



SKILLS  
INSTRUCT  
INSTRUMENTS  
CONSTRUCTION

**Partnerships with procedures,  
retailers and contractors**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 894756.

# D4.3 Demo 3

## Partnerships with procedures, retailers, and contractors

Dissemination Level: public  
Lead Partner: ASM  
Due date: 31.01.2023  
Actual submission date: 28.02.2023

### Published in the framework of:

Evidence-based market and policy instruments implementation across EU to increase the demand for energy skills across construction sector value chain.

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### Revision and history chart

Version	Date	Editors	Comment
0.1	30.01.2023	Agnieszka Kowalska	First version
0.2	21.02.2023	Łukasz Wilczyński	Updated version
0.3	27.02.2023	Review by LIST	Add executive summary
1.0	27.02.2023	Łukasz Wilczyński	Final version

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**Glossary**

<b>Acronym</b>	<b>Full name</b>
CA	Consortium Agreement
EC	European Commission
EASME	The Executive Agency for Small and Medium-sized Enterprises
GA	Grant Agreement
PC	Project Coordinator
WP	Work Package
TL	Task Leader
DoA	Description of Action
PSC	Project Steering Committee
SQM	Scientific and Quality Manager
DEC	Dissemination and Exploitation Committee
KOM	Kick-off meeting
ASM	ASM – Market Research and Analysis Centre
VTT	Technical Research Centre of Finland
LIST	Luxembourg Institute of Science and Technology
RIL	Finnish Association of Civil Engineers
CU	Cardiff University
R2M	Research to Market Solution France
DTTN	Distretto Tecnologico Trentino
ENEFFECT	Center for Energy Efficiency EnEffect
GER	General Exploitable Result
AB	Advisory Board
PM	Person month
M	Month



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## 1. Executive summary

This focuses on the efforts made by the organization to build partnerships with key stakeholders in the construction industry. The objective of the report is to demonstrate the importance of such partnerships and showcase examples of successful collaborations. The report highlights the connection between this task and other related tasks, emphasizing the organization's commitment to sustainability and the need for collaboration across different sectors. The report also provides insights into the methodologies used, including early-stage consultations, workshops, and demonstration events. The workshops and events performed are described in detail, including an introduction to the events, the agenda, and outcomes. The report also presents the results and impact of the demo activities, such as empowerment and awareness rising, good practice examples of partnerships, and the overall impact of the demo activities. Finally, the report concludes with further development opportunities, emphasizing the need to build on the success of the current partnerships and continue to work towards sustainable solutions in the construction industry. Overall, the report provides valuable insights into the benefits of partnerships and highlights the importance of collaboration in achieving sustainable development goals.

## 2. Demo target objective

The European Construction sector faces unprecedented challenges to achieve ambitious energy efficiency objectives, that can be met if successful training initiatives and supporting policy instruments are put in place, acting as a springboard to stimulate the demand for energy efficiency skills. The INSTRUCT project responds to this challenge by acting at market level and **providing an operational framework and set of services serving** to (1) raise awareness of stakeholders in the construction value chain about environmental challenges, benefits of sustainable energy skills and need of skilled workers in energy efficiency in the construction sector, (2) increase the number of skilled building professionals and construction workers along the whole value chain and (3) pave the way to legislative changes by supporting public authorities and industrial stakeholders for the development of new legislative frameworks.

Developed in INSTRUCT project services included sustainable energy skills passports/registers for workers, new legislative frameworks or public procurement practices, initiatives for home and building owners, and new partnerships in the construction value chain. Those solutions have been demonstrated in 8 Pilot Demonstrators across 7 European countries in order to evidence links between energy skills/education and energy performance/quality, as well as the usefulness and ease of use of the developed tools for recognition of energy skills and qualifications. Each demonstration focused on different topic:

- Demonstration #1: Energy skills certifications in Helsinki, Finland.
- Demonstration #2: BIM for Energy Efficiency Training & Standard in Luxembourg.
- Demonstration #3: Partnership with producers, retailers, and contractors for energy skills recognition in Poland.



- Demonstration #4: Energy skills recognition in policy making in Poland.
- Demonstration #5: Energy efficiency Initiatives for building and homeowners in Italy.
- Demonstration #6: Energy gap reduction and initiatives for building owners (North and European level).
- Demonstration #7: Engaging key stakeholders to stimulate demand of energy skills in Bulgaria.
- Demonstration #8: Developing capacity for supply of continuing qualification services through blended learning systems in Bulgaria.

The aim of these demonstration activities was also to provide living and documented exemplar case studies that could act as a springboard for replication across other regions and countries in Europe.

As presented above, one of the solutions that INSTRUCT Consortium has been working on was about **partnerships with key actors from the construction supply chain for energy skills promotion** – a solution which has been demonstrated in Poland in demo no.3.

As we all know, the construction value chain is complex and involves a number of actors – often uncoordinated and with conflicting interests – including contractors, installers, architects and suppliers as well as producers of material, equipment and energy. Moreover, building processes are becoming more and more complex, which is why there is more interaction and collaboration needed between the different actors. In demonstration 3 in INSTRUCT project we concentrated therefore on how to promote and benefit from energy skills recognition within construction value chain through establishing different partnerships/schemes in the value chain. As the mechanisms behind the energy skills construction supply chain are very complicated to figure out because of different relationships among many types of actors involved, the idea was to identify several groups in the construction value chain which are dependant from each other, and which would benefit from collaboration aimed at promotion of energy skills recognition. Therefore, in first place INSTRUCT Partners took the example of construction /renovation of residential building energy efficiency value chain, analysed carefully the actors involved at different stages of construction process and their interdependencies and then proposed adequate partnerships to act on determined energy performance related issues. Establishing such partnerships, aligned incentives, adequate communication and collaboration at different stages as well as raising awareness aimed at energy efficiency and environmental impacts, are key to increase in the demand for certified energy skills and build and operate low impact buildings. Insights for the establishment of future partnerships were verified in Polish Demonstration 3 context.

Relating to the INSTRUCT hypothesis that overall potential for energy efficiency would be higher if successful training initiatives - educational and informative programs are put in place in the construction sector, the outcomes of the research work on partnerships have been summarised and elaborated in a form of education and informative materials.

Thus, the objective of the Polish demonstration activity no. 3 was on one hand to **elaborate training know-how and materials** based on project outcomes and consultations with Polish construction industry, specifically including producers, retailers and contractors and **disseminate this knowledge to a large number of construction stakeholders in Poland**. The idea was to share knowledge on benefits and importance of energy skills recognition, tools facilitating mutual recognition of energy skills and qualifications in the construction sector, channels for raising awareness of energy saving products and evidence-based information about the benefits of energy saving products and practical examples where the products have been used successfully. In addition to increased awareness the objective was to test the collaboration framework proposals elaborated in WP3 between different stakeholders in the construction value chain.

The main work in order to achieve this goal was performed in Work Package 3 – Task 3.4 (Establishing partnerships with producers, retailers and DIY) where the Consortium aimed to identify schemes for new partnerships with key actors from the construction supply chain which would enable energy-related skills to be valorised as well as Work Package 4 - Task 4.3 Demonstration 3 in Poland: Partnership with producers, retailers and contractors for energy skills recognition where feedbacks and lessons learned were gathered through organised meetings and workshops in Poland and knowledge generated has been widely disseminated to Polish construction sector.

The target objectives for this demonstration activity were following. The demonstration activity planned to reach:

- 750 professionals and disseminate among them elaborated in INSTRUCT project educational materials. The goal was to reach 150 designers, 500 construction and 100 building owners.
- 200 professionals from different trades and disciplines (manufacturers, designers, architects, construction workers, building owners, municipalities) directly in 8 courses, meetings, workshops and consultations.
- Additionally, 1000 people with its wider networks and information campaigns.

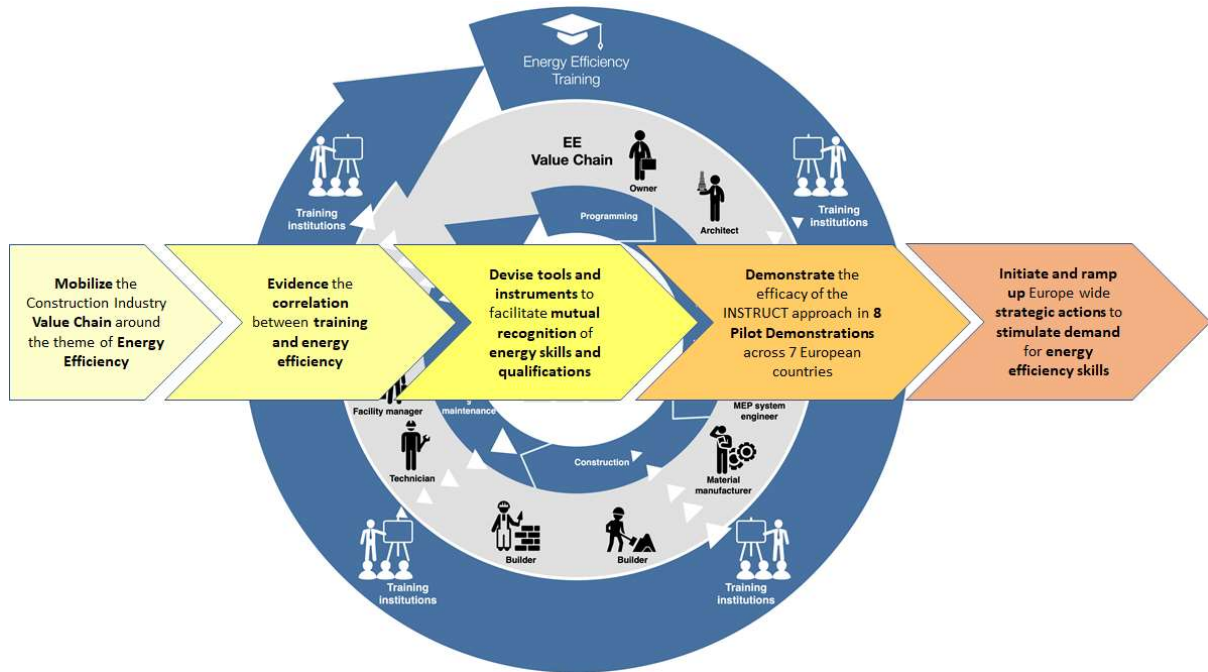
### 3. Connection to other tasks

The INSTRUCT project proposed implementation of an incremental and participative approach for the achievement of project objectives. The proposed methodology was structured around five threads: (a) Mobilization of the Construction Industry Value Chain around the theme of Energy Efficiency; (b) Evidencing the correlation between training and energy efficiency; (c) Devising tools and instruments to facilitate mutual recognition of energy skills and qualifications, (d) Demonstrating the efficacy of the INSTRUCT approach in 8 Pilot Demonstrations across 7 European countries; and (e) Initiating and ramping up Europe wide strategic actions to stimulate demand for energy efficiency skills. These strategic themes are illustrated in Figure 1.

*Figure 1 - Articulation between EE skills, actors, and lifecycle*

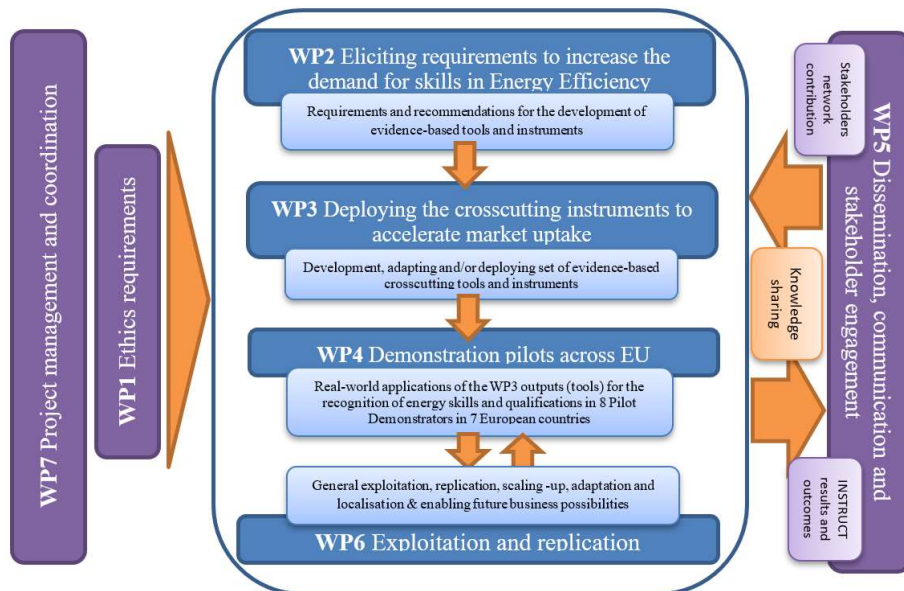






The INSTRUCT approach relies on a set of interdependent tasks related to the work packages and their contributions to the specific project objectives. The overall strategy divides the lifecycle of the project into seven Work Packages (WP) presented below. Besides standard work packages, such as ethics requirement, project management and dissemination & communication there were four essential work packages where the research and development work took place as presented in Figure 2 below.

Figure 2 - INSTRUCT Pert diagram



Demonstration activity no. 3, performed in Poland, benefited especially from WP2 and WP3. The scientific work in INSTRUCT project started in WP2 'Eliciting requirements to increase the demand for skills in Energy Efficiency' where based on interaction with key projects, initiatives, and stakeholders at a national and European level (1) requirements and recommendations for the development of new

tools and instruments to increase energy efficiency skills recognition across Europe were elaborated as well as (2) quantitative and qualitative evidences that corroborate and reinforce the correlation between skills and education and energy performance and quality were gathered. Demonstration activity no. 3 benefited from this task directly by using the case studies that have been gathered and described in WP2 showing the evidence that skills and education influences greatly the energy performance and quality. The practical examples where the energy saving products have been used successfully were included in the training materials elaborated within WP4 – demonstration activity no. 3.

Obviously, the demonstration activity was strictly connected with WP3 - T.3.4 were schemes for new partnerships with key actors from the construction supply chain were identified. In fact, T3.4 and 4.3 were very much dependant from each other and intense collaboration was put in place. T4.3 delivered to T3.4 insights and feedback from the Polish construction industry on the needs and threats of energy efficiency skills recognition in the Polish construction sector. Consultations with national stakeholders in T4.3 at an early stage supported the development/adaptation of set of instruments developed in WP3 as the outcome of these meetings delivered insights for the establishment of future partnerships to be verified in Polish Demonstration 3 context.

Moreover, each cluster leader was provided with guidance information on stakeholder management and communication available that was produced within WP5 (dissemination and communication).

Last but not least, the output of WP4 core demonstration actions will feed straight into WP6 'Exploitation and replication' where the results of INSTRUCT project are being analysed from the perspective of general exploitation, replication, scaling -up, adaptation and localisation, as well as enabling future business possibilities.

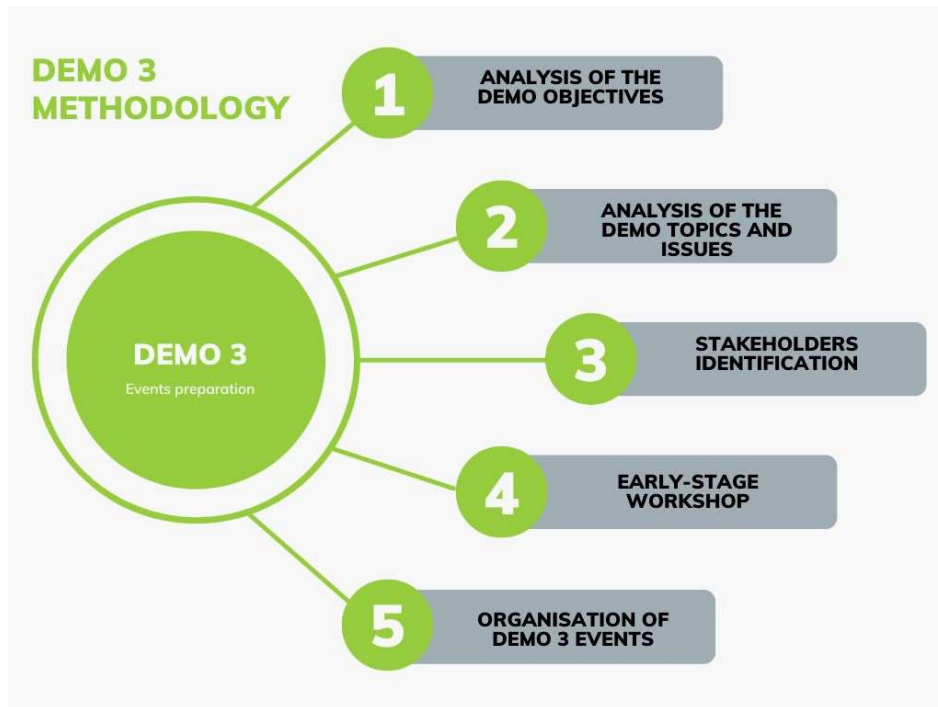
#### 4. Methodologies used.

The methodologies used for the implementation of demonstration activities in T4.3 included:

- At an early-stage consultations, workshops with industry stakeholders. Here there was one consultation with the Association of Mineral Wool Producers and workshop with Polish construction companies.
- At a later stage, meetings with wider audience to disseminate educational materials elaborated within T4.3. Here the methodology used was presenting the INSTRUCT results during presentation at events gathering the Polish construction industry.

*Figure 3 - Summary of the methodology toward demo events*





### 3.1. Early-stage consultations and workshops.

The purpose of the consultation and workshop was to gather insights that would be helpful for the development of the collaboration schemes in T3.4. Discussion was directed especially at two aspects: what are the needs of the construction sector in terms of energy efficiency skills and its recognition and secondly what are the threats in the promotion of EE skills, as well about the establishment of different partnerships among construction value chain.

In INSTRUCT demonstration no. 3 we defined workshop as structured and facilitated meeting with selected groups of stakeholders, in this case from construction value chain.

With regards the methodology behind the workshop, it is important to emphasise that the workshops were based on three aspects: knowledge sharing, problem solving and networking. The objective was on one hand to extract knowledge that the participants possess especially in relation to their and markets' needs with regards energy efficiency skills. We have tried to have a varied group of participants consisting of representatives of associations as well as producers of different construction materials and products who could contribute with idea sharing, awareness raising of the diversity of realities and professional expertise in construction industry. On the other hand, our goal was to deliver concrete outcomes by using facilitation methods and creativity techniques such as brainstorming. Facilitation and creativity techniques have been introduced to raise the awareness, stimulate creativity and engagement of the stakeholders. Finally, we also ensured enough time for networking on one hand to motivate participants to attend the workshop as well as to facilitate ideas and knowledge sharing during the meeting.

These three aspects were essential to ensure smooth execution of the workshop and, most importantly, provide the benefit for both the researchers of INSTRUCT project and the participants.

The technique used in the workshop was simple brainstorming technique. The idea was to identify what do the participants share about the energy skills recognition challenge in Polish construction

sector and what we can learn about it. Additionally, the idea was to try to support the project Consortium in terms of defining how and which group to target from the construction sector to collaborate on the topic of energy skills promotion.

So, the first step involved asking the group to share their main pains and problems linked to the challenge. Secondly the group was engaged to discuss the threats and challenges that relate to greater recognition of energy skills in construction projects in Poland. Our goal was to draw out participants' experience and knowledge on the topic so that the INSTRUCT Partners working in WP3 and WP4 could analyse the results and find patterns that would be helpful in delivering insights for the establishment of future partnerships.

An important aspect of the workshop was also to share with the participants the solution proposed within INSTRUCT project – the collaborative schemes/frameworks and give participants an opportunity to provide feedback as well as build a sense of urgency and importance of the energy skills recognition.

The steps implemented in order to execute the workshop involved:

- (1) design of the workshop in close cooperation with Task 3.4 leader. The design of the event included the following issues:
  - the objectives to be achieved by the workshop,
  - topics and specific issues to be discussed in the workshop,
  - type and number of participants and stakeholders to be involved and invited,
  - use of space and logistics, including the selection of the venue and catering,
  - preparation of the materials needed for the workshop execution, presentation aids (laptop, USB key, CDs, DVDs, brochures, products for demonstration, boards, etc.), printouts of the agenda, the list and contact details of the participants, etc.).
  - adaptation of different methods and facilitation techniques,
  - communication strategies to involve, inform and disseminate results (invitation letters, confirmation of their presence, sending the agenda to the participants as well as relevant practical information [hotel address and contact details, directions to the hotel, parking availability, times, name of the meeting room, equipment that will be available for presentations, etc.]).
  - facilitation team preparations,
  - draft programme and timing and output of the workshop.
- (2) execution of the workshop and applying facilitation method. An experienced facilitator has been chosen to moderate the workshop. The workshop was well-structured, focused on a common goal and a common process and the group's discussion, decisions and outcomes have been recorded. The role of the facilitator was also to provide to handle conflicts between participants as well as other non-productive participant behaviours that could hamper the workshop's process.
- (3) recording of the workshop outcomes. The outcomes of the workshop were organised into a short executive report that included the outcomes of the notes taken by meeting rapporteur as well as a general description of the workshop process and methods used.
- (4) communication of the workshop and consultation results to the T3.4 leader in order to facilitate the development of the partnerships among construction stakeholders.

### 3.2. Demonstration Events.

Apart from workshop and consultation performed at an early stage of demonstration activities, meetings with wider audience have been organised to know-how elaborated in WP3 in a form of educational materials produced within T4.3 was disseminated. As mentioned above here the methodology used was presenting the INSTRUCT results during presentation at events gathering the Polish construction industry.

The approach and steps implemented towards execution of this activity involved:

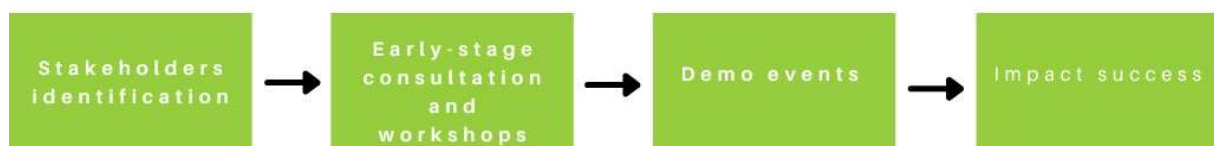
- (1) identification of main outcomes that were produced as a result of T3.4 and T4.3 activities which could and should be promoted among Polish construction industry,
- (2) identification of target groups that the INSTRUCT project wants to share this knowledge with and more importantly that the target groups would be interested in gaining,
- (3) identification of events where this information could be shared,
- (4) selection of events and liaison with event organisers on the possibilities to involve INSTRUCT project,
- (5) preparation of education and information package for the participants as well as elaboration of power point presentation,
- (6) dissemination of INSTRUCT results during the selected events.

## 4. Description of workshops and events performed.

### 4.1. Introduction.

The methodology presented below shows the approach toward organisation of the Demo 3 activities. Summarising and synthesising all information's, the four-step approach was identified (see Figure 4):

*Figure 4 – Four-step Demo 3 approach*



1. At the first stage we have identified our potential stakeholders for whom our workshops and events will be addressed. We can divide these stakeholders into three groups:
  - a. Professional associations, i.e.: Polish Windows and Doors Associations
  - b. Producers of construction material and equipment's, i.e.: Fakro, Klinkierbud etc.
  - c. Public institutions, i.e.: Polish National Chamber of Construction.
2. Second stage was related to the organisation of consultations and workshops ( see )
3. Third stage was referring to participation in several events where we have conducted presentations and training related to the Demo 3 objectives.
4. The final stag was the impact that we have reached thanks to the activities conducted under Demo 3 activities.

## 4.2. Events description.

In this sub-chapter the description of the conducted events will be presented in detail.

### 4.2.1 Early-stage workshop

The main goal of the first workshop (early-stage workshop) was to gather important INSTRUCT stakeholders in Poland to consult and to brain-storm issues connected with establishing different partnerships among the energy efficiency value chain (see Figure 10) and the needs of the industry connected with energy skills certification of workers. During the this workshop that was conducted in Warsaw on 19<sup>th</sup> January 2022 we have gathered representatives of few polish associations and producers (see table below)

*Table 1 - Participants of early-stage workshop*

Organisation type	Organisation name
<b>Associations</b>	<ul style="list-style-type: none"> <li>• <a href="#">Association of Manufacturers, Suppliers and Distributors "Polish Windows and Doors"</a></li> <li>• <a href="#">Association of energy-efficient ready-made houses</a></li> <li>• <a href="#">Association of Styrofoam Manufacturers</a></li> <li>• <a href="#">Association of Manufacturers of Mineral Wool: Glass and Rock</a></li> </ul>
<b>Producers</b>	<ul style="list-style-type: none"> <li>• <a href="#">Saint-Gobain</a> (glass, isolation wool, construction chemicals etc.)</li> <li>• <a href="#">Wiśniowski</a> (doors, windows, gates)</li> <li>• <a href="#">Proventuss</a> (glass and window materials, insulations)</li> <li>• <a href="#">Fakro</a> (windows, stairs)</li> </ul>

	<ul style="list-style-type: none"> <li>• <a href="#">Aluplast</a> (windows, doors)</li> <li>• <a href="#">Oknoplast</a> (windows, doors, aluminium equipment)</li> <li>• <a href="#">Klinkierbud</a> (clinker tiles, elevations)</li> <li>• <a href="#">Austrotherm</a> (Styrofoam)</li> </ul>
<b>Public institutions</b>	<ul style="list-style-type: none"> <li>• <a href="#">Polish Chamber of Construction Industry and Commerce</a></li> <li>• <a href="#">Committee on Construction at the Polish Chamber of Commerce</a></li> </ul>

During this workshop we discussed, among other things, the challenges facing the construction industry in terms of building and certifying skills in the proper installation of equipment or other building elements (windows, doors, facades). This discussion and the afterward brain-storming session led us to some important conclusion (see Table 2 )

*Table 2 - Challenges and threat toward Energy Efficiency education and certification*

Challenges Areas	Challenges Type
<b>Education</b>	<ul style="list-style-type: none"> <li>• The need for site managers qualified in the field of energy efficiency (Quality control of installed equipment and materials)</li> <li>• The need for professionally trained installers</li> <li>• The need of energy efficiency trainings for SMEs</li> </ul>
<b>Law and policies (input for the D4.4)</b>	<ul style="list-style-type: none"> <li>• Multi-faced integration of the construction market</li> <li>• The need of certain field of education at the VET and HE level (energy efficiency related knowledge, i.e., regarding proper installation)</li> <li>• The need of energy certificates for the whole building (<i>*it will be mandatory for investors to have and EPC before the end of construction phase, from 28.04.2023</i>)</li> <li>• Works in the field of energy savings should be entered in the catalogue of works in the construction log.</li> <li>• The need of windows and doors joinery of acceptance on construction site</li> <li>• Additional points in public procurement for certified workers</li> </ul>

<b>Socio-economical</b>	<ul style="list-style-type: none"> <li>• Arousing the need for professional performance in terms of energy among investors and producers.</li> <li>• The need of cooperation between companies</li> </ul>
<b>Threats</b>	<b>Threats Type</b>
<b>Socio-economical</b>	<ul style="list-style-type: none"> <li>• Sometimes client is more educated than installer.</li> <li>• The market is not mature enough for energy efficiency revolution.</li> <li>• Lack of employees on the market (also qualified ones)</li> <li>• Lack of awareness among companies, installers, and clients</li> </ul>

As presented in the table above, input we have received is related mostly with the three areas: **education, social** and **law and policies**. In terms of first category (**education**), the most important insight is related with the demand and recognition of skilled, qualified, and certified workers (both blue and white collar).

This is the confirmation for example in terms of the correlation between complaints and qualified workers. The VCC company reported that “65% percent of complaints about doors and windows relate to defects in the installation of these products. The association also points to thermal energy losses generated by installation errors. Despite numerous trainings and courses provided by various entities, there is still a severe shortage of qualified installers. Proper verification of the competencies that job candidates possess is also a challenge - as the recruitment process requires a practical exam each time, which generates time and consumes costs. More than half of the companies that install roof and façade windows indicate that they have problems finding employees. In contrast, 40 percent of them specify that the market is dominated by people with poor skills who require thorough training. The needs of the market are thus illustrated by both the employer and the employee. The former wants to maximize the professionalism of the team, hire competent assemblers and avoid unnecessary costs and downtime on site. The employee, on the other hand - who is often self-taught or the proverbial "handyman" - wants confirmation of his competencies, which will make it easier for him to find a job in a position adequate to them and allow him to grow in his profession”<sup>1</sup>.

Regarding second category (**socio-economical**) there is a high need to stimulate in general the demand for the energy-efficiency solutions, as well good and sustainable (ecological, high performance, recyclable) products. What is more, participants of the early stage workshop pointed, that there is still a need to raise awareness about the benefits of different type of cooperation among the construction value chain. Another recommendation was referring to

<sup>1</sup> [https://www.obud.pl/art,18454,jak-uzyskac-certyfikat-za-montowanie-stolarki-budowlanej-d\\_okna](https://www.obud.pl/art,18454,jak-uzyskac-certyfikat-za-montowanie-stolarki-budowlanej-d_okna)



the need of continuous promotion among all players within the value chain to encourage them to join already existed cooperations or to establish their own.

The last category that refers to the analysis of the **law and policies** will be described in the deliverable 4.4, as it refers more to the policy recommendations.

*Figure 5 - Photo from INSTRUCT Easrly-stage Workshop*



#### 4.2.2 Demonstration Events

After organisation of the early-stage workshops, ASM as leader of task 4.3 and task 4.4 took part in several construction/energy efficiency related events. As mentioned previously in the section regarding the methodology, the best events in Poland were identified. Those events was chosen taking into considerations different factors like: reaching demo stakeholders or reaching specific impact.

Events description:

**1) VI Convention of the Heating, Plumbing and Sanitary Market**, during International Installation Fair:

This fair took place from 25<sup>th</sup> to 27<sup>th</sup> April 2022 in Poznań (Poland). On 25<sup>th</sup> was organised VI Convention of the Heating, Plumbing and Sanitary Market. The main topics of the convention were related with:

- Challenges of the industry connected with the Green Deal and FitFor55 EU programs.
- Digitalisation of the industry
- Current market analysis

- General trends and challenges of the industry

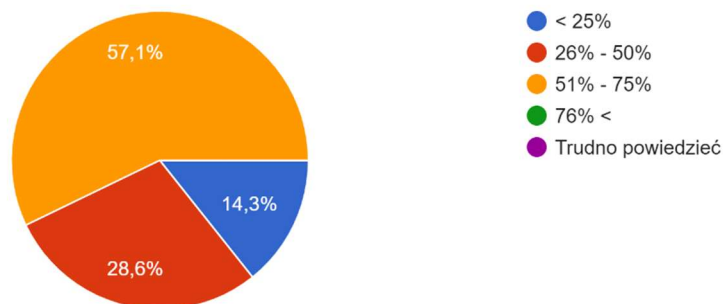
During this convention representative of ASM conducted a presentation/training about the new partnerships among the construction value chain with examples of some good practices in the context of market. What is more, during this event we have shared with the audience a short questionnaire to gather more knowledge about their initiatives and partnerships (see annex 1). Based on the answers, the questionnaire was filled by representatives of production companies (see below )

*Table 3 - What products is your company associated with?*

<b>Cooperation type</b>	<b>Percent</b>
Heat pumps	100%
Heating boilers	57,1%
Radiators	24,9%
Ventilation systems	14,3%
Underfloor heating systems	57,1%
Recuperators	28,6%
Water heating devices	42,9%
Other heating devices for rooms	28,6%
Ductwork	14,3%

Among others, we have asked about what percentage of their products refers to energy efficiency (see Figure 6 ), over 75% of the products has more than 26% impact on the energy efficiency of the building.

*Figure 6 - To what extent (in percentage terms) are the products you manufacture/sell responsible for a building's energy efficiency?*



In another question we have asked if they cooperate with other actors among the value chain, and 100% of the respondents said “yes”. We also asked them what kind of cooperation they undertake. Most of the answers are referring to different types of training (see below) directed toward sellers and installers. This confirms the importance of the cooperation between producers, retailers and installers to provide a high quality service to the investors and homeowners.

*Table 4 - What kind of cooperation do you undertake that is directly or indirectly related to energy efficiency?*

Cooperation type	Percent
We organise training for sellers	100%
We organise training for customers	57,1%
We organise practical training for installers	85,7%
We organise product presentations	71,4%
We establish cooperation in the field of technology, e.g., with universities	28,6%
We cooperate in the exchange of good practices with other companies	42,9%

During the presentation/training from INSTRUCT there was 60 people present, representing production companies (see Table 3 ).

*Figure 7 - Photos from VI Convention of the Heating, Plumbing and Sanitary Market*



## 2) TADMAR FORUM:

This event took place from 22<sup>nd</sup> to 23<sup>rd</sup> September 2022 in Serock (Poland). This event gathered over 200 contractors companies from all over the country. Most of the companies are partners for TADMAR and represents retailer and producers of different heating equipment:

- boilers and furnaces,
- oil tanks and accessories,
- central heating system protections,
- chimneys, radiators,
- underfloor heating systems,
- heat pumps,
- heating fittings (valves, receptacles),
- water heaters, heat exchangers,
- air heaters,
- air conditioners,
- solar collectors,
- insulations.

During the event there were several lectures done, by for example: WAVIN, PORT PC, ELPRO CALEFFI and ASM. On our lecture we have continued to share the knowledge about the benefits of the partnerships among construction value chain and correlation between energy efficiency and certification. In the event took part circa 700 participants.

*Figure 8 - Photo from the ASM lecture during TADMAR FORUM*



### 3) International construction and architecture fair BUDMA:

The BUDMA fair is the biggest one in the central Europe. It gathers hundreds of visitors from construction and architecture industry. The event took place from 31<sup>st</sup> January to 3<sup>rd</sup> February in Poznań (Poland). During these days ASM conducted workshop, presentations, and group discussions. We took part in three separate events:

- a. *Meeting of the Polish Construction Committee*: It was a workshop discussion with the participation of design companies on the policy related to energy efficiency in Poland and its impact on the economic situation in the construction industry in Poland and Europe. ASM has presented the outcomes of the projects and conducted a training related to the establishment of new partnerships. In the event took part 10 people from different organisations (see table below)

*Figure 9 - Participants of the Polish Construction Committee during BUDMA in 2023*

Organisation type	Organisation name

<b>Associations</b>	<ul style="list-style-type: none"> <li>• Polish Windows and Doors Association</li> <li>• The Polish Association of Roofers</li> <li>• Polish Technology Platform for the Construction Industry</li> </ul>
<b>Producers</b>	<ul style="list-style-type: none"> <li>• Fakro (windows, stairs)</li> <li>• Klinkierbud (clinker tiles, elevations)</li> </ul>
<b>Public institutions</b>	<ul style="list-style-type: none"> <li>• Polish Chamber of Construction</li> <li>• National Chamber of Commerce</li> <li>• Polish Chamber of Civil Engineers</li> </ul>
<b>Commercial</b>	<ul style="list-style-type: none"> <li>• BZB Project Construction Management Office</li> </ul>

- b. *Monteriada*<sup>2</sup>- practical demonstrations of energy-efficient installation of joinery products with the participation of manufacturers of building materials, contractors, design companies, trading companies and individual investors. This even continued throughout the fair. ASM conducted presentations and lectures on Tuesday (31.01.2023) and Wednesday (1.02.2023). Similar to the previous lectures that we have mention before, as well in this case we present the INSTRUCT project in context of new partnership, good practice examples and corelation between energy efficiency and certification. Each day during ASM lecturers took part around 90 participants which gives us a very good impact of 180 professionals (producers, investors, homeowners and architects)

## 5. Results and Impact

In chapter 5 there will be presented a summary of the results and impact of the action conducted under Demo 4. Regarding the results we can divide them into two categories:

- 1) *Empowerment and awareness raising* – category related to spreading knowledge about partnerships among the construction value chain as well increasing demand for skilled workforce.
- 2) *Good practice examples of partnerships* – examples and database of different already existing partnerships and cooperations between companies among EU.

### 5.1. Empowerment and awareness raising.

The main results of the activities conducted within Demo 4 is to empower stakeholders (construction value chain) to undertake actions that will results with establishment of new partnerships, collaborations or cooperations. As it was identified in the Deliverable 3.4 “Awareness raising methodology towards energy efficiency value chain” there are three areas of developments:

- *Raise awareness* - More/adequate information should be given to the building owners on the impacts of the various stakeholders on the overall construction quality. This would help making

<sup>2</sup> <https://budma.pl/pl/aktualnosci//monteriada-2023-wielkie-budowlane-emocje-za-nami-podsumowanie-wydarzenia>

informed choices for the selection of skilled workers. For example, the coordination of works is a key point to achieve better energy efficient building.

- The use of *adequate tools* for skills recognition could enlarge the impact of the partnerships. As shown in the partnerships listing described in this document confirms the narrow scope of the partnerships and the difficulties to evaluate their impacts.
- *Strengthen the roles of associations*. Those associations are -in essence- partnerships between companies/entities from the same sector. They have a role for improving the quality of constructions achieved by their members. Putting aside competition between competitors, they can emphasize and promote quality of works and skills recognition.

That three areas were explored during all Demo 4 workshops, trainings, and presentations. According to the feedback from participants, they (three areas) are considered to be very important from the energy efficiency perspective, as well from the perspective of a players within the construction value chain.

## 5.2. Good practice examples of partnerships.

Other results of conducted activities in the task 4.3 are examples of good practise. A database of good practice examples was created and, among them are good practices that we have gathered thanks to the cooperation with companies and associations that took part in our workshops and events in Poland. These examples are associated with different partnerships (collaboration) among players within the construction value chain. We have been contacting several institutions in Poland, and we have received very nice feedback regarding partnerships among construction value chain. Most of these examples refers to cooperation between construction industry associations, producers, homeowners, and installers. The results of such cooperation are social/industry campaigns about the potential of energy efficiency, and it benefits.

Good practice examples:

- 1) **“Be smart, insulate your home”** - campaign prepared by the [MIWO](#) Association of Glass and Rock Mineral Wool Manufacturers<sup>3</sup>.

The aim of this campaign was to raise awareness about the benefits of building insulation. In this case we can see an established partnership between different companies (producers of glass and rock mineral wool) and homeowners (building owners). The message of the campaign was:

- **the benefits of insulating a house:** NEW BUILDING - proper insulation of a new building enables energy savings, and it is also worth insulating better than required by law, because such insulation pays off in the long run; OLD BUILDING, WITHOUT INSULATION - the benefits of carrying out thermal modernisation and paying attention to the correct order of modernisation, i.e. first an energy audit, then thermal modernisation and only furnace replacement.
- **the benefits of insulation with mineral wool:** not only good thermal insulation, which saves energy, but also the properties of mineral wool ensure fire safety (because wool is non-

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<sup>3</sup> MIWO consist of companies like: ISOVER, SAINT-GOBAIN or KNAUF

combustible), acoustic comfort (mineral wool is a very good acoustic insulator), durability of the insulation (because mineral wool does not lose its properties over time, which is documented by research); healthy indoor climate (because wool is vapour permeable)

2) **“Good installation, you built for generations”** - campaign prepared by the [POiD](#) Polish Window and Door Association<sup>4</sup>

This social/industry campaign has three main goals:

- **Economical:** To promote installation of warm windows, doors, or garage doors in order to increase savings on energy consumption (mostly connected with heating or air conditioning)
- **Ecological:** To show that the use of recycled products is an opportunity for future generations
- **Conscious building:** To promote the use of ecological and energy-saving product for building construction or building (home) renovation

Like the previous campaign, here also the partnership is built between different producers and customers, as well installers. Within the campaign a lot of trainings are organised for three target groups:

1. **Students** (trainings organised by the producers of i.e., doors, windows, or garage doors for students in trade and vocational schools)
2. **Investors** (trainings for real estate developers and homeowners i.e., “Warm home with energy-efficient roof windows” or “What are the characteristics of warm installations” etc.)
3. **Installers** (trainings for professional installers to improve their knowledge and skills i.e., “Quick and airtight installation of windows and doors in the insulation layer” or “New standard of insulation and sealing of frame connections in WINS system”)

3) **“Installer’s Academy”** - Partnership initiative created by company [TADMAR](#), one of the largest networks of wholesalers of heating, plumbing and sanitary warehouses in Poland. All equipment sold is covered by warranty and has the necessary certificates and approvals.

Main goals of the initiative:

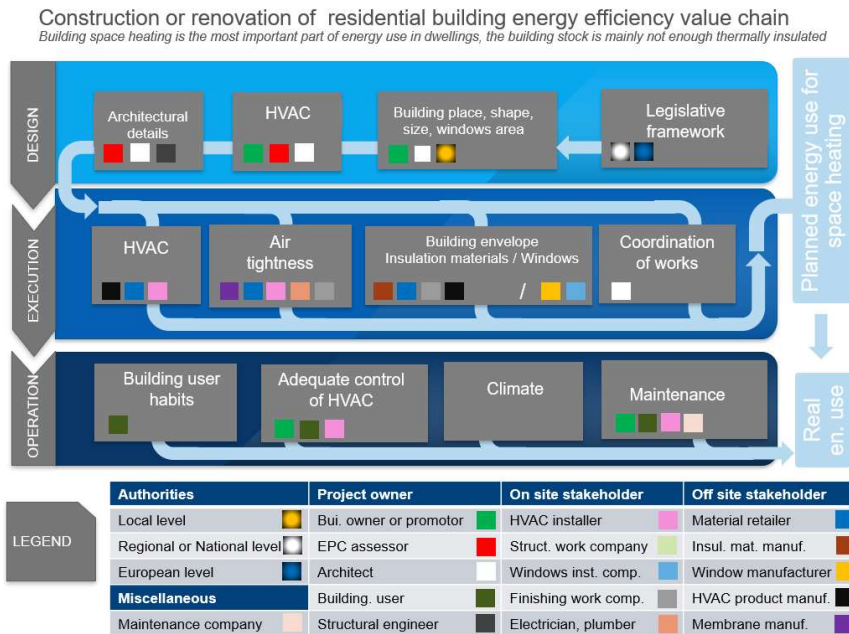
- **Creation of monthly bulletin:** gathering the newest information about trends and equipment.
- **Installer’s workshop:** gathering materials about market trends, products, technical advisory and a lot of videos introducing installation techniques.
- **Legal advisory:** Gathering knowledge about the law rules on the market.
- **Trainings:** Providing technical HVAC related trainings with cooperation from producers, as well trainings offering certificates of energy authorisations for installation, operation, maintenance, repair and overhaul of energy installations and equipment.

The good practice example from Tadmar shows variety of partnership among the energy value chain. The main core of the partnership is between (see Figure 10) HVAC product manufacturers, HVAC installers, finishing work companies, electrician, plumbers, material retailer and as well building owners.

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<sup>4</sup> POiD consist of companies like: FAKRO, HORMANN, Soudal, Henkel or Wiśniowski



**Figure 10 - Energy efficiency value chain**


Apart from those good practice examples from Poland that were presented above, a database (see below) of other partnerships from EU countries was prepared. That database consists of:

- 1) **Partnerships around training** - examples
- 2) **Collaborative Training Schemes** – examples
- 3) **Partnerships Challenges & Opportunities** - based on few cases.

**Figure 11 - Best Practices of Partnerships around Training & Collaborative Schemes Between Target Groups**

Partnerships around training in FWEL:	Partnership between:	Short Description	Producers	Retailers	Target Groups	Installers	Other (i.e. distributors, municipalities, educational institutions, etc.)	Year signed
Continues		of the carbon impact of the project, in addition to the energy study so was the case with RT2012."			DIY market			
FR	- Bouygues Construction - The French Ecole des Ponts Partnership	A partnership between Bouygues Construction and the French Ecole des Ponts Paristech, is established to enhance employees' skills to handle construction projects that are getting more and more complex.	X			X	X	-
FR	- Leroy Merlin (they have several stores in Poland - see here) - The French ADEME (agency for ecological transition)	A partnership between Leroy Merlin & the French ADEME (agency for ecological transition) in order to better train Leroy Merlin employees so that they can better support customers on energy-efficiency related matters in their shops (partnership signed in June 2017 - long-term collaboration since 2011).  "Faithful to its tradition of training employees and advising customers, Leroy Merlin is committed further to informing and supporting its customers in this area, and beyond for sustainable consumption in the broad sense (circular economy, reduction and prevention of waste...). First joint initiative, resulting from the renovation booster: the experimentation of "pop-up-stand" stands, to raise awareness in a fun and educational way among customers passing through stores."	X		X	X	X	2017
FR	- Castorama - Ma Prime Rénov' (other link)	Castorama (part of Kingfisher group, they have 78 stores in Poland) has launched one-stop-shops designed around the French government "Ma Prime Rénov'" incentive to support home energy efficiency renovation.	X	X	X	X	X	2021

Full version of the database is available on the INSTRUCT platform <https://www.energy-education.com/>.

### 5.3. Impact of demo activities.

The main impact of the Demo 3 is connected with the professionals that we have reached with the INSTRUCT presentations/workshops/trainings. Summarising, during the demo activities we have been able to reach following groups of professionals and stakeholders:

- 1) **Designers (150)**: sanitary installation designers, HVAC designers and architects
- 2) **Construction (644)**: construction companies, construction elements/equipment producers, construction elements/equipment retailers, professional construction related, sanitary and HVAC installers.
- 3) **Public and private authorities (8)**: construction chambers, construction associations,
- 4) **Investors/homeowner s (150)**: private and public sector

As mentioned several times before (and in the events description) the impact was focused on increasing and stimulating the demand for skilled workers and as well rising awareness about the benefits and profits of establishing new partnerships among the construction value chain.

## 6. Further development

With regards the further development of the task activities, we are planning to continuously promote the outcomes. As ASM Research Solution Strategy is strongly connected with the construction sector in Poland, there will be a lot of opportunities to exploit the results of the INSTRUCT project. What is more we have prepared additional webinars to disseminate and exploit the results also after the end of the project duration. In the context of Demo 3, the webinar (see is named “Webinar – Nowe Partnerstwa (en. new partnerships) – Construction Value Chain.” This webinar will be uploaded for free on the Internet, and will be sent via e-mail to all construction industry contact of ASM.

*Figure 12 - Webinar - Construction Value Chain*



## 5. General Conclusions

The establishment of new partnerships among the construction value chain is crucial in achieving energy efficiency goals and promoting sustainable development. By working together, manufacturers, suppliers, installers, and other stakeholders can share knowledge and resources, and create innovative solutions that promote energy efficiency. One important aspect of these partnerships is the certification of skilled workers in energy efficiency. Proper installation of energy-efficient products such as doors, windows, air-tight seals, and wall insulation is essential to achieving energy efficiency goals. By ensuring that workers are properly trained and certified, we can ensure that these products are installed correctly, and that they perform as intended. Certification programs can also help to build trust between stakeholders and promote transparency in the construction value chain. Customers can be confident that the products they are purchasing are installed correctly and will perform as advertised, while manufacturers and installers can have confidence in the quality and performance of their products. In addition to certification programs, partnerships can also promote the use of sustainable materials and practices. By working together, stakeholders can share knowledge and resources, and create innovative solutions that promote sustainability and reduce the environmental impact of construction. In conclusion, the establishment of new partnerships among the construction value chain is essential in achieving energy efficiency and promoting sustainable development. Certification of skilled workers in energy efficiency is crucial in ensuring that products such as doors, windows, air-tight seals, and wall insulation are installed correctly and perform as intended. By working together, stakeholders can promote the use of sustainable materials and practices, and create innovative solutions that promote energy efficiency and reduce the environmental impact of construction.



## 6. Annexes

### Annex 1 – Questionnaire

# Współpraca pomiędzy podmiotami sektora budowlanego w celu osiągnięcia lepszych parametrów efektywności energetycznej. Certyfikacja umiejętności z zakresu efektywności energetycznej.

1. Proszę zaznaczyć z jakimi produktami związana jest Pana/Pani firma? Mogą być to produkty produkowane lub/i sprzedawane (można zaznaczyć więcej niż jedną opcję)

*Zaznacz wszystkie właściwe odpowiedzi.*

- Pompy ciepła
- Kotły grzewcze
- Grzejniki
- Systemy wentylacyjne
- Systemy ogrzewania podłogowego
- Rekuperatory
- Urządzenia ogrzewające wodę
- Urządzenia do ogrzewania pomieszczeń

2. W jakim stopniu (w ujęciu procentowym) produkowane/sprzedawane przez Państwa produkty odpowiadają za efektywność energetyczną budynku?

*Zaznacz tylko jedną odpowiedź.*

- < 25%
- 26% - 50%
- 51% - 75%
- 76% <



3. Czy nawiązują Państwo współpracę ze sprzedawcami, instalatorami lub konsumentami np. w zakresie szkoleń lub organizowania sesji wymiany wiedzy?

*Zaznacz tylko jedną odpowiedź.*

tak

nie

4. Jaki rodzaj współpracy Państwo podejmują, związany pośrednio lub bezpośrednio z efektywnością energetyczną?

*Zaznacz wszystkie właściwe odpowiedzi.*

Organizujemy szkolenia dla sprzedawców

Organizujemy szkolenia dla konsumentów

Organizujemy szkolenia praktyczne dla instalatorów

Organizujemy sesje wymiany wiedzy/prezentacje produktów

Nawiązujemy współpracę w zakresie technologii, np. z uczelniami

Inne:  \_\_\_\_\_

5. Czy napotykają Państwo problemy/bariery związane z coraz wyższymi wymaganiami dotyczącymi produktów, w kontekście ekologii lub efektywności energetycznej?

*Zaznacz tylko jedną odpowiedź.*

tak

nie

6. Jeśli tak, proszę powiedzieć jakiego rodzaju są to problemy/bariery?

\_\_\_\_\_



7. Czy uważa Pan/Pani, że sprzedawcy lub instalatorzy powinni posiadać specjalne certyfikaty poświadczające ich wiedzę z zakresu efektywności energetycznej?

*Zaznacz tylko jedną odpowiedź.*

tak

nie

8. Czy posiadanie takich certyfikatów powinno być wymogiem w przetargach publicznych?

*Zaznacz tylko jedną odpowiedź.*

tak

nie

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Evidence-based market and policy instruments implementation across the EU to increase the demand for energy skills across construction sector value chain.



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