

Triple-A

Awareness + Access = Adoption

European Regional Development Fund

Encouraging energy efficient home renovations through increased Awareness and easy Access



RECOMMENDATIONS FOR LOCAL AUTHORITIES

www.triple-a-interreg.eu



TRIPLE-A INTERREG

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Introduction

Why do we offer this guideline?

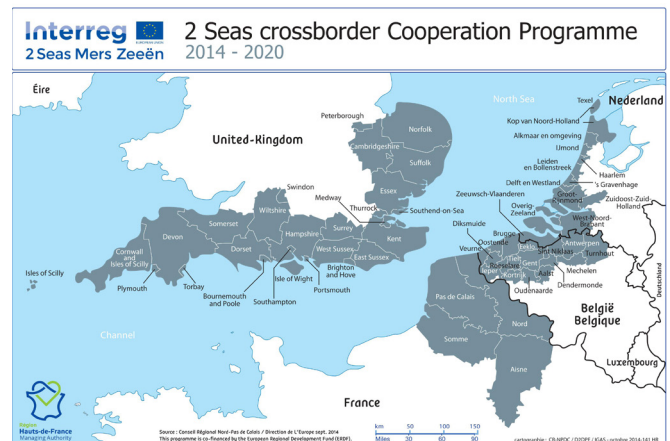
This guideline aims to support local authorities in their common ambitions and goals to reduce energy consumption in existing housing. In the 2 Seas region - covering seaside territories in the UK, the Netherlands, Belgium and France - about 50% of the dwellings consists of single-family housing in the owner-occupied sector. Local authorities thus face the common challenge of stimulating private homeowners to adopt low-carbon technologies, which is crucial to achieve regional and EU targets for reduction of CO₂ emissions.

In this guideline seven local authorities share their developments in this field and their lessons learned to increase the adoption of low-carbon technologies by better connecting with the renovation journey of homeowners.

Who is this guideline meant for?

While the main target group of this guideline consists of local and regional authorities, it will also be useful for other actors (looking to get) involved in the process of home renovations – such as social housing companies, homeowners associations, non-profit organization, housing suppliers, national authorities, intermediaries, and so on.

Based on the solutions and approaches tested by the partners in the 2 Seas region, engaged in the Triple-A project, these guidelines offer hands-on recommendations and valuable tips for local authorities to set up actions to encourage low-carbon home renovations. Thanks to the involvement of both small-sized municipalities and bigger cities, the recommendations apply to a wide range of local authorities and organisations.



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How to read this guideline?

After a brief description of the local authority approach developed in the Triple-A project for raising homeowners' awareness and giving them easy access to available information and solutions, this guideline provides the key lessons learned from local authorities' practice. The learnings and recommendations from the project are linked with specific developed initiatives and tested cases. Thereafter, we share experiences about the detected needs for communication, collaboration and quality assurance.

This guideline gives a brief overview but also leads to more specific guidance documents and links to a selection of developed solutions, to help interested local authorities when starting their own initiatives and actions.



The Triple-A method: increasing Adoption by raising Awareness and creating easy Access

Motives for local authorities to encourage energy-efficient home renovations

Nearly 50% of the final energy consumption in the European Union is used for heating and cooling, 80% of which is used in buildings. The member states of the European Union therefore strive to ensure that the building stock, which accounts for approximately 36% of total EU CO₂ emissions, is carbon-neutral by 2050. The **Renovation Wave** announced in the **European Green Deal is expected to catalyse a much needed transition to more energy renovations**. The EU acknowledges that our housing stock needs an urgent upgrade, not only to fight climate change but also to lift millions of Europeans out of energy poverty and to ensure that buildings provide a healthy and affordable living and working environment.



In the 2 Seas region – covering seaside territories in the UK, the Netherlands, Belgium and France – **about 50% of the dwellings consist of single-family** (terraced and (semi) detached) **housing** in the owner-occupied sector. This presents particular challenges, such as rebuilding existing houses into highly energy-efficient buildings with healthy indoor climate, **increasing the renovation rate to 3%**, and promoting equal access to financial aid while ensuring affordability. At the same time, there is an enormous potential to reduce CO₂ emissions by stimulating a larger amount of homeowners to adopt low-carbon technologies.

While EU policies and directives will provide guidance to national and regional authorities to substantially reduce CO₂ emissions on the local level, **local authorities are challenged to facilitate housing stock transitions** in their territories according to national rules, regional strategies and local action plans. They are testing new ways – beyond promoting incentives – to increase energy efficiency and the use of renewable energy sources in owner-occupied houses. They are challenged to manage cost-efficient processes to approach and convince homeowners to adopt low-carbon technologies.

Actions for local authorities to encourage energy-efficient home renovations

To encourage the adoption of low-carbon technologies by homeowners, local authorities can develop an **appropriate set of actions and policy instruments**. Obligations and incentives - for example energy-saving grants, subsidies and loans - are already commonly communicated by local authorities. But it is clear that this is not enough to increase adoption. A strategic action plan is needed that translates the local vision into actions involving multiple stakeholders.

For example, reaching a local CO₂ reduction target implies that local authorities are challenged to follow-up and regularly evaluate energy savings and local energy production. This requires **collaboration with private actors** who can provide and compare energy data.

Also, cost-effective technology options, adopted measures, renovation process expertise and information about on-going policy actions need to be digitized and available on the internet and social media. This requires cooperation with IT professionals. On the one hand, larger cities will have to **align communication** of various internal departments. On the other hand, smaller municipalities could be confronted with limited capacity and are challenged to share costs and work together to obtain advantages of scale.

Identified strategies and **actions can also depend on the local authorities' phase of development**. For example, for local authorities starting energy-saving action towards homeowners, relevant local renovation demonstration projects and learning need to be initiated, and results need to be visualized and communicated to engage a network of local stakeholders to co-create local development.

Larger cities are particularly also confronted with large differences between various city areas. They are challenged to **identify priorities by systematically mapping target areas**, combining building characteristics, energy system development and homeowner profiles. For example, many cities prioritize action in areas that have similar types of buildings in need of major renovation; where the energy supply is planned to change; where vulnerable target groups, such as households in energy poverty, can be helped.

Homeowners consider local authorities as a trusted party. Local authorities thus have a role to facilitate independent energy consultancy and tailored advice in their territory. While this is often organized centrally, there is also a need to bring awareness and solutions to specific districts. In this sense, local authorities play a role to support easy access to solutions, for example by developing and managing different types of consultancy centers. This can further be strengthened with online energy consultancy, homeowner coaching and local construction skills development.



As the adoption of measures should be increased, local authorities could take the lead in **evaluating consultancy actions** and **supporting homeowners who decide to take measures**. For example, providing them with financing options, standardized contracts and execution plans after consultancy, will speed up low-carbon renovation measures. Promoting incentives for groups of homeowners to take action simultaneously – for example coaching of assemblies of homeowners or group buying initiatives - will increase engagement.

Finally, local authorities can play a role in effectively **using success stories to increase market uptake**. For example, promoting representative demo homes, acknowledged professionals and intermediaries, and experienced homeowners will lead to new homeowners considering to renovate.

Summarizing, it is a specific challenge for local authorities to identify innovative ways to create awareness on energy efficiency and renewable energies – targeting multiple single-family homeowners – and to facilitate easy access to low-carbon technologies to those who aim to implement renovation measures. An intelligent mix of locally supported obligations, incentives, organizational support and communication actions – supported by multiple stakeholders – can provide solutions for locally increasing energy renovations and carbon savings.

A model for reflecting on possible actions: the Homeowner Renovation Journey

As explained before, the local authority **carbon saving challenges require a structured response from policy actors** for developing actions and policy instruments. Simultaneously, they have to engage in a dialogue with supply and understand the demand. While key supply side stakeholders can help developing action by co-creation, it is not that obvious to engage homeowners to cooperate for action development. Therefore, when developing their actions, local authorities need to **think from the homeowner's perspective** to understand where their actions fit in the renovation process.

An “innovation adoption” or “customer journey” model can give some guidance how decision-processes take place for buying or adopting low-carbon technologies. We have combined strengths of these models to a **“homeowner renovation journey”** scheme for reflecting on possible actions. This model – see Figure 1 – suggests that homeowners adopting low-carbon technologies go through different steps in decision-making and that in each step they can be influenced by communication and actions organized by local authorities.

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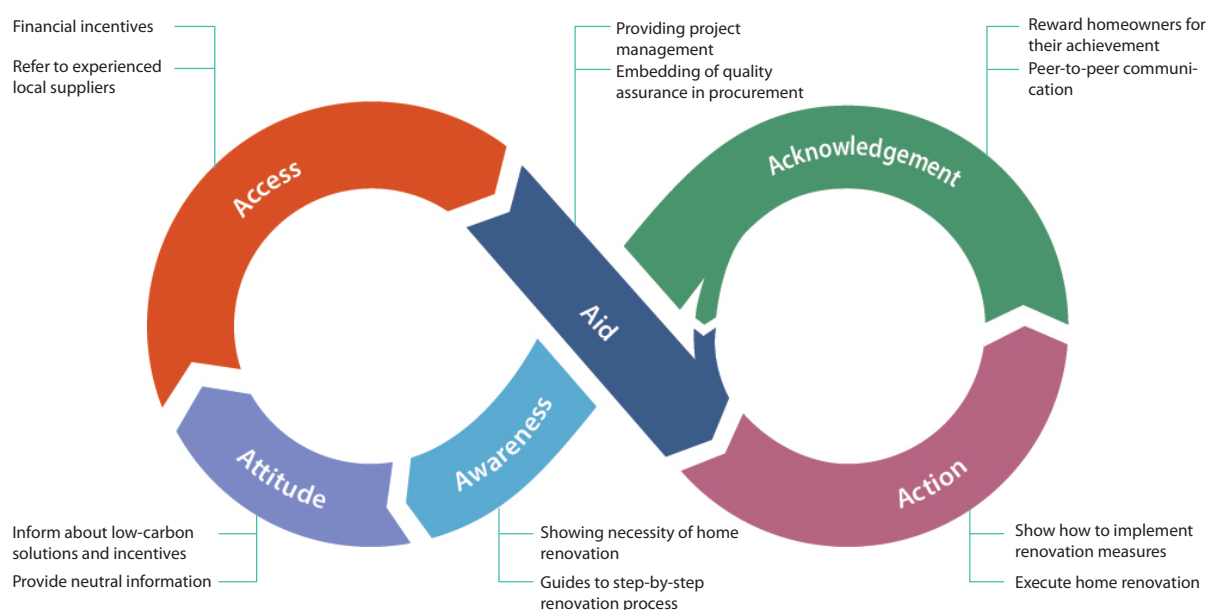


FIGURE 1: THE “HOMEOWNER RENOVATION JOURNEY”, INCLUDING SOME OF THE ACTIONS DEVELOPED IN TRIPLE-A

First, **awareness** can be raised by communication actions. Secondly, the homeowners look for additional information from trusted actors. Gaining independent advice might change their attitude towards low-carbon solutions. Once options are explored, homeowners seek **access** to specific solutions and/or detailed financial information. Further, before moving into action, they want to know how things will be implemented in practice in their own situation. Finally, once an **action** is successful, homeowners are also keen to share their successes, which can again be used to effectively engage new homeowners to start thinking about renovation measures.

There are thus a lot of steps before homeowners actually carry out low-carbon renovations. Typically **local authorities can help directly or indirectly in each step with communication and organization**, from nudging to complete unburdening. Actions developed by local authorities can play a role in multiple stages of the homeowner renovation journey. Depending on the phase they are linked with, actions may vary in needed resources (development cost, staffing) and communication activities (broader or more personal communication) in order to be effective. Figure 1 indicates some of the actions developed in the Triple-A project.

How Triple-A can help you

Triple-A: aim and methodology

Triple-A is a EU-funded project (Interreg-2-Seas programme) that aims at helping local authorities to achieve a market uptake and acceleration in the adoption of low-carbon technologies by homeowners in single-family housing. The approach basically consists of nudging and helping homeowners to move to the next stage in their homeowner renovation journey using different communication channels and actions.

Triple-A refers to facilitating **increased Awareness of, Access to and Adoption of low-carbon technologies** among private homeowners. To reach these goals, 4 main actions were developed and evaluated:

1. Enhancing local authorities' **web communication**
2. Testing the use of **home energy monitoring systems**
3. Setting up **pop-up consultancy centers**
4. Installing **real-life demos** of technologies for energy-efficient retrofitting

For each action, local authorities, together with a wider range of project partners and stakeholders (including private, public and policy actors), went through the process of scoping (market research and benchmarking), designing and testing, evaluating and sustaining (creating continuation of all actions).

Figure 2 shows the Triple-A methodology and outputs, with the four actions, the **process of scoping, designing, evaluating and sustaining**, as well as the link between actions and the corresponding A's of the Triple-A methodology.

On the following pages of this guideline you will find brief descriptions of the four actions, as well as hands-on recommendations based on our experiences.

Get started!

Local authorities looking for more inspiration or planning to start their own initiatives, will find very useful information in the **"Get started"** section on the Triple-A website. This section offers more detailed descriptions and inspiring examples of the actions we developed, as well as very concrete information such as template documents to help you get started.

Throughout this guideline, you will find the scannable & clickable QR code icon like the one shown here, leading to the **"Get started"** page.



FIGURE 2: TRIPLE-A METHODOLOGY AND EXPECTED OUTPUT

GET STARTED!



Triple-A: actions and recommendations

The process of scoping, designing, implementing/evaluating and sustaining provided very valuable insights in the effectiveness of the Triple-A actions. We are happy to share with you the opportunities and barriers that we experienced in real-life conditions. On the following pages, you will find a short description of the four actions as well as our recommendations if you want to set-up similar actions yourself.

Improving web portals of local authorities

Local Authorities (cities and municipalities, regional bodies) generally have the responsibility to **provide trustworthy and neutral information to the public**. With their 24/7 availability, adaptability, easy access and large outreach, web portals¹⁾ are essential in disseminating information about low-carbon technologies, and they can reinforce other communication channels. The information provided through web portals can be very diverse, from technical features of energy saving measures over available financing schemes up to platforms for sharing experiences or referral pages to find trusted contractors.

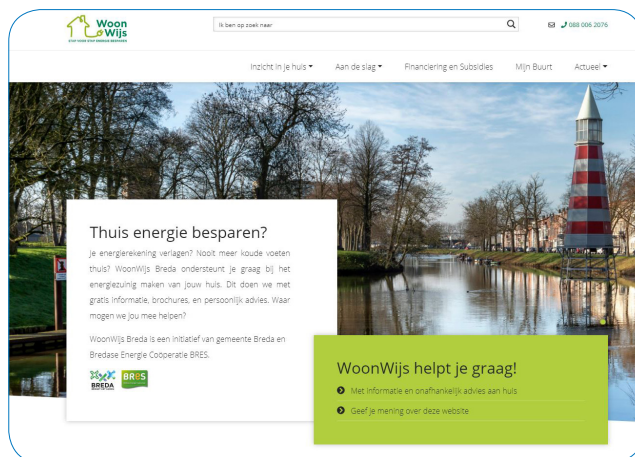
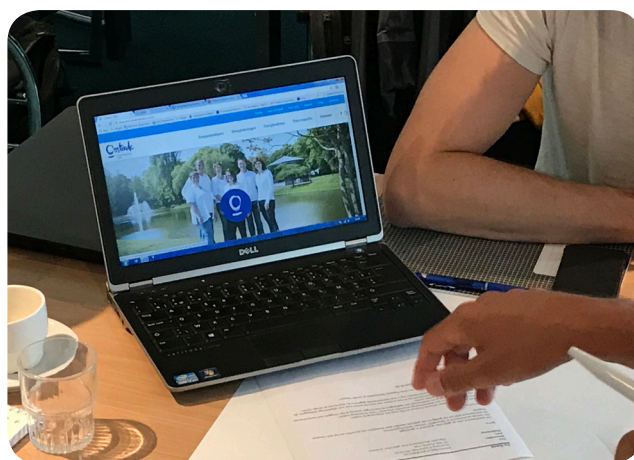
One of the aims of Triple-A was to improve access to information through public web portals, by adding new or existing web modules to the portals.

Different web modules are functional in different stages of the homeowner renovation journey. With the right selection of web modules, a web portal offers opportunities to nudge citizens in all stages of their journey. We suggest to start by making an analysis of your web portal to identify which steps in the homeowner renovation journey are not yet addressed. Then make a selection of needed web modules to fill this gap. After the 'scoping phase', acquire or develop the necessary web modules and implement them on your web portal. Co-creation with relevant local actors (see further in this guideline) could be a way to achieve this.

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In Triple-A different kinds of modules were developed/implemented:

- **Success stories:** type of module allowing citizens to share their experiences with energy efficient home renovation, to tell their 'story' and inspire other homeowners
- **Contact/request/referral module:** modules to get in touch with the local authority through a contact form or request for information, but also referral to reliable third party websites
- **Calculation tool:** module aiming to provide calculations of energy and costs savings of implementing low-carbon measures
- **Energy use monitoring:** online platform to monitor primary energy use in private homes and/or compare energy use with similar housing profiles
- **Aerial heat scan:** thermal map of all roofs in a city to provide insight in possible heat loss through roofs and to encourage homeowners to take roof insulation measures
- **Feedback on website and monitoring the number of visitors:** module to rate local authorities' web portals, in order to optimise the quality of information and services offered through the website
- **DIY movies:** to support homeowners when executing works themselves
- **Information about financial incentives,** funding and subsidy



A detailed description of the developed modules, including hands-on recommendations per module, can be found in the "Get started" section.

GET STARTED!



¹⁾ A "web portal" as understood in the project is a complete website of the local authority, whereas "web module" refers to a functional component or building block that is part of such web portal, offering specific information or a service to the visitor. The component can be developed independent from the web portal and therefore it can, with minimal adaptations, be used in several different web portals at the same time.

Recommendations

Based on our experiences with the development of new web modules within Triple-A, we formulated recommendations which might help you to assess your specific needs and expectations.

DEVELOP TOOLS AT THE APPROPRIATE LEVEL AND WITH THE RIGHT PARTNERS

There is an abundance of web-modules with great potential to improve web-portals. The main challenge is to **make a good selection**. Using the homeowner renovation journey as a framework could help in this process. Do not try to develop web modules entirely on your own, but use external parties that have experience. Work together with local partners as much as possible. **Make sure that you have enough influence in the development process**, so that you are able to decide on the right look and feel. Due to their complexity, required financial and/or staff investment, some tools are better developed by higher authorities.

MAKE USE OF EXISTING MODULES IF POSSIBLE

If you want to keep development and maintenance costs low, it can be advantageous to **use and customize existing independent third-party platforms**. These parties are then liable for their module, carry out the central management and keep information up to date, thus increasing efficiency and lowering costs for you as a local authority.

GOOD PRACTICE – KENT COUNTY COUNCIL

Kent County Council implemented the “Warm Homes” web module that helps residents find information about different funding for energy efficiency measures. This includes grants available from councils, energy companies and central government, as well as different types of funding, from assistance with energy bills to full grants for insulation and heating.

Because all of the information is in one place, this makes it easier for residents to navigate the variety of funding available and see what they would be eligible for. The information is regularly updated with any new funding schemes to ensure residents can get up to date information at any time.

The “Warm Homes” web page also links in to other portals and services of Kent County Council, allowing for cross promotion, and many of the other local authorities in Kent link to this web module to help share further with residents. Since implementing the module, over 6600 people have visited the page to check the information about what assistance they can receive.

[Click here to visit the Warm Homes module](#)

THINK ABOUT MAINTENANCE BEFORE YOU DEVELOP

Maintenance of the web modules can be a challenge. **Define the time needed to maintain the functionality** before developing it and decide who will be responsible, so that this can be taken into account in the design. Decide how much time your staff can invest in this and the skills they have or need for maintaining and feeding the module.

WEB MODULES AND FUNCTIONALITIES NEED TO BE PROMOTED IN ORDER TO BE FOUND AND USED

The success does not only depend on the content of a web module but also relies on its accessibility and promotion. **Marketing and communication are essential** to promote your web portal or its specific modules, for example through newsletters, social media, print media, links from existing (municipal) websites, promotion in the pop-up centers, direct contact or citizen engagement. Be aware that promoting a web portal in general does not necessarily lead to more visitors for a specific web module or page, so well-targeted communication is crucial. Interaction and crosslinks from other web modules or web portals can embed the module in a larger communication strategy.

KEEP THE HOMEOWNER RENOVATION JOURNEY OF YOUR AUDIENCE IN MIND

Be aware that different web modules on your website are functional in **different stages of the homeowner renovation journey**. Web modules often serve more than one step in the journey. For example, energy use monitoring might not only increase homeowners’ awareness of their energy consumption, but could also lead to changing their attitude and even convince them to adopt low-carbon measures. As a consequence, it is not possible (nor necessary) to connect each web module to one specific stage of the homeowner renovation journey. It is worthwhile, however, to **think about how modules relate to the journey** and to strive for modules that complement each other in that sense rather than being all aimed at the same phase.

warm homes

Save energy, save money



Green Home Grants

The Kent and Medway Warm Homes scheme is run by Kent County Council in partnership with Medway Council and Kent's 12 district and borough councils, to help residents install insulation or heating systems in their homes. The scheme does not provide vouchers or funding for the government's new [Green Home Grants scheme](#).

The Warm Homes offer

Who can get funding

Information about funding

Apply for a quote

More information and advice

Introducing Home Energy Monitoring Systems (HEMS)

Home Energy Monitoring and/or Management Systems (HEMS) are tools that can be used by homeowners to **monitor and/or manage their domestic energy use**. During the project, local authorities tested the implementation of HEMS in private homes, with the aim to **evaluate the impact** of those HEMS on the residents' energy use behaviour and their willingness to adopt low-carbon technologies, as well as to measure the effect of implemented low-carbon technologies in the homes.

The HEMS were **promoted through the local authorities' web portals and other online channels**, in the pop-up consultancy centers and during open home events. In many cases, local authorities provided the HEMS to homeowners as part of a data sharing agreement, enabling the local authority to gain insight in the residents' energy consumption and provide personal advice based on these insights.

Energy providers can play an important role in the rollout of HEMS. **Providing easy access to HEMS and coaching homeowners to use the HEMS** could be one of the instruments of local energy saving programs and community-based reinforcement strategies of local authorities. A neighbourhood approach aims to enable more positive outcomes for energy savings and uptake of renovation measures, by using peer-to-peer communication, personal advice, trialling in demo houses and demonstration in pop-up centres and on local authority websites.

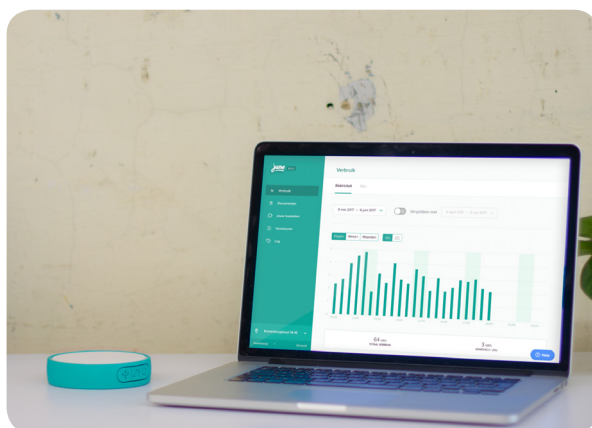
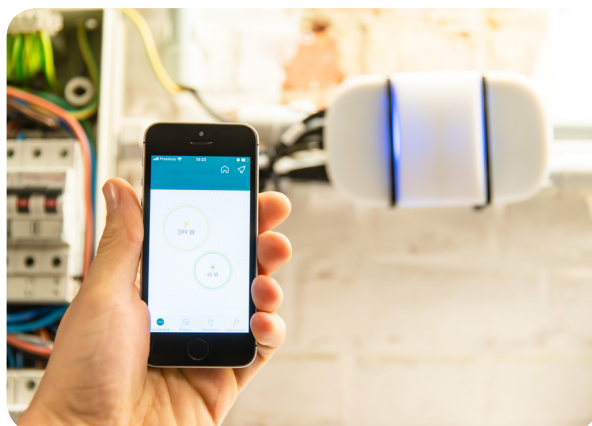
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Recommendations

If you want to implement home energy monitoring systems in your region, consider to keep in mind these aspects: promotion of the HEMS (convincing your citizens to use them), procurement and installation (cooperation with suppliers) and monitoring (using data shared by the homeowners). Please find our recommendations to guide you in this process.

PROMOTION OF HEMS

- Take into account the **public perception** of HEMS, you may need to ensure that residents fully understand the advantages and added value of HEMS in order to get uptake.
- Homeowners may be worried about their **data and privacy** issues. Make good agreements on terms and conditions (including GDPR) regarding the use of homeowners data.
- Direct contact with the residents allows you to explain the concept of HEMS and how you will protect the privacy of citizens, thus giving confidence. This **direct contact** is also a good opportunity to discuss other services you offer and to perform a remote energy scan where electricity, gas and water savings can be discussed. However, direct contact is more difficult to organize and only reaches a smaller audience. These are usually not the people who live in energy poverty.
- Via your local authority's website, social media... you can reach a **bigger audience and broader range** of homeowners. However, it is not easy to explain how HEMS work and that privacy of citizens is protected if you only promote them in a digital way.
- **Keep in mind what you want to reach** by having the HEMS installed in citizens' homes. If your main goal is to get insight in their energy behaviour as a basis for personal energy saving advice, take that into account in your implementation strategy. If residents receive the HEMS for free, they might be less likely to oppose its installation and at the same time be less critical of sharing their data.



PROCUREMENT

- Procurement in **smaller quantities** can be an issue, as many suppliers prefer to execute only bigger installations. If installation is easy, it can be an option to just purchase the HEMS you need and have them installed by your own services or by the homeowners themselves.
- If you are not comfortable with having people install the unit by themselves, try to procure them from **local suppliers** to deliver and install the units.

- Select a **reliable contractor who has experience in installing HEMS** and is convinced of the added value of the product.
- Try to **involve a technical person in procurement** as well, so that you can supply the technical data to the contractor and find the most suitable solution for the residents.

INSTALLATION

- If installation of the HEMS is easy, this could be done **by the homeowners themselves**, if necessary with guidance by technical staff from the local authority. If the installation is rather complex, we suggest to cooperate with an experienced external partner for installation.
- Having the HEMS delivered and installed by an **external supplier unburdens the homeowners** (and the local authority) and has the advantage that everything can be installed in one go. Additionally, liability lies with the supplier if something goes wrong, not with the local authority or the homeowner.
- Keep in mind **possible technical issues**, such as the need for a power connection or the availability of WiFi to establish connection between the HEMS and the monitoring application/web portal.
- As the local authority is usually seen as a reliable and neutral partner, try to team up with the supplier and **have a member of your staff available at the time of installation**. While the supplier takes care of technical installation, your employee could give explanations about the appliance and how to use it, and make all necessary agreements for sharing their data.

MONITORING

- Ensure you get an **agreement with the homeowner** about how their energy consumption data will be shared, so that you can monitor data afterwards and use them to provide personal advice.
- Monitoring data from multiple residents requires **time and dedicated staff**. You could use a platform that allows for automatic energy data input from the HEMS, thus avoiding the need to input the data manually. Such platforms (see "Good practice – Antwerpen") can also be used for "community building", allowing citizens to compare their energy usage with others.



**SCAN OR CLICK
THE QR CODE
FOR MORE
INSPIRATION AND
CONCRETE TIPS TO
GET STARTED**

GET STARTED!



GOOD PRACTICE - ANTWERPEN

The city of Antwerp wants to support citizens to monitor their energy consumption. Participating homeowners had a energy monitoring system installed in their homes, in order to enable monitoring of their energy consumption. The collected energy data are uploaded automatically to the online monitoring platform EnergieID, that can read data from different types of HEMS and digital meters and is not limited to electricity and gas consumption data.

In addition to the installation of energy monitoring systems, the city of Antwerp created an online Triple-A 'community' for residents that have implemented at least one low-carbon measure and are willing to participate in a coaching trajectory by the city.

Through this online community, the city has a good overview on the energy behaviour of the participating homeowners and can coach them with tailor-made and personal advice. Residents can benchmark their consumption with other users on the web platform and receive useful tips and tricks to make energy savings.

Antwerp is exploring the possibilities to extend the use of the EnergieID monitoring platform to a collective virtual power plant project (cVPP, Interreg NWE), where a dashboard is created to monitor electricity consumption and production by solar panels. This dashboard will then be used to convince residents to collectively install solar panels at street level.

The other Flemish partners in Triple-A – the cities of Mechelen and Ostend – also combined the EnergieID platform with the installation of home energy monitoring systems to provide individual coaching and personal advice to their residents.

Setting up pop-up consultancy centers

Within the Triple-A project, various pop-up consultancy center models were developed, tested and evaluated across Belgium, the Netherlands, France and the United Kingdom, in cooperation with other stakeholders.



Pop-up consultancy centers are temporary locations in a particular neighbourhood where homeowners can become acquainted with existing low-carbon technologies. The **pop-ups provide reliable and independent information** about low-carbon technologies, financial incentives (eg. energy loans and/or premiums) and other relevant services offered by the local authorities, as well as information on possible energy monitoring (HEMS). Pop-up staff can also support homeowners in their renovation process by coaching them. In the project we made a distinction between mobile short-term pop-ups and longer-term consultancy centers at a fixed location.

Pop-up **consultancy centers can play a role in various stages of the homeowner renovation journey**, with each stage requiring a specific approach. In general, keep in mind that raising awareness and providing access to information can often be done through non-staffed installations (eg. a brochure wall) and will be easier to develop and sustain. On the other hand, coaching homeowners and convincing them to take action (in later stages of the homeowner renovation journey) asks for a more personal contact and thus requires dedicated staff in your pop-up, leading to higher costs.

It is important to understand that **pop-up centers are not a stand-alone method**. We therefore suggest to combine them with the other Triple-A actions: use pop-ups to promote HEMS, use web portals to show information to visitors of the pop-ups and invite citizens to your pop-up for personal advice during open home events.

Recommendations

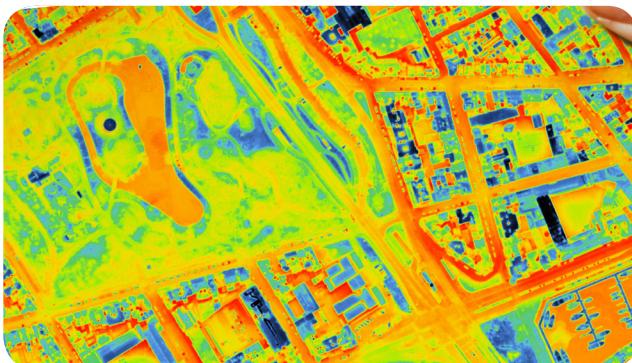
We tested very diverse pop-up consultancy centers in terms of concept, required budget for development and exploitation, staff and time investment and logistics. A detailed description of the different pop-ups – including information on needed resources, perceived effectiveness, opportunities and barriers – is available through the **“Get started”** section. Our recommendations as presented here are therefore rather general and apply to several pop-ups.

- Think about the right **concept that fits** your organisation(s) and that is most likely to appeal to your citizens.
- The required budget will strongly depend on the concept you have in mind, so take your time to clearly **define the aim of the pop-up**. A non-staffed pop-up brochure stand with banner in a public space can be perfect to raise awareness, while being easy to develop at a relatively low cost. On the other hand, a pop-up center aimed at convincing homeowners through personal advice will require experienced staff and will thus be much more resource intensive.
- Try to make your pop-up as **flexibly useable** as possible. It could then also be used by other services in your municipality or even by other local authorities and organisations, as well as for other actions. Furthermore, if the pop-up can be used as a regular workplace by colleagues during less busy moments (eg. equip it with a desk, internet connection, heating system...), this will optimize the time spent in the pop-up.
- Focus on **smaller scale**, do not try to change the entire city at once.



- If the aim of your pop-up is to reach homeowners in their neighbourhood, then make sure your **communication is tailored** to the specific characteristics of the area (cf. “Communication as key to encouraging energy efficient home renovations”), and addresses the expectations of local residents.

- If you don't have the answer (yet) to a visitor's question, then **be honest** about it. Make sure to pass on questions to the relevant service in your organization and thus guarantee a proper follow-up. Citizens tend to perceive the 'municipality' as one entity (even if cooperation with other departments and teams is not always easy).
- Sustainability is not a fixed story but continues to evolve, so **stay up to date** and adjust the pop-up consultancy and your message to the latest insights.
- Do not start by sending your message; first **listen and connect**.
- Create **added value** for the pop-up in different areas, so that residents will embrace the concept and will want to contribute or be an ambassador in the neighbourhood.
- Make sure that the concept also appeals to your own co-workers. You need **enthusiastic** people on board and **colleagues** who are prepared to go 'the extra mile'!
- A mobile pop-up needs to be movable, so **pay attention to the logistics**. The size and weight can be a constant challenge. If you are able to move the pop-up yourself (or by your own services), this will certainly increase the opportunities to use it at different locations.
- Carefully select the locations that are best to place your pop-up. **Central locations** very close to a shopping center, supermarket or other frequently visited places such as a vicinity center work best. Linking with neighbourhood events is a good way to increase the number of possible visitors and attract different profiles.



A MOBILE POP-UP NEEDS TO BE MOVABLE, SO PAY ATTENTION TO THE LOGISTICS.



GET STARTED!



SCAN OR CLICK ON
THE QR CODE
FOR FULL
DESCRIPTION OF
ALL POP-UP CENTERS

GOOD PRACTICE - EOS OOSTENDE

EOS Energiehuis Oostende organised a so-called mixed pop-up in their office. Via an online reservation tool citizens could easily make an appointment to come and discover how well the roof of their house was insulated.

During a personal consultancy session, an experienced staff member showed the homeowners' roof on the thermographical map of the city of Ostend.

In case of poor roof insulation, people received advice on how to improve the insulation of their roof. They could as well subscribe to the group purchase for insulation, organised by EOS Oostende, or request an energy loan to finance insulation works for their roof.

The pop-up desk was open for 1 month and attracted over 100 visitors, as people were very interested to see the thermal picture of their house.

While homeowners visited the pop-up consultancy center, EOS Oostende also seized the opportunity to present them their additional services with regards to energy efficiency and low-carbon measures.

Real-life demo exemplars for energy efficient retrofitting

As a supporting action to increase awareness and adoption of low-carbon technologies by homeowners, we developed demonstration exemplars of a variety of these technologies. Through these real-life demo exemplars, the adoption of low-carbon technologies became normalised and created ambassadors for the technologies who can influence other homeowners. The implemented demonstration exemplars ranged in their approaches but were grouped into four different types.

Four models were explored using a structured multi-perspective approach. For each model, identify target areas based on customer segmentation and develop engagement and financing strategies based on focus audiences.

WE DISTINGUISH FOUR GROUPS OF DEMO TYPE MODELS:

1. **Demonstration of innovative technologies:** for example the use of battery storage systems combined with solar panels to increase their effectiveness.
2. **Whole house or nearly zero carbon retrofit:** a range of measures to make the house as energy-efficient as possible.
3. **Longer-term phased retrofit:** including more resident-led models to drive renovation and more engagement before installation of subsequent measures.
4. **Large scale or community-wide mass retrofit:** including group buying schemes or whole neighbourhood approaches.

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Recommendations

- **Open home events** are difficult to put together but very satisfying when they work well.
- **Adapt the timing of your actions** to the needs and possibilities of your target audience. If your target audience is a working homeowner, face-to-face events and sessions should be held in evenings and weekends.
- **Make sure not to focus only on technical advice**, but include other aspects of the installations as well. Include financing options in your communications to increase awareness.
- **Diversify your channels** if you have multiple target audiences. Communication channels that work for one audience will not necessarily be as effective for others. Some people will be better engaged through peer-to-peer communication (ambassadors), others through events.
- Avoid having too many channels of communication, **concentrate** on managing and resourcing a few channels effectively.
- Press and social media should be used cautiously. It is not the most targeted way of reaching specific audiences unless using specialised press and channels. It is advisable to **include the benefits and a call to action** – to capture the attention of busy homeowners.



ENGAGING RESIDENTS THROUGH CHAMPIONS AND OTHER INVESTED RESIDENTS IS EFFECTIVE.



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DEMONSTRATION OF INNOVATIVE TECHNOLOGIES (SUCH AS BATTERY STORAGE)

- Innovative technologies may be less familiar to homeowners. Make sure all technologies are explained well in common terms from the beginning to try and raise familiarity.

WHOLE HOUSE OR NEARLY ZERO CARBON RETROFIT

- When encouraging whole house retrofit, be aware that this is an ambitious form of retrofit, so ensure the staff have sufficient technical knowledge to provide advice.
- Residents don't always understand the necessity for zero carbon retrofit. Try to address their desires and expectations when explaining the advantages ("What's in it for them?").
- Whole house or nearly zero carbon retrofit has a huge financial, technical and temporal impact, that homeowners are not always ready to accept. In that case, a longer-term phased retrofit might be a better option.

LONGER-TERM PHASED RETROFIT

- Homeowners often prefer to start with one or two actions at a time (eg. for financial reasons or because they first want to evaluate works before starting additional works). A phased retrofit allows them the time between measures.
- However, as a disadvantage of this approach, consultants need to assess how measures can be done while stimulating future actions (and avoiding later problems). They should provide a concise long-term plan.



LARGE SCALE OR COMMUNITY-WIDE MASS RETROFIT

- Community retrofit can get a lot of installations in one go.
- Unclear legislation may have an impact on the uptake by residents. If this prevents you from giving clear advice, then be honest about it.

GOOD PRACTICE - MECHELEN

The city of Mechelen used a neighbourhood approach to realise a longer term phased retrofit. Instead of a top-down approach by the local authority, this collective action was initiated by a motivated citizen, who took the role of ambassador.

In Esdoornplein, a street with 50 homes, a total of 21 households participated, replacing their windows, installing cavity wall insulation and/or external wall insulation.

A so-called NZEB-coach (Nearly Zero Energy Building) guided the homeowners through their renovation journey. The city of Mechelen facilitated this process, offering free home visits with renovation advice, co-organizing neighbourhood gatherings and offering financial support through a neighbourhood subsidy and energy loans.

Other partners included Kamp C (autonomous sustainability centre founded by the Province of Antwerp; organising home-visits) and Fluvius (DSO; offering grants for this system of NZEB-coaches).

The neighbourhood is very positive about the collective approach and wants to go even further. Together with a local energy cooperative, several neighbours now want to install additional roof insulation and solar PV.

GET STARTED!



Communication as key to encouraging energy efficient home renovations

Start with a plan!

Every social marketing initiative starts with strategic planning to determine the communication plan. Define the objectives through segmentation (dividing the audience), targeting (addressing specific groups separately) and positioning (using key messages) to approach relevant stakeholders efficiently.



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Segmentation

Communication can be truly successful if it reaches the audience it is aimed for. When aiming for an increased uptake of low-carbon measures, **all homeowners should be able to join the renovation process** no matter what their background or previous knowledge is. Through segmentation of the audience and targeting of your communication, your message will reach homeowners most effectively.

Start by defining the segmentation variables and identifying the different target groups. This will enable you to send distinct key messages, clearly communicating unique benefits and selling points.

Important variables are socio-demographic and geographic characteristics, as well as characteristics related to the home and technologies/products. An inspiring model for segmentation specific to sustainability actions is the Motivaction "Five shades of greener" model. A whitepaper explaining this model (in Dutch) is available via the **"Get started"** section.

IN THE CONTEXT OF ENERGY EFFICIENT HOME RENOVATIONS, FOLLOWING CITIZEN SEGMENTS¹⁾ WERE DEFINED IN TRIPLE-A:

- **Young families:** Potentially high energy users who may be receptive to piloting technologies that could save them energy and money.
- **Empty nesters:** With children who have recently left home, these homeowners may want to renovate their existing home and may have some savings to make the property more comfortable. Alternatively, these homeowners might want to move to a new home and make energy upgrades during this process
- **Existing adopters:** These homeowners have already adopted one (or more) low-carbon technology/-ies and may be willing to trial other technologies.
- **Major life changes:** These homeowners are experiencing change, for example moving home due to a new job or looking to sell their property due to a change in circumstance.
- **Highly educated, financially successful:** These homeowners may have some disposable income in order to invest and may be more willing to take a risk. They may also be more environmentally conscious
- **Receptive to renovations in their neighbourhood:** Word of mouth and visually seeing what renovations a neighbour has made, can make homeowners more willing to undergo the same renovations.
- **Fuel Poor:** These homeowners struggle to pay their energy bills and may be vulnerable to the effects of living in a cold home as a result.



When taking into account the above-mentioned recommendations and requirements for social marketing, it becomes clear that **efficient communication is the foundation of every behavioural change campaign**. Even though communication remains a central aspect of the whole process from realization to actual behavioural change, it is especially crucial in the first stages of the homeowner renovation journey.

¹⁾ These segments are not mutually exclusive, and homeowners can fall into multiple categories and so benefit from multiple messages. A full description of these segments and possible key messages can be found in the "Get started" section.

Hence, the main focus of the communication strategy should be raising awareness for low-carbon renovation techniques and changing the attitude of homeowners in order to encourage more sustainable home renovations.

Do you want to learn more about how to address the different segment types and how to develop your own specific social marketing communication strategy? Check out the **"Get started"** section on the Triple-A website.

Tips & tricks for successful communication

Based on social marketing literature and findings from previous behavioural change interventions, we assembled an overview of the most relevant characteristics of effective communication.

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KEEP IT SHORT AND SIMPLE

Make sure your message is easy to understand and remember, as simplicity is the prerequisite of recognition. However, both the content and format of your message should not rely on too much repetition. There is a fine line between familiarity and boredom.

BE SPECIFIC

Exact communication of the desired behaviour is needed to invoke the actual intended behaviour and reduce any intention-behaviour gaps.

DO NOT OVERWHELM WITH INFORMATION

Messages should be kept brief but relevant, without leaving out important information that consumers need to make knowledgeable decisions. Also avoid new information which can potentially lead to consumer confusion.

ATTRACT ATTENTION

Features of novelty and personal affect are generally good to attract consumer attention. High involvement products like renovations require sufficient verbal information, but verbal elements can be reinforced by pictures and metaphors, to allow recognition of new information within familiar structures via storytelling.

MAKE MESSAGES CREDIBLE (THROUGH EXPERTS)

The authority of experts or renowned institutions, like a link to government support programs or official labels, can serve as a recognizable anchor in communication to create trust and credibility.

RESPOND TO PERSONAL EMOTIONS

Promotional messages should generally highlight consumer advantages, with the different types of benefits addressed in a distinct way, e.g. long-term benefits are more attractive as concrete and personal concepts and energy-saving behaviour can be framed as more socially desirable.

Green energy and low-carbon technologies should be presented as default options, converting sustainable home renovations into normalized and socially desirable behaviour. Yet, for behavioural change interventions, messages can also be aimed at preventing current consumption practices, also making use of emotional appeals of guilt.

BRING KNOWLEDGE

A prerequisite for the adoption of low-carbon technologies by homeowners is to raise their awareness about the possibility of low-carbon renovation technologies through information. Building awareness about an issue is the first step of the homeowners' decision making process, and awareness is created through providing knowledge.

OFFER CONSULTANCY

Once homeowners are aware of low-carbon renovation technology, they want to explore their options for successfully saving energy in their homes. Providing services for homeowners to receive and compare customized offers increases the chance of adopting low-carbon solutions.

CHANGE HOMEOWNERS ATTITUDES

To persuade homeowners into considering the actual implementation of low-carbon technologies, the positive effects that such renovations can have should be highlighted for the homeowners. By showing local success stories through homeowner ambassadors or demonstrating the objective financial and environmental gains in a tailored cost-calculation plan, homeowners' perception of low-carbon technologies can change, alongside their attitude towards adopting low-carbon solutions.

**SCAN OR CLICK
THE QR CODE TO
LEARN MORE ABOUT
COMMUNICATION
PLANS AND
SEGMENTATION**

GET STARTED!



SOME ESSENTIAL COMMUNICATION TIPS AND TRICKS FOR ENCOURAGING ENERGY EFFICIENT HOME RENOVATIONS:

- Set clear aims & specific goals in communication
- Personalize information
- Make information readily accessible
- Devise a strong message

Collaboration with other actors

If you want to engage homeowners as a local authority, collaboration with other actors may increase your chances of successfully realizing your ambitions. Although individual interests may differ, a collaboration between different – public as well as private – actors may be fruitful to all of them. As a smaller local authority you could also cooperate with neighbouring municipalities or regional authorities to obtain advantages of scale. There are several options for cooperation, starting from a traditional commercial relationship (public procurement) up to various types of co-creation or a bottom-up approach where local authorities join forces with citizens.

Traditional commercial relation (customer-supplier)

Local authorities searching for partners to support their ambitions, often tend to choose for a traditional commercial relationship between the local authority and one or more – private – suppliers, through **public procurement**. Finding the right partner(s) will require some market research and public tendering needs to comply with **official procedures and tendering rules**. However, if public procurement is done right and a contract between both parties has been signed, this type of collaboration has the advantage of being very clear in terms of responsibilities, deliverables and timing.

Depending on your resources (available budget, in-house expertise, staff availability) or driven by shared ambitions with others (neighbouring municipalities, external partners, other departments in your organization), you might look at other ways of cooperation as well. Co-creation could then be a valuable alternative. Different types of co-creation exist, eg. depending on the level of engagement or the number of actors involved in the process. The concept of co-creation is explained hereafter.

Co-creation

Definition of co-creation

Co-creation is a useful and practical strategy for local authorities to help speed up the market uptake for retrofitting private homes in a cost effective way. That means with the most effective approach to reach the highest rate of conversion at the lowest societal costs.

Co-creation means that **different parties jointly produce a mutually valued concept, solution, product or service**. There are different types of co-creation that distinguish between the level of control the partners – such as businesses, experts, public authorities, customers – have in the process.



The basis for successful co-creation is a **shared understanding among the partners of the customer's perspective**, as the customer is where it all starts (and ends). Joint actions are most likely to have a positive impact when they fit the customer's needs. 'Partners' usually refers to other organizations than your own, but they can also include internal partners from your own organization.

Co-creation requires partners that **trust and respect** each other on their missions, visions, strategies, tactics, actions, and results, and are willing to learn from and support each other. They have to develop a value proposition and a business case that are acceptable for all partners.

Co-creation step-by-step

1. IDENTIFY THE ACTION YOU WANT TO SET-UP AND POSSIBLE CO-CREATION PARTNERS IN RELATION TO THE HOMEOWNER RENOVATION JOURNEY

- Map out the supply chain connected to the main processes of the homeowner renovation journey: raising Awareness, creating easy Access en stimulate Adoption. Check which parties (profit, not-for-profit, authorities) in the supply chain are active in this field and what they offer.
- Assess these parties on their mission, vision, strategy, SWOT's etc. The goal of this step is to find out what their interest is in possibly participating in co-creation of your project.

2. REALITY CHECK ON THE NECESSITY OF YOUR ACTION

- Consult supply chain parties on the impact they see for your actions as an important condition to speed up the market uptake and their advice on how to do this.
- Do a reality check with end users whether the proposed action is of decisive impact in their homeowner renovation journey/buying process. Is the target group big enough to justify the investment?
- Conclude whether or not there is a need for the action you want to set up.

3. SELECTION OF CO-CREATION PARTNERS

- Investigate which parties most benefit from the action you want to set up. Those are the most natural parties to play a role in the development of it.
- Define the level of control you, as a local/regional authority, want to keep for yourself and what you are willing to give away. Are there any issues to be solved regarding the collaboration with other (private) parties? Can these issues be solved and if yes, how? If no, does this mean that certain parties are excluded from participating? Is it still possible to realise your project without these parties?
- Investigate the willingness by the (remaining) parties to contribute to the development of your action.
 - If yes, investigate if there are additional advantages to develop the action in co-creation.
 - If no, investigate why they are not prepared to support your development and ask their suggestions on how else they would do this.
- Conclude from the two previous steps whether or not there is a willingness among potential co-creation partners to start a joint development. If yes, start co-creation.

4. START CO-CREATION

- Organise a kick-off meeting. Partners meet each other, share relevant information and confirm their wishes and terms to collaborate or co-create (or they have the option to withdraw).
- In the follow-up meeting, partners jointly define and commit to the co-creation project and their contribution to the process. Important ingredients are: project plan for the functionalities and the requirements for the value proposition, the solutions to be realised in the market, the outlook of the business case, score on continuity over time and the way the project will be improved over time (continuous improvement), including exit strategy for partners and agreements on (intellectual) ownership, etc.

5. EXECUTION PHASE AND IMPLEMENTING

- Partners do their work in co-creation as agreed. Different tools can be used for co-creation: Empathy Map, Business Model Canvas, project management tools, etc. You can find (and download) some of these tools in the **"Get started"** section.
- The co-creation process includes intermediate tests of the solutions with the target group (to adjust the approach if necessary).
- When ready: partners launch and implement the developed action.



GOOD PRACTICE - BREDA

The municipality of Breda developed a one-stop-shop web portal – WoonWijs Breda – to support citizens in making their homes more sustainable. This was done in co-creation with the local citizen cooperative "Bres", founded by the citizens of Breda, and HOOM, a national cooperative that supports local and regional cooperatives and energy saving initiatives.

Through the WoonWijs Breda portal the municipality provides independent and reliable information on energy saving measures, available subsidies, local suppliers and initiatives such as group buying etc. Citizens can also request personal advice by a Bres energy coach or use one of the online tools to perform a quick scan of their energy saving potential.

Thanks to the cooperation between local authority and citizens from the start, the WoonWijs Breda web portal could be tailored to the needs and expectations of the target audience and all other parties involved. All partners really joined forces in this inspiring co-creation process, to define not only the structure and content of the web portal but also the look and feel of it.

This high level of commitment created an enthusiasm amongst all co-creation partners, so that everyone was willing to go the extra mile to achieve the common goal. The result is a web portal that all partners can be proud of! Visit the WoonWijs Breda portal at <https://woonwijsbreda.nl>.

6. EVALUATION AND IMPROVEMENTS

- Partners follow through time if the value proposition/project meets the expectations.
- Collect data about the action and maintain/update the action using the method of continuous improvement: Plan, Do, Check, Act (Deming Circle, a tool derived from quality management, you can find this in the **"Get started"** section).
- Partners keep scanning the market on new developments in demand and supply (newcomers in the market, new techniques, ways of supply and delivering, phase of the market uptake, etc.) and use that as a tool for their own investment decisions in the continuity of the project.
- Ongoing process: all partners use their own way of analysing their business, e.g. the Balanced Score Card (see **"Get started"**) that reviews a business from four interconnected perspectives to strengthen (learn and develop) the vision, strategy and actions, also on (strategic) partnerships.
- Partners also decide on how they share their business results, how they like to continue their collaboration or co-creation and also if they like new partners to join in. They also reassess their respective roles and responsibilities in the process, also regarding financial dependencies and sustainability of the exploitation.

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Cooperation with civil actors

Reaching out to individual homeowners as a local authority can be difficult and resource intensive. Working with **ambassadors at district level** could be a good solution to effectively reach citizens and upscale your actions. These ambassadors can be found in citizen cooperatives, (social) housing corporations, etc. **serving as an intermediary between the local authority and individual citizens**. This approach can have clear advantages for all actors: the municipality has one single point of contact to reach multiple homeowners, whereas citizens can profit from the advantage of scale and get unburdened by the intermediary when implementing measures.

Unlike public procurement and co-creation with private actors, this cooperative approach really is a **bottom-up concept**, giving a certain level of control and responsibility to citizens. It makes people more confident, possibly leading to more sustainable results in the long run. The intermediary can offer guidance through neighbourhood coaches, facilitating the implementation of measures by the homeowners. This guidance can be organised in the form of information sessions for the neighbourhood, one-on-one coaching, group purchasing, etc.



**SCAN THE QR CODE FOR MORE
INSPIRATION FROM CONCRETE
CASES AND PRACTICAL
DOCUMENTS TO GET STARTED!**

GET STARTED!



GOOD PRACTICE - ROTTERDAM

A successful example of cooperation with intermediaries from the Triple-A project is the collaboration between the municipality of Rotterdam and Buurkracht, an independent social nonprofit organisation.

The municipality of Rotterdam wanted to convince homeowners in two neighbourhoods – Prins-Alexander and IJsselmonde – to implement low-carbon measures. Buurkracht engaged local residents in both neighbourhoods to team up with their neighbours into a so called "neighbourhood team".

In the Prins-Alexander area, two teams have set up actions for collective installation of insulation, developed an implementation plan, brought together other residents and coordinated the execution of the action. This led to nearly 100 price offers requested from local contractors and 15 households effectively installing insulation so far. In IJsselmonde, potential neighbourhood teams were brought together.

The action was not only successful in terms of measurable results, but also increased the cohesion in the neighbourhood. In the near future, the teams will develop more actions, such as collective installation of solar PV. A full description of the cooperation between the city of Rotterdam and Buurkracht (in Dutch) can be found in the **"Get started"** section, by scanning the QR code.

Evaluating quality and performance of your actions

When setting-up actions to engage homeowners, you may want to make sure that your resources are well spent and actions are as effective as possible. It's therefore crucial to evaluate the actions in order to ensure their quality and performance.

Measuring the precise impact and effect of actions can be rather complex, but we are happy to share some of the experiences and key insights from the Triple-A project with you.

Think evaluation from the start

If you want to measure the impact of your actions, it's crucial to define this evaluation when developing the actions. Answering some questions might help you to make the evaluation as adequate as possible:

- What is the aim of your action?
- When will you consider the action successful (what are the KPIs)?
- What data do you need to evaluate your action?
- What will you do with the collected data?

Define evaluation milestones

If evaluation of your actions is crucial to your project, make sure to include the necessary evaluation moments in your implementation plan. Decide when you want to evaluate what and how you will organise this evaluation.

Be realistic

Even if you have ambitious plans to reach out to your citizens, be realistic about what you can achieve/measure. Actions aimed at raising awareness will ideally reach as many people as possible, but will probably not convince a huge amount of people to effectively implement measures. At the same time, for actions that want to convince people to adopt measures, the quality of contacts will be more important than the absolute number of people reached.



USING DATA

When using data to evaluate the success of your actions, there are some crucial aspects to keep in mind.

Measuring the benefits of low-carbon technologies requires a method to calculate carbon emissions savings, to ensure that the collected data are consistent. It is highly recommended to use data protocols that are used at regional/national level. This will ensure maximal uniformity and enable comparison with other local authorities.

Is data freely accessible, or do you need a third party giving access to it (and at what cost)? In the latter case, this might complicate the process of obtaining data during execution of your project.

What about data accuracy? How accurate is the data that you will use to evaluate your actions, and is the accuracy expected to evolve over your project's lifetime? Carbon emission factors regularly change due to decarbonization of energy sources, so this might have an impact on the perceived performance of your actions as well.

Our overall advice is to spend enough time at the start of your project to define the data you will use for evaluation. Don't make things too complicated!

More information

About Triple-A

Triple-A is a EU-funded project (Interreg 2 Seas programme) that aims to achieve a market uptake and acceleration in the adoption of low-carbon technologies by homeowners in single-family housing, in order to contribute to the EU climate goals of 2030-2050.

The approach basically consists of nudging homeowners to move to the next stage in the homeowner renovation journey using different communication channels and actions. The project aims to help local authorities who are seeking to support homeowners to reduce emissions in their homes. As such Triple-A contributes to achieving the EU 2020 targets (20% cut in greenhouse gas emissions, 20% of EU energy from renewables, 20% improvement in energy efficiency). Triple-A started in 2017 and will end in 2021. For more information, check www.triple-a-interreg.eu.

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The project – coordinated by TU Delft – benefits from a close collaboration between 7 local and regional authorities (Cities of Rotterdam, Breda, Mechelen, Antwerp and EOS Ostend, Kent County Council, SPEE Picardie), 2 universities (TU Delft, University of Ghent) and a distribution grid operator (Fluvius). The project directly engages local and regional authorities, homeowners of single-family houses, SMEs (suppliers and installers), energy service companies, financial institutions, building federations, network clusters and knowledge institutes.

Funding

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ANNEX 75

Triple-A works in close collaboration with *IEA EBC Annex 75 - Cost-effective Building Renovation at District Level Combining Energy Efficiency & Renewables*.

The transformation of existing buildings into low-emission and low-energy buildings is particularly challenging in cities, where many buildings continue to rely too much on heat supply by fossil fuels. However, at the same time, there are specific opportunities to develop and take advantage of district-level solutions at urban scale. In this context, the project aims to clarify the cost-effectiveness of various approaches combining both energy efficiency measures and renewable energy measures at the district level.

The project aims to investigate cost-effective strategies for reducing greenhouse gas emissions and energy use in buildings in cities at district level, combining both energy efficiency measures and renewable energy measures. The objective is to provide guidance to policy makers, companies working in the field of the energy transition, as well as building owners for transforming cost-effectively the city's energy use in the existing building stock towards low emission and low energy solutions.

Accurate understandable information, guidelines, tools and recommendations will be provided to support decision-makers from public and private sectors in making better decisions and choose the best options that apply to their specific needs.

Annex 75 is part of the IEA-EBC Programme, an international energy research and innovation programme in the buildings and communities field. The Dutch contribution is supported by EIT Climate-KIC and RVO. For more information: <https://annex75.iea-ebc.org/>.



BELGIUM

Antwerpen

Stadsontwikkeling | EcoHuis Antwerpen
 Lina Nurali | Consultant Triple-A
 T +32 (0)3 217 08 34 | M +32 (0)470 83 31 88
 lina.nurali@stad.antwerpen.be | www.antwerpen.be



Mechelen

Dienst Duurzame Ontwikkeling en Energie
 T +32 (0)15 29 79 22
 klimaatneutraal@mechelen.be | www.mechelen.be | www.mechelenklimaatneutraal.be



Oostende

Autonoom Gemeentebedrijf Energiehuis Oostende (EOS)
 T +32 (0)59 33 91 30
 eos@oostende.be | www.eos-oostende.be



Fluvius

Theo Verstappen | Energieadviseur
 T +32 (0)9 263 53 65
 theo.verstappen@fluvius.be | www.fluvius.be



Ghent University

Building Physics | Center for Persuasive Communication | Power-Link
 Dirk Hoet | Project Manager Communication (Power-Link)
 T +32 (0)491 62 76 38 | dirk.hoet@ugent.be
 www.ugent.be | www.cepec.ugent.be | www.power-link.ugent.be



FRANCE

Hauts-de-France

Régie Régionale du Service Public de l'Efficacité Énergétique
 Kemal M'Foungoulie | Chargé d'Études de la rénovation énergétique
 T +33 (0)3 65 88 95 63 | M +33 (0)6 45 76 19 61
 kemal.mfoungoulie@hautsdefrance-spee.fr | www.pass-renovation.hautsdefrance.fr

THE NETHERLANDS

Rotterdam

Stadsontwikkeling | Afdeling Duurzaamheid
 Oubbol Oung | Project manager
 T +31 (0)6 2204 2112
 o.oung@Rotterdam.nl | www.duurzaam010.nl

Breda

Afdeling Mobiliteit & Milieu
 Coen Vos | Adviseur
 T +31 (0)76 529 4753 | M +31 (0)6 2005 9352
 cjm.vos@breda.nl | www.breda.nl

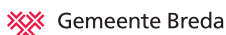
TU Delft - lead partner

Faculty of Architecture and the Built Environment
 Erwin Mlecnik | Assistant Professor
 T +31 31 (0)15 27 89 869
 E.Mlecnik@tudelft.nl | www.tudelft.nl

THE UNITED KINGDOM

Kent County Council

Sustainable Business and Communities | Kent County Council
 T +44 (0)3000 413458
 tripleakent@kent.gov.uk | www.kent.gov.uk/warmhomes



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