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2 Seas Mers Zeeën

Triple-A

Awareness + Access = Adoption

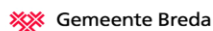
European Regional Development Fund

Concepts for consultancy centres and pop-ups for the adoption of low-carbon technologies by homeowners

Triple-A: Stimulating the Adoption of low-carbon technologies by home-owners through increased Awareness and easy Access

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1. Summary

Local authorities engaged in the Interreg 2 Seas project Triple-A aim to achieve a market acceleration in the owner-occupied single-family home renovation sector by increasing awareness of – and enabling access to – energy saving technologies. Various local authorities are considering using consultation centres and pop-up models (or pop-up centres) as additional opportunities to reach their goals and to improve their communication with homeowners. This report analyses the experiences and opportunities that various models of consultancy centres and pop-up models can offer to stimulate homeowners to adopt energy-saving technologies.

In the first place experiences of already existing consultancy centres and pop-ups in the four countries of the Triple-A partners were analysed (Belgium, France, The Netherlands, UK). The customer journey model (e.g. the process starting with creating awareness, providing information up to the execution of energy saving measures) was used as the framework to reflect on the needed activities in centres and related pop-ups. The various examples are described in a short, concise format and were chosen because they illustrate the wide range of possible pop-up concepts.

Secondly the specific needs and wishes of the Triple-A partners were assessed. Via a questionnaire the partners were asked how they intended to use consultation centres and pop-ups (e.g. what kind of information do they want to provide in what way, to what target group?) and what kind of model they had in mind (e.g. a more permanent centre or a temporary pop-up?). Workshops were organised (held in Antwerp on the 13th October 2017) with the LA's to determine and specify their wishes on business model development not only to determine possible pop-up model concepts but also to address public-private cooperation in this field. As a further illustration and as sources of possible inspiration the business models of a few selected existing consultation centres were reviewed in depth (Woon+bus, Kyotomobiel and EcoHuis in Belgium and Reimarkt and ICDuBo in the Netherlands). These few selected case were chosen because they fitted in within the Triple-A business models that have been formulated at the beginning of the project.

This research report offers an elaborate perspective on business models that can be used for the development and implementation of consultancy centres and pop-up models. However with this subject it is no matter of one size fits all. The results can be used by local authorities to select approaches and (ingredients of) business models that can be translated in custom made centre or pop-up model(s) fitting within their own local strategies, goals and financial capabilities.

2. Introduction

2.1. The role of pop-up centres in Triple-A

This report is written in the framework of the Interreg 2 Seas project “Triple-A: stimulating the Adoption of low-carbon technologies by home-owners through Awareness and easy Access” (<http://www.triple-a-interreg.eu/>) funded by the European Fund for Regional Development and the Provinces of South Holland and West Flanders. Through Work Package 3 of the Interreg2Seas Triple-A project, seven Local Authorities (LA’s) will be trialling business concepts for pop-up centres for strengthening LA communication and consultancy for homeowners who want to renovate.

With increasing local awareness and easy access for housing retrofit, the LA’s want to encourage homeowners to adopt various low-carbon technologies to support energy saving. With their easy availability, adaptability, refurbishing and possible mobility, pop-up centres can provide an additional local outreach, particularly in neighbourhoods that are targeted for upgrading and renovation. The pop-up centres allow to inform homeowners locally through websites and in connection with locally available demonstration projects. Also, they can be used for providing consultancy and for stimulating the local application of low carbon technologies, including smart meters and related home energy monitoring systems, to make homeowners more aware about their energy use. Pop-up centres do not stand by themselves, also in the Triple-A work they are expected to support and reinforce actions from other work packages.

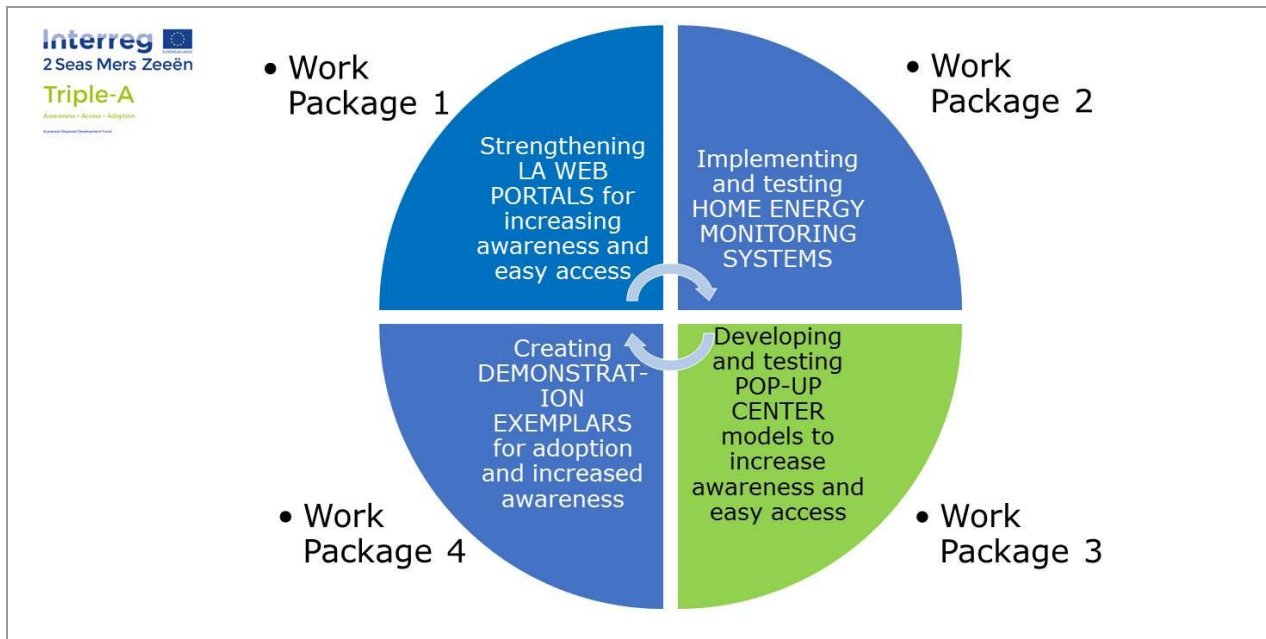


Figure 1: The position of pop-up centres within Triple-A.

Future work within Triple-A is expected to include the development of a marketing plan for (in future self-supporting) local pop-up centres.

2.2. Structure of this report

This report discusses the following activities that took place in the framework of the Triple-A project:

- Inventory of existing initiatives of information & consultancy centres and related pop-up models in the Netherlands, France, UK and Belgium. The inventory is predominantly based on literature research and answers on additional questions provided by the Triple-A partners (chapter 3 and 5) resulting in general recommendations for initiating local authorities' pop-up centres.
- Results of a questionnaire to LA and discussion of previous LA experiences with pop-up centres (chapter 4).
- Results of a business model development workshop (chapter 5) to determine key elements of business models of three types of pop-up centres.
- Key elements for LA marketing plans (chapter 6, Conclusions) for initiating (in future self-supporting) local pop-up centres.
- Appendix provides information on questions of the WP1 Questionnaire that are related to the pop-up centres.

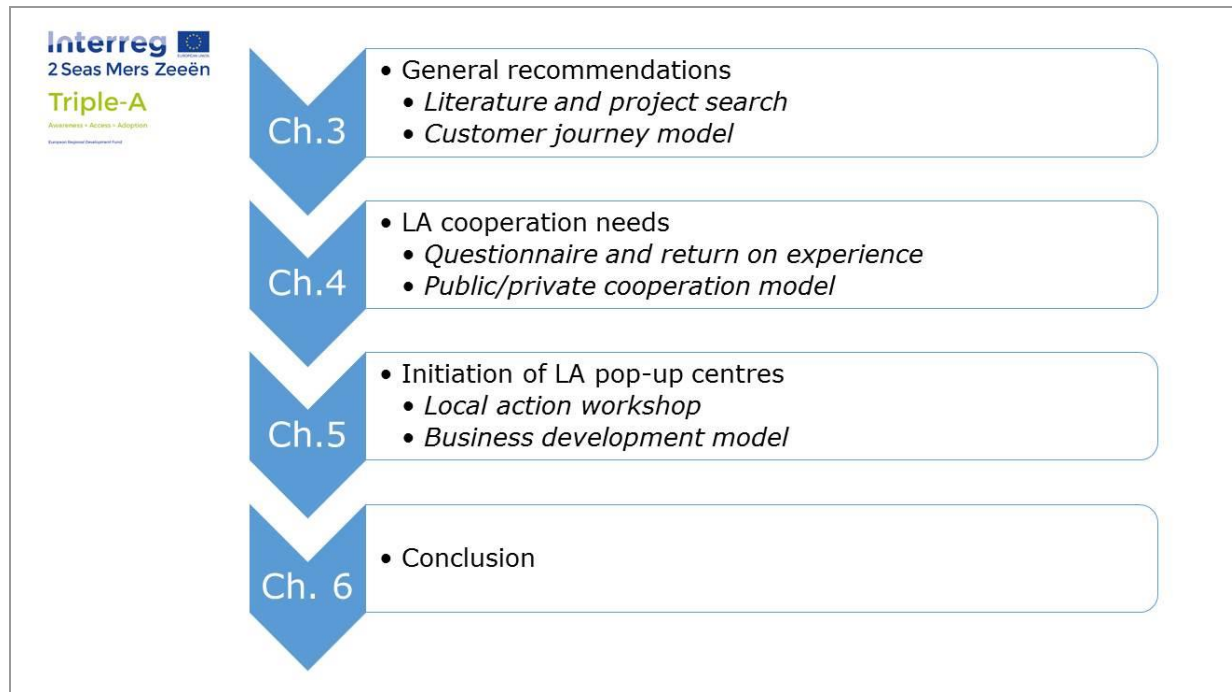


Figure 2: Main chapters of the scoping report.

Figure 2 shows that in each chapter we use a different model to reflect upon. These models are briefly explained in the next section.

2.3. Models used for reflection

2.3.1. The customer journey model

Communication channels can influence each step of the decision-process of customers (Rogers, 2003) – in this case LA supported consultancy centres can influence homeowners who want to adopt renovation measures. The current customer journey for homeowners applying low carbon technologies has been extensively researched by the Dutch Association of Municipalities (VNG, 2015)). The customer journey according to VNG is illustrated in Figure 3. Note that it can be discussed that the Figure does not put sufficient attention to the verification stage, i.e. the phase where the customer verifies that the expected quality is achieved.

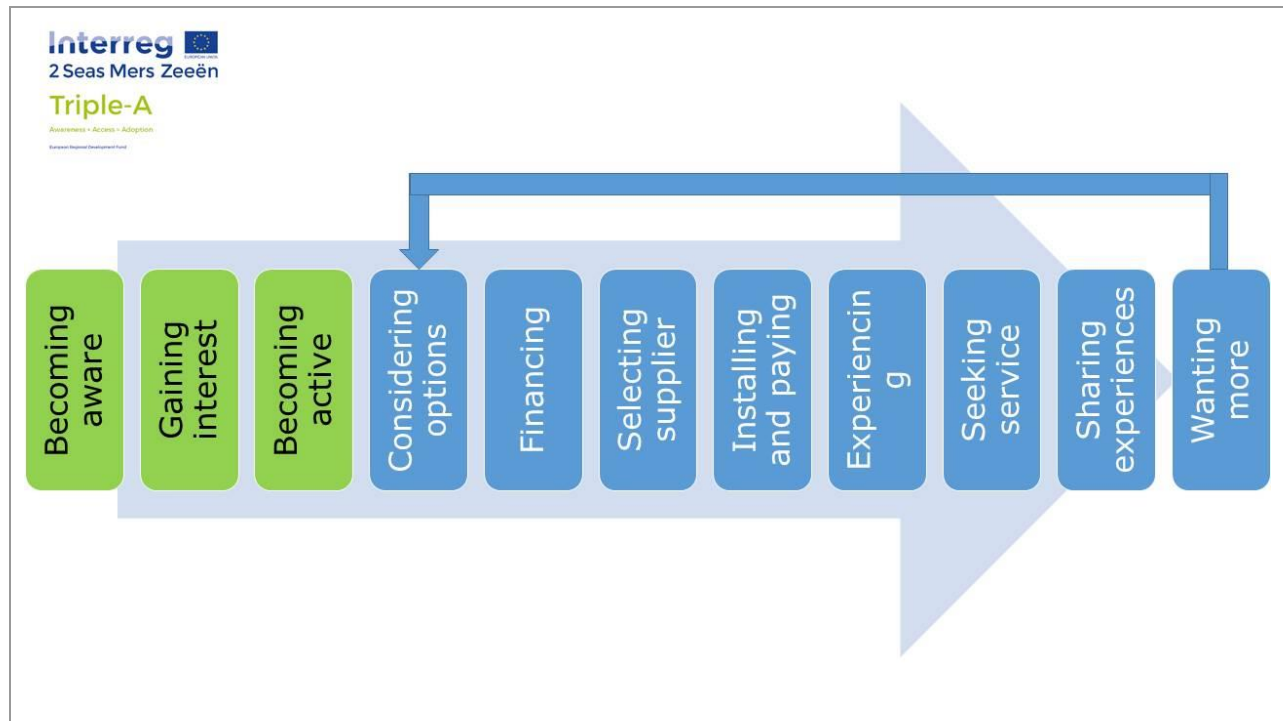


Figure 3: Homeowner customer journey for applying energy saving technologies.

Source: VNG, 2015 (own adaptation).

There is a good chance that a homeowner, who cannot fulfil its needs during each step of the customer journey, will abandon the adoption of low carbon technologies. It should therefore be the ambition of consultants and consultancy centres to reduce the number of early dropouts.

2.3.2. The public-private cooperation model

Another way of looking at customer journeys and decision processes is from the viewpoint of what actors have to be engaged in each stage of the decision process. The homeowner who wants to apply low carbon technologies is not only confronted with the (experts and advisors from) consultancy centres, but also with (actors from) other intermediaries and the supply side. In the first stages of the decision process it is important that homeowners gain “neutral” information and access to solutions from highly trusted actors. Typically, “neutral” actors can be local authorities, architects, non-profit organizations, local energy distribution grid managers and so on. This is illustrated in Figure 4. The figure reflects that at some point more input will be needed from market actors. This means that for

the development of consultancy centres referral to - or cooperation with - market actors is needed to smoothen the customer journey.

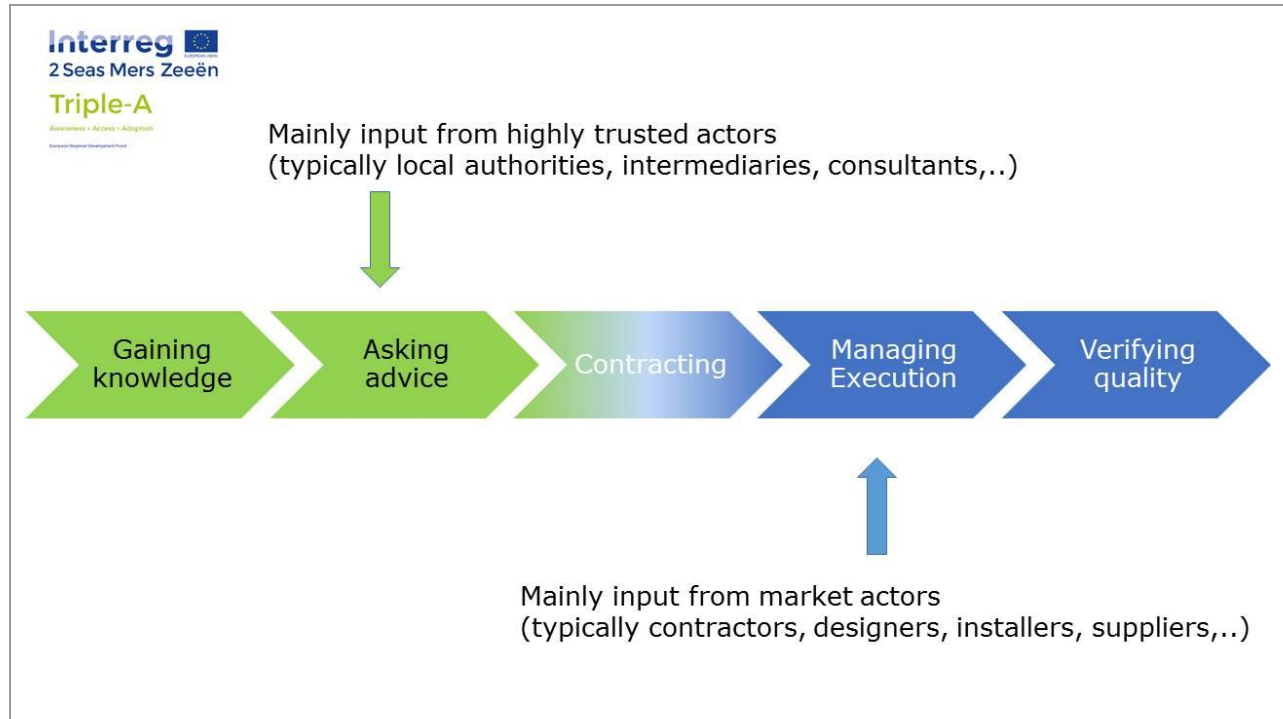


Figure 4: Needed actor collaboration in homeowner decision processes.

However one has to realise that one of the major barriers to realise a large scale realisation of low carbon technologies for owner-occupied single-family houses in Europe is the fact that the supply side is very fragmented. This leaves an individual owner of a single-family home with a lot to deal with during the renovation process. The homeowner has to take up the role of a project manager while often having only limited energy and project management competencies and knowledge (Haavik et al., 2012; Mlecnik et al., 2011). Besides that it appears to be problematic for the homeowner to find (experienced) contractors that offer more efficient construction processes, quality assurance and better communication with home-owners. The One Stop Shop projects (2012) consequently pointed out that that it should be made easier for homeowners to find reliable and trusted local suppliers that can deliver low carbon technologies with quality assurance. A survey among homeowners conducted as part of the COHERENO project (COHERENO, 2016) showed that customer trust is a major issue for choosing the right supplier. Public private cooperation with consultancy centres and pop-ups could be a stimulus to improve this situation. In a number of European funded R&D projects that focussed on raising the awareness and offering guidance for homeowners, market parties were actively involved during the customer journey. In for instance the Horizon2020 project Refurb (2017), which focussed on improving communication opportunities to get more deep energy renovation off the ground, suppliers were involved in the process to offer financial models and online management tools. In some cases this has led to combined public-private initiatives. To support and co create the customer journey within these public-private initiatives a distinction was made in the Refurb project with respect to communication, coordination & actions, and follow-up. In this way public and private partnerships developed renovation package (that were country specific) that were offered to specific customer segments,

2.3.3. The business development model

For initiating new pop-up centres we have to look at the development of business models that include the requested public-private co-creation and or co-operation. The business model development canvas – developed by Osterwalder and Pigneur (2010) – gives a practical instrument to reflect on the needed customer segments, their values, communication channels, the expected relations with customers and partners, the needed resources and revenues, and so on. The model – composed of nine building blocks - is illustrated in Figure 5 for the development of pop-up consultancy centres. The model should be read from right (1. Customer Segments) to left (9. Cost Structure).

The canvas defines customer segments as different groups of people or organizations that an enterprise or company aims to reach and serve. Value propositions are the bundle of products and services that create value for a specific customer segment. Channels are the means how a company communicates with and reaches its customer segments to deliver a value proposition, and customer relationships are types of relationships a company establishes with specific customer segments.

Key activities and key resources are respectively the most important activities the company has to perform and the assets of the company (physical, financial, knowledge, human) so that the business model works. With key partners a reference is made to the needed network of suppliers and partners, that are not part of the enterprise or consortium itself.

The revenue stream is based upon fees for to be delivered products and (all kinds of) services. The cost structure can be based upon salaries, tools/equipment and material costs, marketing costs including exhibition, website, concept development, rent, financing and insurance costs, costs related to warranties and claims, and so on. Also fees to partners and rewards for customers could be part of the cost structure.

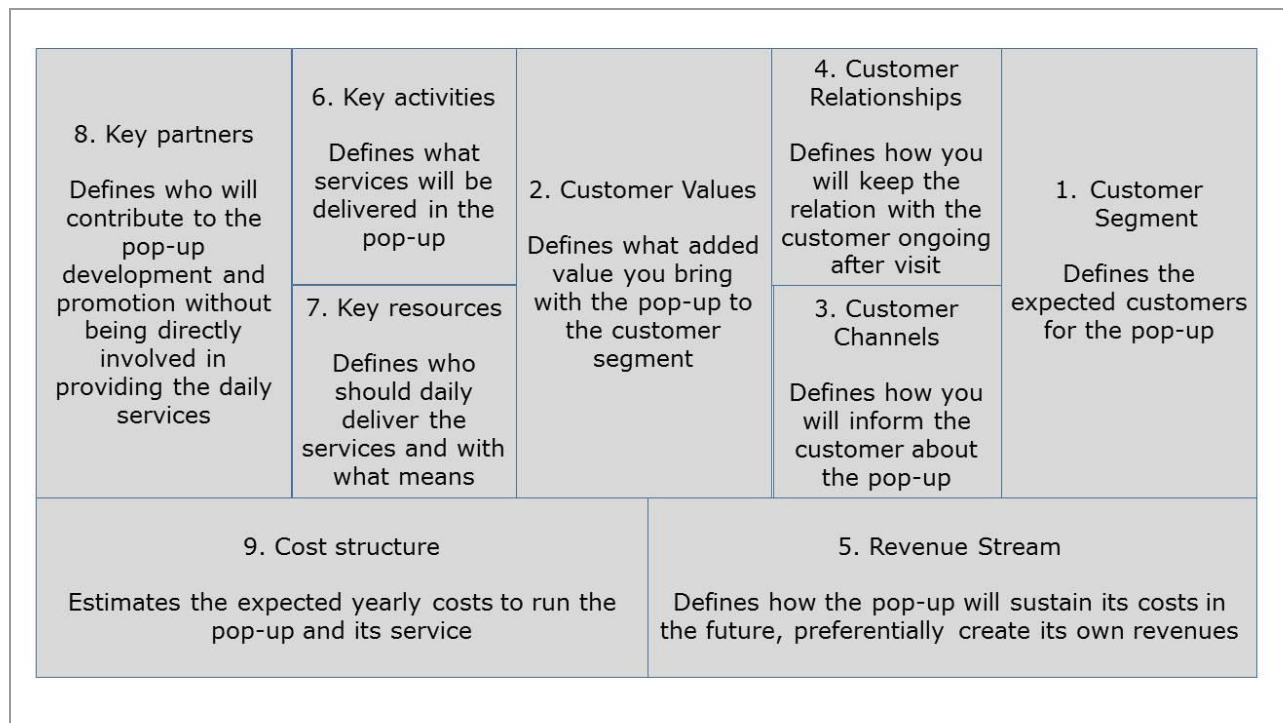


Figure 5: Business model development canvas developed for Triple-A partners. Source, based on and inspired by Osterwalder & Pigneur (2010).

For the purpose of this report we consider the customer journey in Figure 3 as a basis for reflecting experiences of existing consultancy centres; the actor collaboration model in Figure 4 as a basis for discussion about public/ private cooperation; and the business model canvas in Figure 5 as a basis for business model development on new pop-up centre models.

3. Experiences from existing consultancy centres and pop-ups

3.1. Analytical framework

This chapter provides an inventory of selected existing consultancy centres and pop-up models aimed at awareness raising among homeowners for the adoption of low-carbon technologies. The Triple-A working plan makes a distinction between three models. The first one is a movable flexible short term (less than one week) pop-up. The second one is a longer term, fixed pop-up that makes use of existing public or vacant private buildings, and the third is a combination between those two.

The inventory in this chapter goes beyond the scope of this classification to provide insights in all kinds of consultancy centres and pop-up models in practise and to analyse how policy instruments of municipalities and market initiatives are being interrelated. In the four countries exiting initiatives are selected that cover the wide range of possible pop-ups and can be used by the Triple-A partners as an inspiration to develop and implement their own consultancy centre(s) and pop-up(s). In the Netherlands (section 3.2) the following initiatives are addressed in this chapter: 033Energie (Amersfoort), ICDuBo and WoonWijzerWinkel (Cities of The Hague and Rotterdam and both regions) and the Foundation Huizenaanpak (Haarlem and region IJmond and Zuid-Kennemerland). In Belgium (section 3.3) the following three models were included: EcoHuis (Antwerp), Kyotomobiel (Pajopower) and Woon+bus (3Wplus, region Halle-Vilvoorde). Section 3.4 subsequently describes La Maison de l'habitat durable in Lille (France), energy advice pop-ups in Sussex and Kent and an energy advice centre in London (United Kingdom). In the various country sections a brief description is given of the policy background with respect to consultancy centres and pop-ups. The concluding section 3.5 gives an comparative overview of the existing consultation centres and pop-ups.

The cases are described on the basis of the steps of the customer journey model. There are numerous initiatives for consulting homeowners regarding energy renovation and application of low-carbon technologies. Such initiatives have often been initiated by supply side actors such as energy distribution net managers, regional innovation developers, individual market actors, and so on. For this report we look at experiences of consultancy centres and pop-ups that were initiated by or are highly attached to local authorities. The initiatives are being described in the light of the main ingredients of the customer journey model. In the following paragraphs the main characteristics of these initiatives are (per country) described with the steps of the customer journey as a point of departure (see figure 3 in Chapter 2). The main characteristics considered are:

- **Type: varying form a (semi) permanent consultancy centre in a building up temporary pop-ups (or combinations).**
- **Initiator and legal structure: varying form regional and local authorities to private parties (or combinations)**
- **Customer Journey: from raising awareness up to realisation of energy saving measures**

3.2. Experiences in the Netherlands

3.2.1. Policy context

The role and significance of permanent information & consultancy centres (and websites) can be related to recent Dutch policies aimed at the promotion of energy saving in the (owner-occupied) housing sector. In 2013 more than 40 organisations signed the National Energy Agreement for sustainable growth¹. With respect to the private housing sector it was agreed upon that in each region and municipality a digital (and physical) energy counter for home owners should be established. Besides that alliances should be formed between for instance building and installation companies, energy cooperatives and local or municipal authorities. The main goal of these alliances would be to 'unburden' the homeowner as much as possible and accompany him or her on his "customer trip"². From 2015 on the Dutch Association of Municipalities (VNG) has set up a 'structure' to support the 29 Dutch regions (and 390 municipalities) realising these goals. The parties involved were brought together in learning networks in order to gain knowledge and expertise and to get the policy on track. It was the intention that from 2016 on every municipality or region would stand on their own feet and would have their own digital energy counter.

As far we can oversee it, the evaluation of the National Energy Agreement does not explicitly pay attention to the performance of the digital and physical energy counters (Kwink Groep, 2016). The VNG has also analysed the progress and functioning of the various energy counters and other instruments in the 29 regions (reference date is April 2016). For every region a map is made that gives insight in the task of the region. The goals the region is aiming for and the elements or policy instruments that are involved in the regional approach. The presence of energy counters, business alliances and local energy cooperatives (mostly citizen initiatives) can be seen on a map per municipality. With respect to energy counters the minister responsible has stated in June 2017 (as a result of Parliamentary questions) that it is not yet clear if there will remain a national role for energy offices after 2017 and, if so, what that role will be (MBZK, 2017). In consultation with the VNG, the Minister will decide at the end of 2017 what the desired function of the energy countries will be and if it would necessary to provide the counters with long-term certainty.

From informal discussions (that date back to spring 2017) with employees responsible for the Energy program of the VNG, the results of the energy counters vary in practice. At that moment there were about sixty digital and physical counters in operation (regional and municipal), with varying quality. Some 25 digital energy counters appear to work and function as they should be and the other stay behind in quality. There are great differences in the degree of professionalism, business efficiency and physical accessibility of these counters. Only a few counters are also available in a physical form and can be visited by interested homeowners. The regional and municipal counters apparently hardly monitor their activities and their results. It is estimated that in around 60,000 to 70,000 private homes energy saving measures have been taken. What has been done exactly in those homes is unknown. On the basis of these results it is impossible to answer relevant questions like what the best way is to monitor and evaluate Dutch energy counters and information centres on a national scale. The appendix contains examples of some relevant Dutch energy counters

Best practices of Dutch consultation centres and pop-ups are presented in the subsequent sections.

¹ For more information (in Dutch) see: <https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/energieakkoord..>

² From 2014 on homeowners (both individuals as Associations of Apartment Owners) who want to invest in a more energy-efficient house can take out an Energy Savings Loan with special interest at the National Energy Saving Fund. The fund has a budget of € 300 million. The loan can be used for 17 energy-saving measures. Further information (in Dutch) can be found on www.energiebespaarlening.nl.

3.2.2. Centre for Sustainable Renovation 033Energie (Amersfoort)

Main characteristics:

- Type: permanent consultancy centre combined with local pop-ups (and website).
- Initiator: local/municipal initiative. Partnership between public bodies, local, regional authorities, builders installers, advisors, banks, knowledge institutes, etc.
- Customer Journey: from raising awareness up to realisation of energy saving measures.

The Centre for Sustainable Renovation 033Energie (*Centrum voor Duurzaam Renoveren 033Energie*) is a joint initiative of the municipality of Amersfoort and the (local) private sector to make the building stock more sustainable. Partners are contractors, architects, a financial institution, a marketing agency and Utrecht University. The centre is located in Amersfoort and can be visited by appointment. 033Energie has the ambition to renovate at least 250 homes from private home owners from 2014 to 2020 (to an energy-neutral level). In addition, 033Energie plans to renovate another five hundred homes / apartments within apartment blocks.

The consortium tries to invite homeowners to carry out energy investments in their homes. This is done by several means, for example by so-called 'energy ambassadors', people that stimulate energy investments by households in their own neighbourhood. Visitors are welcomed for energy advice, condition assessment, design, financial advice and realisation. It appears that visitors are generally 40-plus and represent mainly households with children.

For 033Energie a passive house calculation is an important tool to guarantee the performance and energy generation. Homeowners have no obligation to work with firms connected to 033Energie. Consultants and the local authority advocate their proven quality, but the choice is up to the client. Within 033Energie all individual firms are liable for their own work. Clients find it important being offered the guarantees of the quality label 'BouwGarant', to be sure about the process quality and especially the realization of the work in case of bankruptcy of the contractor.

033Energie is especially busy in the Soesterkwartier district, where a customized approach per home and owner is used. For a number of representative homes, an exemplary advice has been prepared to show other owners what opportunities are available. These exemplary advices limit the time suppliers need to implement measures when a positive decision has been made. Useful tools for both the demand as supply side are web based tools as well as the housing file (developed by Meer met Minder) with all available data from the houses in Amersfoort including a solar and heat scan made by the municipality. With the personal housing file, residents of Amersfoort can easily see how energy efficient their homes are. To give insight into the suitability of roofs to place solar panels, Amersfoort has developed the 'sunscreens': a digital map that indicates on which roofs it is cost effective to place solar panels. In addition, sustainability projects also focus on Associations of Apartment owners (*VvE's*), for which a loaning scheme with a bank has been developed.

Other important developments have been the opening of the permanent centre in April 2014, and the development of the pop-ups, called the Energy experience centre, normally present during 1 week in a selected neighbourhood in Amersfoort. In in this pop-up general and specific information is available as well as a free quick scan.

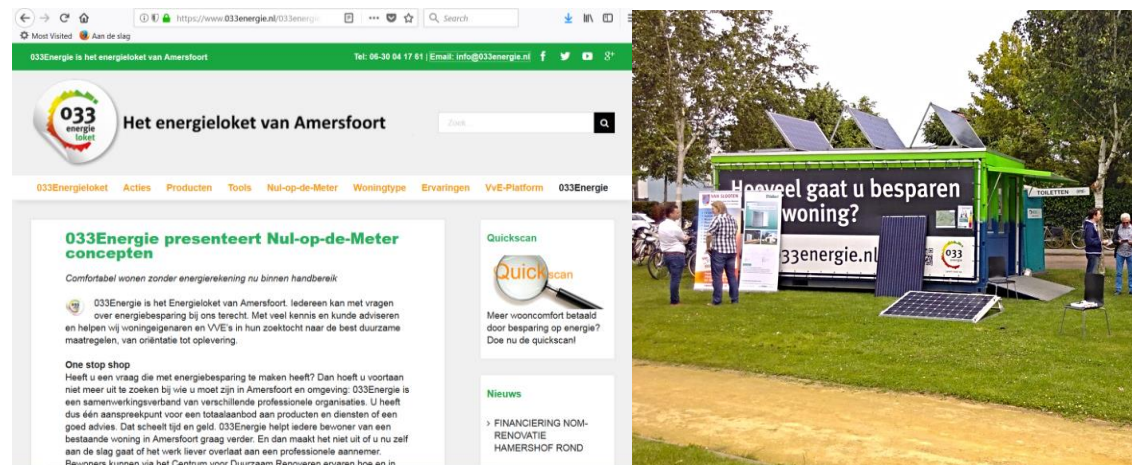


Figure 6: Website and pop-up Energy Experience Centre 033Energie, Amersfoort.
Source: www.033energie.nl. Copyright © 033 Energie.

3.2.3. ICDuBo, WoonWijzerWinkel and –Wagen and pop-ups (regions and municipalities Rotterdam & Den Haag)

Main characteristics:

- Type: permanent information & consultancy centre combined with local pop-ups (both mobile as temporary) and website.
- Initiator and legal structure: regional & municipal initiative. Partnership between public bodies, local, regional authorities, builders installers, advisors, etc.
- Customer Journey: from raising awareness up to realisation of energy-saving measures.

In cooperation with the region Rotterdam-Rijnmond, the region Haaglanden has established a digital counter for energy saving (www.woonwijzerwinkel.nl) combined with a permanent information and consultancy centre (ICDuBO Innovation Centre for Sustainable Building³ or *Innovatie Centrum Duurzaam Bouwen* = ICDuBo) and a mobile 'WoonWijzerWinkel' (a 'live more sensible caravan'). Besides that the city of Rotterdam has organised pop-up centres with a slightly more permanent nature in various forms using the motto Energysaving-010 (*energiebesparing-010*).

ICDuBo links between government, education institutions and industry and forms an central platform with a permanent exhibition of all possible sustainable, innovative building products. Manufacturers are able to present their sustainable products and to conduct experiments in the ICDuBo. The municipalities in these regions⁴ try together with ICDuBo to create an open marketplace via the WoonWijzerWinkel where demand for supply is linked with added value for both customers (the homeowners) as construction and installation companies. Construction and installation professionals are asked to join the WoonWijzerWinkel. In order to qualify for the provision of their services or products they must meet certain criteria: Besides some soft criteria (like willing to cooperate and share mutual knowledge and supporting the customer-oriented sustainability goals of the initiative) they must for instance be registered with the Chamber of Commerce, submit references to prove their experiences in the field and perform according to statutory guidelines and industry-related quality requirements.

The objective of the centre is stimulating the application of sustainable products by means of an attractive presentation in an inspiring surrounding. The offer has been aimed at the practical application and gives together with the internet platform an overview of the most current sustainable,

³ The physical counter of the WoonWijzerWinkel is located in the city of Rotterdam and can be visited during working hours.

⁴ In the region Rotterdam 24 municipalities are currently involved at in the initiative.

innovative products, concepts and systems for construction. The ICDuBo consists of a permanent exhibition concerning sustainable building. Simultaneously the ICDuBo serves as an experimental space for innovations. 1:1 models of several building types are set up. These sections are completely built from sustainable products and concepts. In this way the technical aspects are made visible and the visitor can take knowledge of sustainable materials and systems in a realistic way. Attention is also given to themes as: urban planning, cradle to cradle, the application of sustainable energy, improvement of indoor comfort and the optimisation of the lifetime of buildings. In association with several education- and research institutions, the ICDuBo gives insights into several angles of sustainability. To stimulate knowledge exchange and development, theme meetings and symposia are organised for everybody who is involved in sustainable building

The mobile 'WoonWijzerWagen' tours through the region and pops up from time to time in the various municipalities that are part of the Haaglanden and Rotterdam regions. Homeowners that are interested in or have plans to undertake energy saving measures in their dwelling can visit this van with practical questions. A team of 'independent knowledge managers' is responsible to provide targeted answers on the questions. They also try to couple the homeowners with construction or installation companies appropriate to the needs and questions the home owners have.



Figure 7: WoonWijzerWagen.

Source: <https://www.woonwijzerwinkel.nl/project>. Copyright © ICDuBo.

In addition to this, the city of Rotterdam has been organising three pop-up centres with a more permanent character between early 2016 and the end of 2017.



Figure 8: Pop-up store in Rotterdam Koopgoot.

Source: City of Rotterdam. Copyright © City of Rotterdam.

Two of them were located in the city centre (and attracted passers-by) and the other one is still open in a specific neighbourhood (where visitors were attracted mainly via neighbourhood campaigns). These pop-up shops were open between 2 and 8 months and have (had) extended opening hours. Visitors could get general information about insulation (and sometimes solar energy and smart meters) and subsidies and financial schemes. Those who were interested were referred to the WoonWijzerWinkel for tailor-made advice.⁵ The main lesson learned from the three semi-permanent pop-up stores is the need for activities and campaigns to attract visitors to the pop-up stores.

The location is deliberately chosen in one of the most populated areas of Rotterdam. Later further pop-up centres are planned in IJsselmonde, more specifically in Groot IJsselmonde. Urgency and identified opportunities like for example renovation related to get rid of asbestos, replacement of sewers or improvements of the public area, defined the choice for the neighbourhood.



Figure 9: Pop-up shop Binnenhof (Ommoord).

Source: <https://www.rotterdamenergiebesparing.nl/dev/uitgebreid-artikel/pop-up-store>. Copyright © City of Rotterdam.

Afterwards a research and journey was done focused on the neighbourhood to determine the types of areas, houses, households and their related energy issues and lifestyles. Customers are lured with a 'ticket' advantage. They get information about their own house (for example an infrared image of the front of the house) and they can visit information days on how to use smart meters. Additionally a pop-up van of the WWW is used to inform people in surrounding areas to come to the pop-up centre or to get information and possibly an energy advice. Afterwards about 15% of the visitors have been successfully convinced to visit ICDuBo. Various visitors also asked an additional paid energy advice for their own house.

The pop-up centre's main success factor is that it also provides a podium for neighbourhood activities; it is a place for inspiration and information. For example, the store works together with jewellery artists, local knitting clubs, and so on. The manager of the commercial centre saw the benefit of creating such a place for social activities.

⁵ See also the presentation 'Pop-up shops in Rotterdam' during the Triple A Workshop WP3 (October 13, 2017).

Themes are changing according to the season. In the winter focus lies on thermal insulation, and in the warmer months it will be solar energy and HEMS. Obviously there is a need for eye catchers to draw in public, for example a Tesla battery. Employees are trained to talk immediately to the entering customers.

A future pop-up centre in IJsselmonde will have the same concept. An experimental new approach will be started with a pop-up centre in the municipal local office staffed by experts from the local authority.

3.2.4. Reimarkt (various municipalities: from stores to pop-ups)

Main characteristics:

- Type: permanent information and consultancy centre/shop combined with local pop-ups and website/online store.
- Initiator and legal structure: private initiative, with local authority support. Private businesses.
- Customer Journey: from raising awareness up to realisation of energy-saving measures.

Reimarkt (“the store for sustainable living”) uses websites, physical stores and pop-up(s) as a means to implement their strategy and sell their products and services. Reimarkt is an example of a private initiative where local authorities provide subsidies to cover the start-up costs.



Figure 10: Reimarkt.

Sources: Websites Reimarkt.nl; Presentation Reimarkt Antwerp 12/13 October 2017. Copyright © Reimarkt.

Reimarkt’s online store is currently available in five municipalities/cities: Hoogeveen, Zoetermeer, Groningen, Den Bosch and Delft. In Groningen and Hoogeveen, Reimarkt operates as a local energy counter under the name Groningen respectively Hoogeveen Woon Slim (*‘Groningen Lives Smart’*). In the other municipalities Reimarkt operates under his own name. Reimarkt has also a branch in Enschede, that now runs independently and without subsidies from the municipality. In the other local authorities this is not yet the case. Not all municipalities have yet a physical store

Both mission as aim of Reimarkt are broad. They want to enable sustainable living for everybody and aim at owner occupiers, tenants and housing associations. Initially they focussed on the social rental sector, but nowadays a shift has been made towards the owner occupied sector. The main goals of Reimarkt are to increase awareness, to provide information and guidance, to demonstrate energy saving technologies and energy saving measures etc. Above all they want to sell their energy saving products and packages and take care of the customer during his ‘customer journey’. Various means and tools are used to reach these goals. First of all they maintain a website where they provide easy advice on line. The purpose of the website is to get the visitors to their physical store where they can get a tailor made advice and buy the products. The store provides ready-to-go solutions for every home, from solar panels, wall, window, roof and floor isolation up to solutions that lead to zero-on-

the-meter-houses. Customers can get customised offers including an overview of the costs and the savings. Pop-ups are used to enable visitors of their website to see with their own eyes what energy saving measures are possible and what savings can be realised. Reimarkt defines a pop-up as a temporary opening of a renovated house (an open house). Besides that they use the "Tiny Tim" a caravan that should pop-up once in a while in another neighbourhood.



Figure 11: Tiny Tim Reimarkt

Sources: Websites Reimarkt.nl; Presentation Reimarkt Antwerp 12/13 October 2017. Copyright © Reimarkt.

3.2.5. Foundation Huizenaanpak

Main characteristics:

- Type: digital energy counter, combined with permanent information & consultancy centre
- Initiator and legal structure: regional & municipal initiative. Foundation.
- Customer Journey: from raising awareness up to realisation of energy-saving measures.

The Foundation Huizenaanpak, until 2017 known as the Haarlemse Huizen Aanpak is a collaboration structure of energy consultants, architects and contractors, with the legal identity of a foundation (Huizenaanpak, 2017). The municipality of Haarlem and the Province of North-Holland supported the foundation from the beginning. Haarlem is part of the region Kennemerland. In 2017 municipalities around the city of Haarlem, in the region IJmond and Zuid-Kennemerland, support the foundation too. The aim of De Huizenaanpak is to improve the energy efficiency and comfort of private dwellings, often with single measures, with a focus on dwellings built before 1970. The HHA want to shift its focus to nZEB renovations and to offer integrated renovation solutions to home-owners including after care. With funding from the Dutch Association of Municipalities, Haarlem and municipalities in the region IJmond the foundation has now the financial means to launch 'zero-on-the-meter' concepts. They operate self-managed teams that offer sustainable product-market combinations for common dwelling types. A SWOT-analysis of the existing collaboration structure in 2015, as part of the COHERENO project, made clear that weak points were the lack of small (specialist) contractors being members of the foundation, the invisibility of the customer channels, and the long customer journey from the first contact between de Huizenaanpak and the client to the commission and execution of measures. The front-office of the Foundation Huizenaanpak is in the first place a digital energy counter, to be reached by phone Monday-Friday 10.00-17.00, or by e-mail. Residents can make an appointment for an consult at home and a quick scan of their house. They can also make an

appointment at the energy counter. Energy adviser can make a renovation plan. The Huizenaanpak can help during the whole customer journey by inviting and assessing offers and quality control during and after the implementation of measures. They work with 'model dwellings'. After the renovation of their dwelling the owner can offer his services as energy ambassador and can open their house for other interested owner-occupiers

Summer 2017, Het Groene Huis, opened its doors in Haarlem. This is a private initiative from a member of De Huizenaanpak. The owner is using its office of its construction firm with a focus on floor insulation as a showroom for several products, to get people inside and inform them about low carbon technologies, e.g. heat pumps, solar panels and insulation materials. The owner of Het Groene Huis became aware that his clients for small construction work and floor insulation strongly felt the need to see sustainable solutions. Because the showroom is the office of the owner, the opening times depend on his indoor and outdoor activities. The demonstrated products are not being sold. Advice about energy savings and solutions is given for free. For contractors, except floor insulation (Tonzon), customers are being directed to other firms, which are part of the network of the owner of Het Groene Huis. He cooperates with them on an informal basis; most of them are also members of De Huizenaanpak.



Figure 12: Het Groene Huis

Source: <https://huizenaanpak.nl/2017/05/groene-huis-opent-deuren/>. Copyright © Het Groen Huis.

In December 2016 building contractor DRZM opened an energy-savings showroom in Haarlem. In this showroom several materials of different suppliers are being demonstrated. DRZM is a construction firm and member of De Huizenaanpak. The showroom is open during office hours. In the showroom advice is given about all kinds of low carbon technologies that are presented in the showroom by partners of DRZM. Customers could be home-owners as well as owners of non-residential buildings. Also people that want to build a new sustainable house are being targeted. DRZM also offers presentation and meeting space for its partners to present their products. Local authorities are given the possibilities to show their initiatives. Next DRZM aims to use the spaces for an inspiring environment where architects, real estate agents, contractors, energy consultants, housing associations and others can meet, work, collaborate and co-create. If the concept works well, the owners plan to make it into a national non-commercial franchise formula. They think about 30 branches across the country.

3.3. Experiences in Flanders

3.3.1. Policy context

The Flemish renovation advice policy is embedded in a network structure: the Flemish transition network on building (services on sustainable development) and the Flemish network on sustainable building advice. The practical work is carried out from provincial supporting points⁶. The EcoHuis in Antwerp operates as one of those supporting points. Since May 2016 EcoHuis and the Belgian network operator Eandis (who is responsible for the electricity and natural gas distribution network in 239 Flemish municipalities) have been jointly developing the 'Energy House' in the EcoHuis. In concrete terms, this means that visitors can now also get a advice how to rationalise their energy use (a so called REG advice).

The Flemish provincial network sustainable building offers services in communities on appointment. In the near future a new incentive will emerge for renovation coaches, particularly also for combining measures. Energy Houses are and will be available all over Flanders. An Energy House is a municipal institution or collaboration between different municipalities. At the Energy Houses homeowners can get advice on energy saving and support to take out a low-interest loan. In some cases Energy Houses also offer a broader range support activities (e.g. guiding when requesting quotations from contractors, supervising the works and guidance for applying for subsidies).

This section focusses on the EcoHuis in the City of Antwerp and the Woon+bus that the organisation 3WPlus uses to provide accessible and technical energy advice in neighbourhoods of six municipalities in the area around Brussels and Vilvoorde.

3.3.2. EcoHuis

Main characteristics:

- Type: permanent consultancy centre in the centre of Antwerp.
- Initiator and legal structure: regional & municipal initiative. Public authority (regional and municipal).
- Customer Journey: from raising awareness, provision of information and demonstration of energy saving technologies.

The development of EcoHuis is related to the European project Livinggreen⁷. In Livinggreen nine worked together on the sustainable renovation of heritage buildings, new technologies, informing citizens about sustainable building and launching a tool kit for sustainable renovations.

The EcoHuis is located in a permanent building in the centre of Antwerp. In the EcoHuis citizens can obtain free advice on their energy and water bill, rebuilding advice, information on energy and environmental premiums. Flemish energy lending and other benefits throughout the year. Information is also available about other municipal affairs. Besides that the EcoHuis organises exhibitions (for example on green roofs), info sessions and education, offers meeting rooms for rent and accommodates an eco-cafe.

⁶ General information about the Flemish policies about energy saving and housing can be found at: <https://www.vlaanderen.be/nl/bouwen-wonen-en-energie>. The website <http://www.duwobo.be/provinciale-steunpunten/> elaborates on the way provincial supporting points function. For discussing and evaluation a reference can be made to: <http://www.do.vlaanderen.be/provinciale-steunpunten-duurzaam-wonen-en-bouwen-evaluatie-maart-2015>.

⁷ <http://www.livinggreen.eu/the-projects/ecohouse/>



Figure 13: EcoHuis.

Source: Website EcoHuis/Presentation Antwerp 12/13 October 2017. Copyright © City of Antwerp.

The EcoHuis wants to increase awareness, provides information about and demonstrates low-carbon technologies and gives energy advice to citizens that are interested in saving energy and or comfort improvement of their dwellings. All people living in Antwerp looking for information about undertaking energy saving measures in their dwelling are welcome.

Inhabitants of Antwerp can get free sustainable building advice from the 'EcoHuis doctor'. These EcoHuis doctors are independent professionals hired by EcoHuis. To support advice the city of Antwerp has a framework agreement with non-profit associations Pixii and VIBE. In the EcoHuis an appointment has to be made for a certain day and hour. No appointment is necessary when a citizen wants to get advice in one of the 6 Housing Offices that are spread over the city. Visitors that want to have tailor made advice during construction are referred to the experts of the Flemish Network for Sustainable Building Advice. These experts have specialist knowledge in the field of sustainable and low-energy renovations. Clients have to pay a fee for this advice, but citizens of Antwerp can get a limited discount.

For certain groups (low income or socially vulnerable) it is possible to get advice about the possibilities get water and/or energy advice free of charge (see section 2). There is also a close collaboration with local welfare centres (OCMW's) to detect households living in energy poverty. Furthermore, the Flemish Region supports so called 'energy-cutters' (*energiesnoeiers*) that can give advice and install small interventions (for example changing lighting) in the homes of vulnerable households.

3.3.3. 3WPlus: the Kyotomobiel and Woon+bus

Main characteristics:

- Type: mobile pop-up centre.
- Initiator and legal structure: regional & municipal initiative. Public authority (regional and municipal).
- Customer Journey: from raising awareness up to realisation.

3WPlus is an inter-municipal and regional partnership of 35 municipalities that are located in the administrative district Halle-Vilvoorde (also known as the 'Flemish edge' around Brussels). Their main task is the development of the region in the area of living, working and welfare (or in Dutch/Flemish: *Wonen, Werken en Welzijn*: the 3W's). Within the framework of the Climate Project *Kyoto in de Wijk* (Kyoto in the neighbourhood) 3Wplus used early April 2016 the Kyotomobiel in six municipalities in the region. The project has a length of three years.

The Kyotomobiel is a fully sustainable mobile bureau originally developed by the citizens cooperative PajoPower⁸ It is equipped with PV solar panels, a water pump and a battery storage system that

⁸ More information is available on their website: <https://vzw.pajopower.be/>.

provides autonomy for 8 hours. The mobile is also equipped with wood wool insulation and ecological roofing. In short: an example of how to make a home energy efficient⁹.



Figure 14: Kyotomobiel.

Sources: <https://3wplus.be/energie>; Presentation Antwerp 12/13 October 2017. Copyright © 3WPlus Halle Vilvoorde.

In the same period of three years the residents of Vilvoorde can visit the Woon+bus (living+bus, developed by the municipality of Vilvoorde) that offers the same services as the Kyotomobiel.



Figure 15: Woon+bus.

Sources: <https://3wplus.be/energie>; Presentation Antwerp 12/13 October 2017. Copyright © 3WPlus Halle Vilvoorde.

The mobile units do not address specific types of homeowners or dwellings. Visitors are residents living in the six municipalities that have questions about or are interested in energy saving or comfort improving measures. The goals are to raise awareness and to provide easy accessible information and advice about the possibilities and benefits of actions that can save energy and can improve the comfort of the dwelling. Residents can get custom-made energy advice for free and information about funding and subsidy possibilities. In addition an energy audit of the dwelling can be made. These revenues do not cover the real expenses for the advice, consultants are additionally supported by local authorities. The dwelling is screened for its energy consumption and opportunities to improve the situation. The clients get a detailed tailor made report how to make their dwelling sustainable. Generally the proposed measures lie in the areas of insulation, heating and hot water. In the winter months it is possible to request a heat scan. Advice is given with a thermal imaging camera.

⁹ Source: an item on local television: *Kyotomobiel maakt wijken energiezuinig* (Kyotomobiel makes neighbourhoods more energy efficient). <http://www.ringtv.be/nieuws/kyotomobiel-maakt-wijken-energiezuinig> (4-1-2015).

3.4. Experiences in northern France

3.4.1. Policy context

In France there is a growing involvement of local authorities in the energy renovation of housing. France has made a commitment to reduce its energy consumption and greenhouse gas emissions. The law relating to the energy transition for green growth, published on 18 August 2015, sets amongst other things the objective of renovating 500,000 homes per year from 2017 onwards¹⁰. For this, the law provides for measures that go in the direction of a reinforcement of the competences devolved to the communities in energy. The mobilization of local authorities is essential to support and multiply these actions in favour of energy renovation. For several years, communities have been committed to innovative and ambitious systems for the energy renovation of housing, thus encouraging the creation of local jobs in this sector by mobilizing all the actors in the sector. In this sense, a hundred territorial platforms for energy renovation are already operational in France. These territorial energy renovation platforms are present to:

- Accompany individuals;
- Mobilize local professionals;
- Facilitate the financing of projects;
- Represent territorial energy renovation initiatives such as Picardie Pass Renovation. These initiatives share the same desire to create a territorial dynamic conducive to mobilize all the actors of the renovation (Energy Info Spaces, energy pop-up centres, architects, craftsmen ...) and facilitate the passage to the act.

Two of these initiatives in Hauts-de-France:

- REFLEXENERGY: through this system, the Urban Community of Dunkirk (CUD) gives a boost to low-income individuals and social landlords of the Dunkirk agglomeration in their project of insulation, renovation or equipment in renewable energy of their housing ;
- Picardie Pass Renovation: Initiative managed by PSEE in Amiens.

A study published by French Environment and Energy Management Agency (ADEME, 2016) specifies that financial reasons are a major obstacle to the continuation of the energy works¹¹. The main obstacles are:

- 25% of these owners are not sure that the energy savings made justify the investment in this work. Regional programs and platforms are considered to be the answer this question.
- 54% of these owners believe that their financial situation does not allow them to carry out other energy works.

The aid granted for energy works reduces the household work bill by 17%. Public aid is rather well known to households. A little more than 6 out of 10 French households know at least one of the following financial arrangements:

- The 5.5% Valued Added Tax is by far the device that benefits households the most. The use of professionals is required during the renovation work, nearly a quarter of homes that have completed work has benefited, and even 44% of households who have opted for a successful renovation or high performance. This reduced rate makes it possible to limit the impact of the

¹⁰ For more information see https://www.unpri.org/download_report/14573 or <http://www.gouvernement.fr/en/energy-transition>.

¹¹ The study is based on the OPEN Campaign (Observatoire Permanent de l'amélioration Énergétique du logement or Permanent Observatory of Energy Efficient Improvement of Housing). Every year, the Observatory publishes facts and figures and statistics about Energy Renovation.

work on the household budget (30% on average) and of course to more easily solicit a professional.

- The “Sustainable Development Tax Credit” is granted to households carrying out comprehensive renovations (assistance may be up to 30% of the cost of works capped at € 16,000).
- National Habitat Agency (ANAH) grants are given to low-income households for global work.
- “Energy Savings Certificates” are a contribution from energy suppliers or energy sellers who are asked to promote energy savings to their customers. Certificates of energy savings are recovered by those customers who have done work and buy back by energy sellers from those customers.

The territorial energy renovation platforms wish they can have pop-up centres to show their actions and help people with the issues which slow down their wills to make renovation. For now, the only platform owning a pop-up centre is Amiens Platform.

3.4.2. La Maison de l'habitat durable (Lille)

Main characteristics:

- Type: permanent centre with consultants in the region
- Initiator and legal structure: Municipal (and regional) initiative. Public authority (regional and municipal).
- Customer journey: from raising awareness up to guidance to choose builders/installers.

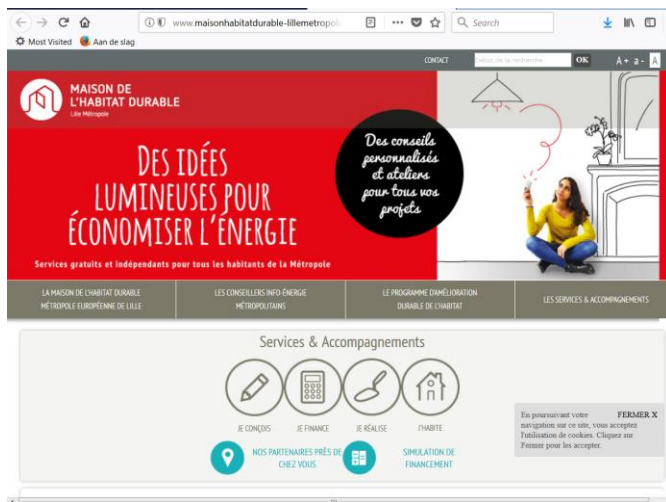


Figure 16: Website of La Maison de l'habitat durable in Lille.

Source: <http://www.maisonhabitatdurable-lillemetropole.fr/home.html>. Copyright © La Maison de l'habitat durable.

The centre has been initiated by the City of Lille and the European Metropolis of Lille. It functions as the one-stop shop for sustainable and energetic renovation for the entire city. The centre has received support from the European Union, the Hauts-de-France Region, the Nord Department, ADEME and EDF. Besides that many partners are involved in the initiative¹². The centre works together in a network with the *Espaces Info Energie* and the municipalities located within the metropolitan region. The shop (or 'maison') is open for every citizen and information is being provided about all relevant aspects of sustainable living: energy performance, comfort improvement, health and environmental

¹² To mention some of them: ANAH, CD2E, Architects, CAUE, ADIL, MRES, PSPE, Leroy Merlin, APPA, MACIF Foundation, SIA, GDF-Suez and organisations of construction professionals.

aspects, climate change, the benefits of working together, the fight against energy poverty, etc. The aim is to thermally renovate 100.000 in the region.

In total 11 energy advisers are available to residents throughout the metropolitan area to provide concrete, practical and technical solutions for reducing their energy consumption and implement the use of renewable energy. These energy advisers are neutral and provide a free and objective advice to residents that want to reduce their energy consumption and/or want to use energy from renewable sources.. The advisers provide tailor made practical and technical solutions for renovation, provide to-the-point documentation and give advice about the choice of reliable craftsmen and companies.

3.5. Experiences in southern England

3.5.1. Policy context

There is a distinct gap in energy policy relating to consultancy and energy advice. Under the Home Energy Conservation Act 1995 (DEFRA, 1995; DECC and DBEIS, 2012) all English authorities with housing responsibilities were required to prepare a report by 31 March 2013 setting out the energy conservation measures that the authority considers practicable, cost-effective and likely to result in significant improvement in the energy efficiency of residential accommodation in its area. In preparing HECA reports authorities should, where appropriate, regard:

- Measures that take advantage of financial assistance and other benefits offered from central Government initiatives, such as the Green Deal, ECO and Renewable Heat Incentive or other initiatives, to help result in significant energy efficiency improvements of residential accommodation. And:
- Measures which an authority has developed to implement energy efficiency improvements cost-effectively in residential accommodation by using area based/street by street roll out involving local communities and partnerships (e.g. social housing partners, voluntary organisations and town/parish councils).

Some Local Authorities have set-up energy advice days and stands ad-hoc as part of their energy conservation measures but there are currently no policy drivers or requirements to provide advice via consultancy centres or pop-up centres.

Recent Government policy highlights a continued drive to 'go digital' rather than provide face-to-face advice. In October 2017, the UK Government published its Clean Growth Strategy for the UK (DBEIS, 2017), setting out its policies and proposals to improve people's homes. Policies and proposals include upgrading all fuel poor homes to EPC Band C by 2030, encouraging as many private rented homes to be a minimum of EPC Band E before they can be let (under new legislation) and a focus on digital advice (replacing the existing telephone only Energy Saving Advice Service with a digitally-led service by spring 2018,

One driver of face-to-face advice to residents is included as part of Government's policy to ensure every home is offered a smart meter by the end of 2020. However energy suppliers are given the task to lead the way on this behaviour change, with Local Authorities providing purely a promotional role in relation to smart meters as part of their HECA duties.

3.5.2. Examples of energy pop-up shops and an information centre

In 2014/2015 several pop-ups were organised in the south west of the UK¹³. The main goal was to lower the energy bills of residents who were confronted with fuel poverty. The pop-ups were organised with financial support of the Department of Energy & Climate Change (DECC) that granted funding through its Big Energy Saving Network (BESN). The pop-ups were set up by a non-profit organisation (Communities Matter) in cooperation with the various municipalities. They were initially used in several municipalities in Sussex, but in 2015 Tunbridge Wells hosted the first ever energy pop-up shop in Kent.



Figure 17: Energy pop-up shop in the UK.

Source: <https://www.tchg.org.uk/tunbridge-wells-hosts-kents-first-ever-energy-pop-up-shop>. Copyright © Town & Country Housing Group.

In a Café in the town centre residents and businesses in the area could meet energy experts that could provide them with independent and practical advice on how to cut costs on their energy bills., switch from energy supplier or to be more energy efficient at home. The pop-up was open during business times for one week. The visitors were asked to bring their energy bill, could drop in without an appointment and could have a free cup of tea or coffee. The advice was free and could save the residents money. It was estimated that because of the advice local residents and businesses were saving between £50 and £500 a year on their energy bills. As far as we now there are no energy pop-up initiatives active at the moment in the UK

An example of an Energy Saving Trust advice centre could be found in Westminster in London. This advice centre offered free, tailor made and independent advice on energy efficiency, water, waste and personal transport. The advice was available for all residents and (according to the initiators could save householders up to £270 per year. The advice included:

- Information about grants and offers available for insulation and other home energy improvements.
- A free personalised home energy report.

¹³ Sources pop-ups: <https://www.tchg.org.uk/tunbridge-wells-hosts-kents-first-ever-energy-pop-up-shop> and <http://uckfieldnews.com/energy-advice-pop-up-shop-is-coming-to-uckfield/>

Sources energy advice centre: <https://www.westminster.gov.uk/energy-saving-trust#>

- Contact details for local professional installers.
- How to source energy efficient appliances and low energy lighting.
- How to decrease waste contributions to landfill and save money.
- Information on micro-generation technologies.
- How to green your personal transport and save money.

The last update on the website of the energy advice centre dates back to August 2016. It is therefore assumed that it is not in operation anymore.

3.6. Conclusions

This chapter describes the characteristics of a few selected existing consultancy centres and pop-ups in the home countries of the Triple-A partners. In the Netherlands the following initiatives are addressed: 033Energie (Amersfoort), ICDuBo & WoonWijzerWinkel (The Hague and Rotterdam municipalities and region), Reimarkt (various municipalities), De Huizenaanpak (Haarlem and region). In Belgium: EcoHuis (Antwerp) and Kyotomobil and Woon+bus (3WPlus, region Halle-Vilvoorde). In northern France: La Maison de l'habitat durable (in Lille). In southern England energy advice pop-ups in Sussex and Kent and an Energy advice centre in London are described briefly.

These initiatives are selected because they illustrate the wide range of possibilities of consultancy centres and related pop-up models and can be used as an inspiration when setting up own pop-ups. The customer journey model (e.g. the process starting with creating awareness, providing information up to the execution of energy saving measures) is used to reflect on the activities in centres and related pop-ups. The main characteristic of the initiatives that have been addressed in this chapter are summed up in table 1. Looking at that table a range of observations can be made:

- In almost all cases the (first) initiative came from (local/regional/national) authorities. 033Energie and De Huizenaanpak were 'formalised' in foundations in which authorities still participate, but in the first place led by private organisations. Public authorities still financially support the activities (on a project or yearly basis). Only Reimarkt (NL) tries to get commercial/privatised centres and pop-ups off the ground, but that has so far only been successful in one case (Enschede). It must be considered however, that the initiatives of Reimarkt emerged with governmental subsidies and (local) authorities are still heavily involved in financing the daily management.
- In the Dutch initiatives websites play a very important role to connect with clients. Via the websites clients are invited to make an appointment and/or to pay a visit to the physical store or consultancy centre. In the Netherlands in almost all the cases pop-ups - mobile centres or temporary store in an existing building (library, shopping centre) - are used to lower the threshold and to attract more visitors or targeted homeowners. Only 3WPlus/Halle Vilvoorde uses a targeted deployment of a mobile caravan.
- The Kyotomobil initiative has a limited timeframe, from the other initiatives it is unknown when they finish.
- As far we scoped, in a few cases measurable goals have been set: 033Energie wants to renovate between 2014 and 2020 250 private homes and 500 apartments to an energy neutral level. The Kyotomobil has the goal to supply 120 homeowners in 2016 with an energy audit. La Maison de l' Habitat durable in the metropolitan region of Lille wants to thermally renovate 100.000 dwellings. Although these goals are still rather vague they are far more concrete than the goals the other initiatives seem to have set.
- All Dutch initiatives addressed in this chapter cover a large part of the complete customer journey: starting with raising awareness, trying to get residents in action, suggesting tailor-made solutions (and not only in a material but also in an financial sense) and supporting them during the execution of the measures.
- Most initiatives analysed in this chapter go beyond the models that are distinguished in the Triple-A working plan. According to this working plan a distinction can be made between three models. The first one is a movable flexible short term (less than one week) pop-up. The second one is a longer term, fixed pop-up that makes use of existing public or vacant private buildings, and the third is a combination between those two. The local authorities who have a pop-up centre or a plan to open one seem to rely also on more permanent visitor centres and demo-houses that formally hardly can be defined as pop-up centres.
- On the basis of this analyses of existing pop-ups and more permanent centres it could be considered (or at least discussed) to have a look again at the classification of future pop-up centres and make a distinction between centres that 'pop-up':
 - For a short time - for instance from a couple of hours up to a week - in a permanent building (e.g. an 'open house').
 - For a short time in mobile form (e.g. caravan and bus: Kyotomobil and WoonWijzerWagen).

- For a temporary period (up to 1 to 2 years) in a permanent building (e.g. pop-up stores in Rotterdam).
- For an indefinite period in a permanent building (e.g. WoonWijzerWinkel, 033Energie, EcoHuis, shops of Reimarkt).

Furthermore attention could be paid to the possible mutually enforcing effects of parallel initiatives. More and more initiatives show the implementation of different means to reach the goal. Websites are combined with consultancy centres or stores in fixed locations and emerging pop-ups in target neighbourhoods.

- In the Netherlands the energy consultants (advisors and architects) are independent persons or employed by the (local) authorities. The Eco doctor in the Belgian EcoHuis is also an independent advisor.

TABLE 1: OVERVIEW OF THE MAIN CHARACTERISTICS OF THE CONSULTANCY CENTRES AND POP-UPS STUDIED IN THIS CHAPTER.

Name	Type and operation time	Initiative	Specific policy goals	Target group	Customer journey	Tools
033Energie (Amersfoort)	Website, consultancy stores & pop-ups Unlimited term	Municipal & private parties	2014-2017: 250 private homes + 500 apartments energy neutral	No specific group. Focus on Soesterkwartier (early 20 th century)	Complete customer journey	Web based, energy scan, solar scan ('sunscreens') Exemplary advices (SK) Loaning scheme AHO
ICDuBo & WoonWijzerWinkel Den Haag & Rotterdam)	Website, consultancy stores & pop-ups (mobile & temporary fixed location) Unlimited term	Regional and municipal & private involvement	Bringing together demand and supply: home and apartment owners and social real estate (schools)	Homeowners in general and in specific neighbourhoods	From creating awareness up to execution of measures. Main goal is to serve as a marketplace	Exhibition of products and systems, theme meetings; infrared scans.
Reimarkt municipalities) (6)	Website, consultancy stores and pop-ups Unlimited term	Private parties with support of 6 municipalities	"To enable sustainable living for everybody"	Housing associations and homeowners	Complete customer journey	Ready to go solutions, tailor-made solutions, "step sizes related to dwelling types"
Huizenaanpak (Haarlem)	Website and consultancy centres/stores Unlimited term	Private with regional and municipal support	Private dwellings (built before 1970)	Homeowners	Complete customer journey	Quick energy scan dwelling, renovation plan, showroom of products and materials
EcoHuis (Antwerp)	Website & consultancy centre Unlimited term	Regional and municipal	Providing information, advice and support for sustainable and healthy living	Citizens of Antwerp with questions/plans to renovate their dwelling	Raising awareness, and providing information	Water and energy advice, Financial advice, demonstration of technologies Specialised advice on site (for a fee)
Kyotomobil (3WPlus, Halle Vilvoorde)	Pop-up centre (mobile van) 2017-2020	Regional and municipal with private involvement	2016: 120 energy audits	Residents in 6 municipalities	From realising awareness up to realisation	Free advice, heat scan, energy audit (€ 40)I plus tailor made detailed roadmap
Maison de l'habitat durable (Lille)	Website and consultancy centre Unlimited term	Municipal and regional + many partners	Thermal renovation of 100.000 dwellings in the region. (Hauts de France)	Every citizen in the Métropole Européenne de Lille European	From raising awareness up to guidance to choose builders/installers	Tailor made practical and technical solutions for renovation
Energy advice pop-ups (Sussex)	Pop-ups in fixed location (e.g. café) 1 week	National and local authority	Combat fuel poverty	Residents in certain municipalities	Advice about energy saving	Home energy report

4. Assessment for the development of local pop-up centres

4.1. Introduction

To better understand the co-creation needs for local authorities, a preliminary research was done using the Triple-A local authority partners and observers as key experts. Questionnaires were designed to understand the level of knowledge and access local authority actors want to realise in pop-up centres for homeowners who want to renovate their homes. One questionnaire was developed by Antwerp and TU Delft to assess the needs for pop-up centres and distributed to the Triple-A partners. Another questionnaire was developed by TU Delft and distributed by e-mail to known main representatives of local authorities in the 2 Seas Region: France (FR), United Kingdom (UK), Belgium (BE), The Netherlands (NL). The latter also included various questions about web portal development and is extensively described in the Triple-A WP1 scoping report on web portals.

The questionnaires used open and closed questions to explore the current initiatives and the needs observed by local authorities. Although this gives insights in the main concerns of local authorities, it does not give results whether the intended pop-up centres are sufficiently addressing the real homeowner needs. This remains to be verified in a later stage of the Triple-A project.

This chapter highlights the main results. Section 4.2 addresses the needs of local authorities for market cooperation and especially the importance they attach to pop-up (or more permanent consultancy) centres. The plans and ideas of the local authorities to organise consultation centres and pop-ups in the near future (or to continue with their existing models) are presented in section 4.3.

4.2. Local authority needs for market cooperation

Figure 18 shows an overview of the main channels local authorities use to promote energy efficient renovations, compared to how important the local authorities think these channels are for promotion of energy efficient renovations. This graph shows that a majority of the respondents intends to further develop the pop-up centres.

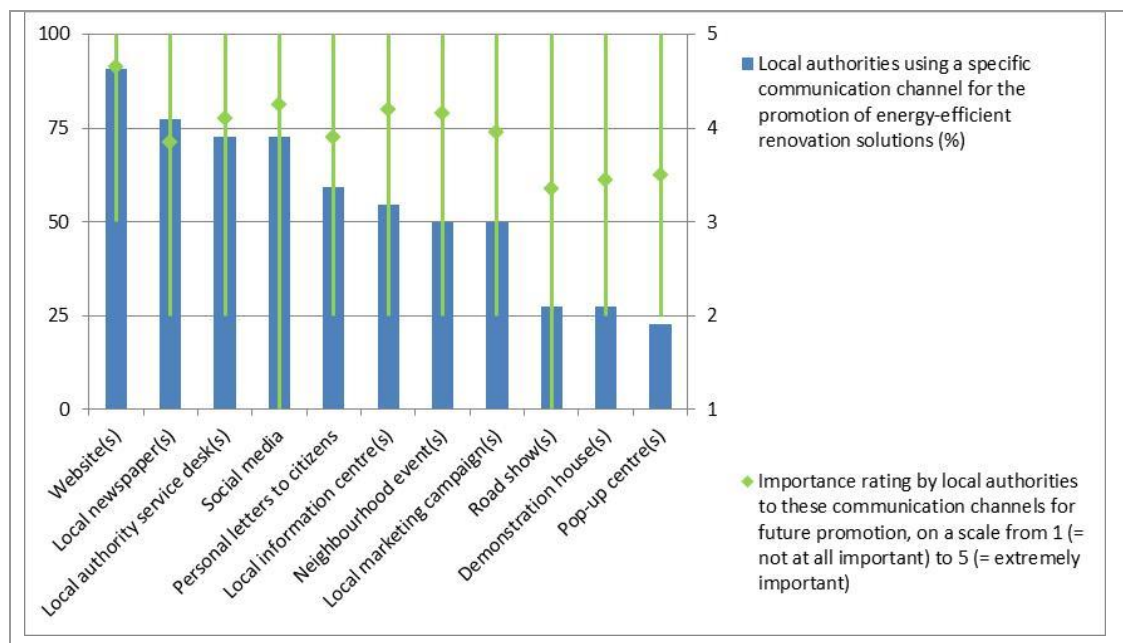


Figure 18: Channels local authorities (22 respondents) currently used to promote energy efficient renovation solutions and importance attached to these channels for the future.

Local authorities usually want to promote specific financial schemes and technologies to support energy renovation measures. An overview of such schemes and technologies can be found in the WP1 scoping report and in the Triple-A report "Inventory low-carbon technologies and financial schemes for pop-up centres" (D.3.1.1.). Local authorities have their own specific intake on what kind of information or consultancy they (want to) provide in the pop-up centres to inform homeowners. This is addressed in more detail in the next chapter.

In general local authorities expressed that detailed information about all kinds of technologies is important to convince homeowners to adopt such technologies. Relevant technologies are thermal insulation and airtightness, heating and cooling systems, heating and cooling storage systems, heating and cooling monitoring and control systems, ventilation systems, ventilation control systems, renewable energy production, energy monitoring and management systems, electricity storage systems, green roofs and walls, lighting and household appliances. Pop-up centres might also host the use of energy and cost calculation tools, the facilitation of group buying, and the distribution of home energy monitoring systems. Personal contact with homeowners is key method used in the pop-up centres. Almost all LA's want to pay attention to owner-occupants of both single-family homes as apartments. Most LA's still are searching co-operation with other actors to develop and sustain pop-up centre initiatives. Nonetheless all local authorities find it important that market actors should play a role to motivate and possibly convince home owners to carry out energy efficient measures in their dwellings. Market parties that are mentioned relatively often by the seven local authorities are contractors, energy consultants, architects, local demands side networks, citizens, energy cooperatives and renovation stores or one stop shops.

Figure 19 shows the range of activities that local authorities already engage in to promote energy efficient renovation solutions towards market actors. It also shows the high importance local authorities address to organise local supply networks and communities of practice, although current initiatives are limited.

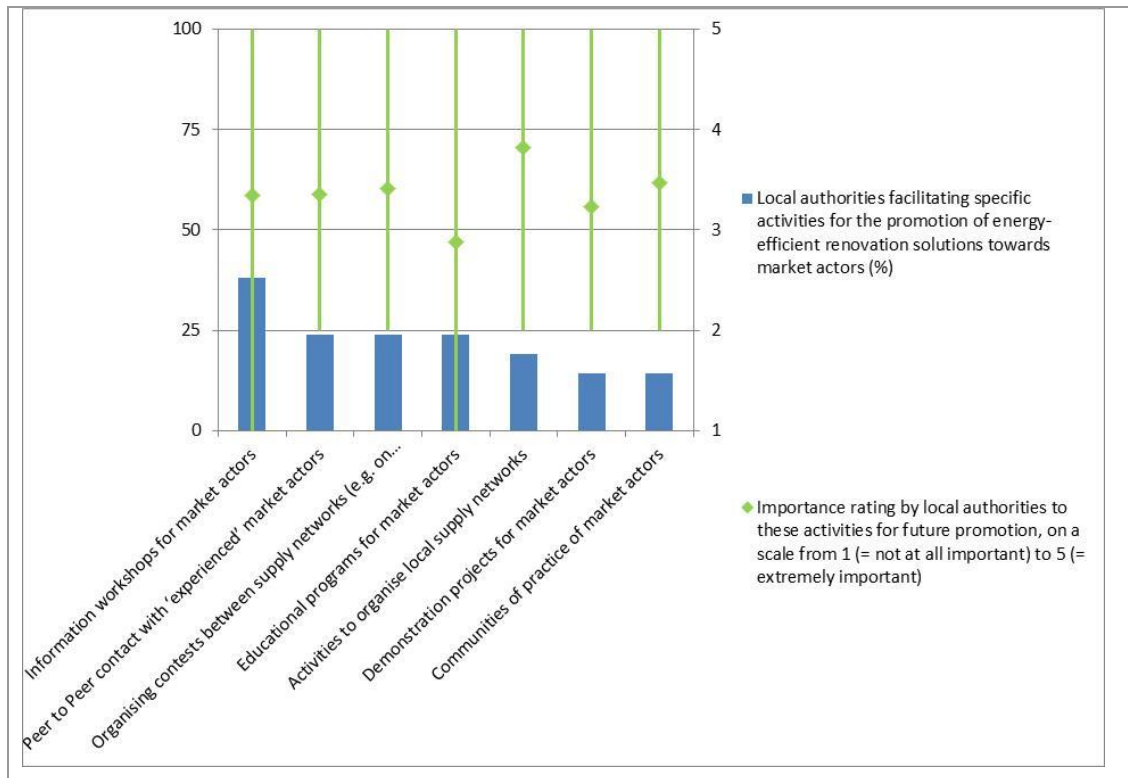


Figure 19: Activities currently facilitated by local authorities (21 respondents) to promote energy efficient renovation solutions towards market actors

4.3. Local authority initiatives for future pop-up centres

Within the framework of D3.1.2 an assessment has been made among the Triple-A partners what information and services they would like to present in their (future) consultation centres or pop-ups. The text below summarises both the answers on the D.3.1.2-questionnaire as the insights of the presentation that Lina Nurali held during the WP3 Workshop on the October 13, 2017 (EcoHuis Antwerp). Table 2 sums it up and presents the initiatives the local authorities are going to undertake to get consultation centres and pop-ups off the ground (or to continue with their existing models). In all cases the main aim is to address homeowners who are looking for information, advice and support on their journey to make their dwelling more energy efficient and more comfortable.

	Description of Triple-A pop-up centre initiative
BELGIUM	
Antwerp	<p>Flexible, movable model</p> <ul style="list-style-type: none"> • Cargo bike, to set up at events (indoor and outdoor). • With an information desk and display of several kind of insulation materials. • In combination with a tent, other demo material and brochures. <p>Semi-permanent</p> <ul style="list-style-type: none"> • Pop-ups in public spaces in every neighbourhood. To increase awareness by informing homeowners and by offering them coaching from the start until the end of the renovation. • start 2018. • Demo houses: one in every neighbourhood (max. 10). To increase awareness by showing a complete renovation with different low carbon technologies. <p>Fixed longer term: EcoHuis (see chapter 3).</p>
Mechelen	<p>Flexible, movable model</p> <ul style="list-style-type: none"> • In itself an example of a sustainable building with minimal energy consumption: display of different low-carbon technologies. • Visitors can get technical and financial advice. • It will be set up in different neighbourhoods for 2 years. • 1st opened on 10th of November 2017. • Communication via websites and social media.
Oostende	<p>Flexible, movable model</p> <ul style="list-style-type: none"> • Foreseen in 2019. • Possibly in co-operation with Roeselare. <p>Semi-permanent</p> <ul style="list-style-type: none"> • Has already been functioning. • Focus on (group purchases of) roof insulation and solar panels. <p>Fixed longer term (or permanent)</p> <ul style="list-style-type: none"> • In co-operation with Eandis. • Located in the public space of the office. • Planned for 2018.
NETHERLANDS	
Breda	<p>Flexible, movable model</p> <ul style="list-style-type: none"> • Zero Energy Demonstration scale model. • Used in sustainable centre and other temporary locations in co-creation with umbrella organisations. <p>Fixed longer term</p> <ul style="list-style-type: none"> • A sustainable centre for at least 2 years. • Will be set up in the local library. • Citizens can get information about energy saving technologies (insulation, renewable energy, HEMS, etc.). • Open October 2017.
Rotterdam	<p>Continuation of their current policies with (see paragraph 3.2.3):</p> <p>Mobile (WoonWijzerWagen).</p> <p>Semi-permanent pop-ups (e.g. Ommoord).</p> <p>Permanent consultation centre (ICDuBo).</p>
FRANCE	
PSEE Picardie	<p>In total 3 pop-up centres in each department of the region of Picardie. PSEE Will support their partners to develop their own pop-up centres.</p> <p>Flexible movable pop-up:</p> <ul style="list-style-type: none"> • Amiens. • Opens in 2018. <p>Permanent consultation centre:</p> <ul style="list-style-type: none"> • Saint-Quentin and Soisson. • No date yet.

UNITED KINGDOM	
Kent County	<p>Flexible, movable model</p> <ul style="list-style-type: none"> • Pop-up in a vacant or community building that moves between 2 pilot areas. • Possible locations: local schools or village halls. • Staffed events at intervals during two years. • Deadline: summer 2018.

TABLE 2: OVERVIEW OF LOCAL AUTHORITY POP-UP CENTRES TO BE DEVELOPED FOR ADDRESSING HOMEOWNERS WHO WANT TO ADOPT LOW-CARBON TECHNOLOGIES (TRIPLE-A PARTNERS).

In the current permanent consultancy centre EcoHuis of **Antwerp** information is presented about insulation, solar panels and water heaters (see chapter 3, section 3.3.1). Besides product information, tailored advice can be given about integrated renovation concepts. The objective for the near future is to open at least 10 short term pop-ups in unused or vacant buildings/ dwellings in selected neighbourhoods. This should be realised in co-creation with the supply side and in co-operation with other city services. These pop-ups should focus on technical and financial advice in combination with the use of thermal photos as trigger. With respect to the renovation goal emphasis will lie on the Flemish campaign BENOveren. The goal is to create an informal "neighbourhood market place", a set-up with advice desk and information carriers like small wooden houses where flyers, brochures, demo material, etc. can be displayed.

In **Mechelen** the 'Triple-A' mobile sustainable pop-up centre (the 'Renovatiemobiel') will go into operation in November 2017. The aim is to provide information about thermal insulation and airtightness, ventilation and renewable energy production.



*Figure 20: Invitation Opening Renovatiemobiel Mechelen.
Copyright © City of Mechelen.*

For the near future **Oostende** makes a distinction between a permanent, semi-permanent and a flexible pop-up centre. The semi-permanent pop-up centre (2 months) has been open already from August to October 2017 and mainly presented technologies related to insulation and renewable energy production. Citizens had the possibility to see their roof on the thermal photo. Emphasis was given on group purchases of roof insulation and solar panels. The semi-permanent pop-up was organized at the existing office. The permanent pop-up centre is planned for 2018 and will focus on providing information about different types of low energy technologies and the organisation of info sessions for small groups. The flexible pop-up (e.g. a mobile house or tiny house) is foreseen for 2019 could be used to demonstrate a range of available low carbon/energy technologies. Expert advice on possible measures could be given and homeowners could be triggered to undertake action by talking to others who have already taken measures.

In **Breda** two pop-up variants are going to be used. Both in their permanent sustainability centre as in their flexible pop-up information will be available about thermal insulation and airtightness, heating and cooling, and renewable energy production. In addition an oversight is being given of 'low impact solutions' and the possibilities of integrated step-by-step procedures to a (near) Zero Carbon Home. GroenPlein ('Green Square') was opened in the public library of Breda in October

2017. GroenPlein is a cooperation between PakhuisB¹⁴ and the non-profit energy cooperative BRES. GroenPlein is both an online as offline information and meeting where citizens and businesses can get information and advice.

Rotterdam currently can dispose of a consultation centre (ICDuBo) and both an own fixed pop-up centre and a movable WoonWijzerWagen that provide information about thermal insulation and airtightness, heating and cooling, renewable energy production, green roofs/multifunctional roofs and lighting (see chapter 3, section 3.2.3). These models will be continued in the near future.

Kent County currently does not have a consultation centre or pop-up. It is the idea to organise a flexible, movable model that can be moved between two pilot areas and can be installed there in a vacant or community building. During a two year period staffed events could take place in both pilot regions. The main goals are to provide advice and support access to available energy saving technologies to homeowners. In the pop-up demo technologies will be installed. These events will be displayed on a physical calendar to notifying residents of the days the pop-up will be open. Besides that visual signposting will be used and placed on the website. There are no locations chosen yet but it could be a local school or village hall or vacant property. The pop-up should be open before the Summer of 2018.

The objective of SPEE **Picardie** is to realise 3 pop-up centres in each department of the region of Picardie. The realisation of the pop-up centre(s) in Amiens is currently underway and will open in in 2018. This will be a mobile model. Saint-Quentin and Soissons are momentarily planning to develop their pop-up and that will be in both cases a more permanent consultation centre. In all three pop-ups/centres information and advice will be presented about thermal insulation and airtightness, ventilation systems and energy monitoring and management systems. The aim is to create a mixed model in which partners are supported to develop their own pop-up centres.

All LA's want - regardless if they currently have a functioning pop-up centre or are busy developing one - also to provide information about all existing and relevant financial schemes and funding sources to homeowners. In general the focus will lie here on public subsidy and loan schemes that are provided to homeowners to undertake energy saving measures. These funding schemes are being offered on both national as local level.

¹⁴ PakhuisB is a private initiative to establish a 'breeding place' where people can work together to make the city smarter, greener and healthier. A Video of the opening of GroenPlein can be found at <https://www.youtube.com/watch?v=oFa2xDSIVLA>

4.4. Summary

Table 3 summarises the plans of the seven Triple-A partners.

Type\LA	Antwerp	Mechele n	Oostende	Breda	Rotterd am	Kent County	Picardie
Flexible, movable	Cargo bike <i>(planned)</i>	Renovatie -Mobilier <i>(existing)</i>	Mobile container unit <i>(planned)</i>		Woon- Wijzer- Wagen <i>(existing)</i>	Pop-up stand <i>(planned)</i>	Amiens <i>(planned)</i>
Semi- permanen t	Demohous es and pop-ups in public spaces <i>(planned)</i>		2-months in service centre <i>(closed)</i>	Groen- plein	Pop-ups 'stores' <i>(existing)</i>	Vacant houses or buildings	
Fixed long term	EcoHuis <i>(existing)</i>		Demo space in public part of EOS/Eandis office <i>(planned)</i>		ICDuBo <i>(existing)</i>		Saint- Quentin/ Soissons <i>(planned)</i>

TABLE 3: OVERVIEW OF LOCAL AUTHORITY POP-UP CENTRES TO BE DEVELOPED FOR ADDRESSING HOMEOWNERS WHO WANT TO ADOPT LOW-CARBON TECHNOLOGIES (TRIPLE-A PARTNERS).

Antwerp, Oostende and Rotterdam are going (or continuing) to deploy a wider range of pop-up models: from flexible short term versions up to permanent consultancy centres. Mechelen focusses for the coming period on the deployment of their brand new movable *Renovatiemobiel*. Breda has recently presented with its *Groenplein* a (semi) permanent consultation centre for their citizens. Kent County is going to open next year semi-permanent moveable flexible pop-up stands in two locations in existing buildings. Picardie will realise a flexible, movable pop-up in Amiens and two permanent consultation centres in Saint-Quentin and Soissons.

According to the Key Performance Indicators that has been set at the start of the Triple-A project 7 pop-ups (according to the 3 models) must be realised. When all the planned and intended initiatives of the LA's in table 3 are added up they will exceed the number that is aimed for significantly.

In the next chapter various business concepts are developed and presented that could be used as a resource and inspiration source to launch the various pop-up centre models.

5. Business concept development for pop-up centre models

5.1. Introduction

The main goal of this chapter is to offer inspiration and guidance to develop business models for consultancy centres and pop-ups. Input is provided by the business models of four existing initiatives (section 5.2) and the results of the workshops about business development that were held by the Triple-A LA's in Antwerp in October 2017 (section 5.3).

5.2. Examples of business models

In Chapter 3 the characteristics of existing consultancy centres and pop-up models in the home countries of the Triple-A partners have been described. Four examples of existing business models of consultancy centres and pop-ups are described in-depth following all steps of the business model canvas: Kyotomobiel and Woon+bus and Ecohuis in Belgium and Reimarkt and ICDuBo in the Netherlands. The business models reflect not solely pop-ups models but also, if existing, related consultancy centres, web sites, etc.

5.2.1. Example 1: Kyotomobiel and Woon+bus

The Kyotomobiel does not make specific distinction in **customer segments** and does not address specific types of homeowners or dwellings. The target group was chosen as widely as possible. The Kyotomobiel targets all residents living in the six municipalities that have questions or plans to undertake energy saving actions in their dwellings. The goals of the Kyotomobiel were expressed as the number of energy audits that should be executed. These numbers are as follows:

- After 12 months (April 2017): providing guidance of 120 homes.
- After 24 months (April 2018): providing guidance of 270 homes (+150).
- After 36 months (April 2019): providing guidance of 440 homes (+170).

<p>8. Key Partners</p> <p>3W Plus Departments Housing Policy and Energy 6 LAs and Province of Flemish Brabant Social workplaces Local Network Organisations (Labour, Sustainability, Ecology, ...)</p>	<p>6. Key Activities</p> <p>Information Energy-audit Custom-made advice Heat scans Special projects</p>	<p>2. Customer Values</p> <p>Lower energy bill Increased living comfort</p> <p>Personal approach and Guidance</p>	<p>4. Customer Relationships</p> <p>Visit bus Energy-audit at home Personal approach and guidance</p>	<p>1. Customer Segments</p> <p>Homeowners Especially houses with bad energy performance</p>
<p>9. Cost Structure</p> <p>Estimated cost to run mobile € 90.000 per year</p>	<p>7. Key resources</p> <p>Permanent staff Bus</p>		<p>3. Customer Channels</p> <p>Flyers, banners, local newspapers, LA websites Table with drinks Special events starting moments</p>	
			<p>5. Revenue Stream</p> <p>Energy-audits (€ 40; 2016 129 audits) Local and provincial authorities</p>	

Figure 21: Business Model Kyotomobil and Woon+bus.

With respect to **customer values** the specific objective of the Kyotomobil is to raise awareness and to provide easy accessible information and advice about the possibilities and the energy saving and comfort-increasing benefits of sustainable living. The trajectory starts with an energy audit (€ 40). The dwelling is screened for its energy consumption and opportunities to improve the situation. In addition, occupants receive a detailed report with a tailor made roadmap to make their dwelling sustainable (including detailed information about the investment, payback time, financial and subsidy possibilities, etc.). The report always has the same format:

- 1) Technical analysis: with a description of the current situation and an overview of recommended procedures.
- 2) Financial analysis: discussing the possible subsidies, premiums and loans and the prices so that the net investment and the payback time can be calculated. Besides that additional measures can be explained such as the total renovation bonus.
- 3) Explanation of the Flemish Energy Loan.
- 4) Explanation of (the advantages of) relevant joint purchases.
- 5) Reference to recognized contractors.
- 6) Overview of simple energy tips.
- 7) Explanation of the terms used.

The clients are also asked about the work they plan to do so that a calculation can be made of the savings in CO₂. The consultants point out to the visitors that by using the right materials and techniques the energy consumption can be reduced considerably. The consultants always promote the most sustainable materials and products. The benefits are multiple: greenhouse gas emissions will be reduced, the energy bill will be lower and living comfort will be increased. Residents of one of the one of the six participating municipalities can receive free custom-made advice. In addition to advice about potential energy saving actions, the Kyotomobil consultants provide information about the possible financial benefits (e.g. subsidies) to make renovations easier and cheaper.

Generally the proposed measures lie in the areas of insulation, heating and hot water. For the technical analyses 3Wplus provides an energy and insulation expert who is also responsible for the follow-up of files. In addition, housing consultants can give people advice on subsidies and the Flemish Energy Loans. Furthermore, a joint purchase program is available for roof and attic floor insulation. In practice these activities amount to on day of work of a consultant. In the winter months it is possible to request a heat scan. Advice is given with a thermal imaging camera.

The main **customer channels** are the two mobile units that are active as pop-ups: one in Vilvoorde, one in the six other municipalities. The precise location of the Kyotomobiel is determined together with the municipalities. Generally the following factors are taken into account:

- Visibility and number of passers-by (possible influx of people).
- Possibility to easily and safely reach the mobile unit.
- Proximity of certain neighbourhoods and centres.

When the pop-up opens for the first time in the neighbourhood a table is set and some drinks are served to the visiting homeowners. On average the Kyotomobiel will be present around 5 weeks per municipality spread over the project period of 3 years. On average the unit is open 3 hours on three weekdays per week¹⁵. The pop-up centre is promoted via notices, flyers, banners, articles and press releases in local newspapers and on municipal and provincial websites. Besides that local residents and visitors/customers initiate free word of mouth promotions and referrals. In some municipalities, local ambassadors have been appointed who have brought testimonies or who put their weight during the opening of the mobile. These starting moments were also - where possible - arranged according to the possible needs of the residents. For example in Grimbergen, where the opening event was organized during the summer holidays - a so called 'play-bus' was also present on the location with animators to organise events for children.

The first experiences with the Kyotomobiel show that in practice some special issues have to be solved in the field of **customer relations**. Attention has been drawn for instance to the circumstances that some visitors (especially the older generation) do not have a computer or that some people do not sufficiently understand Flemish. This poses some specific demands and challenges to the way of communicating. The key element is a personal approach and guidance of the visitor. The Kyotomobiel consultants are not directly involved in monitoring progress and supporting occupants during the implementation of the technical interventions. However it is clear that after the first consult, homeowners are helped with activities like searching and finding a contractor. Clients can always return with further questions or requests for support to the Kyotomobiel. However experience shows that the practice is very divers. Most clients do not return after they have received their tailor made report, but there is also a group that returns regularly with questions. There also have been clients who asked involvement from the consultants from A to Z during the process: starting during an audit, requesting and judging quotations up to evaluating and controlling the quality of the works performed. In general the Kyotomobiel is not responsible for guaranteeing the quality of the work. It is assumed that the liability of recognized contractors should already guarantee a correct execution of the work.

The lion share of the **revenue stream** is taken care of by the local and provincial authorities. For instance the province Flemish-Brabant pays a total grant of € 75.000 for the 3 year project 'Kyoto in the Neighbourhood', because it helps them to create a climate-neutral province. Customers pay a small fee (€40) for getting advice. For these €40 the customers can get all the supporting services of the Kyotomobiel. This fee can be considered as a very limited financial reimbursement to the total costs of the Kyotomobiel.

The **key activity** is to provide visitors of the Kyotomobiel with easily approachable information about questions they have about renovating, saving energy and sustainable living. The main tools used are:

- Heat camera (heat scan).
- Energy scan (including possible savings).
- Maps / floor plans.

¹⁵ Looking at the planned visits of 2017 (in two municipalities) the duration seems to be slightly more intensive. In one municipality (period from September-November) the Kyotomobiel will be present two times 10 ten days in a row and will be open 12,5 hours per week (spread over three weekdays). In the other municipality the duration is more or less the same, but the opening hours are a bit more limited (10,5 hours per week spread over 3 weekdays). (source: <https://3wplus.be/energie/>).

- Financing models.
- Solar map of the Flemish Government (to determine the possibilities for and benefits of solar panels on the roof).
- V-test (to objectively compare the various electricity and natural gas products of all energy suppliers in Flanders).

In addition to these key activities, the Kyotomobiel also provides perspective to address specific needs and wishes of the residents themselves. For example, in Kampenhout, a neighbourhood project has been developed in 2016/7 to remove asbestos roofs of dwellings in combination with the installation of insulation.

The permanent staff are the **key resources** of the Kyotomobiel. They are recruited from the employees that work for 3WPlus and the local (provincial) authorities that are involved in the project.

3WPlus has been the initiator of the Kyotomobiel. **Key partners** are the municipalities that are involved in the project. 3WPlus is an inter-municipal partnership that is working on the development of the Halle-Vilvoorde region in the areas of living, working and well-being. Within 3WPlus, this project is strongly related to the housing policy department, the energy department and to sheltered workshops that can be used for installation of roof and attic floor insulation. However to support the daily operations adequately and to reinforce awareness with various audiences that could be interested in the project, there is a network of different boards, organisations and even residents on which the project can fall back. In addition to the 6 local governments and the province of Flemish Brabant there is also collaboration with network organisations that are active in fields such as the labour movement, the realisation of an ecological and sustainable society and sustainable waste and material management.

According to the presentation in Antwerp (12-13 October 2017) the yearly **estimated costs** to run the Kyotomobiel amount to about € 90.000 per year. The municipalities involved subsidise these costs completely.

The **overall results** of the Kyotomobiel exceed the expectations. By the by the end of 2016, the files of 411 residents were opened. In 129 of these cases an energy audit has been carried out (3WPlus, 2016). This was followed up by a customised advice and a guidance trajectory. As stated before this guidance trajectory consists of helping clients with the application and assessment of tenders of builders and installers, advising them about financing the measures and answering their technical questions. Not all visitors request an energy scan. There are also a lot of visitors of the Kyotomobiel who only come by with questions and who are helped in that way. At the end of 2017 (presentation Antwerp, 12-13 October 2017) in total 595 visitors have visited the Kyotomobiel. From these visitors 418 have requested audits of which until now 142 audits have been executed¹⁶. Besides that a large asbestos roof renovation (and insulation) project has been carried out

Although every type of resident in principle qualifies for an audit of his home and can receive guidance, practice shows that the majority of the clients consist of owner-occupiers. With respect to the thermo graphic investigations (the energy audits) it is remarkable that there are also many requests from owners of relatively new homes. Apparently these owners want to check if their dwelling meets the energy performance standards set in the regulations. There is no insight in the number of owners that actually have started renovation works, or the number of measures that have been undertaken and the resulting investments and savings. Towards the end of the project - in addition to interim surveys that are planned - a thorough inquiry will be made about the impact of the project.

¹⁶ The big difference between requested and executed can be explained by the fact that many requests came in following the communication about thermography. Since this is only possible during the winter, not all applications can be handled in one go. There must be a little less than one full working day for an audit plus report. During the summer months energy audits will be carried out this year in preparation for the thermography. This way, visits during the winter can be handled faster and more time remains for other residents.

5.2.2. Example 2: EcoHuis

Antwerp does not make a specific distinction between **customer segments**. The city commits to emit 20% less CO2 across the urban territory by 2020 and to fill in 13% of the energy demand with Renewable Energy generated in Antwerp and to set a good example with the city organization. By 2050, the city of Antwerp wants to be climate-neutral. The city of Antwerp has drawn up a climate action plan for this. The EcoHuis itself also has separate objectives. These objectives have been translated into indicators. Quarterly reports are prepared every quarter, and an annual report is made annually. -In the indicators, numerical objectives are set for the period 2014-2019. In the field of energy saving the following targets are mentioned:

- Number of answered information requests from residents on ecological themes Ecohuis: 30,000.
- Number of answered information requests from residents on ecological themes. Ecohuis on location: 10,000.
- Number of ecological (refurbishment) recommendations from EcoHuis doctor: 1,500.
- Number of advices to residents on reduction of energy and water bill: 12,000.
- Number of participants in the training of residents and building actors on ecological building and renovation: 1,500.
- Number of participants of adult groups to guided tours and work sessions in the EcoHuis and saving sessions on location: 12,000.
- Number of groups of adults participating in guided tours and work sessions in the EcoHuis and saving sessions on location: 4,000.
- Number of schools participating in the Ecoscholen program: 150.
- Number of energy scans performed: 13,500.
- Number of participants in the energy renovation joint actions: 1,200.
- Number of guidance's in districts and apartment blocks that work together on energy renovation: 90.
- Number of urban energy premiums awarded through distribution system operators: 12.000.
- Amount of urban energy premiums awarded through distribution system operators: € 3,960,000.
- Number of premiums granted for water collection and green roofs: 300.
- Number of signed loans AG Energy saving fund: 2.448.
- Number of signed loans social target group AG Energy saving fund: 367.
- Value of signed loans AG Energy saving fund (euro): € 18,360,000.
- Number of advice to residents about green living environment: 1,500.

8. <i>Key Partners</i> VIBE Pixii Eandis?	6. <i>Key Activities</i> Information Information sessions Personal advice Specialized advice	2. <i>Customer Values</i> Less is More Less use of space, materials, energy, water More comfort Better living quality Free advice	4. <i>Customer Relationships</i> Visit EcoHuis EcoHuis doctor 6 Housing Offices in Districts	1. <i>Customer Segments</i> All citizens of Antwerp
	7. <i>Key resources</i> Permanent staff Housing Offices EcoHuis doctors Specialists		3. <i>Customer Channels</i> Websites, newsletters, social media, regional TV Special events (Pop-ups)	
9. <i>Cost Structure</i> City of Antwerp. Estimated cost?			5. <i>Revenue Stream</i> All most none Specialist advice site visits	

Figure 22: Business Model EcoHuis.

The target group is broad: all people living in Antwerp that seek information about or have plans to carry out energy saving measures in their dwelling. This irrespective of they want to hire an architect or a builder, need building approval or want to carry out a one step-renovation or a complete renovation. As far we can oversee it there are no specific neighbourhoods, dwelling types or owner occupiers' categories selected. However certain low income (or socially vulnerable) groups are targeted to get water and/or energy advice free of charge (see section 2).

The **customer values** are broad. The EcoHuis wants to increase awareness, provides information about and demonstrates low-carbon technologies and gives energy advice to citizens that are interested in saving energy and or comfort improvement of their dwellings. This all under the slogan 'less is more': a lesser use of space, materials, energy, water and global costs leads to more comfort and a better living quality. At the EcoHuis citizens can get information, advice and help about subjects like:

- Energy loans and subsidies for energy saving actions.
- Interpreting and comparing offers from builders.
- Choosing an architect, craftsman or builder with experience in sustainable building¹⁷.
- Choosing and hiring an advisor in the field of green roofs.
- Costs of their gas and electricity use and the possibilities to switch to a cheaper supplier.
- Possibilities of the joint purchase of energy.
- Reduction of the current water use and the water bill.
- Renovation coaching for apartment buildings.
- Possibilities to start together with neighbours a Climate quarter (or Climate neighbourhood).
- Certain target groups can get a free water and/or energy advice¹⁸.

It is also possible to follow free information sessions about for instance heat pumps, PV installations, insulation of roofs, BENOveren, etc.).

Gratis verbouwadvisies van de EcoHuisdokter



De EcoHuisdokter is een architect van de stad Antwerpen die u begeleidt om energiezuinig en ecologisch te bouwen en te (ver)bouwen. U krijgt advies op maat en tips om uw (ver)bouwplannen duurzaam te realiseren. De EcoHuisdokter beantwoordt uw vragen over onder meer isolatie, hoogrendementsbeglazing, verwarming en materialen.

Elke donderdagmiddag en de eerste zaterdag van de maand kunt u, als inwoner van de stad Antwerpen, na afspraak terecht bij de EcoHuisdokter. U kunt ook zonder afspraak langs gaan bij een van de woonkantoren in uw buurt. Een advies van de EcoHuisdokter is gratis. Breng plannen, foto's of schetsen van de verbouwing mee als u die hebt.

Zitdagen van de EcoHuisdokter

EcoHuisdokter in het EcoHuis: enkel op afspraak:

- » elke donderdag van 13.30 tot 17 uur
- » elke eerste zaterdag van de maand van 10 tot 16 uur
- » gesloten in juli
- » afspraak: via dit [formulier](#), tel. 03 217 08 11 of mail naar ecohuis@stad.antwerpen.be

EcoHuisdokter in de woonkantoren: zonder afspraak:

- » de adressen en openingstijden van de woonkantoren vindt u onderaan de pagina.

De EcoHuisdokter is een project met de steun van de Vlaamse overheid.

Figure 23: Information about the EcoHuisdokter on website EcoHuis.

Source: Website EcoHuis/Presentation Antwerp 12/13 October 2017. Copyright © City of Antwerp.

EcoHuis applies several tools and methods during their advisory processes:

- For advice on 'greening' the energy bill, federal, Flemish and provincial tools and methods are used. This tools and methods are validated on a federal, Flemish and provincial level.
- A tool that is used by the advice about lowering the water bill has been developed by EcoHuis with local partners. The tool is validated by Flemish government agencies.

¹⁷ This task is only done by referring to other websites like www.ecobouwers.be, www.vibe.be, www.pixii.be, etc.

¹⁸ Generally this applies to citizens (tenants and owner occupiers) with an income or rent level below a certain maximum.

- The tool that is used to advice on financing and incentives or energy loans is developed by the Flemish government and the Flemish Participation Fund and EcoHuis. The tool is validated by EcoHuis based on clients experiences.

People living in Antwerp can get this free sustainable building advice from the 'EcoHuis doctor' on appointment. This appointment can only be made on Thursdays (from 13:30 to 19:00) and on the 1st Saturday of the month (from 9:30 to 16:30). The appointment can be made in person, by mail or by phone. Besides that it is possible to get advice without an appointment in one of the 6 'stedelijke woonkantoren' (Housing Offices) of the city council that are located in the districts of the city. These Housing offices are open during weekdays. The EcoHuis doctor is an architect of the city of Antwerp who gives customised advice and tips to realize (re) building plans in a sustainable manner. The EcoHuis doctor answers questions about insulation, high-efficiency glazing, heating and materials. The EcoHuis doctor is both located in the EcoHuis and in the Woonkantoren.

Residents who belong to the social targeted low income group can apply for a free energy scan at home. An 'energiesnoeier' ('energy cutter') looks together with the resident how the energy use can be lowered. In addition, the energy cutter also installs a number of energy-saving products such as low-energy light bulbs, energy-saving showerheads and pipe insulation for free. The possibility of solar panels on the roof) can be checked with the roof insulation card that was made with the help of a thermographic camera. On the solar map ('zonnekaart') a calculation can be made of the annual solar radiation kWh / m². Via the tool www.zoominopuwdak.be residents can view their roof on the roof insulation card, the green roof card or the sun card. Citizens that need specialized 'eco building' advice on the construction site itself can be referred by the EcoHuis doctor to specialists in the field of ecological, low-energy or passive construction of the Flemish Network Sustainable Building Advice. Depending on the question, the hourly rate of the site visits amount to € 50 or more. Citizens of Antwerp get a discount of € 25 per hour, up to a total maximum of € 75. It is also possible to hire in a 'green roof advisor'. During a visit this green roof advisor checks the stability of the roof and advises about the type of green roof fits the plans of the owner. Afterwards, the owner receives a report. The cost of the green roof advisor can amount to € 150 of which Antwerp pays half.

The EcoHuis and its activities and services is promoted via various **customer channels**:

- Digital: via the website of EcoHuis, newsletter EcoHuis, Facebook pages EcoHuis, the website of the city, direct mails to people that have participated in the working sessions.
- Media: via broadcasts on the regional television and articles in local newspapers
- Paper: People who get advice form the EcoHuis doctor get a brochure with more information about our advice and other support.
- Oral/verbal: Mouth-to-mouth publicity and oral contacts during information sessions, energy advice appointments, with newcomers in the neighbourhoods and special organised events (e.g. during the annual Building and Renovation Exhibition 'Bouw and Reno', during the EcoHuisParty, etc.).

With respect to **customer relationships** until the end of 2016, all residents' data (e.g. name, address, telephone and / or e-mail, dwelling type, date and type of advice, number of consultations and the name of the EcoHuis consultant) were recorded in an Access file. From February 2017 on visitors data of the EcoHuis are registered in a new CRM tool. Besides the before mentioned data, additional information can be requested from the building itself: roof insulation, windows, floor insulation, PV panels etc.

The revenue stream of the EcoHuis is (almost) completely taken care of by the public authorities. All the advice given in the EcoHuis is free. Customers must only pay a contribution for specialized building advice and the green-roof advisor. These fees are revenues for the professionals and specialists that provide these advices (and the organisations that employ them). The costs of the EcoHuis and the services they deliver are covered by the municipal budget. This budget is also based on revenues that come from a federal or regional level.

The EcoHuis is a demonstration and advice centre with an educational and meeting centre and back office for energy premiums and loans. The **key activities** the EcoHuis delivers is to provide information and advice about a wide range of topics in the field of sustainable renovation. The EcoHuis does not sell sustainable technologies but it does sell products like books, products for the garden and other products like honey from the bees on the roof.

The daily services in the field of energy and sustainability advice are both given by employees of the municipality (civil servants) as well as independent building professionals employed by private or not-for-profit parties. These are the **key resources**. As stated above various tools and methods are used to support the deliverance of advice. In general civil servants (located in the EcoHuis office and the Housing offices in the various districts) are responsible for giving free advice to citizens. Specialists employed by architects, VIBE (Flemish Institute of Bio-Ecological Building and Housing) and Pixii (a knowledge platform for energy-neutral construction) are responsible for specialised advice that is given on site.

Key partners of the EcoHuis are federal and provincial authorities, NGO's (e.g. VIBE, Pixii, VElt), city architects advisors, network operators and other local partners (e.g. the Woonkantoren). These parties mainly give technical of different themes (e.g. green roofs) and financial advice (about subsidies and premiums). The partners do not have to pay a contribution for their activities. The EcoHuis has a framework agreement with these partners for the support they offer.

The budget 2016 (costs for staff, investments, EcoHuis events, target group working schools and financial incentives) lies in the area of € 1,200,000. In more detail the **cost structure** on the expenditure side are:

- Building management: € 65,000.
- Furniture: € 15,000.
- Electricity, water, gas: € 30,000.
- Operational services: € 20,000.
- Cleaning: € 30,000.
- Fees external expertise NGOs and teachers: € 50,000.
- ICT: € 20,000.

These costs are largely being paid by the municipality/city of Antwerp. Relatively small contributions are generated via the letting of meeting rooms in the EcoHuis (around € 10,000 yearly) and subsidies from the European Union (€22,000).

With respect to the **results** the EcoHuis had more than 48,000 visitors or users in 2016. The website www.zoominopuwdak.be with maps in which heat losses and potentials for sun and greenery were mapped, received 93,780 visitors. The underlying calculation tools were used by 41,765 people. Some other results:

- More than 12,000 residents were informed by EcoHuis via telephone, e-counter or mail or on location.
- More than 4,000 families received personal advice to come to a lower energy and water bill, free eco-building advice from the EcoHuis doctor or energy scans at home.
- Eandis started an experimental counter in the EcoHuis from May with two days of advisory. Almost 17,000 people from Antwerp bought green electricity together.
- In 2016 there were additional insulation and energy premiums, in addition to the premiums of the network operators and the Flemish government. 2,900 families invested in roof insulation with this support for a total of 225,000 m² of roof space and 120 families invested in a solar water heater.
- For families with little or no capital to invest, the city provides cheap and interest-free energy loans from the AG Energy Savings Fund. 367 energy loans were signed for a total amount of 2,500,000 euros. The collaboration between the EcoHuis, Woonhaven (a social housing association) and the OCMW (Public centre for Social Welfare) to combat energy poverty was further expanded through the energy scans. The EcoHuis, together with the OCMW, set up decentralized information moments for landlords to disadvantaged groups.
- Small-scale greenery in the city was stimulated in various ways, including green events, green roof advice and the blog www.plant-art.be. There are almost 55,000 visitors or users of the blog with as most popular themes play nature and green facades. The greenhouse demo green roof inspires with more than 15 different types, inspiring sessions are set up and from now on residents of Antwerp can also book a specialized green roof advisor.

5.2.3. Example 3: Reimarkt

8. Key Partners Municipality Housing associations Product suppliers Local contractors?	6. Key Activities Information Demo Personal advice and guidance Selling products	2. Customer Values Open house: Good, clear and concrete offers Information energy-savings, comfort, financing	4. Customer Relationships Visit Open house Phone contact Personal appointment Monitoring process	1. Customer Segments Homeowners (especially single-family dwellings) municipality
	7. Key resources Permanent staff Ready-made products		3. Customer Channels Website Physical store Photo-app Pop-ups: Tiny Tim caravan Open house: Letter Social media	
9. Cost Structure ?		5. Revenue Stream Sell of products Subsidies municipality for start-up		

Figure 24: Business Model Reimarkt.

Reimarkt makes no specific distinction in **customer segments**. Its main goal is to enable sustainable living for everybody and aim at owner occupiers, tenants and housing associations. Initially they focussed on the social rental sector, but nowadays a shift has been made towards the owner occupied sector. In this early period renovation packages were developed for local housing complexes owned by housing associations. These packages were readymade and were offered at a discount to the customer. The customers were completely 'unburdened' during his or her journey. In order to scale-up the approach and to make the product range more uniform (with respect to price and quality) this project based approach has been changed to a product oriented approach. At this moment products are available in the stores that can be implemented in most dwelling types that can be found in the Netherlands. These products are related to certain 'step sizes': varying from building elements, renovation packages up to 'Everything-in-House'. In this way both small as large steps can be made. This dwelling typology that has been developed, determines a dwelling type by characteristics like composition and position of the dwelling within the complex, the building period, the number of storeys and the shape of the roof. For the various dwelling types packages are available for a fixed base price. The first renovation packages were developed for three storey high single family dwellings with saddle roofs that were built in the period 1946-1974. This choice was made because of the simple fact that there is a vast amount of these dwellings available in the Netherlands. The products for this dwelling type have in the meantime been translated to other dwelling types.

In practice it appears that the visitors of the stores have a diverse background. The common denominator is that they all are interested in to save energy and/or improve the comfort level of their dwelling

With respect to **customer values** Reimarkt wants to increase awareness, to provide information and guidance, to demonstrate energy saving technologies and energy saving measures etc. They want to sell their energy saving products and packages and take care of the customer during his 'customer journey' Various means and tools are used to reach these goals. First of all they maintain a website where they provide easy advice on line. Visitors of the websites can do simple

tests to see how much they can save. They can look at the possibilities to take energy saving measures in their own dwelling and get an overview of the ready-made products they can use in their dwellings. The website also gives information about subsidies and financial schemes they can use.

The main purpose of the website is to get the visitors to their physical store where they can get a tailor made advice and buy the products. Not all municipalities have yet a physical store:

- Enschede: daily open (from July 2014 on) during weekdays from 9.00 to 17:00.
- Groningen; open on Wednesdays, Thursdays and Fridays from 12:00 to 17:00.
- Den Bosch, open on Mondays and Thursdays from 9:00 to 17:00.
- Hoogeveen: has a space in the local community centre that is open on Fridays from 10:00 to 18:00. The store opens on Friday evenings and Saturdays at appointment.
- Zoetermeer: store opens soon.
- Delft, not yet a store but it is possible to make appointments (by mail or phone) with the advisors.

Each store has one team with about five person's staff, three advisors, one financial, one extra. In the municipalities where the store is not available yet or where the openings times are restricted private appointments can be made with the Reimarkt advisors. A photo-app has been developed to enable to give personal advice to the clients of in the store. Via this app the clients can upload a few pictures of their dwellings and on the basis of these pictures a personal energy saving advice can be given. The store provides ready-to-go solutions for every home, from solar panels, wall, window, roof and floor isolation up to solutions that lead to zero-on-the-meter-houses. Customers can get customised offers including an overview of the costs and the savings. Pop-ups are used to enable visitors of their website to see with their own eyes what energy saving measures are possible and what savings can be realised. Reimarkt defines a pop-up as a temporary opening of a renovated house (an open house). Besides that they use the "Tiny Tim" a caravan that should pop-up once in a while in another neighbourhood. The following text focusses predominantly on these two pop-up examples (the open houses and the Tiny Tim caravan)

Reimarkt uses various **customer channels**. The residents of houses that have been renovated are deployed as pioneers and ambassadors to show the neighbourhood in which they are situated what readymade solutions are possible in a certain dwelling type. If these ambassadors are interested, their houses are used as an example during an open house session. Reimarkt organises these events. These temporary pop-ups are promoted with banners at the house itself. Besides that a promotion (media) campaign is held focussed on the adjoining streets neighbourhood. In advance of this pop-up Reimarkt tries to create at least 7 contact moments with potential interested residents/owners:

- People are invited by letter.
- An article/invitation is published on the website.
- On Facebook Page Post Adds are published.
- The house in question is equipped with banners to enlarge the visibility in the street.
- In a newsletter attention is paid to the open house.
- Via link building links are acquired from other websites to the Reimarkt websites
- Via re-marketing the visitors are approached that have visited the Reimarkt website via other websites.



Figure 25: Open House Reimarkt.

Source: Websites Reimarkt/Presentation Antwerp 12/13 October 2017. Copyright © Reimarkt.

During the open house Reimarkt trends via the following principles:

- There must be something that can be shown in the house
- Visitors must be provided with a good, clear and concrete offer.
- Information and insight must be provided to the visitor about the financing opportunities, the potential energy savings and the comfort enhancement that can be realised

The idea is to organise an open a house every month in a new neighbourhood.

Besides the open house pop-up Reimarkt uses a mobile pop-up called "Tiny Tim". Tiny Tim is equipped as a complete store and is used because it makes it possible to visit potential customers in their own neighbourhood. Experience has shown that this module unit draw a lot of attention once it is parked in a neighbourhood.

With respect to **customer relationships** Reimarkt uses various methods to ensure a good follow-up with the visitor/potential customer after the open house pop-up. First of all the potential customer is going to be contacted (by phone) within 2 days after the open house. The goal is to make a personal appointment in which a customized offer can be discussed within 1 hour. If the potential customer makes use of the offer, he or she is taken care of during the whole process: from the very first start until the moment the energy saving measures are completed. After the job is done Reimarkt monitors whether all measures have had the intended effect or that some adjustments are necessary. If these adjustments or repairs are necessary they are being carried out for free. If the resident is satisfied with his or her home and interested in an 'open house' they will be helped to organise one.

The **revenue streams** and **cost structure** of Reimarkt are unknown. As we understand it the start-up costs (Enschede) have been covered with funding from a municipal subsidy scheme. All other operational costs are nowadays covered by the customers who buy the energy saving products and packages in the various stores. Although Reimarkt cooperates in some municipalities with local suppliers (e.g. builders and installers), these building professionals do not pay a fee to the organisation.

Reimarkt's **key activities** are aimed at reducing the costs of sustainable renovation without sacrificing quality. They try to realise this via a conceptual 'chain approach'. In cooperation with suppliers, manufacturers and assemblers, intelligent non-project-based solutions are being developed that can be used in all types of housing. Due to the size of the scale, the cost can remain low and the customer is served a unique product and services. The circular workflow is self-learning and aims to continuously improve workflows and products. Strong customer relationships are considered to be very important. The key activities that Reimarkt deliver vary from informing, triggering, tailor made advising, selling their products and technologies and guiding/assisting the client to an (for the customer) 'unburdened' realisation of the plans. This customer trip is monitored from the beginning to the end and is tailor made for different target groups in the various local authorities (which target groups?). The customer journey forms the structure of the Customers Relationship Management (CRM) system, by which the clients are guided and supported (both digitally as personally).

The advisors in the shops and those who can be contacted via the websites are the **key resources** of Reimarkt. They are employed by Reimarkt. As stated before some stores cooperate with local suppliers.

Reimarkt is a 100% market initiative of the two **key partners** KAW and KUUB. KAW is an architectural firm that combines architecture, urban planning, public housing, process management, real estate and engineering. KUUB is an independent non-profit foundation aimed at supporting groups of (future) residents with the development of their homes. Reimarkt uses – in their own words – a sophisticated strategy of product innovation, awareness and funding. The stores they have operate according to the retail formula: a visitor finds ready-made products for his home. Besides with individual homeowners and the municipalities where they are active Reimarkt cooperates with various housing corporations (in Enschede with Domijn and De Woonplaats and in Bergen op Zoom with Stadlander). Some stores cooperate with local suppliers.

Until now the activities of Reimarkt has **resulted** in more than 1.750 refurbished houses. It is unknown who owns these houses (owner occupiers or housing association), what measures have been taken, what investments have been made and what the energy saving results have been.

5.2.4. Example 4: ICDuBo

Short description of the structure and contents¹⁹:

In cooperation with the region Rotterdam-Rijnmond, the region Haaglanden has established a digital counter for energy savings (www.woonwijzerwinkel.nl) combined with a permanent information and consultancy centre (ICDuBO Innovation Centre for Sustainable Building or Innovatie Centrum Duurzaam Bouwen = ICDuBo) and a mobile 'WoonWijzerWinkel' (a 'live more sensible caravan'). Besides that Rotterdam has organised pop-ups with a slightly more permanent nature in targeted neighbourhoods.



Figure 26: Business Model ICDuBo.

ICDuBo links between government, education institutions and industry and forms an central platform with a permanent exhibition of all possible sustainable, innovative building products. Manufacturers are able to present their sustainable products and to conduct experiments in the ICDuBo (Van der Meer, 2017). The municipalities in these regions²⁰ try together with ICDuBo to create an open marketplace via the WoonWijzerWinkel where demand for supply is linked with added value for both customers (the homeowners) as construction and installation companies.

ICDuBo direct clients are 9 municipalities in the region Haaglanden and 15 municipalities in the Region Rijnmond. In these municipalities various **customer segments** are being distinguished. The targeted groups are as well broad (anybody interested in taking up energy saving/comfort improving measures) as targeted to certain neighbourhoods (including types of dwellings in those neighbourhoods)). In total ICDuBo tries to reach all 260.000 private homeowners that live in the region. ICDuBo tries not only to bridge differences between the supply and demand side, but also tries to improve the services of the supply side and stimulate the demand side to undertake energy saving and comfort improving measures. Consumers are approached at various levels (digital, in

¹⁹ The content is partly based on the presentation of Maurice van der Meer in the Scoping workshop web portals held on 18 May, 2017 in Rotterdam: "Intermediary between demand and supply: WoonWijzerWinkel".

²⁰ In the region Rotterdam 24 municipalities are currently involved at in the initiative.

person and in their own surroundings/neighbourhoods) with independent customer-oriented information and ready-made solutions.

With respect to **customer values** ICDuBo tries to push and play with 4 buttons to attract customers:

1. Main drivers/motivators: aiming at the intrinsic motivations of homeowners which can vary from the need to live in a comfortable dwelling to the wish to save energy.
2. Barriers: trying to remove and tackle the causes and excuses not to undertake action by offering a proposal that hardly can be refused.
3. Triggers: introducing external stimuli to activate homeowners (e.g. subsidies or stressing the money that can be saved).
4. Urgency: to prevent postponing behaviour by a real unique offer is presented to homeowners.

ICDuBo has several objectives. The first goal is to provide information and to communicate with homeowners. This is done via region wide communication, the mobilisation of energy saving ambassadors, the provision of energy and heat scans, the deployment of the WoonWijzerWagen and the organisation of public meetings. The second goal is to unburden the homeowners in their client journey. They try to realise this by offering collective purchasing opportunities of one or more energy measures, organising neighbourhood activities, supporting housing associations and neighbourhood initiatives and getting consortia off the ground with market parties. Thirdly they try to increase the awareness of homeowners through the deployment of the WoonWijzerWagen, custom made brochures, social marketing and door to door contacts. Besides that visitors/homeowners are referred to existing national, regional and local sustainability loans and subsidies.

ICDuBO makes use of several **customer channels**:

- A physical store in Rotterdam that contains a showroom of 2.500 m² where more than 300 sustainable solutions are available
- A digital platform that also contains references to local websites.
- Local Neighbourhood Actions: sometimes with mobile pop-ups, sometimes with pop-ups in already existing stores. Before the WoonWijzerWagen pops up in neighbourhoods homeowners are approached with door-to-door brochures that list specific offers specific energy saving measures for the neighbourhood and a notification when the WoonWijzerWagen is present in the neighbourhood.
- Marketing, communication actions and branding (e.g. via custom made brochures and specific flyers with offers) to create local and regional awareness
- Meetings with residents to show the advantages and benefits when they would undertake energy saving and comfort improving measures in their dwelling and explain why certain measures are more preferable than others.

Via a **Customer Relation Management** tool the relations are kept with visitors after they visit the store.

The exact **revenue stream** of ICDuBo is unknown. The main posts on the revenue side are:

- The contribution from the Alliance Sustainable Rijnmond (municipalities and region). It is foreseen that this contribution will diminish gradually and ICDuBo will become self-sufficient in the near future.
- Contribution from suppliers (e.g. builders and installers). At this moment (fall 2017) ICDuBo has more than 150 manufacturers in its network and is connected with approximately 100 local contractors. If admitted the companies or professionals have to pay a yearly annual contribution that varies (excluding VAT) from €95 (for individual contractors without employees, or in Dutch *zzp'ers*) up to €495 (for companies with more than 10 employees). In return the companies are listed and linked on the website as a supplier, which distinguish them from other companies. The WoonWijzerWinkel takes care of maintaining the link with specific leads and provides the companies' information to the interested customer.
- Sponsorship by manufactures.
- Fees from premium services (basic services are for free).

The goal is to play an independent intermediary role as a regional energy counter between the demand and supply side. They try to realise this deploying the following **key activities**:

- Playing the essential key between local builders/installers/business (supply side) and consumers/homeowners who have thoughts, ideas, and plans to improve the energy performance of their dwellings.
- Providing step-by-step and independent advice about sustainable and energy efficient solutions.
- Connecting to the sustainable goals of municipalities (and those of the regions and the nation which should lead ultimately to energy neutral housing) to the services of the WoonWijzerWinkel-(including those of the temporary pop-ups).

Independent professionals deliver the daily services and products. They are the **key resources** of this initiative. The main means to activate demand from homeowners are:

- The website and WoonWijzerWinkel.
- WoonWijzerWagen and pop-ups in fixed locations.
- Customers-oriented brochures.
- Social marketing (e.g. via Facebook and Twitter).
- Neighbourhood ambassadors.
- Door-to-door contacts.
- Energy-scans.
- Financial advices.

Key partners are the municipalities that are involved and the Alliance Sustainable Rijnmond, the cooperating partners, local suppliers and manufactures (that are active nationwide).

The main elements on the **cost structure** are the costs for:

- The organisation and staff. To give an idea of the height of these costs: the total costs for the two pop-up models in the city centre (that were open during a year with a temporary closure of 1 month during the holiday period) amount to around € 175.000 euro. The total costs for the pop-up store in Ommoord (occupied by one energy expert, open two days a week during approximately 1 year, during which it was closed for two months) are estimated at circa €70.000.
- Marketing, communication and public relations.
- Creating and maintaining the website(s).
- Creating and maintaining the (CRM) system for customer registration and –monitoring.

It is unknown what the yearly costs are to run the website, WoonWijzerWinkel, WoonWijzerWagen and the various pop-ups and it's services.

5.3. Workshops: contents and results

On October 13 (2017) a Triple-A public workshop was held in Antwerp about business development of pop-up centres for home renovation. Part of this workshop was an exercise of Triple-A partners developing business models for pop-up centres. In three groups a business model using the business model canvas was being composed. Table 4 shows the intended lead (the owner) and respective buddy partners of the business models.

Lead partner	Buddy partner	Pop-up centre model type	Participants
City of Antwerp	City of Rotterdam	Fixed locations	4
City of Mechelen	EOS Oostende and City of Breda	Mobile	6-7
Kent County Council	PSEE Picardie	Long-term model	5-7

TABLE 4: OVERVIEW OF THE COMPOSITION OF THE PARTICIPANTS IN THE BUSINESS MODEL CANVAS EXERCISE FOR DEFINING TRIPLE-A POP-UP CENTRE BUSINESS MODELS

Each group was asked to reflect on:

- Customer Segments: focussing on questions like What types of home-owners will be addressed in the pop-up centre(s)? (E.g. starters, young families, elderly). Are certain dwelling types targeted? and Will suppliers be directly approached?
- Value Propositions: What added value will the centre bring to the customer segment?: What are the specific objectives of the pop-up centre(s)? This can vary from increasing awareness, providing information, demonstrating of low-carbon technologies up to accompanying the home owner during his or hers customer journey.
- Channels: Through which channels will pop-up centre(s) and their activities be promoted and which tool(s) will be used to attract home-owners? (E.g. websites, social media, mails, letters, ambassadors, trusted persons etc.)
- Customer Relationship: How are the relations with customers kept after they have visited the centre? (E.g. follow-up calls, offering tailor made of free solutions, invitations to attend demonstration projects or visit demo houses, etc.).
- Revenue Streams: How will the pop-up sustain its costs and create its own revenues? (E.g. paid advice and consultancy activities for home-owners, fee for suppliers of low-carbon technologies or services, leas or rental of the pop-up, government contributions, etc.).
- Key activities: What concrete services (or products) will be available or delivered in the pop-up centre? (E.g. informing, demonstrating, advising, selling of specific measures aimed at for instance like insulation of roofs or glazing, showing technologies and products, offering tailor made financing schemes, etc.).
- Key resources: Who is going to deliver the daily services and with what means? (E.g. professional and independent advisors/coaches, with specific hardware and software tools like energy calculation tools, cost tools, financial tools/schemes, etc.).
- Key partners: What actors contribute to the development, promotion and continuation of the pop-up centre(s)? (E.g. local authorities or municipal departments, banks, non-profit organisations, builders and installers, etc.).
- Cost Structure: What are the yearly cost to run the pop-up and its services? (E.g. with attention to cost items like personnel, promotion and communication, technologies, products, ICT, maintenance etc.).

5.3.1. Group 1: Antwerp, buddy: Rotterdam

Antwerp aims to organise at least 10 short term (up to 1 week) pop-ups in various districts with special attention for vulnerable groups. The locations of the pop-up are fixed and could be located in public (e.g. neighbourhood centres) or private locations (e.g. demo homes). Activities should include raising the awareness of residents, providing them with technical and financial advice (energy loans, grants) and stimulating them to adopt low-carbon technologies. A preferential key partner is the energy distribution grid manager Eandis.

During the exercise Antwerp and Rotterdam developed their own business model influencing each other with innovative ideas. The model of Rotterdam has been based upon the (experiences of the) existing pop-up in Ommoord and an analysis of the weaknesses and strengths. In this manner 'blank spots' could be found and new ideas could be discovered. The model of Antwerp depicts the planned semi-permanent pop-up model (see table 2). The participants had limited knowledge and expertise about business models and working with the business model canvas. Below we describe only parts of the models and focus on interesting and innovative ideas that probably can be replicated by other local authorities.

Customer Segments: Rotterdam thought in the first place to target home-owners aged 50+ (they have money to spend and need to live at home for a long time) and owners of dwellings that are energy-inefficient and/or have a high energy consumption. In practice the target group of the pop-ups is very broad. The starting point of Antwerp are especially homeowners living in so called 'bel-etage' houses. These are dwellings where the living quarters are situated on the first floor). The target group(s) will depend on the neighbourhood, but will include empty nesters (age group 55+), young couples and families with high income (age 30+) and vulnerable groups and singles households with lower incomes.

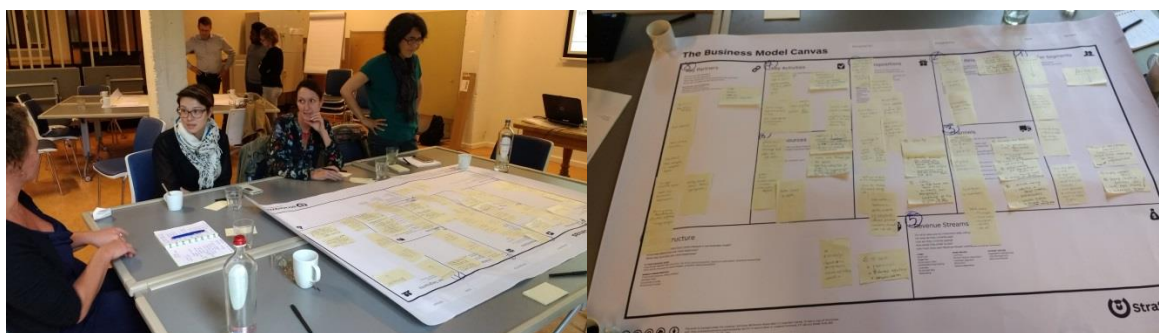


Figure 27: Business Model Exercise Antwerpen and Rotterdam

The concrete specification of the second subject **Value Propositions** appeared to be difficult, and this also applied to pinpointing promising **Customer Channels** to make those values clear for the target groups. The value propositions will differ according to the awareness level of the customer. It makes a difference whether the customer is already looking for aid or just passing by and still has to come aware of the need to undertake energy saving measures. Vicinity to the customer is of great importance for Antwerp. However how to define vicinity and how to select a location and what to offer the customers? Rotterdam thinks that 'local heroes' and also well-known Rotterdammers can act as channels to the pop-ups. Antwerp thinks that also children can work as a customer channel. An easily accessible pop-up just around the corner where one can have coffee and children can enjoy themselves while parents can get information and advice. The general idea is that official letters of the city will not attract attention, unless they are designed in such way that they catch the customers eye (e.g. a letter that 'pop-ups').

Currently **Customer Relationships** are, after visiting the pop-ups and registration, handled by the WoonWijzerWinkel in Rotterdam and the EcoHuis in Antwerp. Interested potential customers in Rotterdam are registered and they receive a follow-up call. Both Rotterdam and Antwerp use a CRM system and offer aftercare. A potential interesting idea is to retain the relationship by providing the potential customer a free energy monitoring (HEMS).

With respect to the **Key Activities**: Antwerp and Rotterdam offer in the pop-ups information, demonstration and general advice for free. Customers with interest are directed to either the EcoHuis in Antwerp or the WoonWijzerWinkel in Rotterdam for more information and personal energy advice. Energy consults of EcoHuis cost € 40. Energy advice in Rotterdam costs € 25, which is refunded if energy saving measures are being taken. Additional creative and funny actions could be undertaken to attract customers. Besides information and demonstration, Rotterdam is considering the idea to organise competitions between streets who saves the most energy or consumes the least energy as one of the key activity of the pop-ups.

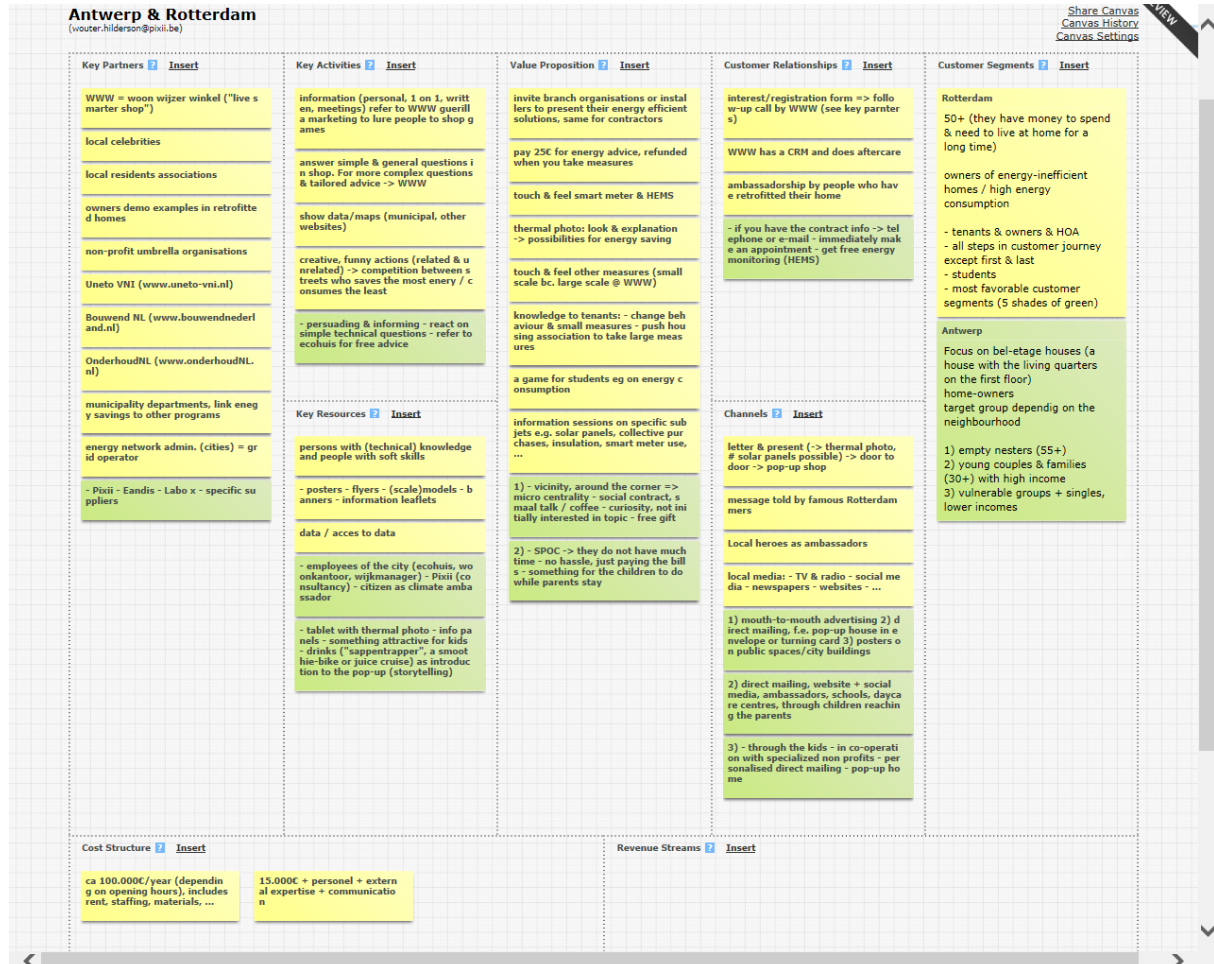


Figure 28: Business Models Antwerpen and Rotterdam.

Key Partners that are mentioned are the municipality, owners that already have undertaken action, non-profit or sector organisations, energy networks and suppliers. An interesting idea is that Rotterdam proposes municipality departments as key partners, especially to link energy savings to other municipal programs and policies. Some partners that were mentioned as Key Partner during the discussion (like non-profit organisations, sector organisations) are probably not really key partners as meant in the true sense of the definition of the business development model canvas.

With respect to the **Cost Structure** and **Revenue Streams** Antwerp has made a rough estimate of the needed yearly budget for the pop-up. Amounts that are mentioned hover around the € 100.000/year (depending on opening hours, including rent, staffing, materials, etc.).

5.3.2. Group 2: Region Mechelen, buddies: EOS Oostende & Breda

The pop-up centre of Mechelen is a mobile unit with PV energy supply and includes a scaled example of a sustainable building with minimal energy consumption. It can be placed in any location. Since mid-November this year it is in operation in a neighborhood where collective renovation is ongoing to reach out to the local residents. In this paragraph the main parts of the mode are described, with a focus on interesting and innovative ideas that probably can be replicated by other Local Authorities.

When it comes to **Customer Segments** Mechelen aims at a wide variety of target groups. These include residents who are difficult to reach (e.g. elderly people or immigrants), residents that do not have sufficient means, knowledge and/or interest in energy efficiency and residents in neighbourhood that contain relatively many identical dwellings.

The **Value Propositions** they want to bring are aimed at de-burdening the renovation process (with a special focus on financial de-burdening), improving the living conditions (especially for children) and preventing a further deterioration of the (health, safety, energy poverty) situation. The goal is also to enlarge the self-esteem and self-value of the residents. Self-esteem and – value could apparently be enlarged once they undertake actions to improve their dwellings.

With respect to **Customer channels** and **Relationships** use will be made of employees of non-profit organisations and local social workers. It is considered important that the workers are trusted by the residents. Other channels mentioned are colleagues within the municipality and employees of the Association of Flemish Cities and Municipalities. Customer Relationships will be strengthened via a coaching trajectory and operationalised via a single point of contact, where the coaches/advisers have an official mandate to undertake actions.

The **Key Activities** that are going to be delivered in the pop-up are improving the process of undertaking energy saving measures through communication. However also mentioned here are the training of the pop-up personnel for specific skills and the planning, placing and leasing of the pop-up. These activities are of importance to make the pop-up operational, but are not directly delivered to the target group .

Mechelen's **Key Partners** will be the government body that helps unemployed residents to find a new job. Other Key Partners mentioned are follower-cities and municipalities, banks (for the guarantee fund), the police, fire brigade (for permits for the location of the pop-up) and non-profit organisations.



Figure 29: Business Model exercise Mechelen and buddies.

Key Resources used are the trailer or "tiny house" itself, including a location in the neighbourhood to pop-up (with the proper permissions) and a storage location when the pop-up is not in use to store, repair or to change it. Other Key Resources that are identified are the coaches, the guarantee fund for financing the works and resources to carry out targeted communication (e.g. flyers and letters).

With respect to the **Cost Structure** the following cost items are considered: personnel costs, maintenance and insurance costs and the costs for information. The consultations and opinions the pop-up offer are free of charge. Customers pay for the renovation themselves, with support from guarantee fund.

Revenue Streams could be generated from the prevention policy budget towards the most vulnerable groups in society (which would mean that the government becomes customer). Other possible revenues could come from energy loans and/or subsidies for energy audits, small fees from contractors and other cities or municipalities that could lease or rent the pop-up.

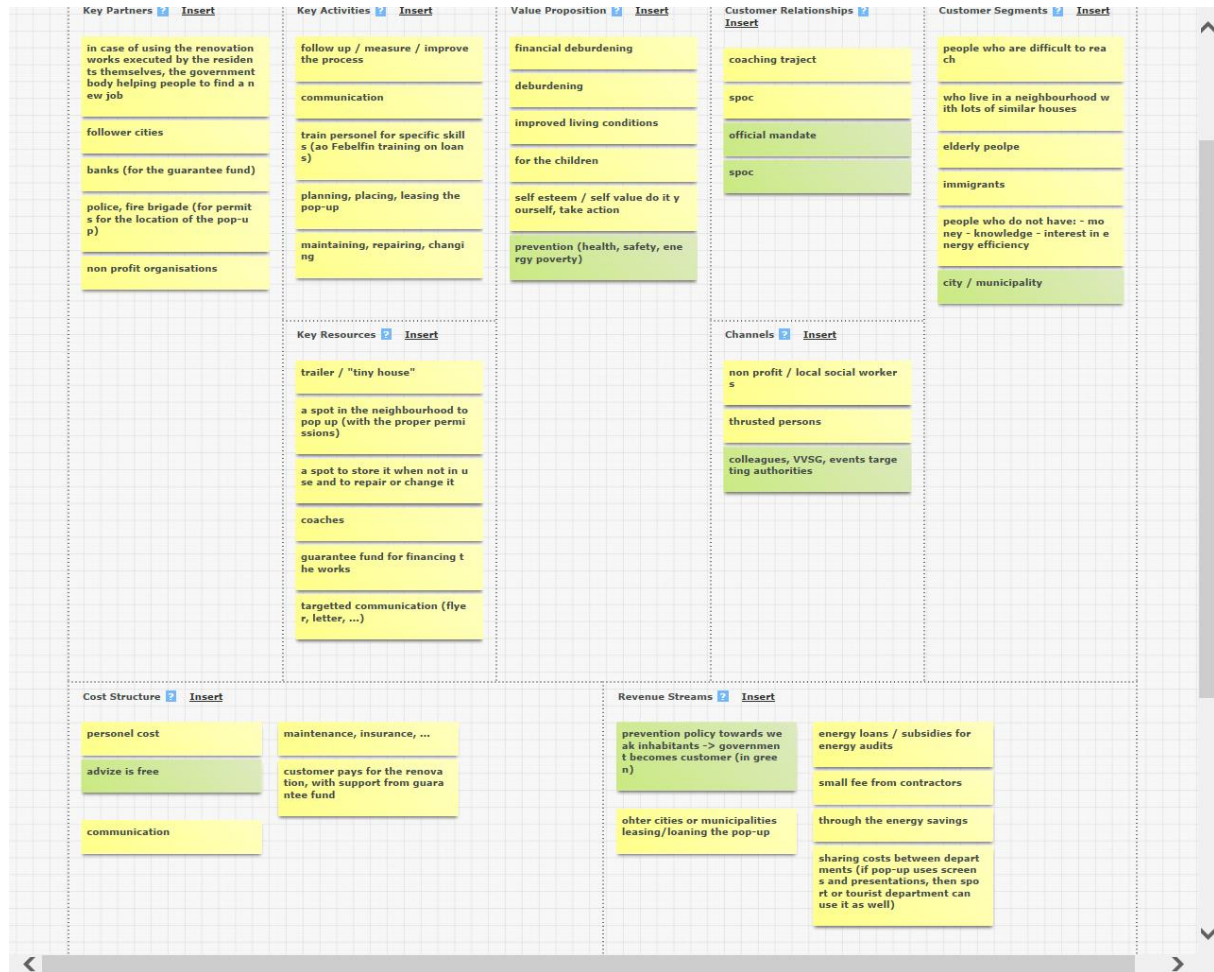


Figure 30: Business Model Mechelen

5.3.3. Group 3: Region Kent; buddy: PSEE Picardie

The pop-up will be situated as a pop-up stand in an existing building in a demonstration area during two years. The pop-up will contain the installation of demo technologies. Key activities include staffed events within the pop-up to provide advice and to support access to technologies. Only the most interesting and innovative ideas (that maybe could be used as an inspirational example by other Local Authorities) of the business model are discussed below.

From the possible (and often chosen) **Customer Segments** like empty-nesters, elderly aged 65+ and fuel poor residents Kent has chosen to target affluent young families, who work during the day and live in semi-rural big houses (that could be detached or semi-detached). The primary focus will lie on these residents.

The **Value Propositions** that will be offered to this group cover a wide range of subjects to make it attractive that as many residents (with as many questions) as possible can be helped. For instance on Wednesdays or certain theme evenings customers can come to ask their questions and get advice. To lower the threshold children are also welcome. They will be taken care off by animators and the parents can get easy accessible and comprehensible information and advice about the possibilities of energy saving. Including the (financial) gains and profits that can be realized relating to comfort and health improvement. The offer is to guide the customers

throughout the whole renovation project and give them advice on financing opportunities, trusted contractors and suppliers and assure the quality these suppliers are going to deliver.

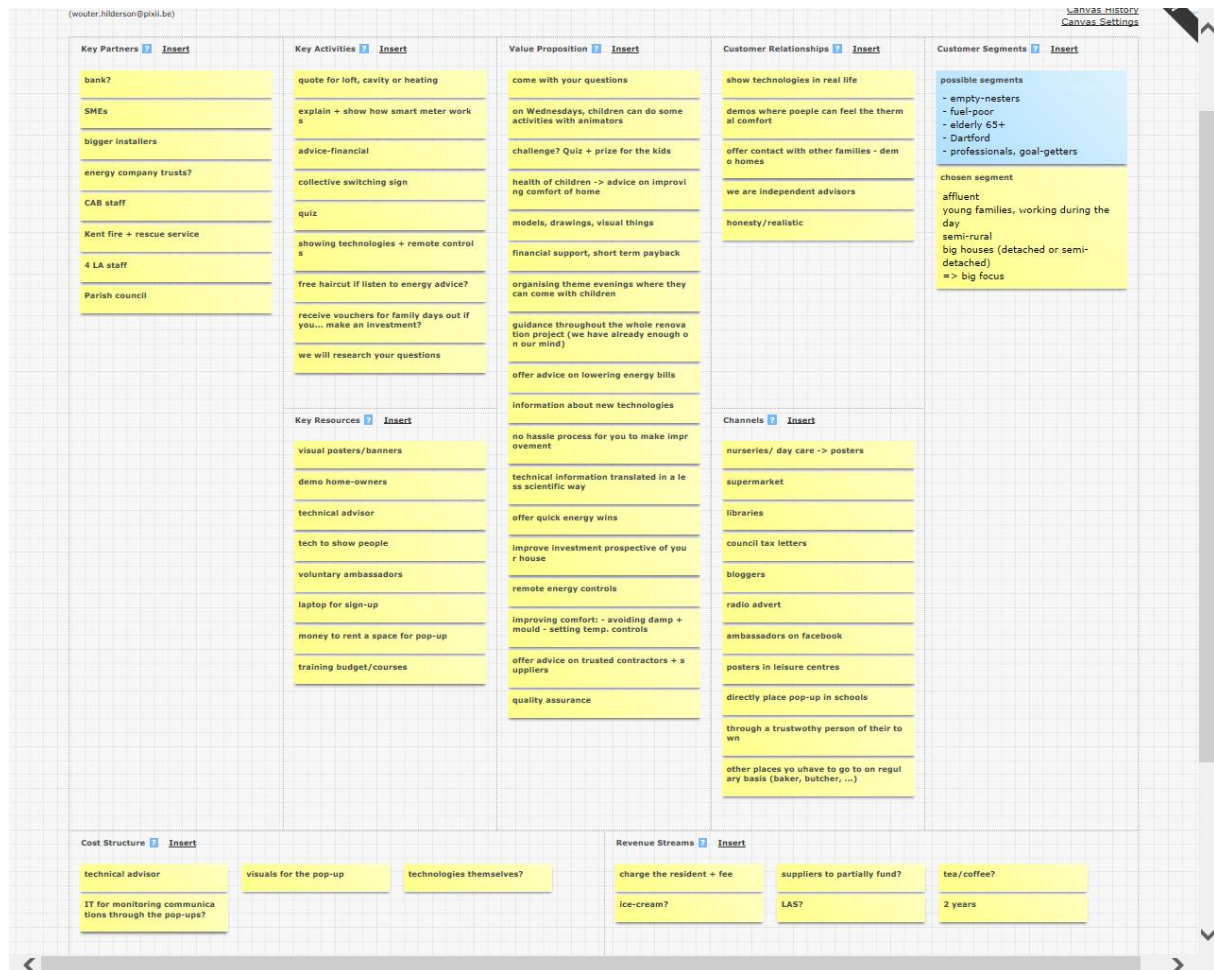


Figure 31: Business Model Kent.

Kent has various **Customer Channels** in mind to reach out to the residents and homeowners. For instance via direct targeted council tax letters and radio adverts. Via social media: bloggers, ambassadors on Facebook and other trustworthy local persons. Via advertisements and posters in places that residents visit on a regular basis: schools and nurseries or day care centres, the local baker, butcher, supermarket and library. With respect to **Customer Relationships** (or how to keep contact after the first visit) the Kent wants to confront the potential customer with 'the real possibilities'. Items mentioned here are for instance: showing technologies in real life including demos where people can feel the thermal comfort and offering contact with other families in demo homes. The key factor is to emphasize that the advisors are independent and the possibilities and solutions they picture are honest and realistic.

As **Key Activities** reference is made to the following services and actions that directly relate to the core service, like offering quotes for loft and cavity insulation or heating systems and an explanation of smart meters and other technologies. Also mentioned are offering a free haircut if the customer listens to an energy advice or vouchers for family days out if they invest in their dwelling. Among the **Key Resources** that are going to be used are visual posters and banners, demo home-owners; the technical advisor, technology to show people and voluntary ambassadors. The **Key Partners** could be local bank(s), SME's, (bigger) installers and builders, the energy company trusts, the CAB staff and other employees of the local authority and Kent fire and rescue service.

With respect to the **Cost Structure** the following items are distinguished at this moment: costs for the technical advisor, the visuals and (perhaps) technologies and IT for monitoring the communications through the pop-ups. The authorities will be largely responsible to get the

Revenue Streams going. However this could be complemented (in a very limited sense) with small contributions generated by fees from residents and suppliers and the turnover from the sale of coffee, tea and ice cream.



Figure 32: Business Model exercise Kent and buddy.

6. Conclusions and recommendations

With respect to the conclusions (and recommendations) a distinction is made between the results of the inventory of existing consultancy centres and pop-ups (paragraph 6.2.) and those regarding the future plans of the Triple-A LA's (paragraph 6.3). Specific remaining recommendations for the business modelling of future consultation centres and pop-ups are addressed in paragraph 6.4.

6.1. Experiences from existing consultancy centres and pop-ups

In the home countries of the Triple-A partners the characteristics of the following existing consultancy centres and pop-ups have been described and analysed:

- Netherlands: 033Energie (Amersfoort), ICDuBo & WoonWijzerWinkel (The Hague and Rotterdam municipalities and region), Reimarkt (various municipalities), De Huizenaanpak (Haarlem and region).
- Belgium: EcoHuis (Antwerp) and Kyotomobil and Woon+bus (3Wplus, region Halle-Vilvoorde)
- France: La Maison de l'habitat durable (Lille).
- United Kingdom: short description of Energy advice pop-ups in Sussex and Kent and an Energy advice centre in London.

These existing pop-ups have been described according to the steps of the customer journey model (chapter 3). Four selected examples have been analysed in more detail on the basis of the ingredients of the business model canvas (chapter 5). The analyses of the existing pop-ups illustrate the broad spectrum possible with regard to the organisation and implementation of consultancy centre and pop-up models. Below follow the main conclusions and observations, which are structured according the same lines as done in chapter 3: policy context, type, initiative and legal structure and customer journey. The section ends with a paragraph about setting goals and measuring results.

6.1.1. Policy context

It seems that the Netherlands and Belgium are slightly more advanced with respect to the development and experiences with consultancy centres and pop-ups. In the Netherlands the national policy to stimulate so called digital and physical energy counters in regions and municipalities has played a key role in the developments. This applies to a certain extent also for the situation in Flanders where in the near future renovation coaches and energy houses will be available in all Flemish regions. In France and England the situation is different. In France the involvement of local authorities is becoming more and more important in making the existing building stock more sustainable. It is feasible that the current territorial energy renovations platforms are going to make more use of consultancy centres and pop-ups in the near future to stimulate and support homeowners and residents to improve the energy performance of their dwellings. The national policy in England seems to aim more on creating awareness and offering information via digital platforms instead of via face to face contacts. Energy suppliers (and not local authorities) are expected to take the key role in tackling energy poverty of low income residents.

6.1.2. Types

Most existing pop-ups analysed in this report go beyond the models that are distinguished in the Triple-A working plan. According to this working plan a distinction can be made between three models. The first one is a movable flexible short term (less than one week) pop-up. The second one is a longer term, fixed pop-up that makes use of existing public or vacant private buildings, and the third is a combination between those two. The Triple-A local authorities who have a pop-up

centre or plan to open one seem to rely also on more permanent visitor centres and demo-houses that formally hardly can be defined as pop-up centres. On the basis of this analyses of existing pop-ups and more permanent centres it could be considered (or at least discussed) to have a look again at the classification of future pop-up centres. The current inventory shows that a distinction can be made between centres that 'pop-up':

- For a short time - for instance from a couple of hours up to a week - in a permanent building (e.g. energy advice pop-ups in Sussex or the organisation of an 'open house' in for instance Amersfoort and The Hague).
- For a short time in mobile form (e.g. caravan and bus: Kyotomobiel in Halle Vilvoorde and WoonWijzerWagen in Rotterdam/The Hague).
- For a temporary period (up to 1 to 2 years) in a permanent building (e.g. pop-up stores in various neighbourhoods in Rotterdam).
- For an indefinite period in a permanent building (e.g. WoonWijzerWinkel in Rotterdam, 033Energie in Amersfoort, shops of Reimarkt in various Dutch municipalities, EcoHuis in Antwerp and Maison de l'habitat durable in Lille).

The initiatives that have been analysed in this report show that some local authorities combine websites with consultancy centres and stores on fixed locations and pop-ups in targeted neighbourhoods. Local authorities that are considering using pop-up models should pay attention to the possible mutually enforcing effects of parallel consultation and pop-up models.

In most examples websites or -portals play an important role in attracting visitors (and eventually) customers. As stated before especially in the Dutch examples local authorities use digital energy counters to attract residents and homeowners to visit their physical energy counters. On the website they are invited to make an appointment and/or to pay a visit to the physical store or consultancy centre. In the Netherlands in almost all the cases pop-ups - mobile centres or temporary counters in an existing building (library, shopping centre) - are used to lower the threshold and to attract more visitors or targeted homeowners. This importance of the website also applies to the EcoHuis in Antwerp and the Maison de l'habitat durable in Lille. The Kyotomobiel in the Halle Vilvoorde region seems to be different from most other initiatives, being a very explicit stand-alone instrument to increase awareness and easy access to low-carbon technologies for homeowners.

The physical stores are all located on a central place in the city centre. For the pop-ups that are used this is essential the same. The Kyotomobiel in Halle Vilvoorde and de WoonWijzerWagen in Rotterdam-The Hague region are placed on locations that can easily be reached and attract as many people as possible. This was also the case in the energy advice pop-ups in Sussex. In certain cases (e.g. Energiebesparing-010 in Rotterdam in a fixed location) the pop-up is located in a specifically targeted neighbourhood.

As far it can be overseen now, the current consultancy centres will have a more permanent character. The Kyotomobiel initiative and the pop-ups in fixed locations in Rotterdam have a limited timeframe.

6.1.3. Initiative and legal structure

In almost all the cases studied, public authorities (local, regional or national) have taken the initiative to open the consultancy centres and pop-ups. During their existence, regional and local authorities remain to be heavily involved in financing the daily management of the centres and pop-ups. This applies generally to all models analysed in the four countries. In this sense these centres and pop-up models that are set up by public parties can hardly be seen as stand-alone functioning instruments with their own business models. They can primarily be considered as being a kind of customer channel, being part of municipal policies and instruments, that is set up to stimulate and facilitate home-owners to adopt low-carbon technologies.

In some cases though, the private sector is involved in supporting the exploitation of consultancy centres, pop-up models and energy counters. For instance in the Dutch examples 033Energie and De Huizenaanpak the centres and pop-ups are 'formalised' in foundations in which authorities still participate, but in the first place they are led by private organisations. Public authorities still financially support (on a project or yearly basis) the activities of the consultancy centres and pop-ups. Only Reimarkt (NL) tries to get commercial/privatised centres and pop-ups off the ground, but that has so far only been successful in one case (Enschede). In this case it also must be stressed however, that the initiatives of Reimarkt emerged with governmental subsidies and that the (local) authorities are still heavily involved in financing the daily management.

6.1.4. Customer journey

Generally, the current consultancy centres and pop-up models have a front office function that is established to increase awareness, give information and provide easy access to low-carbon technologies. As stated before the physical structure (and operation times and the location) varies in the examples studied. Most Dutch examples addressed in this scoping report cover a large part of the complete customer journey: starting with raising awareness, trying to get residents in action, suggesting tailor-made solutions (and not only in a material but also in a financial sense) and supporting them during the execution of the measures. The general goal of EcoHuis Antwerp is to provide information, advice and support for sustainable and healthy living. However specific aims are to raise awareness and providing information to homeowners and residents to lower their energy and water use. Specific tools are offered to realise this goal. The same applies to the Kyotomobil that provides free energy advice, carries out heat scans and energy audits and provide customers with tailor made roadmaps to help them to undertake action.

In general the personnel that is carrying out the daily activities in the pop-ups and centres (e.g. delivering support and advice to the clients) are independent specialists. In the Netherlands the energy consultants (advisors and architects) are independent persons or employed by the (local) authorities. The Eco doctor in the Belgian EcoHuis is also an independent advisor.

6.2. Triple-A partners future plans for pop-ups

6.2.1. Models and goals

The future plans the Triple-A partners have for establishing new consultancy centres and pop-ups are elaborately addressed in chapter 4. Here main features are summed up.

Of the seven LA's Antwerp, Oostende and Rotterdam have plans to implement pop-ups/centres for all the three models that are defined within the project: flexible & movable, semi-permanent and fixed long term pop-ups. Rotterdam (NL) is going to continue with their current models: ICDubo (fixed longer term), pop-ups in stores (in existing buildings for a temporary period like a year: semi-permanent) and the WoonWijzerWagen as a flexible and movable pop-up.

Beside the EcoHuis (fixed long term) Antwerp (B) is considering to more flexible variants. A cargo bike (with information) will and could be used as a flexible and literal movable pop-up, As an addition it is Antwerp's goal to open at least 10 short term pop-ups in unused or vacant buildings/dwellings in targeted neighbourhoods.

Oostende (B) has already used an semi-permanent open pop-up centre in an existing office building between August and October 2017 and is planning to open a consultancy centre in 2018 (fixed longer term). Another flexible, movable pop-up is foreseen for 2019. The exact external appearance is still unknown. It could be as well a mobile caravan as a tiny house.

The other four LA's are going to opt for one or two models. Mechelen (B) already has gotten the flexible and movable Renovatiemobiel in operation.

Kent County has begun preparations to organise a flexible, movable pop-up that is going to be located in district owned or community buildings in two changing locations in the region.

Breda (NL) wants to combine a permanent sustainability centre with a mobile and flexible pop-up. Currently residents and owners can visit the GroenPlein (GreenSquare) in the public library to get information and advice.

Picardie has plans to get pop-ups or centres in operation in the three department of the region. One of these will be a movable flexible model (of which the realisation is already underway) and the others will have a fixed and long term character (consultancy centres).

Looking at the character of the future pop-ups the preferences are distributed reasonably equally between the Triple-A partners. Five LA's aim to organise flexible, movable pop-ups, five LA's are going to try to get a semi-permanent pop-up off the ground and four LA's opt for a permanent consultancy centre. The main goals of the future initiatives are to raise the awareness of homeowners and residents and to provide them information, guidance and support to realise energy saving and comfort improving measures (including information about the possibilities to finance these measures).

Within the Triple A goals (or KPI's) have been set with regard to the outcomes of pop-ups and relating demo-projects. According to the before mentioned 3 pop-up models 7 pop-ups must be realised that should attract at least 600 visitors. The subsequent goals are more related to items that should be measured and are not formulated in actual numbers. The aim is to make it possible to measure the numbers of:

- Visitors that are informed (e.g. asked questions) and advised (via CRM the number and nature of consultancy activities must be measured).
- Financial measures made available through pop-ups.
- Low carbon technologies demonstrated.
- Suppliers/organisations involved in the pop-up centres. Demo events and visitors.
- Demo videos or publications and other publicity material.
- Number of thermo graphic surveys undertaken.
- Feedback survey of residents who have carried out measures plus number of issues and solutions.
- Carbon emission savings.
- Households adopting measures in target areas.

Looking at the examples of already existing pop-ups and consultancy centres it can be noticed that in a few cases measurable goals have been set before the implementation of the pop-ups. The goal

of 033Energie is to renovate 250 private homes and 500 apartments to an energy neutral level between 2014 and 2020. The Kyotomobiel has the goal to supply 120 homeowners in 2016 with an energy audit in the first year (2016), followed by respectively an extra 150 and 170 audits in the second and third year. The EcoHuis in Antwerp has formulated a range of goals for the period 2014-2019. To mention some important ones: 12.000 advices to residents on the reduction of their energy and water bills and the performance of in total 13,500 energy scans. La Maison de l' Habitat durable in the metropolitan region of Lille wants to thermally renovate 100.000 dwellings.

With respect to the results the precise numbers of many current initiatives are still unknown to us. This could partly be explained by the fact that a large part of the information has been gathered via open sources. For Reimarkt, the EcoHuis and the Kyotomobiel quantitative results are available at this moment. All of these initiatives appear to perform better than expected. The actual results are higher than scheduled beforehand. This implies that initiators for future pop-ups and centres should not be too modest when formulating goals and expected results.

A last but somewhat separate issue worth mentioning is the suggestion that the Triple-A LA's could have a closer look at the way the Dutch Association of Municipalities (VNG) is tracking the results in the regions and municipalities. As pointed in chapter 3 out the VNG has a wealth of information available about the progress and results of the instruments (with a focus on energy counters) that are applied in the 29 Dutch regions. This could be used as a source of inspiration and the VNG information could be useful for the Triple-A partners to determine and fine-tune further KPI's.

6.2.2. Business model development

The most obvious recommendation would be that the Triple-A LA's (with their ideas and plans about pop-ups as background) should scrutinise the workshop results about business model development and analyse the four examples described in the chapter 5 of this scoping report. The workshop results and examples are structured according to the nine subjects that make up the business model development canvas. LA's should check their own future plans against the items of the business models related to permanent centre's (e.g. EcoHuis Antwerp or ICDuBo Rotterdam), semi-permanent pop-ups (e.g. Energiebesparing-010 Rotterdam) or flexible movable pop-ups (e.g. Kyotomobiel Halle Vilvoorde) that already function in practice. This can be done separately for the three pop-up centre models the Triple-A local authorities aim to develop: (1) movable, flexible short term model, (2) longer term fixed model or (3) mixture of 1 and 2. The wealth of possibilities and solutions that already exist can be used as an inspiration to sharpen the development and realisation of their future pop-ups.

8. Key partners Defines who will contribute to the pop-up development and promotion without being directly involved in providing the daily services	6. Key activities Defines what services will be delivered in the pop-up	2. Customer Values Defines what added value you bring with the pop-up to the customer segment	4. Customer Relationships Defines how you will keep the relation with the customer ongoing after visit	1. Customer Segment Defines the expected customers for the pop-up
	7. Key resources Defines who should daily deliver the services and with what means		3. Customer Channels Defines how you will inform the customer about the pop-up	
9. Cost structure Estimates the expected yearly costs to run the pop-up and its service		5. Revenue Stream Defines how the pop-up will sustain its costs in the future, preferentially create its own revenues		

Figure 33: General Business Model Pop-up.

- In their quest the LA's must address and answer the following items or questions:
- Customer Segments: What types of home-owners will be addressed (e.g. starters, young families, elderly) and are certain dwelling types targeted?
- Value Propositions: What are the specific objectives of the pop-up centre(s) (e.g. varying from increasing awareness, providing information, demonstrating low-carbon technologies up to accompanying the home owner completely during his or hers customer journey).
- Channels: Through which channels will pop-up centre(s) and their activities be promoted and which tool(s) will be used to attract home-owners (e.g. websites, social media, mails, letters, ambassadors, trusted persons, the organisation of special activities, the implementation of attention-getting activities²¹, the offer to entertain children of potential customers, free coffee, tea, etc.)?
- Customer Relationship: How are the relations with customers kept after they have visited the centre (e.g. follow-up calls, offering tailor made of free solutions, invitations to attend demonstration projects or to visit demo houses, checking the energy use after the renovation, etc.)?
- Revenue Streams: How will the pop-up sustain its costs and create its own revenues (e.g. paid advice and consultancy activities for home-owners, fee for suppliers of low-carbon technologies or services, lease or rental of the pop-up, government contributions, selling of products and services, etc.)?
- Key activities: What concrete services (or products) will be available or delivered in the pop-up centre (e.g. informing, demonstrating, advising, selling of specific measures aimed at for instance like insulation of roofs or glazing, showing technologies and products, offering tailor made financing schemes, etc.)?
- Key Resources: Who is going to deliver the daily services and with what means (e.g. professional and independent advisors/coaches, with specific hardware and software tools like energy calculation tools, cost tools, financial tools/schemes, etc.)? As stated before in this chapter in the current initiatives information, advice and support is brought by independent trusted personnel. In the Netherlands the energy consultants (advisors and architects) are independent persons or employed by the (local) authorities. The Eco doctor in the Belgian EcoHuis is also an independent advisor. It is strongly recommended to work with an independent staff, either employed by the municipality or a non-profit/not-for-profit organisation.
- Key Partners: What actors contribute to the development, promotion and continuation of the pop-up centre(s) (e.g. local authorities or municipal departments, banks, non-profit organisations, suppliers of low-carbon technologies to demonstrate and to sell, builders and installers, etc.)?
- Cost Structure: What are the yearly cost to run the pop-up and its services (e.g. with attention to cost items like personnel, promotion and communication, technologies, products, ICT, maintenance etc.)? It would also advisable to extend the KPI's to include data for evaluating the cost effectiveness of the centres and pop-ups in relation to the energy saving measures that have been undertaken by homeowners and residents.

All these business development model items are strongly interconnected. The first question that should be answered is what the precise goal of the LA is. Or in other words: what part of the customer journey should be addressed in the pop-up models and related instruments and means (e.g. consultancy centres, web portal, energy counters, etc.). Generally all steps of the customer journey from raising awareness, trying to get residents in action, suggesting custom-made solutions (technical and financial) up to guiding and supporting the execution of energy saving measures could be handled in all three pop-up models.

It largely depends on the question what customer segments (or dwelling types) the LA's want to reach whether a choice has to be made for a semi-permanent or flexible and movable pop-ups. If the main goal is to raise awareness and provide information about energy saving or comfort improvement for all residents or homeowners in a municipality, a fixed centre in an easily

²¹ An inspiring example in this respect could be the Ice Challenge competition that was held in Brussels and Hasselt to create awareness under homeowners. In two pop-up 'houses' with different insulation quality an ice block was placed. Visitors could guess how long it took before the ice was melted in the two pop-up houses. Via information that was attached on the houses reference was made to a website where further tips and suggestions about energy saving could be reached. This example shows also that pop-ups can be small and unmanned.

accessible location will be generally sufficient. If the main aim is to target certain customers or neighbourhoods it could be more effective (and also probably more efficient) to deploy movable and flexible pop-ups. Nonetheless also from a fixed centre targeted actions and demonstrations aimed at certain group of homeowners can be undertaken. The examples analysed in chapter 5 show that different means and models can be implemented to reach the goals. In some LA's websites are combined with consultancy centres and stores on fixed locations and pop-ups in targeted neighbourhoods. Beside a fixed consultancy centre in a central location, the movable or semi-permanent pop-ups are used to lower the threshold and to attract more visitors or targeted homeowners. When developing the pop-ups we urge the LA's to pay attention to the possible mutually enforcing effects of parallel initiatives. Besides that LA's should keep in mind that the pop-ups (whether semi-permanent or movable) next to the targeted activities also can serve as a location to organise other neighbourhood activities.

It also depends on the policy of the local authority if support before (selecting products and contractors), during and after (quality control) the execution of the measures should be seen as activities of the pop-up model. To sustain pop-ups in the future as private models it is necessary to connect the supply side as soon as possible with the pop-up initiative. This would mean that contractors and product suppliers should be the (key) partners of the business model and that the customer journey steps contracting, managing executing and verifying quality are handled in pop-up stores. This has in turn obviously also effects on elements like the cost structure and the revenue streams.

Concluding and in reference to the above: the possibilities to develop, structure and organise a pop-up model appear to be almost unlimited. However this does not apply to the financial capabilities of most local authorities. For them it will be the challenge to develop and create a pop-up (or pop-ups) with the available sources that function (are) as effective and efficient as possible to reach the goals they have set.

7. Appendix

7.1. Examples of Dutch Energy Counters

Based on a web search we discovered energy counters working on a national scale, meaning serving local authorities all over the country as a market initiative, working on a regional scale (market initiative), counters per municipality set up by the municipality or being a local energy cooperative, a local private initiative, or local energy company. Some of the counters stipulate the cooperation with local energy cooperatives and/or supply-side actors.

Energy counters that are available on a national scale is for instance Duurzaam Bouwloket, serving over 100 Dutch municipalities. Information for home-owners includes: Quick Scan (*VerbeterUwHuis/ImproveYourDwelling*), sustainable measures, sun atlas, energy label atlas, peer to peer information (*Duurzame Doeners/Sustainable Do-ers*) and local suppliers (duurzaambouwloket.nl).

The screenshot displays the Duurzaam Bouwloket website interface. The top navigation bar includes 'Gemeente GOES' and 'Duurzaam Bouwloket'. The main content area features a 'Duurzame Doeners' section with a form titled 'Start Bloemsma'. The form includes fields for 'Type woning', 'Rijwoning', 'Bouwjaar', 'Jaren 60', 'Tevredenheid', 'Zeer tevreden', 'Totale kosten', '1100.00', and 'Terugverdientijd', '5 jaar'. A 'Selecteer maatregel' section lists various energy-saving measures with checkboxes, including 'Gasloos Wonen', 'Infraroodpanelen', 'Zonnepanelen', 'Verwarming koppelen', 'Dakisolatie', and 'Gevelisolatie'. A 'Selecteer regio' section includes 'Hilvo', 'Krimpeneiland', 'Boisgran-Raaijck', 'Goede', 'Zaanstad', and 'Jumbo'. The page also features a 'Direct aan de slag' section with links to 'Informatie over maatregelen', 'Handige tools, verbeter uw woning', 'Bekijk de kleine ingrepen', 'Alles over het energielabel', 'Subsidies en leningen', and 'Verduurzamen van monumentaal pand'. A 'Maatregel top 5' and 'Kleine ingrepen top 5' section lists specific energy-saving measures.

Figure 34: Energy Counter Duurzaam Bouwloket.

Source: <https://duurzaambouwloket.nl/index.php>. Copyright © Duurzaam bouwloket.

Further examples at regional and local level are regional and municipal energy counters (both private initiatives by GreenHome). Information that home-owners can find there are among other things: available subsidies, local initiatives, energy advice, house scan and requests for quotations.

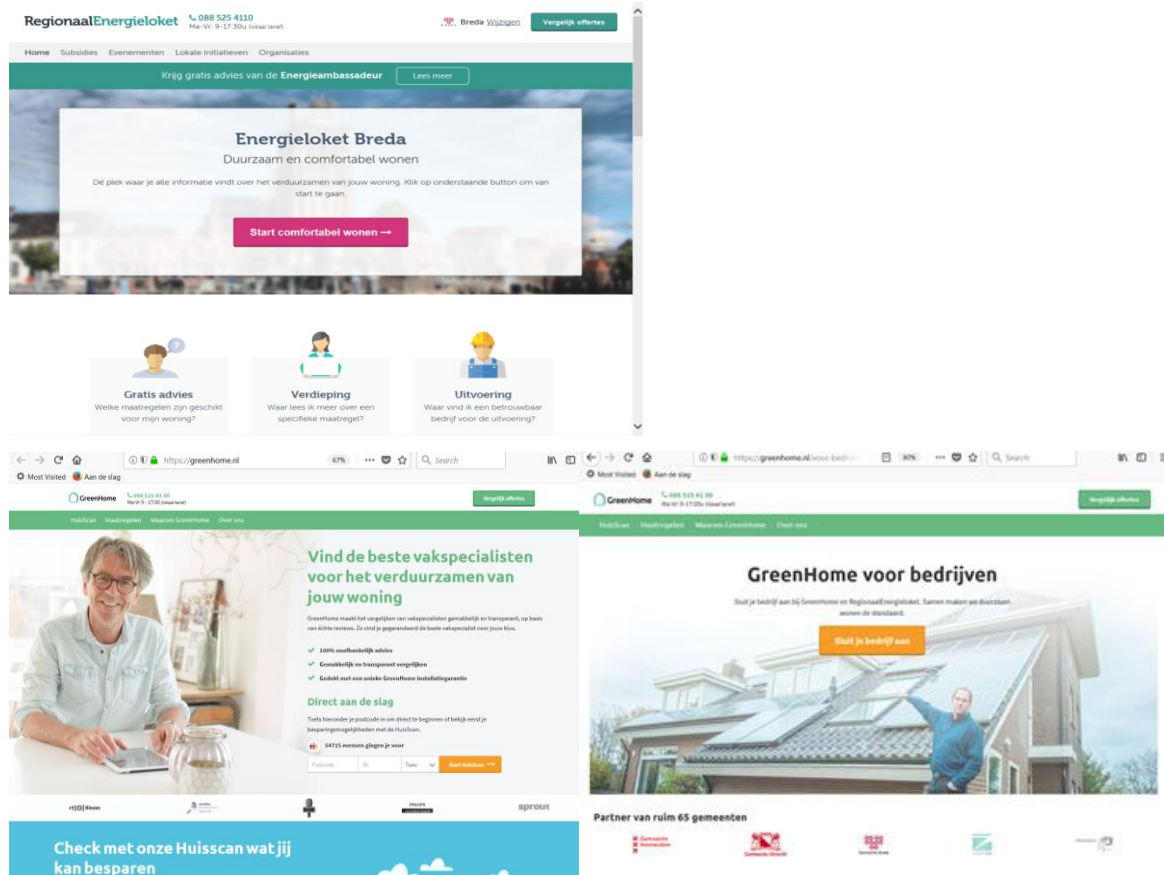


Figure 35: Energy Counter Duurzaam GreenHome.
Source: <https://greenhome.nl>. Copyright © GreenHome.

Another example of an energy counter (“SLIM wonen or Smart living with energy”) that targets both regional as municipal level and illustrates public and private initiative can be found in Groningen. Up to now more than one hundred regional SMEs - that meet predefined quality criteria - have joined SLIM.

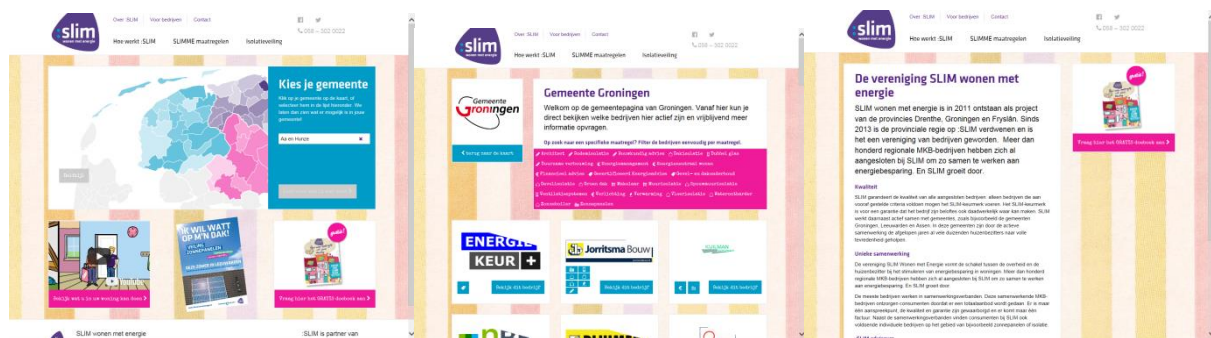


Figure 36: Energy Counter province and municipality Groningen.
Source: <https://groningenwoontslim.nl>. Copyright © Groningen/Reimarkt.

Also other stakeholders can have taken the initiative for local digital and physical energy counters, e.g. by local energy companies (e.g. Hof van Twente), local energy cooperatives (e.g. Etten-Leur) and local private (supply-side) actors (e.g. Aalsmeer).



Figure 37: Energy Cooperation Duursaam Etten-Leur.

Source www.duursaam-etten-leur.nl. Copyright © DuurSaam Etten-leur.

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8.2.1. Energy policy context

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<https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/energieakkoord> Website of the Rijksdienst voor Ondernemend Nederland:

Financial loans: www.energiebespaarlening.nl

Flanders:

General: <https://www.vlaanderen.be/nl/bouwen-wonen-en-energie>.

Provincial supporting points The website <http://www.duwobo.be/provinciale-steunpunten/> elaborates on the way function.

Discussing and evaluation: <http://www.do.vlaanderen.be/provinciale-steunpunten-duurzaam-wonen-en-bouwen-evaluatie-maart-2015>

Benoveren: <http://www.energiesparen.be/ikBENOver>

France:

General: https://www.unpri.org/download_report/14573 and <http://www.gouvernement.fr/en/energy-transition>

United Kingdom:

General: <https://www.legislation.gov.uk/ukpga/1995/10/contents> and <https://www.gov.uk/government/publications/clean-growth-strategy>.

8.2.2. Existing consultation centres and pop-ups:

Netherlands:

- 033 Energie Amersfoort: www.033energie.nl.
- WoonWijzerWagen (ICDuBo): <https://www.woonwijzerwinkel.nl/project>
- Pop-up shop Binnenhof (Ommoord Rotterdam):
<https://www.rotterdamenergiebesparing.nl/dev/uitgebreid-artikel/pop-up-store>
- Reimarkt (various municipalities): <http://reimarkt.nl/>; <https://www.reimarkt-enschede.nl/>;
<https://www.reimarkt-delft.nl/>; <https://www.reimarkt-denbosch.nl/>; <https:// groningenwoontslim.nl/>
- Huizenaanpak (Haarlem): www.huizenaanpak.nl; www.drzm.nl.
- Het groene Huis (Haarlem) www.hetgroenehuis.nl, <https://huizenaanpak.nl/2017/05/groene-huis-opent-deuren/>
- GroenPlein (Breda): video of the opening at <https://www.youtube.com/watch?v=oFa2xDSIVLA>
- National Energy counter Duurzaam Bouwloket: <https://duurzaambouwloket.nl/index.php/>
- Regional Energy counter Duurzaam GreenHome: <https://greenhome.nl/>
- Energy Counter Province and Municipality Groningen: <https:// groningenwoontslim.nl/>
- Energy Cooperation Duurzaam Etten-Leur: Source www.duurzaam-etten-leur.nl.

Flanders:

- EcoHuis (Antwerp): www.livinggreen.eu.
- Kyotomobiel (Vilvoorde): <https://3wplus.be/energie>; *Kyotomobiel maakt wijken energiezuinig* (Kyotomobiel makes neighbourhoods more energy efficient).
<http://www.ringtv.be/nieuws/kyotomobiel-maakt-wijken-energiezuinig> (4-1-2015).

France:

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- Energy advice centre (London): <https://www.westminster.gov.uk/energy-saving-trust#>