



SKILLS
INSTRUCT
INSTRUMENTS
CONSTRUCTION

**Engaging key
stakeholders to
stimulate demand
of energy skills**



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

D4.7 Demo 7

Engaging key stakeholders to stimulate demand of energy skills

Dissemination Level: public

Lead Partner: EnEffect

Due date: 28.02.2023

Actual submission date: 16.03.2023

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.

Authors:

Dragomir Tzanev, EnEffect

Ira Ivanova, EnEffect

Revision and history chart

Version	Date	Editors	Comment
V1	09.03	Marcello Curci, DTTN	Deliverable review
V2	15.03	Ira Ivanova, EnEffect	Final edit to deliverable

Disclaimer:

The information in this document is subject to change without notice. Company or product names mentioned in this document may be trademarks or registered trademarks of their respective companies.

All rights reserved.

The document is proprietary of the INSTRUCT consortium members. No copying or distributing, in any form or by any means, is allowed without the prior written agreement of the owner of the property rights.

This document reflects only the authors' view. The European Community is not liable for any use that may be made of the information contained herein. Responsibility for the information and views expressed in the therein lies entirely with the author(s).



Table of contents

Contents

1. Introduction to the demo objectives	3
2. Connection to other tasks in INSTRUCT project.....	4
3. Methodologies used.....	5
4. Process/Tasks/Events	6
5. Results	14
6. Contributions to other tasks	16
7. Further development	17
8. Impact.....	19
9. Conclusion	20
References.....	20

List of figures:

Figure 1 Relation of the Demonstration project to other tasks in the INSTRUCT project	5
---	---

List of tables:

Table 1 Table illustrating the qualitative impacts of the task activities	19
---	----



1. Introduction to the demo objectives

The need for such a demonstration initiative in Bulgaria is provoked by the formerly identified lack of institutional commitment and coordination to improve programmes and schemes for vocational training and education of construction professionals. This problem was already defined in the first phase of the BUILD UP SKILLS initiative and reflected in the resulting 2013 roadmap (BUILD UP SKILLS, Bulgaria, 2013).

Unfortunately, little progress has been made in this direction in the years following the activation of the national Roadmap. In recent years and in particular since the beginning of the INSTRUCT project, the situation has been further complicated by the lack of political stability and predictability, caused by five parliamentary elections in Bulgaria (Reuters, 2023) in the short period of two and a half years, and constant change of governments preventing the creation of a stable institutional environment for the implementation of the necessary reforms. From this point of view, the persistent absence of a Continuing Professional Development (CPD) system in the country is strongly felt, and despite the efforts supported by this and other ongoing projects, there is still a gap to be to be urgently addressed. In that sense, Demonstration initiative 4.7 “Engaging key stakeholders to stimulate demand of energy skills” focuses on increasing interest towards nearly Zero Energy Buildings (nZEB) and deep retrofit and on creating demand for qualified specialist and workers in Bulgaria. It is based on organization of public campaigns, training courses for deep renovation and nZEBs, and large-scale policy workshops. The targeted local actors are:

- Ministry of Regional Development and Public Works,
- Ministry of Energy,
- Sustainable Energy Development Agency,
- Chamber of Architects in Bulgaria,
- Bulgarian Association for Insulation in Construction,
- University of Architecture, Civil Engineering and Geodesy,
- Municipal Energy Efficiency Network EcoEnergy,
- Regional Energy Agencies.

Its targeted impacts within the INSTRUCT project are outlined in impact area 4 “Increased number of certification schemes for energy efficiency skills”, with a shared impact for Demo 4.7 and 4.8: “National agencies are involved in campaigns and will reach 500 professionals (1 scheme in preliminary preparation)”. It is reconfirmed in impact area 6 “Improved collaboration and understanding across different trades and professional group”, where the quantitative indicator is assigned directly to Demo 4.7, stipulated as “Training engagement arranged 10 times with an average of 50 people resulting in 500 people”. In Impact area 8 “Legislative changes stimulating the demand for energy skilled construction workers/professionals”, another indicator is set for Demo 4.7, namely the design and application of a public procurement requirement for skilled workers.

The demonstration project relied on several institutional prerequisites, such as EnEffect's participation in the National Council for Nearly Zero Energy Buildings and subsequently the National Council for the Green Deal's Energy Efficiency and Energy Poverty Commission, which allowed for a direct participation in the policy making process. In addition, EnEffect has also been involved in the development of key energy efficiency strategies in the building sector at national level, including the National Long-term Renovation Strategy (NLRS) (Ministry of Energy, 2021) and the National Recovery and Resilience Plan (NRRP) (Republic of Bulgaria, 2022), where a number of successful actions have been implemented and the topic of training for building professionals has been reflected. However, there is still room for



improvement since specific requirements for qualification have not become part of the national funding programmes. Still, the main driving force is to raise quality in construction, which in turn will require direct market realization and will activate a demand from market actors for additional knowledge and skills, in order to enable the achievement of the national objectives.

Alongside this, this demonstration initiative was also supported by parallel ongoing Horizon 2020 funded projects. Some of them, such as CraftEdu¹, NZEB Roadshow², BUS League³ and as of recently the BUS-GoCircular⁴ and nZEB Ready⁵ projects, have indeed had a major impact on the INSTRUCT activities and on the dissemination of the achieved results. With their help and with the organisation of a number of joint events, the expected key results were gradually reached, coinciding with the ending of the project. Along with this, it should be noted that a number of stable relationships have been established with almost all **type of** stakeholders, along with several valuable connections made to municipal institutions, which eventually allowed for real intervention in the legislative process and the implementation of the first public procurement project in Bulgaria to include skills and training requirements for construction professionals.

2. Connection to other tasks in INSTRUCT project

This task 4.7 “Engaging key stakeholders to stimulate demand of energy skills” demonstration project primarily use the outputs from work done at the beginning of the project. It encompasses research done on EU-level to demonstrate the role of training and education in achieving energy efficiency in buildings across the whole value chain, while identifying skills gaps and opportunities for improvement. The results of this analysis directly lead to the definition of a matrix of learning outcomes (qualifications framework), necessary for enhancing the training and education of the construction sector and of requirements towards new instruments and training methodologies. These outcomes are then accordingly applied into further project work, which aims at ensuring recognition of energy-related skills at regional and/or national levels through creation of “skills registers”, to guarantee a coherent and sector-wide set of course models are developed and sustained. The main contribution of these tasks being the use of the content of the matrix for the outputs of the qualification frameworks developed under the project. Of course, in the same line, the definitions of innovative tools are also used to support the training of different certified professionals. With the help of these tools, the EnEffect certification system was further developed for further specialization of different professions and specialties in the construction sector for nZEB, which is being recognized in the activities of the Bulgarian Building Knowledge Hub⁶ and is being supported by institutions such as the University for Architecture, Civil Engineering and Geodesy (UACG), and the Bulgarian Construction Chamber. Thus, involving important stakeholders into the process.

In another task of the project, legislative frameworks with potential to enforce the need of skilled construction workers in public and private procurement were identified. In addition, training modules were developed to be suggested for such interventions and workshops with authorities were

¹ <https://www.craftedu.eu/>

² <https://www.nzebroadshow.eu/>

³ <https://busleague.eu/>

⁴ <https://busgocircular.eu/>

⁵ <https://nzebready.eu/>

⁶ <https://www.buildup.eu/en/news/5th-building-knowledge-hub-opens-doors-bulgaria-0>



organized. As a result of these activities, the collected examples and successful practices were used for organization of innovative sustainable public procurement and applied to a specific case in Bulgaria by the municipality of the city of Gabrovo.

The results of Demonstration Project 4.7 in turn served successfully for a national and regional communication campaign to disseminate the outcomes of the work packages. Within the planned work for dissemination and communication of the outcomes from the project, a number of events were held in which the results of the INSTRUCT project were presented to more than 1600 attendees. Along with this, a very strong media presence on the topic of the need for training of construction professionals was achieved by bringing it to the attention of key national media outlets and to some of the most popular online publications in Bulgaria.

Of course, the results of the quantitative indicators of the project are supported by the achievement of the objectives of the project to ensure quality and successful implementation of the tasks, which will be presented later in the document in Chapter 8.

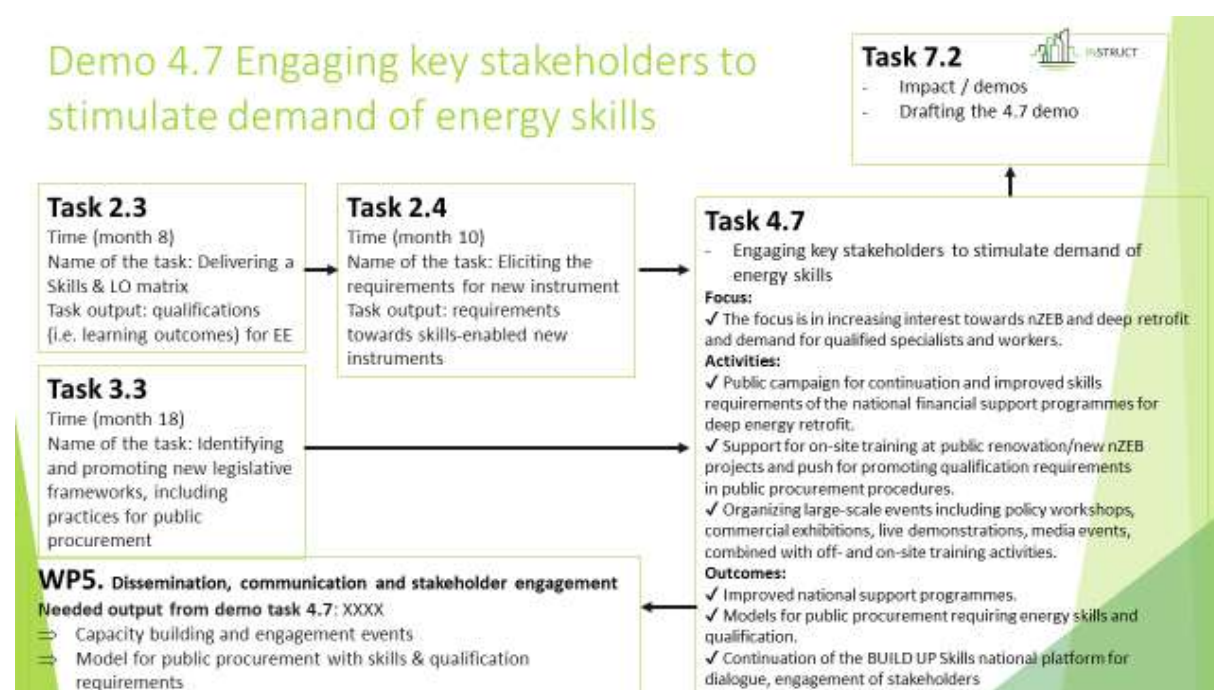


Figure 1 Relation of the Demonstration project to other tasks in the INSTRUCT project

3. Methodologies used

The methodology used to implement demonstration project 4.7 “Engaging key stakeholders to stimulate demand of energy skills” is complex and uses multiple tools necessary to implement robust and consistent relationships between identified stakeholders. First and foremost, among the methods used, EnEffect's participation in various institutional formats supporting energy efficiency policies for buildings stands out, such as the aforementioned National Council for nearly Zero Energy Buildings and the Energy Efficiency and Energy Poverty Commission of the National Council for the European Green Deal. Besides this type of influence on policy decision-making, EnEffect is also engaged in official participation in the public consultation processes for all documents, strategic plans, and funding programmes in this area, adopting formal positions, which were developed independently or in collaboration with a range of other NGOs, industry and professional organisations and popular

construction companies. Collaboration between the various institutions and stakeholders was mediated primarily through active participation in working groups and seminars, in which not only the originally identified stakeholders participated, but also many others through which direct market intervention and stimulation of demand for knowledge and skills in construction could be facilitated. These interfaces for interaction were supported by an extremely active information campaign, which was not limited to the typical press releases in the professional media, with narrow focus, but managed to reach the most popular media outlets in Bulgaria. Along with this, communication channels of several partners, such as the Bulgarian Construction Chamber (BCC), were used, where a number of articles about the events were published. EnEffect took the opportunity during these activities to strengthen synergies with various other projects, which were far from limited to projects supporting the improvement of knowledge and skills in the construction sector, but also included topics on the certification of buildings, the financing of energy efficiency projects to support building renovation policies and sustainable activities in municipalities. Within the framework of these projects and as a result, numerous joint events and project activities were initiated, which allowed for the further expansion of the range of stakeholders, which recognize and support the need for systematic improvement of skills in the building sector. This extended network allows for the additional support for the implementation of knowledge and training related to the achievement of more ambitious building energy efficiency targets and standards.

4. Process/Tasks/Events

4.1. Stakeholder analysis

The work process in Task 4.7 began with the identification and detailed analysis of stakeholders. These were divided into 11 groups, and where necessary, divided into sub-groups. Some of the groups included representatives of public authorities at central, local, and regional level. In other, market representatives were put at the forefront, led by manufacturers and suppliers of different types of products, materials and components related to nZEB buildings both in the field of building envelope and building systems. Attempts were made to collaborate with shops which sell building materials, the so-called Do- It- Yourself stores. Both construction companies and their representatives from the industry were involved in the process. Attention was also paid to highly qualified specialists, planners, architects, and energy auditors. In the area of vocational education and training providers, cooperation was planned with representatives of universities, professional high schools of architecture, civil engineering, and electrical and energy engineering in Bulgaria. To this group, vocational education and training centres were included. Financial institutions and real estate agencies were also considered a relevant partner in the task. Partnerships were established with a number of NGOs active in the field of energy efficiency and environment protection.

Of special interest were the joint activities with media outlets, which were respectively included in the list of stakeholders. These were divided into 4 subgroups - specialist construction media, specialist energy media, general content media, TV and radio channels, and online media.

Working with professional chambers, organisations and associations was also identified as particularly compelling as they are the main driving force behind developing a system for Continuing Professional Development. Last but not least, special attention was also paid to local market development and the need to address the message to end users, citizens active in the real estate market, as well as young people in universities and high schools. Understanding the importance of skilled labor force for the



quality of construction projects has a direct impact on the integration of the demand for qualified workers on the market.

4.2. Involvement in national initiatives

Following the completion of the stakeholder analysis and as a result of the chosen methodology, the different target groups were addressed within the different formats planned for the realization of the demonstration project. Sending a message to the executive and legislative authorities, as well as to the municipal administrations, was set as first action. In this process, it is important to note the role of EnEffect as the lead rapporteur on the topic of education and communication in the National Council for the National Recovery and Resilience plan (NRRP) of the Ministry of Regional Development and Public Works (MRDPW). In this position, EnEffect developed a comprehensive report that was presented to all members of the council (more than 50 people) with representatives from all stakeholder groups. The report informed a row of discussions relating to both the NLRS and the various schemes for funding programmes within the NRRP. As a logical consequence of this process, EnEffect was invited to advise Building Performance Institute Europe (BPIE) in its work as international consultant to writing of the Bulgarian National Long Term Renovation Strategy. In this capacity, EnEffect had the opportunity to be directly involved in the work on the strategy and in writing the texts describing the measures needed for improvements in the field of education, vocational training and communication. Similarly, a number of formal and informal position statements were communicated to several working groups in MRDPW, developing the building stock renovation programme under the NRRP. One part of those statements was later reflected in the final version of the document. As a result of this work, EnEffect was also invited to the Energy Efficiency and Energy Poverty Board of the European Green Deal Advisory Council. As part of the council, EnEffect had the opportunity to present to all Council members (again over 40 representatives from all stakeholder groups) its position on the need for quality building renovation and on the need for consistent energy efficiency policies for the building stock, with focus on reducing or mitigating energy poverty in Bulgaria. The work of this Council is still ongoing and other similar initiatives are on the agenda, especially with respect to the entry of a number of new financial instruments, including some from the European Climate and Social Fund. Parallel to this direct engagement with representatives of national institutions, a number of individual meetings were held with Ministers and Deputy Ministers active at the time in an effort to activate specific important positions in the governmental power.





Meetings on the topic of EU Renovation Wave with participation of BCC, EnEffect, BAIC and government representatives

During this period EnEffect worked in broad coalition with a range of NGOs and professional bodies, chambers, business associations and individual experts and academics in the universities in the fields of construction and architecture to develop detailed positions in support of building renovation policies, where knowledge and skills were presented as an integral part of these policies. It was requested to include a component on financing measures for additional professional qualifications, within the accompanying financial programmes. More than 7 such items were developed during the INSTRUCT project period, which were crucial both for shaping the policies and for building a shared knowledge base among the many actors involved.

As a consequence of this process, it can be argued that the need for improved knowledge and skills at all stages of the construction process is clearly understood by the vast majority of stakeholders. These position statements in turn were presented alongside additional evidence at a number of events that hosted an extensive range of stakeholders and were organized at different times for each of the target groups identified in the original analysis. Many of these events were multi-faceted, and in the

philosophy of the running in parallel nZEB Roadshow project, included both policy conferences and direct trainings for different groups of professionals. From planners to building technicians and other professionals, to energy advisors, to building renovation administrators. In addition, the events included exhibitions by manufacturers and suppliers of specialized materials and products and components for zero energy buildings, as well as a number of demonstration happenings aimed at the general public and citizens who are active on the property market. Games for children and media events were also organized, which aimed to spread the messages of all the projects worked on by EnEffect in the field of education and training for sustainable energy solutions in construction.



Training in the Building Knowledge Hub for construction specialists in the application of nZEB building elements



Seminar with energy advisors of homeowners on the topic of energy efficient renovation by EnEffect in the city of Gabrovo in April 2022

4.3. Media and dissemination

With this type of content, it is of no surprise that the aforementioned activities attracted significant media interest. Several partnerships with media representatives produced and published a number of articles related to knowledge and skills in construction. This included video blogs in one of the most popular Bulgarian online channels Dir.bg⁷ with more than 1 million individual daily visits, and in the specialised website 3E News⁸, which enjoys great professional interest.

Consequently, the topic on vocational education and training has reached the national media. The Executive Director of EnEffect Dragomir Tzanev was able to illustrate practical training methods in a live appearance in the Bulgarian National Television studio⁹. Demonstration models and building materials from the Bulgarian building knowledge hub were brought there and shown in real time. Eventually, the other two most popular Bulgarian TV channels BTV and NovaTV broadcasted several TV shows from the

⁷ <https://business.dir.bg/imoti/pasivni-kashti-kray-moreto-vazmozhno-e-i-na-tsena-za-standarten-moderen-dom-video>

⁸ <https://3e-news.net/bg/a/view/41563/zashto-njamame-znanija-i-umenija-za-nulevoenergijni-sgradi-i-vyzobnovjaema-energija-kakvo-mojem-da-napravim>
<https://3e-news.net/bg/a/view/33238/nedostigyt-ot-obucheni-kadri-v-bylgarija-za-energijna-efektivnost-v-stroitelstvoto-stava-vse-po-silen>
<https://3e-news.net/bg/a/view/34921/opityt-na-hyrvatija-lipsata-na-kadri-i-materiali-v-stroitelstvoto-zatrudnjava-pazara-na-nulevoenergijnite-sgradi>

⁹ <https://bnt.bg/news/kolko-shte-ni-izleze-otoplenieto-prez-predstoyashtiya-zimen-sezon-311653news.html?v=331546>

same training center. The topic was also featured in several the programmes on the Bulgarian National Radio¹⁰.



Snapshot of the demonstration by D. Tzanev of nZEB principles and its benefits in the morning show on Bulgarian national TV



Meeting with Bulgarian journalists in Sofia for communicating the national programme for energy renovation of households, initiated under the NRRP. November 2022

¹⁰ <https://bnr.bg/burgas/post/101765555/prez-fevruari-trabva-da-startira-procedurata-za-paneli-za-bitu>

4.4. Collaboration with other projects

Last but not least, considerable attention was also paid to the joint work with other projects, which enabled the achievement and to a certain extent the surpassing of the applied methodologies in those projects. A lot of the mentioned activities were enabled thanks to the collaborative work of projects such as CraftEdu, BUS League, nZEB Roadshow, BUS-GoCircular and nZEB Ready, which provided essential resources and materials for the implementation of joint project events and for the realization of a number of training courses, reported separately for each project, bearing the costs for it. Alongside this collaboration, it is particularly important to note the important links with several other projects such as iBroad¹¹, iBroad2EPC¹², Cross Cert¹³ and U-Cert¹⁴, within which the topic of training highly skilled construction professionals, energy auditors and consultants was persistently discussed and enabled the definition of a number of learning outcomes that also contributed to the INSTRUCT project reporting documents. Similarly, collaboration was also undertaken with the OutPHit¹⁵ and ReMODULEES¹⁶ projects, which leveraged knowledge and skills from previous building renovation initiatives and Horizon 2020 funded projects. Work with further projects in the field of developing financing schemes and instruments for energy efficiency in the building sector should also be mentioned. These projects include SMARTER Finance for family¹⁷, BeSmart¹⁸ and SMAFIN¹⁹, where the need for highly qualified professionals with up-to-date knowledge, skills and competences has been identified as a key element of the financial sector's commitment to this field for ensuring the quality of building projects. This is particularly important for tracking results and therefore meeting the objectives of the funding institutions.

¹¹ <https://ibroad-project.eu/>

¹² <https://ibroad2epc.eu/>

¹³ <https://www.crosscert.eu/>

¹⁴ <https://u-certproject.eu/>

¹⁵ <https://outphit.eu/en/>

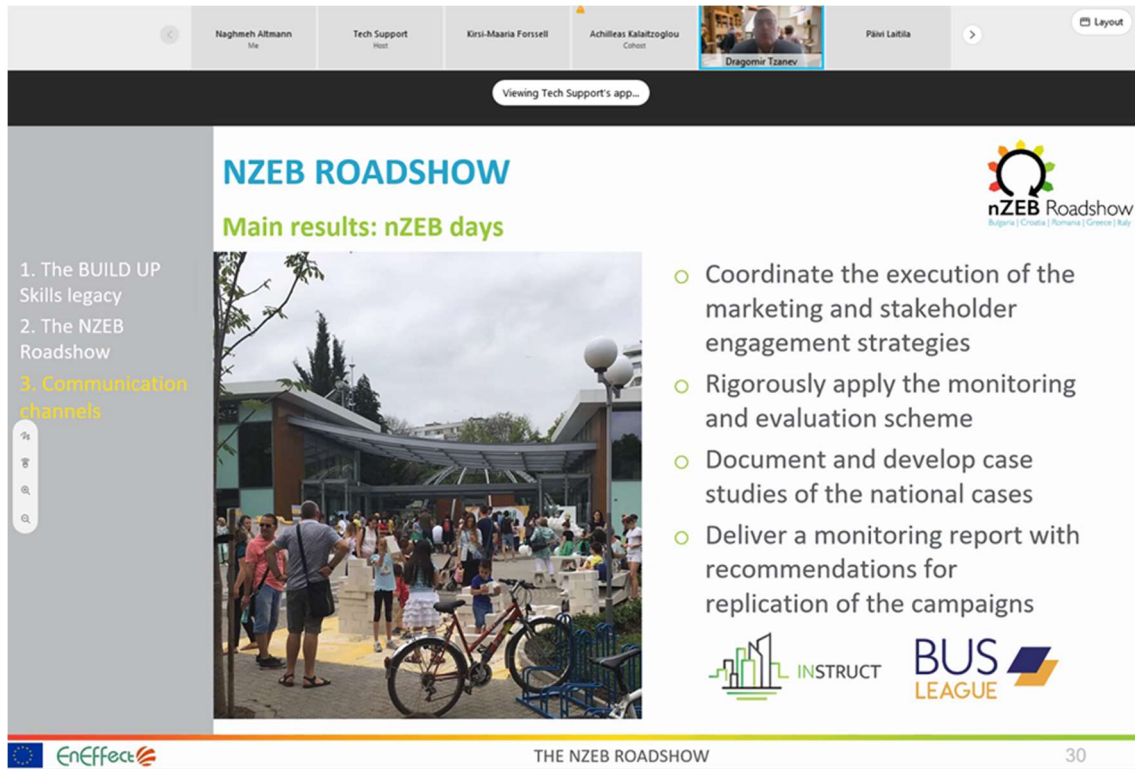
¹⁶ <https://re-modulees.eu/>

¹⁷ <https://www.buildup.eu/en/news/overview-smarter-finance-families-project>

¹⁸ <https://www.besmartproject.eu/>

¹⁹ <https://www.smafin.eu/>





Viewing Tech Support's app...

NZEB ROADSHOW

Main results: nZEB days

1. The BUILD UP Skills legacy
2. The NZEB Roadshow
3. Communication channels

- Coordinate the execution of the marketing and stakeholder engagement strategies
- Rigorously apply the monitoring and evaluation scheme
- Document and develop case studies of the national cases
- Deliver a monitoring report with recommendations for replication of the campaigns

Logos: INSTRUCT, BUS LEAGUE, EnEffect

THE NZEB ROADSHOW 30

Presentation on nZEB by EnEffect during the EPDB concerted actions project



Round table discussion with representatives from financial institutions to underline the importance of upskilling construction specialists as quality assurance for investment. BeSMART project

Last but not least, coordination with a number of projects targeting local authorities such as EXCITE²⁰, OurBuildings²¹, MEMS and to some extent CONGREGATE²² should also be acknowledged. It is

²⁰ <http://www.excite-project.eu/>

²¹ <https://www.bpie.eu/renovating-our-buildings-in-bulgaria-and-romania/>

²² <https://www.euki.de/en/euki-projects/congregate/>



particularly important to note here that within these demonstration projects, Roadmaps were developed for building refurbishment achieving the highest energy ratings for specific public buildings. The principles for the uptake of Green Public Procurement and the introduction of the skilled labor requirement were also set out and subsequently implemented by the Municipality of Gabrovo, with the help of the INSTRUCT and BUS League projects. From this point of view, it is this implementation that is one of the most important results from the project, as it is also in the framework of the cooperation within the Municipal Energy Efficiency Network EcoEnergy²³, which is a third-party participant in the INSTRUCT project. For the first time in Bulgaria a public procurement with a training requirement for the construction company that won the tender was implemented.

Some of the stakeholders involved in the described activities are:

- Ministry of Regional Development and Public works
- Ministry of Education and Science
- Ministry of Energy
- Sustainable Energy Development Agency
- Bulgarian Construction Chamber
- University of Architecture, Civil Engineering and Geodesy
- Regional Energy Agencies
- Bulgarian Facility Management Association
- Bulgarian Energy Efficiency and Renewable Sources Fund
- Bulgarian Association for Insulation in Construction

5. Results

Main results from the demo:

1. Via the direct involvement in the preparation of the national Long-term Renovation Strategy, explicit measures for training and education along the qualification framework have been introduced. EnEffect's direct involvement in the development of the Strategy has resulted in the inclusion of Priority 3.2 - Support for increasing the professional capacity of contractors through the continuous improvement of the VET system. Lifelong learning and stimulation of continuous professional development of designers and consultants, installers and construction workers, and management potential with specifically identified measures, implementation deadlines and responsible institutions, were anchored in the strategy document.
2. Trough participation in the national NZEB council and chairing the section on Communication, Training and Education, specific guidelines have been produced and brought to the attention of the national government and the key stakeholders – members of the council. These specific recommendations and guidelines have been accepted by Council and presented to the Ministry of Regional Development and Public Works.
3. New programmes for energy efficiency designed under the NRRP have been designed with increased energy efficiency criteria, targeting nZEB/Class A renovation for public buildings. Specific guidance on the funding of training for highly skilled and executive staff has been written commissioned by the Advisor to the Ministry for Regional Development and Public Works responsible for the NRRP programmes. Unfortunately, these were not within the scope of the programme at this stage.

²³ <http://www.ecoenergy-bg.net/en>



4. The latest World Bank report pays particular attention to the need for training for energy auditors. And the EIB report foresees a technical assistance component that could be used for additional education and training activities.
5. **Models for public procurement requiring energy skills and qualification: an innovative model for public procurement requiring on-site training is designed, tested, and implemented.** It was applied for the first time in the municipality of Gabrovo, with 8 construction companies applying when the procurement procedure was announced, which is proof that the proposed model for training of the successful tender applicant during the execution of the construction project does not pose a problem. The training was implemented, but unfortunately inaccuracies were found in the project documentation and the bill of quantities. This necessitated a renegotiation of the contract to meet the high targets set by the municipality.
6. The activities under the BUILD UP Skills national platform for dialogue, engagement of stakeholders and collaborative action to empower national and local policy in support of nZEB and deep energy retrofit are continued via various formats, including by the official establishment of the Renovate Bulgaria association and the newly starting BUILD UP Skills Bulgaria 2030 LIFE project. The establishment of a working system of continuing professional development to be adopted by all partners and institutions involved in the subject.
7. 16 training courses for designers and building professionals have been conducted, resulting in a total of 497 trainees (279 designers and 128 professionals); Courses are organised in different cities of the country and online. The indicator of 500 trained was almost achieved, given that interest in training suffered significantly from the Covid pandemic.
8. Besides the training courses 19 information sessions are organized and/or attended with presentation or speech, reaching more than 1600 professionals in a conservative estimation.
9. Further 519 stakeholders have been reached via 12 international professional events, including high-profile conferences and meetings of sister projects.
10. 6 publications/media appearances on the topic have been achieved in the most established TV, radio and online channels, as well as in the professional media – including the channels of the Bulgarian Construction Chamber.

The last three outcomes will be discussed in detail in the analysis of Demonstration Project 4.7. They are also included in this report because they are considered to be crucial for the interaction between the different stakeholders and the steadily growing interest in energy efficiency and renewable energy training under the influence of projects such as INSTRUCT, and other sister projects funded under the EU Horizon 2020 programme.

6. Contributions to other tasks

The work on this Demonstration Project was particularly relevant to the tasks in the beginning of the project, described before. There was also a significant contribution to the implementation of the communications and dissemination activities. In terms of establishing a framework for the delivery of the required knowledge and skills in the form of learning outcomes, the activities of the Demonstration 4.7 contributed to the identification of a number of education and training schemes from Bulgaria. They have provided a considerable amount of material and valuable additions to the qualification framework proposed by the INSTRUCT project. Special attention is given to the learning outcomes for the specialised training for energy auditors, and for the newly developed framework for the training of building technicians at level 3 of the European Qualifications Framework.

Within the task of the project, devising instruments to improve recognition for newly acquired skills in energy efficiency, different ways of blended learning were tested, i.e. the joint use of online, face-to-face and demonstration tools, which will also be described in the analysis of 4.8 Demonstration Initiative (Developing capacity for supply of continuing qualification services through blended learning systems) activities.

In terms of project work focused on creating tools to facilitate market uptake and legislative frameworks for energy efficient construction, the activities in Bulgaria contributed to the development of a procurement model with additional training and qualification requirements for the workers in the construction company, winning the tender. The results will be used in subsequent developments towards improving the quality of renovating public buildings. It should be also noted that there is already interest from another Bulgarian municipality to test the newly developed proposal for their specific purposes. Activities within this pilot procurement format had an effect over establishment of intensive communication with manufacturers and distributors of construction products and equipment suitable for nZEB buildings. This respectively has impact over all international projects implemented in Bulgaria and with attention to the application of the nZEB Roadshow project concepts, which includes organization of on-site demonstrations and teaching of nZEB principles to construction specialists and joint training activities with producers of building materials and other industry representatives. Within the framework of INSTRUCT and with its support, contacts were established with more than 20 suppliers resulting in more than 40 joint activities. In addition to the trade exhibitions and training courses at those events, demonstrations and joint media initiatives aimed at attracting the attention of end users contributed to raising awareness and dissemination. However, the project's ambition to implement a working register for the recognition of acquired professional qualifications has not been met with much approval from stakeholders in Bulgaria to this point. The implementation cannot be, therefore, reported as fully successful. The reasons for this will be described in the analytical report to Demonstration Initiative 4.8.

The activities associated with this demonstration project 4.7, contributed to a wide communication and dissemination campaign as evidenced by the indicators in the previous chapter. Over 2000 stakeholders in Bulgaria and in Eastern European region were informed about the project results through seminars, training, and other events. It even had the opportunity to be presented at large and important international events, such as the COP26 held in Glasgow (Scotland). During this event, EnEffect and the



operated by it Building Knowledge Hub were proclaimed Center for Excellence for Energy Efficient Buildings by the Economic Council of the UN in Europe.



Dragomir Tzanev, executive director of Eneffect, at COP 26 for the award of the Building Knowledge Hub in Bulgaria

All these efforts combined have also helped to generate active media coverage of the activities related to the project and the specific project task, providing exceptional opportunities for continued stakeholder engagement, and increasing advocacy for the need to continually update curricula, teaching materials, and government education standards for improved practical training methods for implementing sustainable energy solutions in buildings.

7. Further development

The direct continuation of the activities of Demonstration Project 4.7 is planned to take place during the BUILD UP SKILLS BULGARIA 2030 project, in which EnEffect is partnering with the two key national agencies- National Agency for Vocational Education and Training (NAVET), Sustainable Energy Development Agency (SEDA) along with two professional associations- the Bulgarian Construction Chamber (BCC), and Bulgarian Association for Insulation in Construction (BAIC). The project has also received Letters of Support from a number of educational institutions, suppliers of products and materials for zero energy buildings. Other local energy agencies and NGOs, active in the environmental sector, along with various other stakeholders have also declared support for the objectives of the project.

Within the framework of this new project and in addition to the Roadmap for advancement of professional qualification for construction specialists, which will integrate the results of the INSTRUCT project, a Continuing Professional Development system will be implemented- a commitment, shared by the aforementioned organizations and stakeholders. It is also very important to note the ongoing cooperation with universities and vocational schools, which would play an essential role in the successful composition of the new Roadmap. Within the framework of the INSTRUCT project, direct collaborations have been established with the University of Architecture, Civil Engineering and Geodesy (UACEG) in Sofia, with College for Construction "Lyuben Karavelov", while parallel discussions were also held with Varna Free University, which were very important players in the exploitation of the results from the project.

In the framework of the cooperation with EnEffect the Professional High school for Architecture and Construction in the city of Pazardzhik won a national competition for a funding project as part of the NRRP. Consequently, it is to be named Centre for Excellence and will have the opportunity to invest over

750 thousand euros in equipment for highly upgraded educational training activities. The main part of these funds will be directed towards the provision of curricula for building information technology and virtual and augmented reality training of innovative and resource- efficient construction practices.

It is also important to mention that members of the EnEffect team are presently teaching an elective course at the UACEG in Sofia, focusing on resource efficiency in construction. The teaching materials cover principles of circular economy, methods for optimization of energy and material solutions and innovative approaches to design and construction process supported by digital and BIM tools.

Activities of the nZEB Roadshow are ongoing and results of the INSTRUCT project will be disseminated along as it continues.

The next important event is the Bulgarian “Architecture and Construction Week” in Sofia, which will take place at the end of March 2023. In addition to the usual demonstrations of new and improved building products and training activities, this year’s event will also host a very high-level conference with representatives of the Bulgarian government and the European Parliament to which all construction industry representatives are invited. It is expected that events of this kind will continue after the project support expires, as they have already proven their ability to be successful and self-sustaining.

EnEffect also continues its cooperation with organisations such as the World Bank through its involvement in the national strategies mentioned before. Its experts are directly involved in the consultancy process for the Ministry of Development and Public Works. It is therefore expected that EnEffect will participate in the design of specialized formats for improvements in the qualification framework for energy auditors.

And finally, EnEffect, with the support of the network established within the INSTRUCT project, will continue to be involved in the development of new strategic documents in the field of sustainable energy development by being actively involved in the revision of the National Climate and Energy Plan and the corresponding reporting and revision of the National Long-Term Strategy for Building Renovation. It is of course expected that this activity will continue in the development of the National Renovation Roadmaps following the adoption of the Energy Performance of Buildings Directive.



8. Impact

The impact calculation following the methodology accepted by the INSTRUCT project leads to the following estimations under the three common performance indicators: saved energy, increased production of energy form renewable sources, and increased volume of investments:

Demo 7: Energy savings				
	No of professionals	No of projects	Energy saving (kWh/year/build)	Energy saving (GWh/year)
Designers (homes and comm)	279	3	38,5	32,2245
Construction professionals	218	3	38,5	25,179
Totals	497			57,4035

Note: In Demo 7 the estimated energy saving is average in commercial and homes since many professionals are doing both type of projects

Demo 7: RES increase				
	No of professionals	No of projects	Increase in RES	Energy saving (GWh/year)
Designers (homes and comm)	279	3	375,6	314,3772
Construction professionals	218	3	375,6	245,6424
Totals	497			560,0196

Note: In Demo 7 the estimated energy saving is average in commercial and homes since many professionals are doing both type of projects

Demo 7: Investments				
	No of professionals	No of projects	Investment (Euro/project)	Investment (Euro/year)
Designers (homes and comm)	279	3	13500	11299500
Construction professionals	218	3	13500	8829000
Totals	497			20128500

Note: In Demo 7 the estimated energy saving is average in commercial and homes since many professionals are doing both type of projects

Table 1 Table illustrating the qualitative impacts of the task activities

9. Conclusion

This demonstration project has contributed immensely to promoting the idea for improved educational and professional opportunities for the construction sector and the benefits from quality buildings. These efforts have been awarded with recognition from public authorities and have been included in strategic national documents, which evidence for the readiness of the sector to improve overall performance of the building stock. The INSTRUCT project and its results have provided a solid base for the arguments to support the initiative for continuing professional development, actively promoted by EnEffect at various occasions and to numerous stakeholders. This has resulted in a row of local and regional efforts to include more requirements to construction projects for new and existing buildings with focus on applying energy and resource efficient solutions. In the same time, the end user has been informed in a row of dissemination and informational activities, to which as a consequence an improved understanding of the need for qualified construction workers has been achieved.

In the same time, a very unstable political situation in Bulgaria has been preventing a consistent development of legislative and financial instruments to support the construction sector to develop itself and to be able to provide improved quality on the building site. Nevertheless, future outlooks are positive as a slow but steady momentum is being created through active involvement of stakeholders and their engagement into the process of establishing energy efficient buildings as the national norm.

References

- BUILD UP SKILLS, Bulgaria. (2013). Taken from https://www.buildup.eu/sites/default/files/bus_projects/build_up_skills_roadmap_en_0.pdf
- Ministry of Energy. (January 2021 r.). Taken from <https://www.me.government.bg/en>:
https://www.me.government.bg/uploads/manager/source/EE/LTRS_Bulgaria.pdf
- Republic of Bulgaria. (2022). Taken from <https://www.nextgeneration.bg/14>:
<https://www.mlsp.government.bg/uploads/3/baneri/natsionalen-plan-za-vzstanovyavane-i-ustoychivost-na-republika-blgariya/bg-finalrrp-2022-04-06-08-30-tca.pdf>
- Reuters. (2023). Taken from <https://www.reuters.com/world/europe/bulgaria-faces-snap-polls-socialists-abandon-plans-form-government-2023-01-20/>



Glossary

Acronym	Full name
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
CPD	Continuing Professional Development
BAIC	Bulgarian Association for Insulation in Construction
nZEB	Nearly Zero Energy Buildings
BCC	Bulgarian Construction Chamber
NAVET	National Agency for Vocational Education and Training
SEDA	Sustainable Energy Development Agency
UACG	University of Architecture, Civil Engineering and Geodesy
NLRS	National Long-term Renovation Strategy
NRRP	National Recovery and Resilience Plan
MRDPW	Ministry of Regional Development and Public Works





SKILLS
INSTRUCT
INSTRUMENTS
CONSTRUCTION



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



www.instructproject.com



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