ul style="list-style-type: none"> -The services are offered to private citizens and housing associations. In the case of Housing associations, the initial investment is bore these institutions in exchange for an additional income stream that's paid by the tenants - Building contract assignment - Energy service plan 	<ul style="list-style-type: none"> - The upgrade is paidback by the avoided energy bills and maintainance works. Given the initial investment, the customers are granted lower costs of living. - The refurbishment-performance is guaranteed for 30 years 	The business model thought in partnership with housing associations is capable of making the initiative attractive also for poorer beneficiaries, hence new niches are reached.	<ul style="list-style-type: none"> - The Stroomversnelling network consists of contractors, component suppliers, housing providers, local governments, financiers, DSOs and other parties. - Its objectives are to reduce the renovation costs of NZE refurbishments, increase occupants' acceptance of these renovations and increase the pace of growth in the NZE housing market itself 	n/a
15	Energy Savers	Chicago	The territory of Chicago region (the seven counties in northern Illinois surrounding Chicago)	An energy efficiency services provider programme	Center for Neighborhood Technology (CNT)	n/a	<ul style="list-style-type: none"> - Energy Analysis and Cost-effective energy-saving - Low-cost financing through our partner, Community Investment Corporation - Align scope and assist Owner in accessing appropriate utility rebates and programs - Construction Management & Oversight - Track building performance to ensure savings 	<ul style="list-style-type: none"> - Focusing on measures that achieve significant savings and are tailored for each building; Increased cash flow; Average 30% energy savings; Savings of \$10,000/year for atypical 24-unit building; Tenant comfort and retention; Improved HVAC systems; - Access to low cost financing & we will help access relevant utility rebates 	n/a	<ul style="list-style-type: none"> - Public Institution 	n/a

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16	Elevate Energy	Chicago	Illinois	Market-based, stand-alone organisation	Elevate Energy	n/a	<ul style="list-style-type: none"> - Building contracts - Assistance on selection of local contractors: analyst helps to select cost-effective solutions, and solicit bids from qualified contractors - Financing options are reviewed, the OSS helps to find and apply for rebates, grants, and incentives - Ex post monitoring 	<ul style="list-style-type: none"> - Cost savings - Locally trusted contractors - Continued use of buildings - Follow-up 	n/a	- Market-based, stand-alone organisation	n/a
17	Energieheld	Hannover, Germany	Germany and German-speaking Switzerland	Complementary business provided by utility	New company, self-standing start up	n/a	n/a	<ul style="list-style-type: none"> - Energieheld offers advice on suitable renovation solutions and subsidies, as well as a network of regional specialist companies from the heating, photovoltaic, solar thermal, insulation, roof / window, electricity storage and energy consulting sectors 	Suppliers list by online inscription	n/a	<ul style="list-style-type: none"> - Energieheld offers regional trade partners the opportunity to benefit from regional inquiries and to market their services in a simple and targeted manner
18	DESEU (Home Performance with ENERGY STAR program)	Delaware	Delaware (national)	A non-profit organization	Created by the state of Delaware	n/a	<ul style="list-style-type: none"> - Customers choose the energy-saving home improvements among those recommended by the auditor and then the customer hires a pre-approved contractor to install the energy saving improvements. 	<ul style="list-style-type: none"> - Customer chooses an Energize Delaware energy advisor that makes the audit and recommended energy-saving home improvements - The energy advisor conducts post-install diagnostic testing and estimate energy savings achieved 	Contractors are required to be BPI certified to: - install qualifying program measures; - conduct audits; Contractors must adhere to a comprehensive model for conducting audits	- Audit and post-install diagnostic	<ul style="list-style-type: none"> - ICF develops and provides participating contractors with a suite of program materials designed to promote consistent messaging and reduce confusion among customers - The suppliers are educated and retain Building Performance Institute (BPI)-certified
19	Public Energy Efficiency Service/SPEE Picardie	Amiens, France	Picardie region	Established by the Regional Council of Picardie	Regional Council of Picardie	<ul style="list-style-type: none"> - Local construction actors - Local financial services for third-party financing 	<ul style="list-style-type: none"> - An integrated service for the energy renovation of residential buildings, which offers: <ul style="list-style-type: none"> - advice - accompaniment - financing of thermal retrofit projects of private homeowners 	<ul style="list-style-type: none"> - Creates economies of scale - Accompanies the homeowners along the whole process 	Management of contractors by local actors	n/a	n/a
20	CLEAR project	Various cities in Belgium, Italy, Spain, Portugal and The Netherlands	Belgium, Italy, Spain, Portugal and The Netherlands	CLEAR - enabling Consumers to Learn about, Engage with and Adopt Renewable energy technologies	Consumer associations	n/a	<ul style="list-style-type: none"> - Consumers are guided actively throughout all the steps leading to the purchase of the renewable energy system 	<ul style="list-style-type: none"> - Group purchasing, thus economies of scale - Personalised decision-making tools 	n/a	n/a	n/a
21	Rhodoshop Programme Development Unit (PDU)	Sofia, Bulgaria	Rhodope Region of Bulgaria (currently six with the possibility to include others)	Rhodoshop project: a pilot programme to facilitate investment in energy efficiency by creation of One-Stop-Shop in Rhodope Region of Bulgaria	Sofia Energy Center Ltd. (existing host)	<ul style="list-style-type: none"> - Project developers, Project contractors - ESCOs - Banks 	<ul style="list-style-type: none"> - The OSS acts as a central procurement agency on behalf of local authorities to undertake energy retrofitting works in their buildings and street lighting systems. Rhodoshop PDU will combine/bundle suitable projects in the subscribed municipalities in order to gain critical mass and get better financing terms. 	<ul style="list-style-type: none"> - Cheaper services because of group purchase - The OSS follows the Green Public Procurement principles (clients do not need to be trained on this) 	The OSS acts as a central procurement agency on behalf of local authorities	n/a	n/a
22	Småland-Blekinge pilot OSS	Växjö, Sweden	The four pilots are located in the Småland-Blekinge region	One-stop-shop business model for energy renovation of detached houses (a study)	The host is not yet known, the Linnaeus University is developing a business model for the future OSS	n/a	<ul style="list-style-type: none"> - The OSS compiles offers from all suppliers from all the parts of the value chain of a building renovation, as a construction. Different suppliers cooperate to offer homeowners a cost effective and energy efficient renovation through the mediation of a single actor 	<ul style="list-style-type: none"> - Customers are offered consulting, independent energy audit, renovation work, follow-up (independent quality control and commissioning), and financing 	n/a	<ul style="list-style-type: none"> - Different suppliers cooperate to offer homeowners a cost effective and energy efficient renovation through the mediation of a single actor 	<ul style="list-style-type: none"> - Through collaboration, small suppliers may attract more buyers

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<p>23 Retrofit Works</p>	<p>London</p>	<p>UK (national)</p>	<p>A cooperative owned by community based organisations and local supply chains</p>	<p>Parity Projects (energy efficiency consultancy)</p>	<p>The structure of the OSS is a cooperative</p>	<ul style="list-style-type: none"> - Householders are assessed, 3 quotes are generated for the energy survey from local SME companies via the online tool - A grant scheme assessment is made for householder circumstances 	<ul style="list-style-type: none"> - OSS controls ensure best service and a transparent delivery model;- Value for money for the property owner by creating competition amongst members; - Cost reduction due through economies of scale;- For the SMEs, access to the retrofiting market after the Green Deal; - Combination of different financing schemes 	<p>n/a</p>	<p>n/a</p>	<ul style="list-style-type: none"> - Access to the retrofiting market after the Green Deal - All Practitioners are vetted and fully trained
<p>24 CleanTech</p>	<p>Denmark</p>	<p>Denmark (national)</p>	<p>Subsidiary of Dong Energy</p>	<p>Ørsted (earlier Dong Energy)</p>	<ul style="list-style-type: none"> -Energy utility (service provider) - Various contractors - Suppliers (Rockwool, Danfoss, Velfac) - Bank (Nordea) and mortgage credit institution (Totalkredit) 	<ul style="list-style-type: none"> - Combines the base-offer of heat pump solutions, insulations, windows, solar heating and building thermography with a full service solution in cooperation with partners 	<ul style="list-style-type: none"> - Follow-up 	<p>n/a</p>	<p>n/a</p>	<p>n/a</p>
<p>25 Adboll - Projekt Lavenergi</p>	<p>Denmark</p>	<p>South Denmark, mainly Kolding (local/regional)</p>	<p>A product of the mother-company</p>	<p>Adboll</p>	<ul style="list-style-type: none"> - Local utility company - energy advice department (Trefor energy) - Producers - Bank and mortgage credit institutions - Green Business Growth partnership 	<ul style="list-style-type: none"> - Piggybacks on otherwise planned renovations - Holistic energy efficient renovation: based on the concept of external air tightening and insulation of the house 	<ul style="list-style-type: none"> - Personal visits to the homeowner - Free of charge on site analysis, technical analysis and fixed price offer for relevant energy efficient renovation - Full project management - Advice on financing 	<p>n/a</p>	<p>n/a</p>	<ul style="list-style-type: none"> - Trainings are offered for the craftsmen
<p>26 Be Reel!</p>	<p>Brussels</p>	<p>Belgium (national)</p>	<p>Established by the Flemish Energy Agency</p>	<p>Vlaams Energieagentshap, Vlaamse Overheid (VEA) - Flemish Energy Agency</p>	<ul style="list-style-type: none"> - Service Public Wallonie (SPW) - Department of Environment - Flemish Energy Agency (VEA) - Belgium City of Ghent/Antwerp/Mechelen/Mouscron/La Louvière - The Scientific and Technical Center for The Construction Company (BBRI) - Knowledge Center for Flemish Cities (KVS) 	<p>n/a</p>	<ul style="list-style-type: none"> - Renovation Advice Tool - Dwelling ID - Quicksan tool - Building passport 	<p>n/a</p>	<p>n/a</p>	<ul style="list-style-type: none"> - Exchange platform and a training programme for the construction industry