



Changing times in the Dutch renovation sector

Installation companies and SME contractors under pressure



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Energy Efficient Building Renovation (EEBR) of the Dutch housing stock is a large potential market for companies active in the renovation sector. In the 'Energieakkoord', a covenant signed by the Dutch national government and a large representation of Dutch organizations, the goal is set at renovating all houses in the Netherlands to an average of Label A in 2030 and to energy neutral in 2050. Currently, of the seven million houses in the Netherlands, more than half has an Energy label D or lower. Installation companies and SME contractors traditionally have a prominent position in the renovation sector, which puts them in a potentially favorable position to benefit from this development.

Renovating houses is not easy and many barriers have to be overcome to achieve EEBR on a large scale. Much research has already been performed on what kind of barriers need to be overcome to achieve this. Earlier research agrees that an integral approach is needed: a.o. propositions from companies need to fit the requirements of the client groups well, communication with private homeowners and renters is key and financial incentives need to be in place. The question of what needs to be taken into account when trying to stimulate EEBR is largely clear. However, the question how this can be achieved and who can/will benefit from large scale renovation of the Dutch housing stock has not been investigated in detail yet.

Driven by the large potential market, or by intrinsic motivation for stimulating energy-efficiency, diverse sets of organizations are developing EEBR propositions for client groups. These EEBR propositions do not only come from companies that have historically been active in the renovation market; also new companies are entering the market with new business models. EEBR of the Dutch housing stock does not only provide opportunities for installation companies and SME contractors, but also poses threats.

The main goal of this research project is to gain insight into the opportunities and threats that development in the Dutch renovation market poses for installation companies and SME contractors. For this purpose, an analysis of the innovation system around EEBR in the Netherlands is carried out. Main trends in the renovation sector are introduced, how these trends change the traditional value chain is explored and what this means for the position of installation companies and SME contractors is discussed. This leads to an overview of opportunities and threats for installation companies and SME contractors. Based on these results, the report provides ideas for how installation companies and SME contractors can deal with the opportunities and threats and increase the chance to benefit from EEBR activities in the Netherlands. The rest of this report will use the general term 'installers' to indicate both installation companies and SME contractors.

Research aims and objectives

- Identify main barriers for Energy-Efficient Building Renovation (EEBR).
- Map existing activities and related policies that try to stimulate EEBR in the Netherlands by elevating these barriers.
- Provide an analysis of the opportunities and threats of EEBR from the viewpoint of installation companies and SME contractors (bundled under the general term 'installers').
- Offer input for possible interference in the policy process and for strengthening the business case for installers in the near and mid-term future.

The first aim of this research project is to gain insight into the main barriers for EEBR in the Netherlands today. This provides an overview of what organizations have to overcome with the EEBR propositions they develop. In the Netherlands, different ideas exist about how these barriers for EEBR can be overcome.

renovation market in the near and mid-term future. Ideas will be provided for how installers can deal with the opportunities and threats these trends provide, thereby strengthening their business case. Also, input will be provided for how the policy process can be influenced in such a way that installers benefit.

The second aim is to map existing activities and related policies that try to stimulate EEBR in the Netherlands so that trends in renovation approaches can be identified. Insight into related policies is important to give a judgment of the momentum of these trends. How these trends in EEBR approaches will develop in the coming decades, determines the opportunities and threats of stakeholders.

The third aim is to understand what kind of opportunities and threats these trends in renovation approaches provide from the viewpoint of installers. Each of the upcoming renovation approaches changes their position in value chain. In some of these trends, they may be able to gain a central position in the value chain, while in other trends, there may be a risk to be pushed out. Therefore, the heart of this research project concentrates on the question how trends in renovation approaches change the position of installers in the value chain.

The fourth and final aim is to provide ideas for how installers can improve their position in the

Technological Innovation System (TIS)

Why do we take an innovation system perspective?

- The success of EEBR (and the threats and opportunities for installers) will be related to the development and implementation of new (technological) innovations.
- Research has shown that the speed and direction of innovation is strongly determined by the complex interplay between actors and prevailing institutional infrastructure.

Why do we take a TIS approach?

- The TIS approach provides a framework for understanding the development and implementation of new (technological) innovations.

Research approach: We study the development of the TIS around Energy-Efficient Building Renovation (EEBR) in the Netherlands to find out what the threats and opportunities are for installers.

To achieve the research aims and objectives, an innovation systems approach was chosen. An important insight from the research field of innovation studies is that innovation is a collective activity and takes place within the context of a wider system. The success of innovations is to a large extent determined by the system surrounding it. The way this system around EEBR in the Netherlands will develop, determines to a large extent what role installers can create for themselves, and thus determines their future prospects. As they are part of the system, they can exert influence on further development of the system.

A Technological Innovation System (TIS) can be defined as the set of actors and rules that influence the speed and direction of technological change¹. To implement EEBR, a large variety of technologies and innovative building methods is needed, which can be combined in a large variety of ways. Thus, the success of EEBR depends on the collective development and implementation of a large variety of technologies and innovative

building methods. The TIS approach provides a theoretical framework to structure the analysis of the development and implementation of these technologies and innovative building methods.

This research will identify opportunities and threats for installers by analyzing the changing Technological Innovation System of EEBR in the Netherlands. How trends in renovation approaches change the value chain and the position of installers therein is a core focus of this research. The results will be structured according to theoretical concepts from this framework.

1 Bergek, A., Jacobsson, S., Carlsson, B., Lindmark, S., & Rickne, A. (2008). Analyzing the functional dynamics of technological innovation systems: A scheme of analysis. *Research policy*, 37(3), 407-429.

Hekkert, M. P., Suurs, R. A., Negro, S. O., Kuhlmann, S., & Smits, R. E. H. M. (2007). Functions of innovation systems: A new approach for analysing technological change. *Technological Forecasting and Social Change*, 74(4), 413-432.

Structure of a TIS (1)

The structure of a TIS consists of four elements: Actors, Interactions, Institutions and Infrastructure.

Actors	<ul style="list-style-type: none">• <u>Value chain</u>: installers, wholesale companies, product manufacturers, building companies, energy cooperatives, renovation shops.• <u>Client groups</u>: private homeowners, housing associations and private landlords.• <u>Other</u>: knowledge institutes, sector associations, financiers, governments, educational organizations, consultants etc.
Interactions	<ul style="list-style-type: none">• Actors interact in renovation projects, during activities organized by government bodies, in research projects, during congresses and symposia, etc.
Institutions	<ul style="list-style-type: none">• <u>Formal rules</u>: national building code, calculation methodologies for energy efficiency of a house (energy labels), tax rules etc.• <u>Informal rules</u>: culture, norms and values.
Infrastructure	<ul style="list-style-type: none">• <u>Financial infrastructure</u>: subsidies, mortgage possibilities, etc.• <u>Knowledge infrastructure</u>: toolkits, manuals etc.• <u>Physical infrastructure</u>: availability of building materials, roads for transportation.

The TIS framework distinguishes between four elements that together form the structure of the system: (1) Actors (all stakeholders in the system), (2) Interactions (ways in which the actor communicate and collaborate), (3) Institutions (formal and informal rules that influence actor activities), and (4) an Infrastructure that facilitates the system.

Actors: The TIS around EEER consists of a multitude of actor groups. The scale and complexity of the system makes it impossible to create a complete overview. Main actor groups are the companies that are part of the renovation value chains (installers, wholesale companies, product manufacturers, building companies, energy cooperatives, renovation shops), client groups (private homeowners, housing associations and private landlords), government bodies that provide support (national, regional and local governments) and other types of actors, e.g. knowledge institutes, sector associations, financiers, educational organizations, consultants etc.

Interactions: The above actor groups interact in different contexts. Companies work together or meet each other in the value chain. Government bodies provide support and organize activities to bring potential client groups and companies together. Knowledge institutes work together with companies to develop new technologies. Knowledge platforms and educational organizations bring companies together and

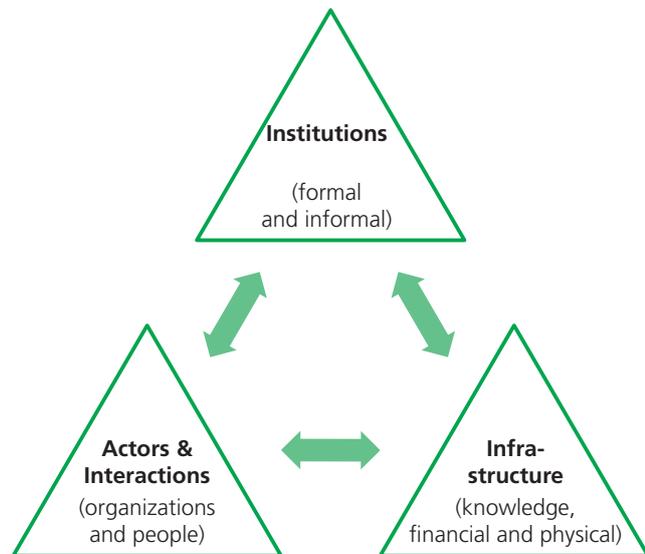
educate them on the newest developments. Also, a wide variety of actors meet during congresses, symposia etc.

Institutions: These actor groups and their interactions are constrained by institutions. There are formal rules in place, in the form of codified rules enforced by some authority, e.g. the national Building Code, calculation methodologies for indicating the energy efficiency of a house (energy labels). Also, there may be additional rules set by municipalities, tax rules etc. Additionally, informal rules determine what behavior is acceptable within the system. There may be a certain culture or norms and values that determine 'how things are done'. Together, formal and informal institutions have a large influence on what is and what is not done in the system.

Infrastructure: An Infrastructure needs to be in place in the form of (1) a financial infrastructure that provides actors with sufficient financial resources, e.g. the size of financial reserves of actor groups, availability of subsidies, mortgage possibilities etc., (2) a knowledge infrastructure that supports codification and diffusion of knowledge, e.g. toolkits, manuals, (3) an infrastructure that provides human resources in the form of a skilled labor force, e.g. educational facilities, and (4) physical infrastructure in the form of availability of building materials and roads that make transportation possible.

Structure of a TIS (2)

The four structural elements influence each other.



These structural elements do not stand alone, but influence each other. E.g. (1) actors, alone or together with others, lobby for changes in legislation in their favor (formal institutions) and (2) institutions (both formal and informal) influence what the infrastructure looks like. For example, the national government determines how much people can lend to buy a house and possibly an increased mortgage for EEBR measures. Such relationships between structural elements make the system dynamic and complex.

Data collection and analysis

Literature review: Information about main EEBR-activities in the Netherlands was gathered by analyzing government documents, research reports and internet pages.



Iterative process: Information from literature was validated during interviews.
Interview data was supplemented by literature.

Interviews: Sixteen interviews with a diverse set of stakeholders. Average length of 1.5 hours per interview. Transcribed into text.

Analysis

- Documents, transcribed interviews and internet pages were imported into NVIVO software for Computer Assisted Data Analysis (CAQDAS).
- Textual fragments were labelled and organized according to subject. E.g. trends in renovation approaches, opinions about these trends, consequences for the position of installers, statements about opportunities/threats etc.

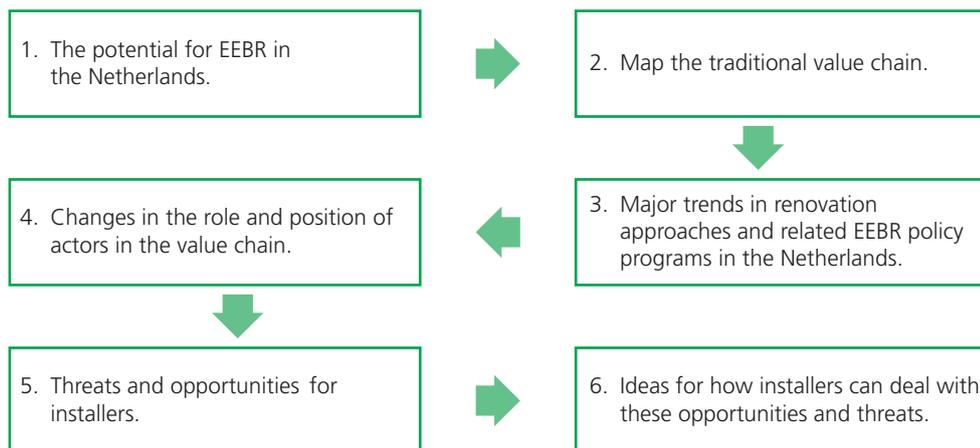
Data came from stakeholder interviews supplemented with data from the literature and internet sources. Sixteen interviews were held with a diverse set of stakeholders active in, or influencing the renovation sector. The interviewees included product manufacturers, wholesalers, sector associations, government officials, an educational institute for the installation sector, advisors, representatives of local energy cooperatives etc. The emphasis was put on the quality of the interviews instead of the quantity. Most interviews were held with the directors of organizations or with people directly responsible for the issues of interest. The average length of the interviews was ~1.5 hours. The interviews were semi-structured and provided rich data about the unfolding trends in the Dutch renovation sector and the position of installers therein. Prior to the interviews, an overview of main EEBR related activities and related policies was collected using government documents, research reports and internet sources. If initiatives were mentioned during the interviews, additional information about these initiatives was collected using literature and internet sources.

imported. Subsequently, relevant textual fragments from these sources were labelled. Next, these labelled textual fragments were organized according to their topic. In this way, information about trends, opinions about those trends from different stakeholders, consequences of those trends for the position of installers, and statements about opportunities/threats etcetera, were clustered. The last step consisted of structuring this data according to the four structural elements of the Technological Innovation System.

Computer Assisted Data Analysis (CAQDAS) was carried out using NVIVO software². All interviews were transcribed and imported in NVIVO. Relevant documents and internet pages were also

² NVivo qualitative data analysis software; QSR International Pty Ltd. Version 10, 2012

Presentation of results in six parts



The TIS-framework is used to structure the results:

- The results are structured according to the four structural elements: Actors, Interactions, Institutions and Infrastructure.

The results are presented in six parts:

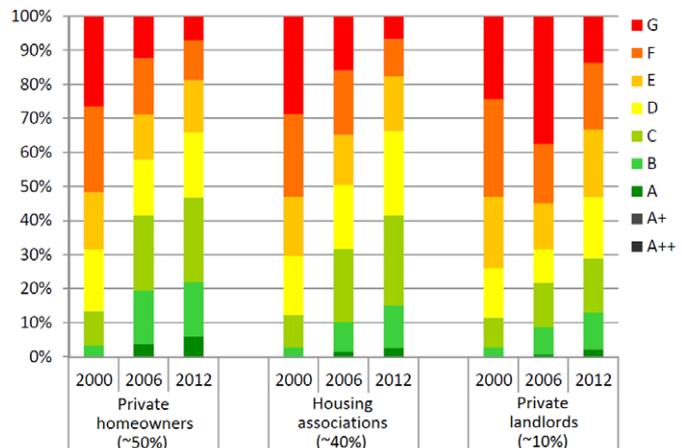
1. The potential for EEBR in the Netherlands: The total potential for EEBR activities is presented, together with a subdivision for different client groups. Also, main EEBR barriers for these client groups are discussed.
2. Map the traditional value chain: The position and role of installers in the traditional value chain is described.
3. Map major trends and related EEBR policy programs in the Netherlands: Four main trends in renovation approaches are introduced.
4. Changes in role and position of actors in the value chain: How the position and role of installers changes within each of the trends is explored.
5. Threats and opportunities for installers: These changes in the value chain provide threats to installers, but also opportunities. These are discussed for each of the trends.
6. Ideas for how installers can deal with these opportunities and threats: The results will conclude with proposals for ways to improve the business case for installers on the short to medium-term. Activities are proposed for the traditional value chain and for each of the trends to strengthen their position and role.

how these actors interact, (3) how institutions stimulate or constrain activities, and (4) the Infrastructure that is in place.

The descriptions of the traditional value chain and the four trends (steps 2 to 5) are structured according to the four structural elements of the TIS-framework: (1) the actors that are involved, (2)

Change of energy labels in the Netherlands for three client groups*

- Energy labels of houses have improved between 2000 and 2012.
- However, there are ~7 million houses in the Netherlands (CBS, 2014) and more than half of the houses still have an energy label D or lower.
- The potential for EEBR is still considerable.



* ECN/RIGO 2012: Energiebesparing: een samenspel van woning en bewoner – Analyse van de module Energie WoON 2012

The Dutch housing stock can be divided into three main client groups; Private homeowners, housing associations and private landlords.

However, renovating houses on a large scale is a daunting task, because of the many barriers in place.

1. Private homeowners: are individual people who own a house and also live there themselves. Around 50% of houses in the Netherlands fall within this category.
2. Housing associations: provide mostly subsidized social housing, but are also active in the private rental property market. About 40% of houses belong to this category.
3. Private landlords: Individual people, companies or investors who rent out their property on the private market (~10% of the Dutch housing market).

EEBR related activities by companies or governments usually focus on one of these client groups, e.g. a proposition of a company specifically targeted at housing associations or specific EEBR stimulation packages for private homeowners in a particular municipality. Sometimes, if initiatives are larger, multiple client groups are targeted within one initiative. However, even then, activities are usually specifically tailored to each of the client groups.

Energy Efficient Building Renovation (EEBR) is a large potential market. There are ~7 mln houses in the Netherlands. Even though energy labels for all three client groups have improved between 2000 and 2010 (see figure), more than half of the houses still have an energy label D or lower (see figure).

Main barriers for EEBR

Demand side:

- Most people are not interested in 'energy', but in 'comfort'.
- Private homeowners have a limited planning horizon.
- Lack of financial resources (all client groups).
- Advice that client groups receive is often incomplete or inconsistent and creates confusion.

Supply side:

- Lack of personal approach by building sector.
- Lack of knowledge of installers.
- Holistic advice for building needed, but difficult for specialized installers.

Creating an EEBR proposition that overcomes these barriers is a daunting task. Still, many organizations are working on developing such propositions.

Stimulating EEBR is not easy. There are many barriers that keep client groups from investing in EEBR. Many studies have been devoted to identify such barriers³ (see slide for examples). This research does not strive to expand or validate these barriers, although many were mentioned during the interviews. Instead, for this research, it is enough to understand that there are many of such barriers in place and that it is difficult to overcome them. Even though this is a daunting task, many organizations are developing EEBR propositions. They do this because they are intrinsically motivated to increase energy-efficiency in the build environment (e.g. energy cooperatives) or because the potential market is large (companies).

3 Caarols, Sam-Sin and Veltman (2011) Key Findings – Kwalitatief vooronderzoek Acceptatie Energiebesparingsprojecten, The Choice marktonderzoek en advies for NL Agency

NL Agency (2011) Succesfactoren voor energiezuinige renovatie- en nieuwbouwprojecten - onderzoeksverslag

Blok voor Blok – Concrete taal wint huiseigenaar voor energiebesparende maatregelen, Gideon Wille for NL Agency

Meer met Minder (2010) Kansrijke aanpakken in gebouwbegonden energiebesparing – De particuliere eigenaar, Research by Motivation and Energie&Klimaat Sittard/Utrecht for Meer met Minder in cooperation with Motivation

The question is how and who and not what

- This research will not further explore what the EEBR barriers are, but focusses on how actor groups are trying to overcome them and who can/will benefit from these developments.
- Diverse actor coalitions are developing propositions for EEBR and each of them takes the barriers into account. These actor coalitions differ in their viewpoint on how the barriers can best be overcome. We call these viewpoints 'trends'.
- Each of these trends and the associated actor coalitions are reorganizing the value chain in different ways.
- *Threats and opportunities for installers are not directly related to the barriers for EEBR, but to how the reorganization of the value chain by these upcoming trends will unfold.*

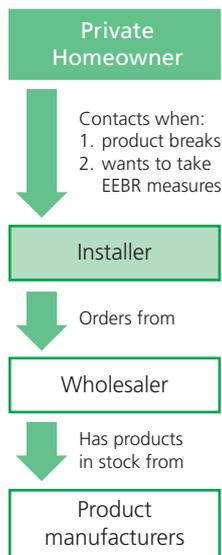
This research will not further explore what kind of barriers still stand in the way of EEBR, but focusses on how actor groups are trying to overcome them and on who can benefit from this. Diverse coalitions of stakeholders are developing propositions for EEBR. All of these coalitions take the barriers into account, but they take considerably different approaches. These approaches differ based on how important the coalitions perceive the barriers to be relative to each other. For example, proponents of local small scale custom approaches argue that people can only be persuaded with a direct personal approach (energy cooperatives). Instead, proponents of pre-fabrication building methods argue that such a custom approach is too expensive, and that the cost is currently keeping people from investing. According to them, the price can only be lowered when the building process is industrialized using pre-fabrication technologies (renovation concepts). There are multiple of these viewpoints that strive for the same goal (EEBR) but have a different view on how this goal can be achieved. This research clusters these different approaches and calls them 'trends'.

Each of these trends and the associated actor coalitions are reorganizing the value chain (and thus the structure of the Technological Innovation System) in different ways. Threats and opportunities for installers are not directly related to the barriers for EEBR, but to how the reorganization of the value chain by these

upcoming trends will unfold. Changes in the value chain will change the position and role of installers.

Before the trends are introduced and discussed in more detail, the next slides will first describe the two traditional value chains that target (1) private homeowners and (2) housing associations and private landlords.

Traditional value chain: Private homeowner



1. Private homeowner contacts installer.
2. Installer gives advice.
3. Installer contacts wholesaler.
4. Wholesaler has products in stock from diverse product manufacturers.
5. Installer implements EEBR measures.

Installers have a comfortable position because they have the first point of contact with private homeowner:

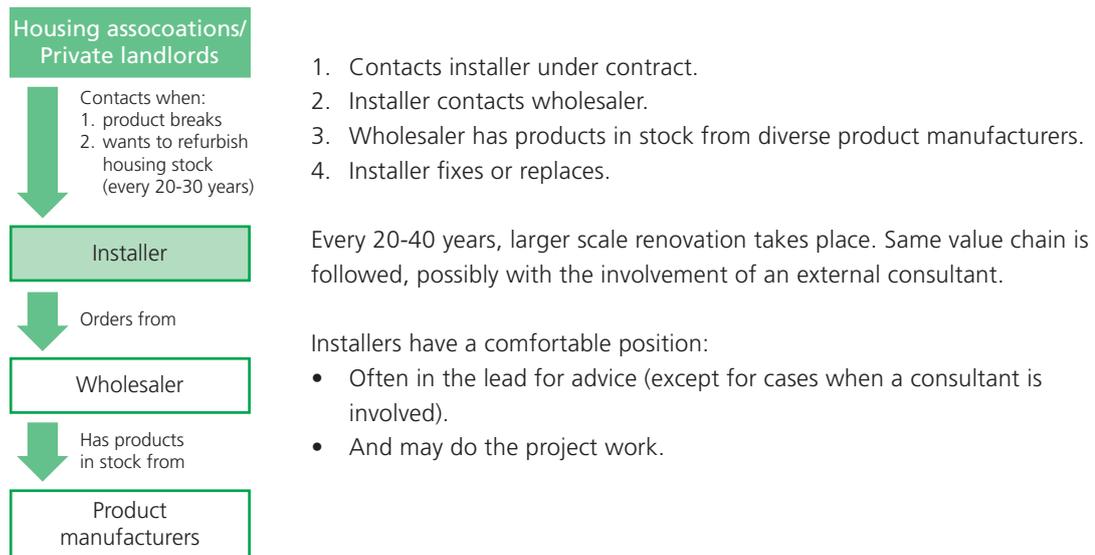
- They give advice on the type of EEBR measures to take.
- They also perform the project work.
- They can charge for both.

The value chain that targets private homeowners presented here has been in place for decades, which is why it is called the ‘traditional’ value chain. This value chain is usually organized in the following way:

1. Private homeowner contacts installer: Reasons for doing so are (1) when something breaks (e.g. the boiler) or (2) increasingly when the private homeowner is looking for advice on EEBR measures.
2. Installer gives advice: Custom advice is given on what measures to take. This can be limited to installing a new and more efficient boiler, but can also entail additional advice, e.g. installation of a heat pump and/or taking insulation measures.
3. Installer contacts wholesaler: The installer orders necessary products from a wholesaler. The installer arranges the delivery of the products and charges the private homeowner for this service (and thereby makes some profit).
4. Wholesaler has products in stock from diverse product manufacturers: Most installers buy all of their products from one wholesaler. The wholesaler thereby determines to a large extent what kind of products are advised and implemented by the installer.
5. Installer implements EEBR measures: Finally, the EEBR measures are implemented by the installer and they charge the private homeowner for the performed work.

Installers have a comfortable position in this value chain as they have the first point of contact with private homeowners. This puts them in the position to give advice and perform the project work. They can charge the private homeowner for both.

Traditional value chain: Housing associations and private landlords



Most housing associations and private landlords have long term contracts with installers for renovation work. The traditional value chain that targets housing associations is usually organized in the following way:

1. Contacts installer under contract: When something breaks or needs replacement, the installers under contract visits the house and often determines what needs to be done.
2. Installer contacts wholesaler: Necessary products are ordered from the wholesaler. The installer arranges the delivery of the products.
3. Wholesaler has products in stock from diverse product manufacturers: Most installers buy all of their products from one wholesaler. The wholesaler determines to a large extent what kind of products are used and implemented by the installer.
4. Installer fixes or replaces: Finally, the measures are implemented.

Every 20 to 30 years, housing associations and private landlords renovate their building stock on a larger scale. These activities go beyond standard maintenance: the houses are insulated, more efficient installations are installed etc. Often, a consultant is hired to help decide what kind of EEBR measures to take. When this is decided, the rest of the value chain is followed. The installers that have a maintenance contract often plays a role, but not necessarily.

Installers also have a comfortable position in this traditional value chain that targets housing associations/private landlords. When a longer term contract has been signed, they their project work is assured. If larger scale renovation activities are taking place, they do not always have an advisory role, but can often still perform the project work.

Activities of installers focused on EEBR market

Installers are taking steps, among others:

- Training employees in installing the latest EEBR measures.
- Increase educational requirements for new employees.
- Effective communication with the client.
- Advising on financing possibilities.

Sector associations (e.g. UNETO-VNI) and educational organizations (e.g. OTIB) try to facilitate installers to reap the benefits of EEBR by stimulating a.o. the above measures.

However: General consensus by interviewees is that most installers are not actively pursuing EEBR opportunities. Stimulating installers to improve their EEBR propositions seems to be an uphill struggle.

The traditional value chain discussed in the previous slides is not static and actions are taken to stimulate EEBR measures. Activities mainly focus on:

1. Training employees in installing the latest EEBR measures: Employees of installers will only advise technologies they know and are able to install. Increasing the knowledge of employees leads to better advice and strengthens the advisory role of installers in the value chain.
2. Increase educational requirements for new employees: The sector is increasing educational to ensure that employees can deal with the increasing complexity of EEBR measures.
3. Effective communication with the client: Many clients are not interested in 'energy' or 'technical' terminology. Instead, they want to increase their comfort levels. Changing the terminology of advice can make it easier to persuade clients to invest in EEBR.
4. Advising on financial possibilities: There may be subsidies or cheap lending possibilities in place at national or regional level (province or municipality). Integrating such possibilities into the advice can make investing in EEBR more attractive.

Sector associations (e.g. UNETO-VNI) and educational organizations (e.g. OTIB) facilitate companies to reap the benefits of EEBR by stimulating the above measures. They do so through a.o. organizing courses, congresses and

meetings. They also participate in national covenants, e.g. the 'Energieakkoord' and the Sector plan for the installation branch. In these covenants, actions are described and organizations (and the government) commit themselves to implement the above measures. In spite of all of these activities, general consensus by interviewees is that most installers are still not actively pursuing EEBR opportunities.

Stimulating the above measures is a slow process. There are ~8000 installation companies in the Netherlands. Many of these organizations are relatively small and do not have the resources for comprehensive training programs. It is also difficult for specialized installers to give holistic advice on building level. Stimulating installers to improve their EEBR propositions seems to be an uphill struggle.

Four main trends that change the role for installers in the value chain

1. Energy cooperatives
2. Renovation concepts
3. Partners taking over lead role (wholesalers and product manufacturers)
4. Renovation shops

Each of these trends create threats for installers, but some also offer opportunities.

The literature review led to the identification of four main trends that affect the traditional value chain and thereby change the position/role of installers:

1. Energy cooperatives: Energy cooperatives are being formed all over the Netherlands. Many energy cooperatives actively try to persuade other residents in the municipality to take EEBR measures. They create coalitions with local installers.
2. Renovation concepts: In the Netherlands, an alternative value chain is emerging around the implementation of renovation concepts. A renovation concept is a standardized 'package' of EEBR measures for specific types of buildings, often accompanied by the use of prefabricated building components.
3. Partners taking over lead role: Product manufacturers and wholesalers have always been important partners in the traditional value chain. They are starting to pursue EEBR related activities that go beyond their traditional role in the value chain.
4. Renovation shops: A recent development in the Netherlands is the rise of so-called renovation shops. These shops are physical locations, similar to normal physical shops, where people can buy a complete renovation for their house. The first shops have opened in 2014 and more will open in 2015. These physical shops provide a new channel through which EEBR measures are sold and thus change the traditional value chain.

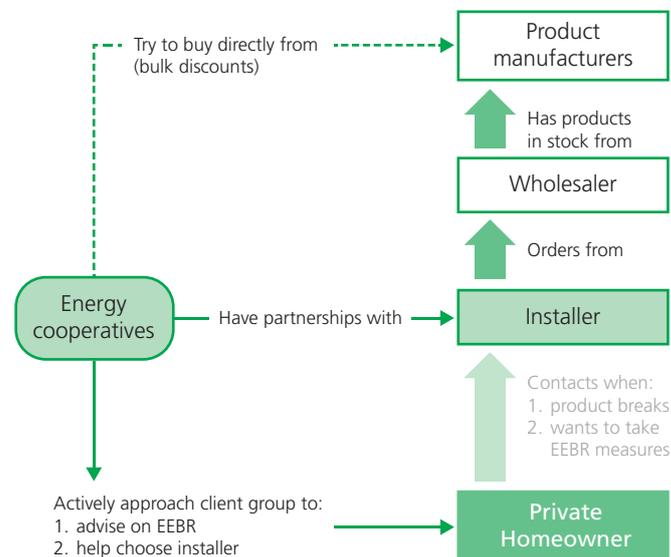
Each of these trends creates changes in the traditional value chain and thereby creates threats for installers. However, some of these trends also offer opportunities.

The following pages will discuss each trend in more detail. The trend descriptions are structured according to the structural components of the Technological Innovation System; Actors, Interactions, Institutions and Infrastructure.

Rise of energy cooperatives (1)



How energy cooperatives change the traditional value chain towards private homeowners



Rise of energy cooperatives (2)

Actors

- Enthusiastic individuals start small energy cooperatives.
- Main client group is Private Homeowners.
- EEER focuses on relatively easy activities; e.g. insulation, solar panels.
- Development is driven by need for energy reduction (climate change).

Interactions

- These cooperatives form partnerships with local installers and often create exclusive contracts.
- They are starting to organize themselves on regional and provincial level and are becoming a force to consider.

Actors and interactions: Energy cooperatives emerge all over the Netherlands. They are usually formed by enthusiastic residents of a neighborhood or municipality. Goals and activities greatly differ, but most energy cooperatives inform and educate other residents and try to persuade them to reduce energy and take EEER measures. Most energy cooperatives focus on relatively simple EEER measures, e.g. on collectively buying solar panels and/or insulation. Many energy cooperatives consist only of volunteers. Interviewees were not unanimously positive about the energy cooperatives and described them as unprofessional organizations that are difficult to work with. However, some energy cooperatives have developed into professional organizations stimulated by subsidies from the national government and/or from the municipality where they are active.

A recent development is that energy cooperatives are starting to work together. They do this to bundle activities (e.g. collective buying initiatives) and to speed up the learning curve of new cooperatives that are formed. They are starting to organize themselves on regional level, are professionalizing and can become a force to consider.

The energy cooperatives form partnerships with local installers. Often, if an energy cooperative gets a subsidy from the municipality, working together with local installers is a requirement. This creates a barrier for other installers that are based in another municipality. The energy cooperatives usually start with an information campaign and if someone is interested in taking EEER measures, they are sent to the partner installer. Exclusive contracts are signed between the energy cooperative and the installer in return for discounts.

Rise of energy cooperatives (3)

Institutions

- Some energy cooperatives have taken part in a large national program on EEBR ('Blok voor Blok').
- Formal: limited specific regulations exist to stimulate cooperatives (e.g. the 'postcoderoos').
- Informal: cooperatives take a very personal approach in their propositions towards client groups ('client is king'). Multiple interviewees say that energy cooperatives are unprofessional.

Institutions: There are few formal institutions in the form of laws and regulations in place focused specifically on stimulating energy cooperatives. An exception is the 'postcoderoos' regulation that provides a tax-discount to people who collectively produce electricity (e.g. solar panels). These collective production facilities are usually organized by energy cooperatives.

of residents do not trust energy companies, building companies and installers. Because energy cooperatives are often formed by residents themselves and are often volunteers, they are able to break down this distrust.

The 'Blok voor Blok' program is a large scale government program focusing on EEBR. The main idea behind the program is that EEBR can be made more efficient (and cheaper) when whole blocks of houses are renovated at the same time, instead of renovation houses one by one. The 'Blok voor Blok' program consisted of multiple pilot locations. Each pilot developed their own approach that fitted the specific characteristics of the area. Multiple energy cooperatives were also involved in the 'Blok voor Blok' program, as well as municipalities and local installers. A lot of knowledge was developed in this project on how the supply side can be organized. However, not many houses have been renovated within the 'Blok voor Blok' program. Discussions on how to proceed with the 'Blok voor Blok' program are currently conducted.

An important informal institution that most energy cooperatives share is the conviction that residents can only be persuaded to take EEBR measures with a personal approach. This conviction is based on the belief that the majority

Rise of energy cooperatives (4)

Infrastructure

- Financial: often receive subsidies from national government (e.g. 'Blok voor Blok' program) or from municipalities. Some use collective buying (group buying) initiatives to reduce EEBR costs.
- Knowledge: are formalizing their procedures into best-practices.

To conclude

- Energy cooperatives have the image of being unprofessional and unorganized, but in reality many energy cooperatives are professionalizing fast.
- The trend around energy cooperatives shows momentum and energy cooperatives have the potential to become an important actor group in the value chain of EEBR.

Opportunities and threats for installers

- Installers lose their advisory role.
- Only installers that have contracts with the energy cooperatives will benefit from this trend.
- Some will benefit, most will not.

Infrastructure: Energy cooperatives often get subsidies to support their activities from the municipality in which they are active. Also, help is often provided 'in kind' through sharing available knowledge that exists within the municipality. A couple of energy cooperatives were active in the 'Blok voor Blok' program and received related national subsidies, but most energy cooperatives have limited financial resources.

Some energy cooperatives try to reduce costs by initiating collective buying (also called group buying) agreements with product manufacturers and insulation material producers (and sometimes with wholesalers). To provide some income for the energy cooperatives, homeowners are charged for the advice that they get from the energy cooperative, but these costs are offset by the discount they receive on the necessary EEBR products and materials. Collective buying is picked up by more cooperatives. There are plans to coordinate these activities and scale them up, so that higher discounts can be negotiated.

Within the 'Blok voor Blok' program, actions are taken to formalize the lessons that have been learned. Knowledge about the most effective and efficient processes will be made available to new energy cooperatives to increase their effectiveness in implementing EEBR measures.

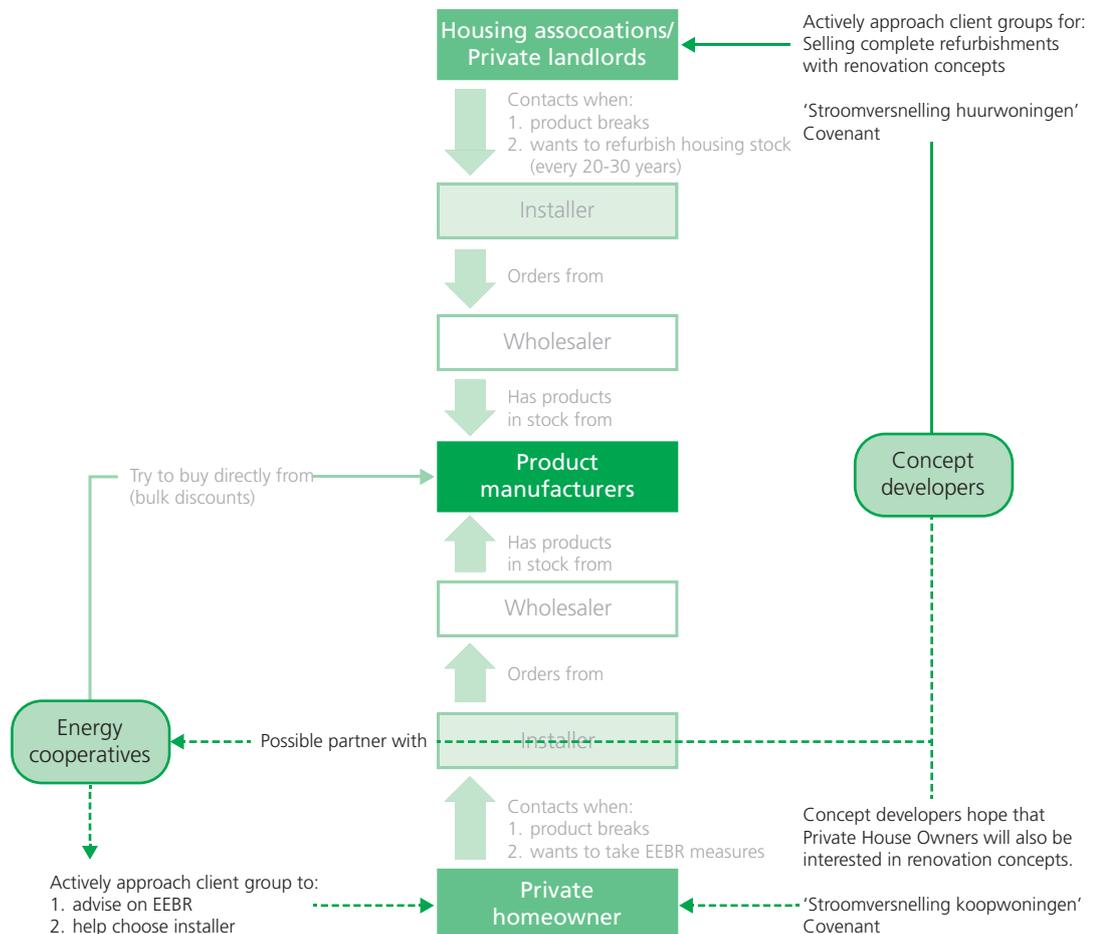
Opportunities and threats for installers: Energy cooperatives change the position and role of installers in the value chain. The energy cooperatives are the first contact points for residents and often give advice on what EEBR measures to take. In the traditional value chain, the installer would give this advice and was able to charge the resident for this service. Thus, because of the rise of energy cooperatives, the installers are losing their advisory role. Also, only the installers that have signed exclusive contracts with the energy cooperatives will be eligible for project work. Energy cooperatives provide opportunities for some installers, but form a threat for most.

Energy cooperatives have the image of being unprofessional and unorganized, but in reality many energy cooperatives are professionalizing fast. The trend around energy cooperatives shows momentum and energy cooperatives have the potential to become an important actor group in the value chain of EEBR.

Renovation concepts (1)



How renovation concepts change the traditional value chain



Renovation concepts (2)

Actors

- Large building companies were the first to develop renovation concepts and thereby only recently entered the renovation market. They used to focus mainly on building new houses.
- All large building companies (the big four) currently have a renovation concept for houses. Other concept developers (alone or in a consortium) also start to develop renovation concepts.
- The current focus is on housing associations, but development of renovation concepts for privately owned houses is underway.

Interactions

- The large building companies are in the lead and do the work themselves. They also often do the building maintenance.
- Products are directly bought from product manufacturers with rare involvement of a wholesaler.
- Limited role for installers in concepts from larger building companies.
- Smaller concept developers need to create partnerships. Potential for a couple of installers.

Renovation according to concepts works as follows: instead of making a specific plan for each house, the housing stock in the Netherlands is divided into standard types. Many houses in the Netherlands are similar to each other and around 20 types of houses can be distinguished. For each of these types of houses, a renovation concept is developed, which is a standardized renovation method for a specific type of house. If a house needs to be renovated, it will be measured in detail, these measurements are sent to a factory where they prefabricate whole building segments, e.g. the outer walls that include additional insulation and a well-insulated roof. Subsequently, the house is stripped after which the prefabricated parts are placed in a matter of days. The development of renovation concepts currently focuses on large scale renovation towards houses without an energy-bill (very energy-efficient houses that produce enough electricity to offset the remaining energy-use of the house).

Because these renovation concepts are developed for standard types of houses, they are mainly useful for renovating standard row houses and particular types of apartment buildings. Also, because they focus on renovation to 'no energy-bill', and a basic idea is that the investment can be offset by saved energy-use, the focus lies on older houses that have an average, or higher than average, energy-use. Therefore, houses younger than 1980 (which are usually more energy-efficient) fall outside the reach of renovation concepts. Also, using

renovation concepts is not expected to have potential in the near future for detached houses.

Actors and Interactions: All large building companies have renovation concepts for the renovation of houses. Other concept developers are currently creating consortia (mostly with smaller and medium sized building companies and installers) and have started to develop renovation concepts.

The concept developers (currently building companies) are in the lead within this value chain. Most large building companies perform the project work themselves, because they have their own installer division. They mostly create direct partnerships with product manufacturers. Wholesalers are rarely involved. The future maintenance of the house is often part of the contract and performed by the building company. Installers currently have a limited role in this development.

The renovation concepts that currently exist are mainly applicable to the housing stock of housing associations. However, actions are taken to also develop renovation concepts for private homeowners. The renovation concepts for homeowners are not only developed by large building companies, but also by other concept developers who create consortia of a wider variety of actors, e.g. architects, installers etc. This development is more recent.

Renovation concepts (3)

Formal institutions

Development and implementation of renovation concepts is heavily stimulated by Dutch policy programs:

- 'Energiesprong': has initiated multiple activities to stimulate the development of renovation concepts (e.g. through awards).
- 'Stroomversnelling huurwoningen': Covenant to renovate 111.000 houses from housing associations by 2020. Recently, a second covenant was signed that focusses on developing concepts for privately owned houses ('Stroomversnelling koopwoningen').

Informal institutions

- Development of renovation concepts is fuelled by the conviction and belief of actors that large scale EEBR will only pick up when the costs are reduced considerably. Using an industrialized building process and pre-fabricated building elements is, according to this trend, the only way to achieve that.

Formal institutions: The development and implementation of renovation concepts has been stimulated as part of a Dutch government program called 'Energiesprong' (Energy jump). As part of this program, yearly awards have been organized for the best renovation concepts. There was some reward money, but the main purpose was to build interest for renovation concepts among potential clients (especially housing associations).

In the 'Stroomversnelling Huurwoningen' covenant (rough translation: acceleration covenant rental houses), that was initiated by the 'Energiesprong' program, four large building companies and four housing associations formulated the goal of renovating 111.000 social houses before 2020 using renovation concepts. The housing associations agreed to renovate their housing stock using renovation concepts (create demand) and the building companies agreed to develop the renovation concepts according to the requirements of the housing associations (create supply that fits the demand). The large potential turnover makes it attractive for the building companies to invest in developing the renovation concepts. The focus of this covenant is EEBR towards 'no-energy bill' for row houses (70% of the targeted homes) build between 1945 and 1975 and apartment buildings (30%) build between 1966-1975.

At the end of September 2014, a new covenant ('Stroomversnelling Koopwoningen', or

acceleration covenant privately owned houses) was formed in which more than seventy organizations have set the goal to also develop renovation concepts for privately owned houses. Both the supply-side and the demand-side are represented in this covenant. These include large building companies, but also smaller companies and other concept developers (the supply-side). The demand-side is represented by organizations that include the national government, provinces, municipalities and energy cooperatives. The ambition of this second covenant is to renovate 50.000+ privately owned houses per year from 2020 onwards.

The national government facilitates these two 'Stroomversnelling' covenants by changing regulations so that they support the development and implementation of renovation concepts.

Informal institutions: The trend of renovation concepts is fuelled by the conviction and belief of actors that large scale EEBR will only pick up when the costs are reduced considerably. Using an industrialized building process and pre-fabricated building elements is, according to this trend, the only way to achieve that. This contrasts with the belief of many energy cooperatives that a personal and custom approach is the best approach.

Renovation concepts (4)

Infrastructure

- Financial: renovation concepts have the potential to reduce the costs of EEBR considerably.
- Human: all products are standardized and standard procedures for installation and maintenance are developed. This reduces the need for skilled and knowledgeable installers.
- Knowledge: Renovation concepts are not open source, but knowledge remains within the concept developer.

Opportunities and threats for installers

- Renovation concepts are currently being tested in pilot projects. Concrete plans are in place for upscaling.
- Consortia of large building companies with government backing is becoming a substantial innovative movement.
- Role for installers and wholesalers is currently small or non-existing.
- They lose their advisory role (taken over by the concept developers) and also do not get much project work.
- There are opportunities within the recent 'Stroomversnelling Koopwoningen' covenant for a couple of installers.

Infrastructure: Using renovation concepts has the potential to make the renovation of houses more efficient and thus less expensive. Renovating houses of the same type collectively creates an advantage of scale which reduces costs. The goal within the 'Stroomversnelling Koopwoningen' covenant is to reduce these costs to 45.000 euro. Interviewees indicate that this is only the start and that a renovation to 'no-energy bill' should be possible for around 30.000 euro in a number of years.

Because EEBR activities are standardized, the need for skilled and knowledgeable installers is reduced. Interviewees indicate that the goal is to make installation as simple as possible through the use of instruction videos and smart product design up to a point that 'anyone' can install it.

The knowledge that is incorporated in a renovation concept is not shared by the concept developers. Therefore, companies that already have a renovation concept ready or are currently developing one are creating a lead on other companies. Lead times for developing a renovation concept are considerable and chances are high that, if this development picks up, many companies will miss the boat.

Opportunities and threats for installers: The trend of renovation concepts has a strong momentum. It is heavily stimulated by national policies and large building companies are involved who can free a

considerable amount of resources for concept development. First renovation concepts are currently being tested in pilot-projects and there are concrete plans for scaling up activities. The consortium of building companies backed by the national government is becoming a substantial innovative movement.

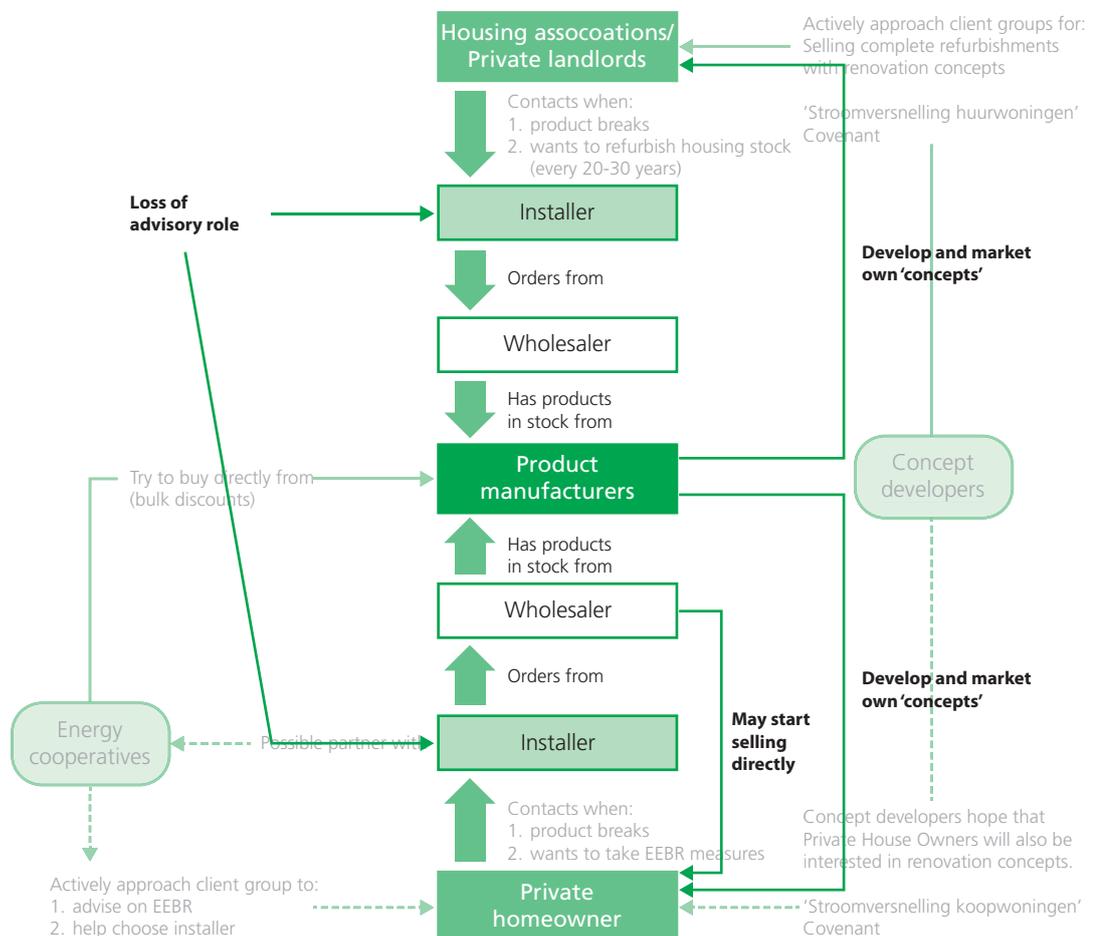
The role for installers in this trend is currently small or even non-existing. They lose their advisory role and the project work in the value chain. Wholesalers also play a limited role in this trend, as most concept developers directly create partnerships with product manufacturers and material suppliers.

Because of the considerable lead times and resources needed for developing a renovation concept, there is a chance that installers and wholesalers will miss the boat. However, the new covenant 'Stroomversnelling Koopwoningen' does provide opportunities for those who can free the resources to develop a renovation concept, alone, or in a consortium.

Partners taking over lead role (1)



How 'partners taking over lead role' changes the traditional value chain



Partners taking over lead role (2)

Actors

- Wholesalers and product manufacturers are aware of upcoming trends and potential changes in the value chain.
- They feel that installers are not responding to the upcoming trends fast enough and are looking for ways to strengthen the position of installers and thereby their own position.

Interactions

- Wholesalers are dependent on the success of installers.
- Product manufacturers are less dependent on the success of installers, but still have an interest in strengthening the installers' position.
- If installers do not take the lead role that they potentially have in the value chain, wholesalers and product manufacturers may, with or without them, take over the lead role.

Institutions

- Formal: there are no formal institutions in place that stimulate this trend.
- Informal: Wholesalers and product manufacturers have long standing relationships with installers (their primary client group) and prefer to develop EEBR market together.

Actors and Interactions: Most interviewed wholesalers were aware of the upcoming trends. Especially the wholesalers are dependent on the success of installers, because they form their largest client group. If installers are successful, they are successful. They realize that the upcoming trends of renovation concepts, Energy Cooperatives and Renovation shops can potentially change the value chain dramatically. They feel that installers are not responding to these upcoming trends fast enough and are looking for ways to strengthen the position of installers and thereby their own position.

Product manufacturers are less dependent on installers than wholesalers, because they also have a position in the value chains of the upcoming trends. Products also have to be installed in the upcoming trends, even though this is done in a different way and by different actor groups. As discussed above, some (but not all) product manufacturers are partnering with companies that are developing renovation concepts, with Energy Cooperatives as part of collective buying initiatives (and also with Renovation shops as will be shown later). However, as their largest client base currently still consists of installers, they have an interest in strengthening the installers' position.

There are examples of product manufacturers who have started to market their products directly to homeowners. They reason that installers can be forced to change if homeowners start asking for EEBR measures. Wholesalers currently do not

directly target homeowners, but may start doing so if installers do not accelerate their EEBR activities. If installers do not take the leading role that they potentially have in the value chain, wholesalers and product manufacturers may, with or without them, take over the lead role.

Institutions: There are no formal institutions in the form of regulations, laws, government programs that stimulate this trend. The initiative is taken by the wholesalers and product manufacturers themselves. Because both wholesalers and product manufacturers have long standing relationships with installers (their primary client group), they strongly prefer to develop the EEBR market together.

Partners taking over lead role (3)

Infrastructure

- Financial resources: Wholesalers and product manufacturers have more resources than installers.
- Knowledge: Wholesalers and product manufacturers each have knowledge assets that can be used to develop EEBR propositions.

Opportunities and threats for installers

- Wholesalers and product manufacturers will benefit when installers take a leading role in EEBR.
- Wholesale companies, product manufacturers and installers potentially form a powerful coalition for developing EEBR propositions that can compete with, or fit well within, upcoming trends.
- The traditional value chain needs to strengthen their partnerships and become co-developers for EEBR propositions, instead of companies who happen to be part of the same value chain.

Infrastructure: There are ~8000 installers in the Netherlands, a limited number of product manufacturers and only a handful of wholesalers. While it is difficult for most installers to free financial resources for developing EEBR propositions, it may be easier for wholesalers and product manufacturers.

Wholesalers and product manufacturers each have knowledge assets that can be valuable when developing EEBR propositions. Product manufacturers usually know their own products better than the installers. Wholesalers are objective and have a good overview of the product available in the market.

Opportunities and threats for installers: Because of the long standing relationships between installers, wholesalers and product manufacturers in the traditional value chain, there are opportunities abound to collectively develop EEBR propositions. Both wholesalers and product manufacturers benefit when installers are successful. Because wholesalers are almost exclusively dependent on the success of installers, they have a shared interest. Product manufacturers are less dependent on the success of installers, but also see that the market changes and that new partnerships are necessary. The time may have come for installers, wholesalers and product manufacturers to strengthen their partnerships and become co-developers for EEBR

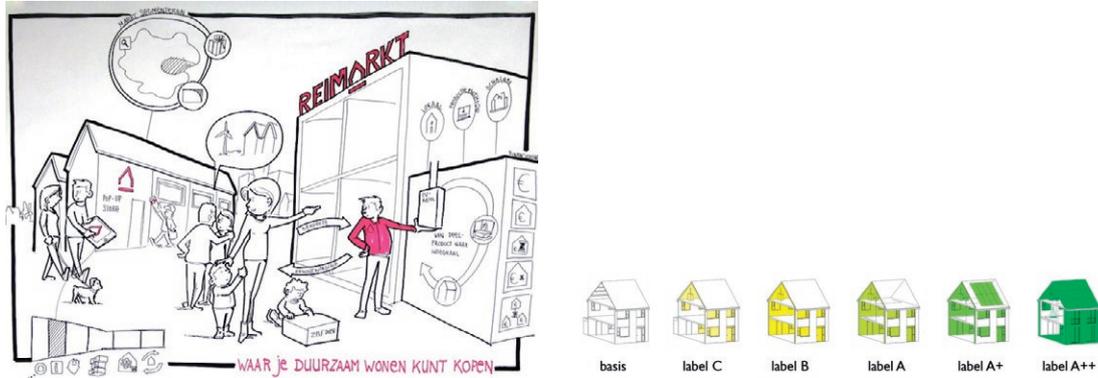
propositions, instead of companies who happen to be part of the same value chain.

Even though wholesalers and product manufacturers prefer to collectively develop EEBR proposition with installers, they may try to take over the lead role if EEBR activities by installers do not speed up their EEBR activities soon. This would not be in the interest of installers.

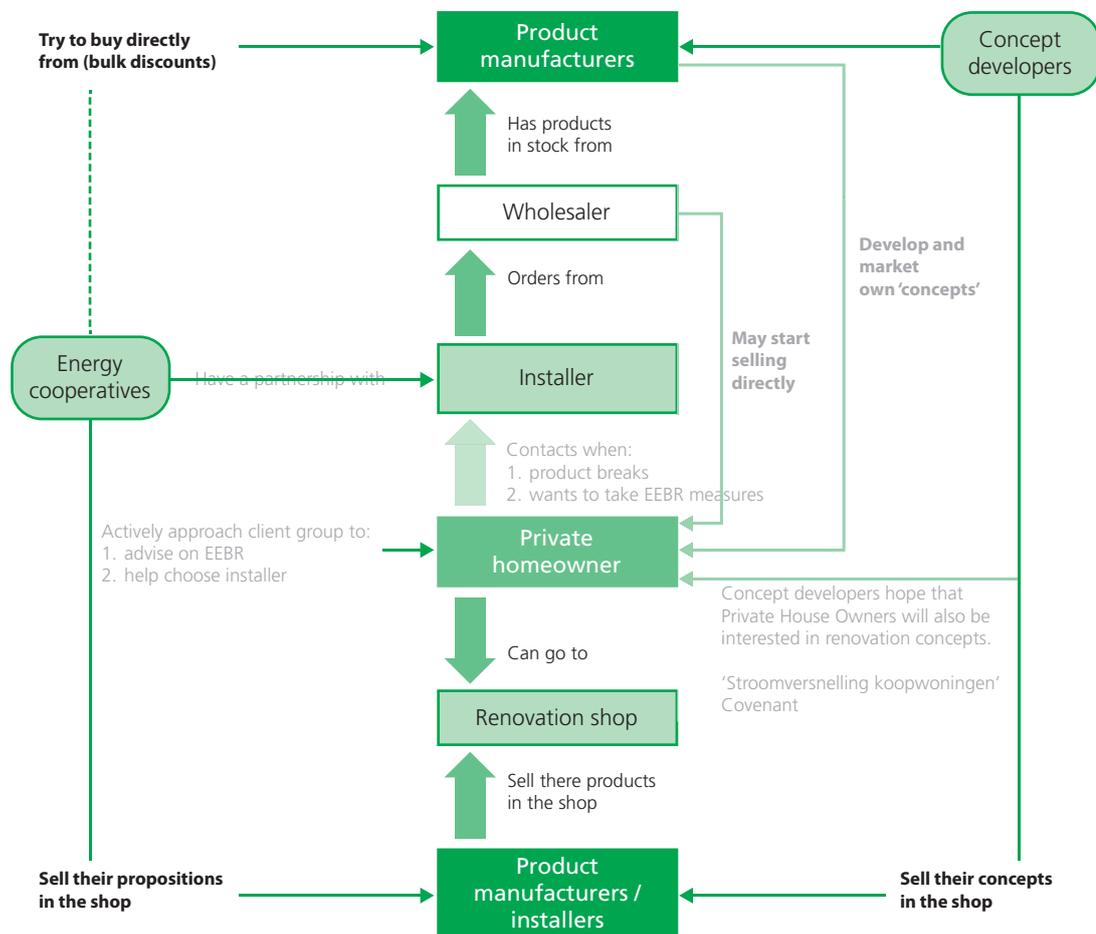
Wholesalers who sell their products directly to homeowners, and product manufacturers that market their products directly to consumers, limit the advisory role of installers and thus reduce their potential profit margins.

Renovation shops (1)

A renovation shop is a 'one stop' physical location where private homeowners can buy complete renovations. First shops have been opened; many are expected to follow in 2015 and beyond.



How renovation shops change the value chain toward private homeowners



Renovation shops (2)

Actors

- Diverse coalitions of actors are developing Renovation shops. Not one shop is alike. Every shop has own philosophy.

Interactions

- The Renovation shops determine themselves what they put on offer.
- Each shop creates their own contracts with suppliers. Some choose to promote only Renovation concepts while others promote only propositions from local installers.
- Some choose to work directly with product manufacturers, thereby ignoring the wholesalers.
- Some shops are 'neutral' and are open to sell everything the market puts on offer.

Actors and Interactions: Diverse coalitions of actors are setting up Renovation shops. Some of the coalitions of actors were already formed as part of other EEBR related programs, e.g. the 'Blok voor Blok' program. They have gained knowledge about how homeowners can be persuaded to invest in EEBR and now want to implement that knowledge. Most Renovation shops work with standardized processes to guide the homeowners through the EEBR process. There are also Renovation shops that partner with housing associations to inform renters about the advantages of taking EEBR measures. The housing associations hope that this will increase the support for taking EEBR measures in their housing stock. Most coalitions of actors start with opening one Renovation shop, but most have plans to upscale activities if the shops turn out to be successful.

manufacturers can take care of the installation of the solar panels. As not all product manufacturers install their own products, many product manufacturers need to create partnerships with an installer before their products can be put on offer in the Renovation shops. There are also shops that take a 'neutral' position and are open to sell whatever the market wants to promote, as long as the part of the revenues go to the shop.

Each Renovation shop determines itself what kind of EEBR measures are sold in the shop. Therefore, each shop has different EEBR propositions on offer. This means that each shop creates own partnerships with EEBR suppliers. Some shops choose to sell only Renovation concepts, while others choose to promote only propositions from local installers. Also, some choose to work with installers in the traditional value chain, while others only work together with product manufacturers and installers that have partnered up. If e.g. a product manufacturers of solar panels wants to sell their products in the Renovation shop, the shop will demand that the product

Renovation shops (3)

Institutions

- The development of Renovation shops was stimulated in 2013 with a subsidy from the 'Energiesprong' program.

Infrastructure

- Financial: Renovation shops are still in the start-up phase and depend on the 'Energiesprong' subsidy or contracts with housing associations and/or money from the municipality. Almost no houses have been renovated by these Renovation shops yet.

Opportunities and threats for installers

- In some shops, installers can put their EEBR propositions on offer.
- Some shops only work directly with product manufacturers. Not all product manufacturers install their own products. This creates opportunities for installers for new partnerships.
- Only leading installers will be able to benefit, most will not.
- There are no opportunities for installers in the shops that only offer renovation concepts.

Institutions: The development of Renovation shops was stimulated in 2013 with a subsidy from the 'Energiesprong' program. Actors or actor coalitions could send in a proposal, which were judged by a jury. The winning Renovation shop concepts were awarded with a development subsidy of 25.000.

Infrastructure: The Renovation shops are currently in the start-up phase and still depend on the development subsidy from the 'Energiesprong' program or other subsidies. Some have signed contracts with housing associations and are being paid for the service that they provide: informing (and hopefully persuading) renters to support EEBR measures in their rented homes. Some Renovation shops also get financial support from the municipality. Often, such subsidies go hand in hand with the requirements that local partners are sought.

Because the Renovation shops are still in the start-up phase, little houses have been renovated through their sales channel yet. Ultimately, the goal is to run the Renovation shops from the profits from selling the renovations themselves.

Opportunities and threats for installers: There are opportunities for installers as most Renovation shops are currently searching for EEBR partners. Depending on the specific policies of the Renovation shop, installers may be able to create propositions themselves to put on offer in the

shops. Some Renovation shops prefer to work directly with the product manufacturers, but require the product manufacturers to also take care of installation. If the product manufacturers cannot facilitate this, there is an opportunity for installers to create a partnership with the product manufacturers. Opportunities in this trend exist for leading installers that are willing to take a risk. However, because most shops are still in the start-up phase, it is still too early to tell whether they will be successful or not.

Renovation shops also pose threats to installers. Opportunities are currently still open for any installer, because most renovation shops have not decided yet on what they will promote. However, most Renovation shops will partner with the small number of installers that are willing to become co-developer and are thus willing to take risks. If the Renovation shops become successful, these few co-developing installers will profit, while most installers will not. Also, some Renovation shops choose to only promote renovation concepts. This creates a threat to installers, because they currently have a very limited role in the value chain related to renovation concepts.

Limited role for installers in upcoming trends

- Installers have a comfortable role in the traditional value chain (both advice and project work).
- The Energy Cooperatives, Renovation concepts and Renovation shops add additional actors to the value chain. This changes the role and position of installers in the value chain. In the 'partners taking over lead role' trend, only the role of actors in the value chain changes.
- All trends involve a threat for installers, because they lose their advisory role. They currently do not have any role in the Renovation concepts trend, because there they lose the project work with concepts created by larger building companies.
- Opportunities for leading installers exist within the Energy Cooperatives and Renovation shop trends. They will still lose their advisory role, but will keep the chance for project work.

Installers have long been able to benefit from a comfortable position in the traditional value chain. In this traditional value chain, they are in the position to advise homeowners, housing associations and private landlords what kind of EEBR measures to take, and they may perform the project work. The upcoming trends of Energy Cooperatives, renovation concepts and Renovation shops change this traditional value chain in such a way that this comfortable position is under pressure.

All three trends change the position and role of actors in the value chain and therefore pose threats for installers. Energy Cooperatives and Renovation shops are taking over the advisory role from installers. In the renovation concepts trends, they additionally lose most project work. In the 'partners taking over the lead role' trend, only the role of actors in the value chain changes but their position stays the same. All three trends also provide opportunities for installers that are willing to take risks.

Some installers may be able to reap the benefits from these upcoming trends. Installers can pursue partnerships with Energy Cooperatives and Renovation shops to put them in a favorable position if these trends become successful. Also, they can develop their own renovation concepts, in partnership with other installers, building companies or concept developers. However, to become part of these upcoming trends, financial

and time investments are needed; something that not every installer is able to afford.

Installers that do not have the financial means to invest in such partnerships and become part of the upcoming trends can possibly benefit from current partners in the traditional value chain. Wholesalers and product manufacturers have historically been trusted partners of installers. The time may have come for installers, wholesalers and product manufacturers to strengthen their partnerships and become co-developers for EEBR propositions, instead of companies who happen to be part of the same value chain.

Putting this in perspective: none of the trends can change the sector overnight

- Professionalization of energy cooperatives is a slow process.
- Current capacity for renovation concepts is limited. Concept developers need to build up their capacity (e.g. prefab production plants, educating their employees).
- Renovation concepts can currently only be applied to row houses and some types of apartment buildings (~1/3 of the Dutch building stock).
- Wholesalers and product manufacturers have long standing relationships with installers and will be careful to act against their interests. They largely depend on them. However, they do perceive the trends as major threats so their patience may be limited.
- Renovation shops are in an early stage of development. It is too early to tell whether they will be successful.
- The traditional value chains have been in place for decades. Many clients will keep contacting installers when something breaks, which provides a good opportunity to market EEBR propositions.

The results show that the position and/or role of the installers in the value chain is under pressure. However, it is important to realize that none of these trends can change the sector overnight.

1. Energy cooperatives: Energy cooperatives are still in the process of professionalization, which is a slow process. It takes time to set up collaborations between energy cooperatives and to train new energy cooperatives. Also, most energy cooperatives depend on volunteers, who have limited time to spend on professionalization.
2. Renovation concepts: The current capacity of large building companies to renovate houses using renovation concepts is limited. It takes time to increase capacity by building prefab production plants and educating their employees. Additionally, renovation concepts offer most potential for row houses and apartment buildings build between 1950 and 1980, which is about one third of the Dutch building stock. The rest of the potential market is open for other EEBR propositions. Also, the ‘Stroomversnelling Koopwoningen’ covenant is open for any organization to sign and thus offers opportunities for any actor group, including installers.
3. Partners taking over lead role: Wholesalers and product manufacturers have long standing relationships with installers and will be careful to act against their interest. They largely depend on them. However, they do perceive the trends as major threats so their patience may be limited.

4. Renovation shops: All renovation shops are currently in an early stage of development. EEBR propositions are not set in stone yet and there is ample room for new partnerships to be formed. It is also still too early to tell whether they will be successful or not.

The traditional value chains have been in place for decades. Many companies have good relationships with their clients and will keep contacting installers when something breaks. These replacement moments offer a valuable opportunity for installers to market their EEBR propositions.

Installation sector is starting to realize that changes are coming

Some recognition of the possible impact of trends seems to emerge:

- Articles in magazines of sector associations (UNETO-VNI) provide critical reflections on the future role of installers in the value chain.
- Trend reports by the educational organization OTIB recognize the changing sector and the need for installers to speed up EEBR activities.
- UNETO-VNI has signed the 'Stroomversnelling Koopwoningen' covenant and is organizing workshops for installers on how to create installation concepts.

However, most of these message and activities are framed solely as being opportunities, while this research shows that all trends also pose substantial threats.

The installation sector is starting to realize that change is coming. Sector associations have started to spread information about upcoming trends and the impact that they may have. For example, the educational organization for the installation sector OTIB regularly publishes trend reports⁴. These reports describe many trends and frame most of them as opportunities. Potential threats are only limited recognized, although the recent trend reports do recognize the need for increased action by installers. The sector associations for the installation sector UNETO-VNI publishes two monthly magazines⁵. In recent magazines, stakeholders from outside the installation sector were asked to reflect on the future of installers. Some of these reflections discuss both opportunities and threats. Also, UNETO-VNI has signed the 'Stroomversnelling Koopwoningen' covenant that focusses on developing renovation concepts for privately owned houses. They are organizing workshops for installers (together with the 'Energiesprong' program) on how installers can develop own installation concepts that can be used within renovation concepts. However, most of the messages by sector associations are still framed solely as opportunities.

⁴ OTIB Trendfiles (trendfiles.otib.nl)

⁵ UNETO-VNI magazines: ELEKTRO & ICT (E&I) and KLIMAAT & SANITAIR (K&S)

Way forward in an uncertain future

- Trends only affect parts of the market. There is enough room for multiple value chains.
- Governmental bodies, (especially municipalities) and sector associations can play a role in strengthening the position of installers in the changing value chain.

Government

- All trends help reach the goal of large scale implementation of EEBR but different government levels may prefer one trend over the other.
- National and provincial governments have a neutral position. Regional government, but especially municipalities prefer local initiatives. Coordination may be necessary.

Sector associations

- Provide a link between national initiatives and local installers.
- Can facilitate a coalition between installers, wholesalers and product manufacturers to collectively develop EEBR propositions that can compete with, or fit well within, the trends.

The potential market for EEBR is large. There seems to be enough room in the EEBR market for both the traditional value chain and the upcoming trends, because most trends affect only part of the market. Governmental bodies, (especially municipalities) and sector associations can play a role in strengthening the position of installers in the changing value chain.

Government: All trends help reach the national goals of large scale implementation of EEBR but different government levels may prefer one trend over the other. The national government has a neutral position in relation to the traditional value chain or the upcoming trends, because each will contribute to reaching its goals. The regional governments may have an interest in stimulating companies situated within their province, but especially municipalities have an interest in more local initiatives. Municipalities may prefer the more local trends of energy cooperatives and renovation shops to more centralized initiatives like the renovation concepts or ‘partners taking over the lead’ trends. However, multiple municipalities have also signed the ‘Stroomversnelling Koopwoningen’ covenant and have thereby committed themselves to stimulate renovation concepts. An undesirable situation can arise when lower government layers stimulate local initiatives, while the national government stimulates national initiatives. Clients may decide not to invest in EEBR if they are approached with too many and contradicting initiatives.

Coordination between the government layers may be beneficial to make sure that initiatives are aligned and potential clients are not discouraged.

Sector organizations: Sector associations can play an important role. To be part of national initiatives, substantial resources are necessary. Because installers are relatively small specialized companies, most of them will not be able to take part in national covenants. Sector associations can play an important role here by taking part in such covenants. This is also taking place, e.g. UNETO-VNI has signed the ‘Stroomversnelling Koopwoningen’ covenant and is taking an active role in educating installers to work with renovation concepts. Additionally, the time may have come for installers, wholesalers and product manufacturers to strengthen their partnerships and become co-developers for EEBR propositions, instead of companies who happen to be part of the same value chain. Sector associations are in the position to play a mediating role in forming such a coalition.

Ways forward for installers: benefit from trends through partnerships

Energy cooperatives

- Installers can pursue partnerships with energy cooperatives for EEBR related project work in return for discounts or co-development.

Renovation concepts

- Installers can partner with concept developers to co-develop a renovation concept. There may be opportunities within the 'Stroomversnelling Koopwoningen' covenant.

Partners taking over lead role

- Installers can seek partnerships with wholesalers and product manufacturers, possibly facilitated by sector organizations.

Renovation shops

- Installers can strive for direct partnerships with Renovation shops, or indirectly with product manufacturers.

Installers are also in the position to benefit from the upcoming trends by creating partnerships and coalitions with actors in the upcoming value chains. Within each trend, partnerships with other types of actors may be beneficial:

EEBR market and if sector organizations do not or cannot facilitate them, there is a realistic chance that a shake-out among smaller installers will take place.

1. Energy cooperatives: Installers can pursue partnerships with energy cooperatives for EEBR related project work in return for discounts or co-development.
2. Renovation concepts: Installers can partner with concept developers to co-develop a renovation concept. There may be opportunities for this within the 'Stroomversnelling Koopwoningen' covenant.
3. Partners taking over lead role: Installers can seek partnerships with wholesalers and product manufacturers, possibly facilitated by sector organizations.
4. Renovation shops: Installers can strive for direct partnerships with Renovation shops, or indirectly with product manufacturers. These indirect partnerships may be necessary, because some Renovation shops demand that actors who want to offer anything in the shop are able to both deliver and install the EEBR product or proposition.

Installers will need substantial resources to invest in such partnerships. The ones who cannot free such resources have to depend on knowledge and financial help from sector organizations. If installers themselves are not able to prepare for the

