



Dedicated to stimulate demand for sustainable
energy skills in the construction sector

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| Report: | D27 (D5.3): Report on BUSLeague activities from an anthropological perspective (M28) |
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CHANGE RECORDS

| Version | Date | Author | Changes |
|-------------|------------|--------------------------------|--|
| Version I | 24-01-2023 | Domen Bančič | First draft for internal review. |
| Version II | 26-01-2023 | Domen Bančič & Gregor Cerinšek | Second draft for internal review. |
| Version III | 03-02-2023 | Domen Bančič & Gregor Cerinšek | Third draft incorporating comments from the internal review. |
| Version IV | 15-02-2023 | Domen Bančič & Gregor Cerinšek | Fourth draft incorporating comments from the external review by contributing authors and UT. |
| Version V | 02-03-2023 | Domen Bančič & Gregor Cerinšek | Final draft, incorporating proofreading corrections. |

EXECUTIVE SUMMARY

BUSLeague project aims to stimulate demand for sustainable energy skills in the construction sector, particularly through interventions related to training and education of the sector's workforce. This report reflects on effectiveness and timeliness of BUSLeague project interventions, distinctively from a qualitative point of view. Informed by methods and principles of ethnography and cultural anthropology, project partners from Austria, Bulgaria, Ireland, France, Spain, and The Netherlands collected reflections on their personal experience of BUSLeague interventions implemented between November 2021 and January 2023. Their reflections draw on their continuous involvement in both the development of the project as well as the implementation of the planned interventions. Through continuous engagement at many levels of the project activities the contributors gained a good understanding of people's experience of the interventions.

The reports do not analyse the full extent of planned and executed BUSLeague project interventions, but focuses on those highlighted by the partners as most relevant and impactful. The insights from these interventions are segmented into five main categories – (1) the types of interventions referenced, (2) barriers and challenges addressed, (3) timeliness and effectiveness of the interventions, (4) implications for dissemination, and (5) implications for exploitations. Each of these segments is designed to highlight commonalities and particularities of work done in BUSLeague, indicating which aspects of the analysed interventions are common to several partners, and which of them are particular for the individual partner country.

The types of interventions referenced by project partners are:

- Trainings,
- Recognition of professional competences,
- Campaigns, publications & participation at fairs,
- Stakeholder engagements & workshops.

These interventions addressed a number of barriers and challenges. Several barriers and challenges referenced as addressed through BUSLeague interventions have been identified at the beginning of the project, and a number of previously unidentified barriers have also been addressed. Most significantly perhaps, individual barriers and challenges that were identified at the beginning of the project and later referenced as addressed by at least half of project partners include:

- Lack of knowledge and awareness, particularly the aspect of understanding the (basic/key) concepts and notions;
- Lack of available (skilled) workforce;
- Lack of demand for upskilling & skills recognition, particularly due to the lack of relevant knowledge and awareness on the side of the suppliers of construction and renovation services;
- Various contextual factors on the side of the suppliers of construction and renovation services;
- Policy and regulation as a barrier, particularly in the aspects of lack of political willingness and lack of knowledge and expertise;

Most of the referenced interventions have been reported as very timely and either very or at least somewhat effective, while reports of untimely and/or ineffective interventions are in

minority. Among the frequently referenced factors that contributed to positive assessment of timeliness and effectiveness are:

- Large numbers of participants in interventions/activities;
- Proactive engagement and positive evaluation following the interventions by the participants;
- Market trends and needs;
- Alignment of the interventions with the participants' patterns and/or principles of work.

Among the frequently referenced negative factors that contributed to negative assessment of timeliness and effectiveness are:

- COVID-19 restrictions and impacts;
- Hierarchies and complexities of institutional/business structures and processes;
- Lack of motivation and understanding on the side of (potential) participants;
- Time constraints.

Highlighted implications for dissemination include insights valuable for sharing with the wider public, some of which include:

- Observations of different cognitive models as a factor in upskilling & the value of hands-on (practical) training;
- Observations on the impact of geopolitics;
- Observations on the challenges of hierarchy.

Highlighted implications for exploitation refer to aspects of project results which can be considered as valuable after the end of the project. Most of the listed implications are case-specific yet all of them indicate directions in which results from BUSLeague could continue to be used for further development. Some of these include:

- Research involving children;
- Training clause for public procurement tenders & legal considerations as main obstacle to action;
- Untapped potential in training DIY stores staff.

I Introduction

The BUSLeague project is dedicated to stimulating demand for sustainable energy skills in the construction sector. More specifically, it aims to do so through specialised interventions, related to training and education of the sector's workforce, as well as more generalised interventions, such as awareness raising campaigns and various types of stakeholder engagements. This report is a collection of reflections on BUSLeague interventions, authored by individual representatives of the project partners and supported with accompanying ethnographic evidence. At the time of compiling this report most of the referenced BUSLeague interventions were already executed and finalised and only a few were still in progress, meaning at various stages of planning and preparation. The reflections nonetheless present the key contextual qualitative aspects acquired through development of the project, refined into meaningful and valuable insights.

The insights, lessons learnt and other reflections presented in the report are authored by engaged project participants, trained in principles of ethnographic research, which is exactly what makes this report unique in comparison with outcomes of other project tasks and Work Packages (WPs). Acquainted with key concepts and tools of ethnographic enquiry, our contributors continuously reflected on their subjective experience of how the project developed, from the early planning stages to the final stages of execution and evaluation. As such, this report represents both a platform and a framework for them to highlight lessons learnt and other insights they believe are valuable, meaningful, or otherwise worth sharing.

This is especially significant for aspects that would otherwise be left obscured, either by traditional quantitative Key Performance Indicators (KPIs), by focusing on a different aspect (e.g. the participants of training activities), or simply by not having an appropriate alternative platform to communicate such reflections. Since our contributors practiced ethnographic principles in their work, they are in a unique position to produce the meaningful qualitative reflections, as we present them in this report, regarding the various key aspects of the project. In other words, what gives merit to the observations and opinions shared by our contributors in this report is exactly the continuous involvement and conscious presence of the contributors at various stages of the project. This enabled them to understand the multi-layered realities, including the practical and the theoretical aspects of our project, holistically and in all its complexity.

In addition, the ethnographic approach used in BUSLeague, as part of Task 5.2, helped the project to note meaningful aspects related to the core purpose of the project, including contextual aspects that are more difficult to record with surveys, or simply realise /their significance is obscured by a different focus and/or method. Such approach also allows us to evaluate work done in BUSLeague without losing depth of insight by focusing (only) on quantitative KPIs, which tend to obscure contextual impacts and meaningful observations with value for exploitation. Such approach enables partners to highlight aspects they believe are most relevant with regard to success of the project, both in terms of dissemination and exploitation, and specifically also with regard to the effectiveness and timeliness of BUSLeague interventions.

I.1 Links with other BUSLeague tasks and WPs

Beyond the highlighted specifics of this task, research work assumed in BUSLeague Task 5.2 was intertwined with all ongoing activities of the BUSLeague project. Principally, T5.2 is a continuation of **T2.2** (see Figure 1) – **Anthropological research across the value chain**,

which produced the Deliverable 2.3 - *Ethnographic Research Report on the recognition of energy efficiency skills*. In the context of T2.2, BUSLeague partners were trained in core principles of ethnographic research, including the ethical principles and the practical guidelines for methods such as interviewing and participant observation. More specifics about the tailored ethnographic research applied in T5.2 will be explained in the following section of the report, but the core idea is that contributors to this report continued practicing the principles of ethnographic research *throughout* the project, observing its developments and reflecting on first-hand experiences of their own or those reported by their colleagues.

At a more generally level, T5.2 is related to virtually all other project tasks. Its purpose was to provide partners with a platform for a continuous qualitative analysis of their work, as well as to produce a more generalised yet holistic reflection and evaluation of the project developments. Work within T5.2 was designed to enhance continuous involvement and sustain collaboration of project partners with key internal and external stakeholders, making the research encounter part of the way how project evolves, learns and empathizes. By continuing the work from T2.2, the contributors had a better understanding of how recommendations from ethnographic research in T2.2 are being implemented in real-life settings (e.g. potential increase in market demand) and also enabled them to more-or-less consciously steer the development of the project towards optimal results.

At a more concrete level, and in addition to the relation with T2.2, a somewhat specific connection can be drawn to WP6 and T5.3. With regard to the **WP6 - Communication, Dissemination and Replication**, T5.2 required contributors to publish a social media article on LinkedIn, which is complementary with the core purpose of the WP. With regard to **T5.3 – Measure Effectiveness and Timeliness from Educational Perspective**, T5.2 can also be seen as a complementary task. While T5.3 is focusing more distinctively on the planned BUSLeague training and upskilling activities, highlighting the participants' perspective, T5.2 is not focused as narrowly on the activities as such but aims to understand them within their relevant contexts, highlighting the perspective of our contributors – the project developers and enablers. The comparison of the outcomes from these tasks will enable a better and more profound understanding of successes and impacts of the BUSLeague project.

| | | Sep-20 | Oct-20 | Nov-20 | Dec-20 | Jan-21 | Feb-21 | Mar-21 | Apr-21 | May-21 | Jun-21 | Jul-21 | Aug-21 | Sep-21 | Oct-21 | Nov-21 | Dec-21 | Jan-22 | Feb-22 | Mar-22 | Apr-22 | May-22 | Jun-22 | Jul-22 | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Jan-23 | Feb-23 |
|------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Task | Task description | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| WP2 | Enable Recognition of Energy Skills | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.2 | Ethnographic research across the value chain | D2.2 | | | | | | D2.3 | | D2.3 | | | | | | | | | | | | | | | | | | | | | |
| WP5 | Guiding implementation, monitoring and evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.2 | Measure Effectiveness and Timeliness from Ethnographical Perspective | | | | | | | | | | | | M5.15 | | | | | | M5.20 | | | | | | | | | | D5.1 | | |

Fig 1: Tasks 2.2 and 5.5 against the project timeline.

1.2 On the method

As mentioned, T5.2 is considered a continuation of T2.2 (see Figure 1) in which partners were trained in core principles of ethnographic research (see Table I), including the ethical principles

(see Table 2) and the practical guidelines for key ethnographic research methods¹²³⁴ such as interviewing and field visits, also referred to as participant observation (see Table 3). These set of principles and methods, often referred to as People Centred Development (PCD), were successfully put into practice by IRI UL in a number of EU funded projects⁵.

Core principles of ethnographic research:

- **Search for connections** → Ethnography seeks connections between meanings, artefacts, and practices encountered in different spheres of life. It tries to demonstrate how different aspects are integrated or linked to each other through what is sometimes referred to as **thick-description** – conceptually dense descriptions, which tend to reflect the complexities of everyday life and illustrate how researchers' key conclusions are organically connected, and based in experience of real everyday-life processes, events and artefacts.
- **Build on existing knowledge** → Ethnography seeks to ground its conclusions in existing (peer-reviewed) theories from a variety of disciplines.
- **Experience-based conclusions** → A conscious (researcher's) experience is the base for making ethnographic conclusions, identifying patterns, and develop meaningful interpretation. Reflections and testimonials of other people come second, and the existing literature third.
- **Empathize** → Acknowledge the Other's worldview, and better yet, try to understand it through concrete experience.
- **Build relations(hips)** → Ethnography tends to treat research participants as co-workers, rather than informants or users. For this, a level of trust, honesty and mutual recognition should be established. It is important to acknowledge their point of view, and try to (empathically) understand their way of reasoning about the topics that you are discussing.
- **Observe ethical principles** → A conscious observance of potential **ethical risks** and adherence to **standards of ethical conduct** is core to ethnographic practice.

Table 1: The core principles of ethnographic research.

Ethnographer's ethical standards

Ethical principles in ethnographic research include good practices in qualitative research, such as:

- In public space, and whenever reasonably practicable with consideration of the context of the research, **participants should be made aware** of the presence and purpose of the researcher.

¹ O'Reilly, K. (2005) Ethnographic Methods. London: Routledge.

² Pink, S. & Morgan, J. (2013) Short Term Ethnography: Intense Routes to Knowing. Symbolic Interaction 36(3): 351-361.

³ Sonetti, G., Arrobio, O., Lombardi, P., Lami, I.M. & Monaci, S. (2020). "Only Social Scientists Laughed": Reflections on Social Sciences and Humanities Integration in European Energy Projects, Energy Research & Social Science, Volume 61.

⁴ Sovacool, B.K. (2014). Energy Studies Need Social Science. Nature, 511 (7511), 529-530.

⁵ Cerinšek, G., D. Podjed, S. Arko, D. Bančič and J. Vetršek (2021) 'New Horizons for Applied Ethnography: Ethnography-Inspired Research at the Core of Energy Efficiency Horizon 2020 R&D Projects.' New Business Models conference, Halmstad University. Full conference proceedings: 796 – 812. Available at http://active8-planet.eu/wp-content/uploads/2021/06/CerinsekG_FullConferenceProceedings_Halmstad.pdf [Accessed 5. February 2023].

- In non-public space, obtaining an **Informed Consent** (see Annex 3) from our research participants that explicitly states the right to withdraw without consequence, as well as the option of preservation of anonymity and confidentiality.
- **Conscious observance of ethical risks**, particularly in the case of specific sensitivities and responsibilities, such as when working with children, vulnerable adults, or other social minorities.
- Ethnographers have a duty to **protect privacy and confidentiality of research participants**. This includes protection of all original records of their research from unauthorised access, and a duty to ensure that nothing that is published or otherwise made public, through textual or audio-visual media, would permit identification of participants' personal information that would put their welfare or security at risk, even with their explicit consent.
- In observation studies, where behaviour patterns are observed without the subject's knowledge, ethnographers must take care **not to infringe what may be referred to as the "private space" of an individual or group**. The scope of 'private space' will vary from culture to culture. Where practicable, ethnographers should attempt to obtain consent post hoc. In any event, they should interpret behaviour patterns that appear deliberately to make observation difficult as a tacit refusal of permission to be observed.

Table 2: Core ethical standards in ethnographic research.

| | |
|--|--|
| Interviews | Individual conversations aimed at collecting relevant topic-related information. In BUSLeague project semi-structured interviews are preferred, involving representatives of key stakeholder groups. |
| Field visits (participant observation) | Conscious presence of the research in environments (space) and situations (time) relevant to the research topic. In our case, these could be the locations of interviews (institutions you visit) or relevant events (e.g. following an individual through a process of upskilling). |
| Note taking (paper/notebook, pen) | Take short notes – key words, thoughts, comments, observations –encountered on the field or during the interview. You should review, reflect on the conversation, and expand (add relevant information to) your notes as soon as a research activity is finished. |
| Recording conversations (recording device or software) | Allows you to guide the conversation and collect desired information by focusing on the content details rather than note taking. |
| Collecting visual data (smartphone or camera) | Visual material of relevant real-life conditions and situations can be extremely valuable. Also photos or scanned copies of other relevant materials (e.g. annotated materials from a focus group activity). |

| | |
|--|---|
| Records of research activities (diary/notebook, pen) | Keeping written records of research activities is important. This includes your personal reflections and thoughts, which we suggest to write in a separate personal research diary. This can be both a useful source of information for analysis as well as a tool for organising your personal thoughts and ideas. |
|--|---|

Table 3: Key ethnographic research methods and activities used in BUSLeague.

1.3 The T5.2 research framework

Within T5.2, partners were asked to continue using their newly acquired ethnographic skills following an ethnographic research framework tailored to the T5.2. This framework included the **key steps** listed in the table below (see Table 4), which refers to a 30-minute instructional video recorded by IRI UL for the purpose of T5.2⁶, as well as the templates and tools prepared by IRI UL for the needs of the task, which are explained in the video⁷⁸⁹.

| Step | Task | Notes |
|------|---|---|
| 1 | Scan through all T5.2 documents | Link to T5.2 DropBox folder |
| 2 | Watch guideline video | Link to T5.2 guideline video |
| 3 | Discuss the task with IRI UL | Individually over the summer. Acquaint yourself with the documents and the video prior to the meeting, so that we can discuss unclarities. |
| 4 | Write a national language article (optional) | National language article |
| 5 | Collect, organize, analyse and interpret data (ongoing) | <ul style="list-style-type: none"> Observe and experience the interventions Take notes & record (audio, video, etc.) Organize data and information See: <ul style="list-style-type: none"> The ongoing tasks Note taking template Organizing, analysing, interpreting T5.2 reporting |
| 6 | Write a social media post (after Sep) | Social media post |

⁶ **BUSLeague T5.2 instructional video.** See <<https://youtu.be/-2Z2e3M8274>>, last accessed 5. Dec. 2022.

⁷ Explanation of the **BUSLeague T5.2 template for note-taking.** See <<https://youtu.be/-2Z2e3M8274?t=546>>, last accessed 5. Dec. 2022.

⁸ Explanation of the **BUSLeague T5.2 template for reporting.** See <<https://youtu.be/-2Z2e3M8274?t=1350>>, last accessed 5. Dec. 2022.

⁹ Explanation of the **BUSLeague T5.2 interventions log.** See <<https://youtu.be/-2Z2e3M8274?t=1183>>, last accessed 5. Dec. 2022.

| | | |
|---|--|---|
| 7 | Select most relevant interventions and evaluate them (periodically) | Select key interventions that you find most important, you have high expectations, or other reasons. BUSLeague interventions log |
| 8 | Write a report (due M26) | Final report |

Table 4: The “T5.2 quick guide”, outlining key steps to be taken in pursuit of completing the Task 5.2.

The principal goal of the framework was to encourage **continuous involvement** and collaboration of project partners with their target audiences (key stakeholders), ideally through the interventions they were planning and executing in the context of BUSLeague. By the principles of ethnographic research, **ethnographers** themselves – in this case our contributing partners – are the most relevant ‘measure’ used in the research process, translating complex qualitative and quantitative data into meaningful manageable insights.

Due to both ethical limitations and legal restrictions related to the **COVID-19 pandemic** engagement in the physical space was not always possible and was therefore reverted to the digital space. For this reason, the framework included an obligatory “**social media post**” (see step 6 in Table 4; see Table 5), which materialised as short articles with ethnographic elements and references, published on the LinkedIn platform. The goal of these articles was to notify the general public on how the project evolves, learns, and empathises, or even to capitalize the social media networks to influence the project developments by harvesting feedback. In this regard, success of the articles was limited, considering the small number of readers and engagements per individual article (see section 2.4.1). Nonetheless, the authors highlighted relevant aspects and topics, as well as increased awareness about the BUSLeague project, which is the relation with WP6.

Instructions for the T5.2 social media posts

The text in italic are the instructions for contributing partners on how to write their contribution for publishing on the BUSLeague social media networks.

The posts should be:

- **Focused on a relevant and original topic** – Which topic you focus on is really up to you. Try to pick a topic that does not overlap too much with the already existing posts. Highlight something relevant that hasn’t been addressed yet, possibly something related to people and socio-cultural aspects or other things that are difficult to grasp by conventional (quantitative) KPIs.
- **Short** – Roughly 500 to 1000 words; it can also be more, but we believe it’s better if it is short and to the point.
- **Relate to a recent activity/intervention that you have made** – Illustrate your point with a short description of a situation, a quote, a reflection on your personal experience of an event or artefact (e.g. Dragomir referred to a teleconference and a field visits in Austria, witnessing a poorly installed window; Benny, Gregor and Domen referred to our visit to a sawmill in Kilkenny and the renewable energy technology we have seen there, and a visit to a training centre for upskilling).
- Ideally **include some visual materials** (photos, “ethnographic evidence”) and **web-links** to other contents (e.g. a longer article, a website, anything that gives context to what you will be writing about).

Also, it would be great if you could link the already existing BUSLeague posts, so that we create a bit of a cross-referencing effect.

Of course, you can use any materials that we have produced within BUSLeague (e.g. D2.3) or any other materials, as long as it “ticks the boxes” outlined above.

You can post the article on your own LinkedIn account and we will re-post it (as in Dragomir’s case) or send us the text and pictures so that we post it as BUSLeague.

Table 5: The framework for writing T5.2 social media posts as proposed by IRI UL to their authors.

I.4 The reporting process

The reporting process at the end of the task was specifically designed to focus on the following aspects:

- **Barriers** and **challenges** addressed with the highlighted interventions, and
- **Effectiveness** and **timeliness** of the BUSLeague interventions,
- Implications for BUSLeague **dissemination** and **exploitation**.

As the **first step**, IRI UL individually interviewed the contributors to this report, focusing on their experiences with BUSLeague interventions and noting some of their most intriguing reflections. These notes were transferred by IRI UL into the template for a written report (see step 8 in Table 4) for each individual partner country and sent to the contributors. For the **second step**, the contributors reviewed, corrected, updated or otherwise improved the first draft of the report and sent it back to IRI UL. **As the final step**, IRI UL conducted an analysis of partners’ contributions and compiled them into this final D5.2 report. The outcomes are analysed in the following chapter. Nonetheless, we recommend readers to take time and read the reflections of our partners as reported by individual countries (see Annex I to 6).

2 Analysis

2.1 Types of interventions referenced

This section briefly describes the activities referenced by BUSLeague partners as the BUSLeague interventions. Activities are clustered by type of activities – trainings, campaigns, workshops etc. – highlighting key features of each type of referenced interventions. The activities reported by different contributors that were similar and comparable are merged under a single title.

Reports of BUSLeague interventions can be easily grouped into coherent clusters, which indicates a significant degree of similarity and comparability across the countries in terms of which types of activities were realised during the project.

2.1.1 TRAININGS

| Title (as reported by partners) | Key features | Country |
|---------------------------------------|--|--------------------------------------|
| Trainings and micro-trainings | <p>Trainings that can be clustered in two main sub-categories – (1.) professionals and workers working in the broad field of construction and renovation (building professionals, DIY store staff, workers and labourers etc.) and (2.) for the more general public (representatives of local administrations, economically-challenged social groups, or members of the general public).</p> <p>The contents of the trainings for professionals and workers were more in-depth and on specific topics, such as renovation roadmaps, heat pumps, ecological construction materials, blower door tests, Indoor Environment Quality (IEQ), Near Zero Energy Buildings (NZEB), Energy Performance of Buildings Directive (EPBD) etc. Trainings for the more general public and less specialised workers were more generalised, focused on explaining the basic concepts or general topics, such as energy efficiency, introduction to heat pumps, EPBD, building regulations etc.</p> | AT, IE, BG, ES, NL, FR ¹⁰ |

2.1.2 RECOGNITION OF PROFESSIONAL COMPETENCES

| Title (as reported by partners) | Key features | Country |
|---------------------------------------|--------------|---------|
|---------------------------------------|--------------|---------|

¹⁰ AT = Austria; IE = Ireland; BG = Bulgaria; ES = Spain; NL = The Netherlands; FR = France.

| | | |
|---|--|----|
| On-site recognition of professional competences on windows replacement | A pilot for validating and improving of a methodology for the evaluation and recognition of skills and competences. It involved a professional evaluator doing individualised evaluations with participants, taking approximately 2 h per person, including 20 min theoretical test and a practical test taking more than 1 hour and 30 min. | ES |
|---|--|----|

2.1.3 CAMPAIGNS, PUBLICATIONS & PARTICIPATION AT FAIRS

| Title (as reported by partners) | Key features | Country |
|--|--|----------------|
| Awareness raising & promotional activities; Climate Action days | Activities and campaigns focused on awareness raising, sensibilisation and education of the public. This includes distributing brochures/promotion materials at fairs & exhibitions; writing articles and contributions in magazines; showcases of product manufacturers and suppliers; trade-show type event with stands, demonstrations and networking; targeted educational workshops aimed at youngsters (especially girls), . | AT, IE, NL |

2.1.4 STAKEHOLDER ENGAGEMENTS & WORKSHOPS

| Title (as reported by partners) | Key features | Country |
|---|--|----------------|
| Targeted stakeholder engagements (e.g. policy workshops) | Interaction, including workshops with a variety of actors that make up the construction and renovation value chain. This includes product manufacturers, universities, branch chambers, industrial associations, public authorities in the area of energy efficiency and vocational training and education, energy agencies and consultants, environmentally-oriented Non-Governmental Organisations (NGOs), etc | AT, BG |

2.2 Barriers and challenges addressed

The following list refers to **Barriers and Challenges (B&C) in development of the market for Energy Efficiency (EE) Skills**. It builds on results from BUSLeague Task 2.2, Deliverable 2.3, and is segregated into four categories accordingly:

1. **DEMAND** – referring to individuals or other entities that may be considered either as (potential) customers for contractors or businesses (see SUPPLY) that offer EE Skills, or as (potential) buyers of products for enhanced EE of the existing buildings or properties;

2. **SUPPLY** – referring to individuals or other entities that may be considered part of the supply value chain for the EE Skills, most importantly those who offer construction and retrofitting services, but also the product manufacturers, Do-It-Yourself (DIY) store staff and other profiles or entities that directly or indirectly address the needs of the DEMAND side;
3. **POLICY, REGULATION AND FINANCES** – referring to entities that may be considered an important contextual part of the construction and renovation value chain, but cannot be categorised in either of the categories listed above;

The B&Cs are further structured into clusters of general B&Cs, marked with **beige**, and their corresponding more specific subsections. The list in its entirety is an overview of B&Cs that were reported as addressed by the contributors. The country tags listed at the side of each B&Cs indicates which partners reported it as addressed. B&Cs that were reported yet were not explicitly identified at the beginning of BUSLeague project (T2.2, D2.3) are also located in the segment that best corresponds to their relation with other B&Cs but are tagged with *****NEW***** and coloured with **blue** for ease of distinction. In addition, B&Cs that were identified in D2.3 but were not reported are segregated at the end of the corresponding segments, coloured in **grey**.

Readers will find more details regarding which B&Cs were addressed in specific interventions in the national Annexes. In contrast, the purpose of this chapter is (1) to provide a generalised overview of B&Cs that were identified at the beginning of BUSLeague project and reported as addressed in the context of the interventions, (2) to identify new B&Cs which were not explicitly identified in the first stage of the project, and finally, (3) to show which of the B&Cs identified at the beginning of the project are yet to be addressed in the future.

Demand for EE Skills -vs.- Demand for upskilling

To avoid confusion, it is important to stress the difference between **demand for EE Skills** and the **demand for BUSLeague products and services**.

In principle BUSLeague is targeting representatives of the SUPPLY side of the construction & retrofitting value chain, as defined in the list above. It aims to create frameworks and tools for them to upskill and get certified, thus making them the 'demand side' for BUSLeague products and services.

The reader should therefore make an effort not to confuse the *demand for EE Skills* (services offered by representatives of the SUPPLY side, demanded by representatives of the DEMAND side) with *demand for upskilling and certification of skills & competences* (services and products offered BUSLeague, demanded by representatives of the SUPPLY side). As stated above, the following list of B&Cs addressed through BUSLeague interventions make reference to the former.

2.2.1 DEMAND

| Barrier or challenge addressed | Country |
|---|----------------|
| Lack of demand for skilled workforce | AT, ES |
| Residential sector | AT, ES |

| | |
|--|-----------------|
| Non-residential sector | AT |
| Lack of knowledge and awareness | AT, IE, ES |
| Lack of general awareness | ES |
| Lack of access to reliable information | AT, ES |
| Lack of understanding of the (basic/key) concepts and notions | AT, IE, ES |
| Lack of understanding of benefits of EE Skills | AT, ES |
| ***NEW*** To prioritise energy efficiency first in the renovation before installing heating system by renewable energy. | AT |
| ***NEW*** Lack of demand for high quality buildings, which implies EE products, materials, and related systems. | AT, IT |
| Lack of motivation | ES |
| Financial aspects | ES |
| Entrenched practices and knowledge | ES |
| Trained EE-measures cannot be applied due to the constraints of the landlord. | ***NEW*** NL |
| Socio-cultural aspects | |
| Scepticism | ES |
| Doubt & denial in feasibility and efficacy of EE | ES |
| Gap between theory and practice | |

2.2.2 SUPPLY

| Barrier or challenge addressed | Country |
|---|--------------------|
| Lack of available (skilled) workforce | AT, BG, IE, ES, NL |
| General lack of workforce in the construction sector | IE, NL |
| Increasing gap between supply and demand of EE Skills | |
| Lack of consistency in upskilling | |
| Lack of (consistent) demand for EE Skills | ES |
| Little or no continuity in training activities | |
| High turnover of workforce | |

| | |
|---|------------------------|
| Skills (availability) and Policy | NL |
| Lack of experience (practice) with implementation of nZEB | NL |
| Increasing gap between regulatory (theoretical) requirements and available skills | |
| Lack of quality training opportunities | BG, IE, ES, FR |
| Poor transfer of knowledge and experiences | FR |
| Not enough stress on cross-trade collaboration on the building site | IE |
| Lack of collaboration between stakeholders from different institutional and sectoral environments. | ***NEW*** BG |
| Lack of training and demonstration equipment and opportunities for practical training. | ***NEW*** BG, IE |
| Lack of opportunities for on-site recognition of skills and competences. | ***NEW*** ES |
| Change the way participants look at lesser-known jobs, which are often perceived as difficult, particularly by means of the good atmosphere during workshops: as everyone has a good time and will keep a good impression of the building trades. | ***NEW*** FR |
| Training contents are either overly generalised or overly specialised | |
| Low (perceived) value of qualifications and certificates | ES |
| Lack of knowledge and awareness | ES |
| High numbers of (available) qualifications on the market | |
| High numbers of (qualified) workforce on the market | |
| Lack of appropriate regulation (standards and enforcement) | |
| Lack of demand for upskilling & skills recognition | AT, BG, IE, ES, NL, FR |
| Lack of knowledge and awareness | AT, BG, IE, ES, NL |
| Lack of motivation | AT, ES, FR |
| Lack of interest by employers | ES |
| Lack of efficient communication, promotion and marketing | NL |
| Scepticism and aversion to change | |
| Various contextual factors | BG, ES, NL, FR |
| Demographic factors (age, gender, social background, etc.) | NL, FR |
| Working on diversity is working with a higher grade of vulnerability, which means that prudence can be put before speed by concerned external partners. | ***NEW*** NL |

| | |
|---|-----------------|
| Lack of experience with digital technologies and distance learning platforms | ***NEW*** BG |
| Lack of access to reliable information on supply side – too much information on the internet and the professional feels lost when selecting a quality course. | ***NEW*** ES |
| A supportive network of local stakeholders, | ***NEW*** FR |
| Preference for newbuilds rather than retrofitting | |
| Lack of balance between theory and practice | |
| Outdated practices and knowledge | |
| Poor commissioning | |
| Inertia of the market and entrenched practices | ES, NL |
| Inertia of existing knowledge and practices | ES |
| Institutional hierarchies and similar complexities of internal business structures or large systems – Working with larger companies can be difficult when the different offices have each their own plan, aims, power etc.; Power from parties involved overruling doing the best thing | ***NEW*** NL |
| Limited access to appropriate materials and technologies | |
| Age-related idiosyncrasies | |
| Migrant workers and professionals | NL |
| Prejudice as a barrier | NL |
| Brain (and skill) drain | |
| Unfair competition | |
| Language as a barrier | |

2.2.3 POLICY, REGULATION, AND FINANCING

| Barrier or challenge addressed | Country |
|---|-----------------|
| Lack of supportive policy and regulation | BG |
| Frequent change of responsible experts and decision-makers in the public authorities. | ***NEW*** BG |
| Lack of quality control and enforcement | AT, ES |
| Lack of rewards | ES |

| | |
|--|---------------------|
| Low norms and standards for professionals | ES |
| Lack of public support for EE (promotion and marketing) | ES |
| To involve energy advisors during the construction and/or renovation to check the quality of work on-site. | ***NEW*** AT |
| Lack of penalties | |
| Criteria for public tender | |
| Poor value of existing labels and qualifications | |
| Lack of (efficient) commissioning | |
| Lack of control over accuracy, validity, or legitimacy of existing certificates and labels | |
| Policy and regulation as a barrier | AT, BG, IE, ES |
| Lack of knowledge and expertise | AT, IE, BG |
| Lack of political willingness | AT, BG, ES |
| Lack of foresight | AT |
| Significant delays in the adoption of new minimum energy performance requirements (e.g. national NZEB definition still not enforced) and non-compliance with regulations. | ***NEW*** BG |
| The overwhelming administration/paperwork – people avoid action because of paperwork implied into the process. | ***NEW*** IE |
| Delay in adoption of more ambitious energy performance requirements and/or criteria for public tender. | ***NEW*** BG, IE |
| Lack collaboration between key actors - public authorities in different fields, educational and training establishments, branch chambers and industry representatives etc. | ***NEW*** BG, AT |
| Lack of knowledge and awareness regarding comparable policies and systems in other EU countries. | ***NEW*** AT |
| Dumping prices | |
| Rigidity of the system | |
| Lack of political pressure on the regulators | |
| Power and influence of the established actors | |
| Lack of financial instruments and incentives | AT, ES, IE |
| Lack of support from both private and public financial institutions | BG, ES |
| Lack of continuity in the financial support schemes. | ***NEW*** BG, IE |

| | |
|---|--|
| Lack of innovation and specialisation in the area of commercial financing | |
| Lack of a functional system for financing training in the construction sector | |

2.3 Timeliness and effectiveness of interventions

This section offers an overview of positive and negative factors that influenced the timeliness and effectiveness of the referenced BUSLeague interventions. They are clustered in categories **very timely, somewhat timely, not really timely** (or effective). For timeliness, these categorisations indicate a qualitative evaluation of how appropriate the interventions were in the given context. For effectiveness, the categorisations indicate a qualitative evaluation of the impact these evaluations had, both in terms of goals set as well as other contextual impacts. Readers are advised to refer to the more detailed description regarding the timeliness and effectiveness in the annexed reports. Besides the ethnographic evaluation of the interventions, these include also elements of ethnographic evidence and illustrations (photos, promotional materials, etc.).

2.3.1 TIMELINESS

| BUSLeague interventions | Factors | Country |
|---|--|---------|
| Very timely | | |
| Micro trainings | Positive factors: <ul style="list-style-type: none"> • Large number of participants attending the micro-trainings. • High interest and (pro)active engagement during the training. • Positive evaluation after the training. Negative factors: <ul style="list-style-type: none"> • COVID-19 restrictions. | AT |
| Awareness raising and promotion activities | Positive factors: <ul style="list-style-type: none"> • With increasing energy prices and tighter building requirements, energy efficiency and associated quality of work (construction & installation skills) are increasingly important. | AT |
| Stakeholder engagements | Positive factors: <ul style="list-style-type: none"> • Existing need for sustainable energy transition. | BG |

| | | |
|---|--|----|
| | <ul style="list-style-type: none"> Existing need for quality external support to the construction and renovation sectors. COVID pandemics – its economic and political implications for the state. International markets – Russian war on Ukraine and subsequent rise in market prices. <p>Negative factors:</p> <ul style="list-style-type: none"> The ongoing political crisis in Bulgaria. | |
| Training on introduction to heat pumps and NZEB Building for County Councils | <p>Positive factors:</p> <ul style="list-style-type: none"> The trainings were in line with the Zeitgeist – the defining spirit or mood of the current era, shown by the ideas and beliefs of the time, which alludes to factors such as the COVID-19 pandemics, the Russian invasion of Ukraine, and other major events that had a significant impact on society, economy, and the markets. All participants were highly engaged and ready to learn. Several participants came back after the training to request more information about the trainings, and some individuals even wanted technical assessment surveys on their own private houses. This indicates that the activity addressed existing needs. | IE |
| NZEB Training for DIY stores staff | <p>Positive factors:</p> <ul style="list-style-type: none"> The trainings were in line with the Zeitgeist (see above). All participants were highly engaged and ready to learn. | IE |
| Microtrainings on basic energy efficiency | <p>Positive factors:</p> <ul style="list-style-type: none"> More than 700 registered participants. | ES |
| Microtrainings for BAUHAUS employees | <p>Positive factors:</p> <ul style="list-style-type: none"> Recognition for the need to upskill employees in energy efficiency came from within the company. Bauhaus management has set energy efficiency as a priority for the company by 2023. | ES |
| Basic trainings Spijkerkwartier | <p>Positive factors:</p> <ul style="list-style-type: none"> Trainees were available shortly after they chose to be involved to the training. All trainees were highly motivated. | NL |

| | | |
|---|---|----|
| | Negative factors: <ul style="list-style-type: none"> Getting trainees interested in the training program is sometimes hard because the pathway to first income is longer than with jobs that do not require training. The development and implementation time of the intervention turned out to require at least twice the time anticipated in the planning and preparation phase of BUSLeague project. | |
| VHTO programme for young generations | Positive factors: <ul style="list-style-type: none"> The programme addresses real needs of the market. The programme addresses tangible and intuitive aspects of participants' everyday life (e.g. transition to electric vehicles). Negative factors: <ul style="list-style-type: none"> The programme was not tested in the context of BUSLeague due to time constraints. The development and implementation time of the intervention turned out to require at least twice the time anticipated in the planning and preparation phase of BUSLeague project. | NL |
| BTP training for transition workers | Positive factors: <ul style="list-style-type: none"> Convergence of socio-economic issues in the region, perhaps most significantly the economic transition of the region's dependency on coal mining. In this respect BTP training interventions build ground for the sector of construction and building renovation to develop into an industry that offers prospective and desirable work opportunities for all generations of workers, disregarding the diverse socio-economic and socio-cultural backgrounds of the local population. | FR |
| Somewhat timely | | |
| Policy workshops | Positive factors: <ul style="list-style-type: none"> Policy makers are being confronted with challenges in the job market and reaching the climate goals, which makes them attentive to new ideas. | AT |
| On-site recognition of professional competences on windows replacement | Positive factors: <ul style="list-style-type: none"> There is a growing need for highly qualified workforce. Negative factors: | ES |

| | | |
|-----------------------------------|--|----|
| | <ul style="list-style-type: none"> • Lack of understanding of the value of these kinds of evaluations. • A lot of time was spent in finding the 15 participants. | |
| Not really timely | | |
| CPD development activities | Negative factors: <ul style="list-style-type: none"> • COVID pandemics – its economic and political implications for the state. • Frequent change of responsible experts and decision-makers in the public authorities due to the ongoing political crisis. | BG |
| Heatpump activities | Positive factors: <ul style="list-style-type: none"> • Planned in alignment with both the existing needs of the market, as well as with the target group's work life. Negative factors: <ul style="list-style-type: none"> • Programme implementation stopped due to internal issues of the associated company. • The development and implementation time of the intervention turned out to require at least twice the time anticipated in the planning and preparation phase of BUSLeague project. | NL |

2.3.2 EFFECTIVENESS

| BUSLeague interventions | Factors | Country |
|--------------------------------|--|----------------|
| Very effective | | |
| Micro trainings | Positive factors: <ul style="list-style-type: none"> • Large number of participants attending the micro-trainings. • High interest and (pro)active engagement during the training. • Positive evaluation after the training. Negative factors: <ul style="list-style-type: none"> • COVID-19 restrictions. | AT |
| Stakeholder engagements | Positive factors: | BG |

| | | |
|---|--|----|
| | <ul style="list-style-type: none"> • A strong alliance built of relevant national stakeholders and representative bodies. • A common goal being established, specifically a national roadmap for improving the skills within the construction sector to deliver intelligent energy solutions. <p>Negative factors:</p> <ul style="list-style-type: none"> • Lack of willingness to collaboration on the side of the architects. | |
| Training on introduction to heat pumps and NZEB Building for County Councils | <p>Positive factors:</p> <ul style="list-style-type: none"> • All participants were highly engaged and ready to learn. • Positive feedback received through post training surveys. • Feedback of the work done by our own representatives and other involved organisations has been very positive. • The links to educational materials produced in BUSLeague were reportedly used independently beyond the project scope as far as out as in the UK. | IE |
| NZEB Training for DIY stores staff | <p>Positive factors:</p> <ul style="list-style-type: none"> • Staff in DIY hardware stores that undertook the training implemented in BUSLeague reportedly “loved” the training. • Participants understand better how buildings can be made more energy efficient, airtight, comfortable and importantly, cheaper to run. • Participants are also very enthusiastic that now they can communicate these benefits to customers and offer optimum solutions for buildings. • Some of the involved DIY hardware stores made alterations to their design of their Eco-Centres based on the BUSLeague project interactions. • Some of the involved DIY hardware stores also now direct customers to take a basic one-day introductory training course on NZEB fundamentals. | IE |
| On-site recognition of professional competences on windows replacement | <p>Positive factors:</p> <ul style="list-style-type: none"> • A successful proof of concept. <p>Negative factors:</p> <ul style="list-style-type: none"> • A lot of time was spent in finding the 15 participants. | ES |

| | | |
|---|--|----|
| | <ul style="list-style-type: none"> The majority of participants (10 out of 15) failed the skills-recognition test. | |
| Microtrainings on basic energy efficiency | <p>Positive factors:</p> <ul style="list-style-type: none"> More than 700 registered participants. A very diverse base of participants, representing a good base for future actions in the area of skills development, recognition and certification. Some participants will utilise the content of the training in their own professional work, most significantly by teachers in secondary schools. Five (5) collaboration agreements have been signed with training centres. | ES |
| VHTO programme for young generations | <p>Positive factors:</p> <ul style="list-style-type: none"> Programme is designed and will be implemented by young people for young people. The programme addresses real needs of the market. The programme addresses tangible and intuitive aspects of participants' everyday life (e.g. transition to electric vehicles). <p>Negative factors:</p> <ul style="list-style-type: none"> The programme was not tested in the context of BUSLeague due to time constraints. The development and implementation time of the intervention turned out to require at least twice the time anticipated in the planning and preparation phase of BUSLeague project. | NL |
| Somewhat effective | | |
| Awareness raising and promotion activities | <p>Positive factors:</p> <ul style="list-style-type: none"> Awareness raising activities were generally well received. Colleagues performing the activities were asked a lot for specific information, such as replacement of fossil fuels heating systems. <p>Negative factors:</p> <ul style="list-style-type: none"> Hard to assess the impact of the awareness raising activities. Reaching and influencing building professionals by means of campaigns for raising general awareness is more difficult. | AT |

| | | |
|---|---|-----------|
| CPD development activities | <p>Positive factors:</p> <ul style="list-style-type: none"> • A draft CPD framework for energy efficiency in the construction sector was developed. • Raised the awareness on how existing Bulgarian policy and regulation present a barrier to an effective CPD system. • Built capacity within EnEffect to offer trustworthy (independent) and reliably available expertise related to the field of CPD within Bulgaria, as well as to offer training in most of the learning outcomes specified within the BUS League qualification framework. <p>Negative factors:</p> <ul style="list-style-type: none"> • See issues related to timeliness. | BG |
| Policy workshops | <p>Positive factors:</p> <ul style="list-style-type: none"> • Discussions between stakeholders happened and were interesting. • Exchange of good practices between regions. • Relations established and/or consolidated between the participants. • Styria proposed to cooperate with the national guilds and the chambers of commerce to raise the quality of craftsmanship. • Support was generated for on-site quality control as well as procurement- and grant-related quality criteria which has positive implications for the future. <p>Negative factors:</p> <ul style="list-style-type: none"> • Austria has a different system from some other BUSLeague partners, so the goal of trying to promote policy changes related to public procurement processes was not as successful as initially expected (see the Austrian report in the annex for details). The willingness of the policy makers to change the system and implement new rules is therefore low. | AT |
| Microtrainings for BAUHAUS employees | <p>Positive factors:</p> <ul style="list-style-type: none"> • Most of the workers have taken the microtrainings on time. • The trainings will most probably be made available to the employees again. <p>Negative factors:</p> | ES |

| | | |
|--|---|----|
| | <ul style="list-style-type: none"> Some workers have found it difficult to enrol, perhaps due to lack of time or motivation. | |
| Heatpump activities | <p>Positive factors:</p> <ul style="list-style-type: none"> The training program is a good theoretic showcase of how to attract workers for training. <p>Negative factors:</p> <ul style="list-style-type: none"> Programme implementation stopped due to internal issues of the associated company. Due to the different departments that should be involved, the program is perhaps too complex to implement effectively. The development and implementation time of the intervention turned out to require at least twice the time anticipated in the planning and preparation phase of BUSLeague project. | NL |
| Basic trainings Spijkerkwartier | <p>Positive factors:</p> <ul style="list-style-type: none"> Those involved in the training programme can start applying the knowledge shortly after they follow the training. No specific knowledge necessary beforehand. A good mix of on-site theoretical and practical learning as well as e-learning. All trainees were highly motivated. The training was only for one little group all related to the Spijkerkwartier neighbourhood. This gave them a feeling of safety that will not be reached when someone unfamiliar with training situations. Getting the managers involved in the group of trainees. <p>Negative factors:</p> <ul style="list-style-type: none"> To organise these trainings well and in an attractive way, a bigger organisation is needed, which also requires a lot of organisational effort. Craftspeople often tend to idealise and express extreme devotion to their craft, which means they focus on the details, specific situations, which can greatly reduce the effectiveness of training. Based on insights of ethnographic observations, all trainees had low self-esteem. The development and implementation time of the intervention turned out to require at least twice the time anticipated in the planning and preparation phase of BUSLeague project. | NL |

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|--|--|----|
| | | |
| BTP training for transition workers | <p>Positive factors:</p> <ul style="list-style-type: none"> Examples of training participants who gained skills and were connected with employers. <p>Negative factors:</p> <ul style="list-style-type: none"> A significant segment of participants only take part in these activities in order to get the state financial compensation for the unemployed. | FR |

2.4 Implications for dissemination

This section presents short summaries of implications for dissemination, shared by contributing partners. These insights were therefore noted as interesting for sharing with the involved stakeholders as well colleagues beyond the project scope, particularly those working on similar research topics/fields, to advance the common knowledge on the referenced topics. Readers are advised to refer to more detailed descriptions of the summarised highlights in the Annexes.

| Implications (as reported by partners) | Short contextualizations and/or key dissemination feature | Country |
|--|--|------------------|
| Response to market demand | The topics addressed through BUSLeague activities in Austria, such as the ecological construction material and indoor air quality, are highly relevant in this particular moment in time, due to various political, economic environmental and other factors. This renders BUSLeague activities highly relevant, particularly with respect to the developments in the sustainable and energy-efficient built-environment markets. | AT |
| Different cognitive models as a factor in upskilling & the value of hands-on (practical) training | <p>Several partners reported aspects regarding significant differences between how (blue-collar) workers and (white-collar) professionals think about upskilling.</p> <p>Workers tend to focus on practical aspects, prefer hands-on training, and tend to follow obvious trends in market demand.</p> <p>Professionals, on the other hand, tend to appreciate the value of theory better, and also have the foresight to understand why it is important to upskill before the rise of market demand. This has implications in motivation for upskilling and demand for related contents and/or services.</p> <p>Beyond such analytic generalisation, experience from BUSLeague interventions overwhelmingly indicate that</p> | AT, BG, IE |

| | | |
|--|---|------------|
| | practical hands-on training is by far most appreciated by training participants, both by workers and professionals. | |
| The impact of geopolitics | The war in Ukraine unequivocally influenced the energy market, which has direct consequences for several aspects of the construction and renovation sector, as well as the (demand for) technologies and skills involved. | AT, BG, IE |
| Issues of a “quick fix” market reaction | Skill gaps in the existing workforce, as well as the construction and renovation systems at large, continue to present themselves as a burning issue . The rate of installations of energy-efficient systems, products and construction materials are increasing (in accordance with rising market demand), but they are often being installed improperly, leading to malfunctioning, higher costs (economic damage), and faded trust on the side of the investors and the general public. | BG |
| The challenges of hierarchy | Institutional hierarchies and other forms of explicit or implicit subordination present a barrier to positive change , particularly through consumption of time and effort, particularly on the side of the protagonists of the change. | BG, NL, FR |
| Different sectors follow different set of principles and priorities | Principles of work and priorities of big companies and institutions (corporations, financial institutions etc.) can be significantly different from those practiced by smaller entities. In course of BUSLeague, this showed most obviously through aspects of hierarchy (see the note on The challenges of hierarchy), but just as significantly with regard of priorities , in this case particularly with regard to the planned realisation of the project interventions. Working with smaller organisations or other types of entities, such as private sustainability fund, proved to be easier in the course of the project. Not insignificantly, this has been attributed to the “nature of organisations” , which largely refers to the differences in giving priority to quality project results over generating profit or avoidance of potential legal liabilities. | NL, FR |
| The challenges of personal discretion | Difficulties of institutional cultures and systems that give great power to individuals’ personal judgement and discretion, often motivated by aspects such as pride, convenience, financial incentives and the limits of individual’s knowledge and awareness. | BG |
| Institutional cultures and the importance | Institutional cultures and systems that rely predominantly on direct interactions and relations between individuals, or differently, systems that are based on direct | BG, FR |

| | | |
|---|---|----|
| of individual personal relations | <p>loyalty and responsibility between the individuals that make up these systems, were reported both as problematic as well as potentially beneficial (e.g., for a faster development of planned project activities).</p> <p>Such systems tend to be influenced and characterised by personal or cultural preferences of the people that sustain them. This is in contrast with systems based on checks and balances that favours loyalty and responsibility towards professionalism, expertise, and the larger community aspects.</p> | |
| Persistence pays off, or, the power of public exposure | Despite market barriers and COVID restrictions, BUSLeague activities had reach and impact due to systematic promotion and stakeholder engagements. | BG |
| Zeitgeist | There are several indications that BUSLeague project is happening at the right moment in time ; as noted by several contributors in the section on timeliness and effectiveness, indications include factors that influence everyday lives of people, politics, and the markets (COVID-19 pandemics, Russian war on Ukraine, etc.), but also political gestures, such as promotion of NZEB fundamentals by the Irish government. | IE |
| The need for cross-sector collaboration | Experience with BUSLeague indicate that a holistic approach , connecting experts from a variety of disciplines, and importantly also highly motivated and enthusiastic individuals, leads to great success. A good example of this comes from Ireland, where they have successfully piloted a non-public sector training clause insertion to a tender. | IE |
| The value of courage and positive provocation | <p>Related to the point on cross-sector collaboration, experience from BUSLeague shows that a healthy dose of controversy and constructive criticism (e.g., of the existing state of affairs), motivated and based in values such as honesty, operability and practicality, creates a more dynamic space for discussion and actionability.</p> <p>In Ireland such principles reportedly influenced representatives of the construction sector to upskill, and generated a sense of a shared goal, which is “better low-energy buildings”.</p> | IE |
| Administration as a barrier for change | Grant and retrofit procedures can be quite complex and disincentive for homeowners and contractors, which leads us to conclude that administration is among the main barriers for positive change in the area of building renovation and retrofitting. | IE |

| | | |
|---|---|----|
| The value of Behavioural Economics | Irish partners argue, based on their experience from BUSLeague project, that there is value in understanding and utilising the principles of Behavioural Economics , which applies the intersecting of the teachings of psychology and economics aspect of training. Application of such approach proved to be very beneficial to broaden people's perceptions, they claim. | IE |
| Individual work enables quality but implies higher costs | Skills-recognition based on individual work requires more time and effort, thus implying higher cost. This likely presents a major issue in future development of such schemes , especially under assumption that participants (or their employees) should have to cover the cost of skills recognition on their own. | ES |
| Lack of understanding substantiates the lack of motivation | Factors such as language barriers, digital literacy (or less frequent use of contemporary digital media), age (generational) differences in the workforce, culture of work and likely many other factors lead to lack of understanding and motivation on the side of workers and their employees to recognise and appreciate the value of skills recognition , or as it materialised in the Spanish pilot, lack of motivation to prepare for the exam better. However, reasons for the lack of understanding and/or motivation should not only be sought at the level of individuals but also at the contextual (systemic) level. | ES |
| The future for trainings is with big companies | Big companies have the necessary revenue and systems in place to implement training contents in practice on scale. This could lead to a shift in paradigm by influencing the market, prompting Small and Medium Enterprises (SMEs) to recognise the value of certified EE Skills and engage more actively in both training and skills-recognition activities in order to either gain market advantage or retain their competitiveness. | ES |
| Microtrainings are a good format for upskilling – | Micro-trainings are flexible small learning units that can be organised into a more complex modular system , allowing for training pathways tailored to the needs and interests of the trainees (and their employers) in the medium and long term. They are also very useful for including training clauses in public tenders and/or funding mechanisms. | ES |
| Care in vulnerable subjects | From the VHTO-program, which can be generalised as a training program for vulnerable or discriminated social groups, we learned that for vulnerable topics , such as gender diversity, organisations will be very careful with their role models (the females from the field), even when this has the result that a training is held later. | NL |

| | | |
|--|--|----|
| Long-term vs. short-term | Both businesses and people tend to have limited capacity to pursue long-term goals over their short-term needs , which is related with the lack of motivation for either transition to become an energy-efficiency focused business or to upskill into an expert in EE Skills. From this follows that both businesses and individual workers need support in their transition path. | NL |
| Risk of having the manager or boss in a group of trainees | Including the boss or manager in a group of trainees has big advantages as well as risks. These have to be addressed and managed consciously to optimise the training outcomes. | NL |
| The impact of pride | Pride proved to be a factor that can have a significant impact on developments – both in positive and negative terms. In the Netherlands, pride had a negative impact on the introduction of NZEB training clause , reportedly because the contractors tend to prove they are capable of addressing issues of contracting authority with their own knowledge and experience. However, as our Dutch partners note, this does not mean that pride is always bad . The challenge is to use it well to achieve the goals of energy transition. | NL |
| Avoidance of rules | Contractors tend to dislike additional rules and limitations in tenders . As a result, they choose the tenders with fewer rules and avoid the tenders with more rules (for example as described in the NZEB-clause). The contractors can do this, because of the market situation at that moment with a lot of work to do and too few contractors who can do the work. | NL |

2.4.1 BUSLeague T5.2 SOCIAL MEDIA ARTICLES

As mentioned in the introduction, the T5.2 research framework included an obligatory **social media post** which materialised as short articles with ethnographic elements and references, published on the BUSLeague LinkedIn platform. The goal of these articles was to notify the general public on how the project evolves, learns, and empathises, or even to capitalise the social media networks to influence the project developments by harvesting feedback. In this regard, success of the articles was limited, considering the small number of readers and engagements per individual article (see section Totals in the table below 2.4.1). Nonetheless, the authors highlighted relevant aspects and topics, as well as increased awareness about the BUSLeague project, which is the relation with WVP6.

The table below provides an overview of the articles' titles, authors, date of publication and the numbers of reactions, comments, shares and unique impressions. Perhaps most significantly, the table also provides a short summary of unique topics that were addressed in the articles. In order to grasp the contexts indicated in these summaries, readers are advised to refer to the published articles in its entirety following the links in the footnotes.

| Title | Author(s) | Unique topics | Date of publication | Reactions | Comments | Shares | Unique impressions |
|---|----------------------|--|---|-----------|-----------|-----------|--------------------|
| Totals | | | | 99 | 12 | 19 | 1058 |
| Skills gap - how big is it really?¹¹ | Dragomir Tzanev (BG) | The skills gap, the need for a “renovation tsunami” in Bulgaria and the EU, the need for symmetrical training of both blue- and white-collar workers from the sector, the need for respect and pride in the sector, cross-craft understanding, and the purpose for qualification frameworks. | 18. NOV 2021, (reposted on BUSLeague 23. NOV 2021) | 18 | 2 | 0 | 43 |

¹¹ **Skills gap – how big is it really?** See <<https://www.linkedin.com/pulse/skills-gap-how-big-exactly-dragomir-tzanev/>>, last accessed 3. JAN. 2023.

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| <u>Up to the neck in muck: An ethnographic look at the Irish retrofitting ambitions</u> ¹² | Domen Bančič (SI) Gregor Cerinšek (SI) and Benny McDonagh (IE) | A reflection on an ethnographic visit to Ireland, specifically the lack of workforce, negative image of work (trades) in construction, the traumatic collective memory of the 2008/09 economic crash etc. | 24. NOV 2021 | 20 | 1 | 5 | 362 |
| <u>Visiting Mount Lucas "inspiration" centre</u> ¹³ | Gregor Cerinšek (SI) Domen Bančič (SI) and Benny McDonagh (IE) | Lack of awareness regarding NZEB; the importance of inspiration, motivation and high-quality training/education; the need for “rebranding” of the construction and renovation sector, especially for younger generations. | 13. JAN 2022 | 12 | 1 | 5 | 111 |
| <u>Unambiguous concepts - you know what we mean?</u> ¹⁴ | Dirk de Wit (NL) | Ambiguous concepts and theories or the challenge of shared understanding; country-specific NZEB definitions; empathy and sincerity in context of EU projects; language as a barrier/challenge withing BUSLeague; storytelling as a means of bringing meaning into the black and white project environment. | 22. APR 2022 (original in Dutch on 14. APR 2022) | 10 | 5 | 3 | 95 |
| <u>Micro-competences and gender imbalances: A case from Valencia, Spain</u> ¹⁵ | Pepa Esparza Arbona & colleagues at IVE (ES) | Certification of skills as a driver for demand and prospect for a better future; learning skills through practice (on-site); gender imbalance in the Spanish construction sector; skill-specialisation of the sector and the role of micro-competences. | 6. JUN 2022 | 10 | 2 | 2 | 71 |

¹² **Up to the neck in muck: An ethnographic look at the Irish retrofitting ambitions.** See <<https://www.linkedin.com/pulse/up-neck-muck-ethnographic-look-irish-retrofitting-ambitions/>>, last accessed 3. JAN. 2023.

¹³ **Visiting Mount Lucas "inspiration" centre.** See <<https://www.linkedin.com/pulse/visiting-mount-lucas-inspiration-centre-busleague/>>, last accessed 3. JAN. 2023.

¹⁴ **Unambiguous concepts - you know what we mean?** See <<https://www.linkedin.com/pulse/unambiguous-concepts-you-know-what-we-mean-busleague/>>, last accessed 3. JAN. 2023.

¹⁵ **Micro-competences and gender imbalances: A case from Valencia, Spain.** See <<https://www.linkedin.com/pulse/micro-competences-gender-imbalances-case-from-valencia-spain/>>, last accessed 3. JAN. 2023.

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|---|---|---|--------------|----|---|---|-----|
| <u>Targets, barriers and solutions for energy efficient building renovations in France</u> ¹⁶ | Narjisse Ben Moussa and Manuel Esteban Arias (FR) | Challenges of construction and renovation in France; the gap between demand and supply; experience of the onsite training approach from France. | 1. AUG 2022 | 12 | 1 | 1 | 243 |
| <u>Excellence in the construction and renovation sector - getting the right people behind the table</u> ¹⁷ | Naghmeh Altmann-Mavaddat (AT) | Building renovation standards in Austria, the need for trained/skilled workforce, barriers to upskilling the existing workforce, policy enforcement through procurement criteria and the role of 'energy advisors'. | 17. OCT 2022 | 17 | 0 | 3 | 133 |

¹⁶ **Targets, barriers and solutions for energy efficient building renovations in France.** See <<https://www.linkedin.com/pulse/targets-barriers-solutions-energy-efficient-building-renovations-/?trackingId=0q4jI%2FmLqhORouNs4Ef8GA%3D%3D>>, last accessed 3. JAN. 2023.

¹⁷ **Excellence in the construction and renovation sector - getting the right people behind the table.** See <<https://www.linkedin.com/pulse/excellence-construction-renovation-sector-getting-right-people-/?trackingId=j%2FI%20B4AKydAu5t0UufxURXw%3D%3D>>, last accessed 3. JAN. 2023.

2.5 Implications for exploitation

This section presents short summaries of implications for exploitation, shared by contributing partners. In other words, these insights were noted as interesting for sharing with involved stakeholders and colleagues with the aim to indicate the usability of BUSLeague outcomes. Use cases might include exploitation of a business plan, further development and exploitation of a product or service, highlighting reference points in for policy making and implementation, knowledge and research questions useful for realisation of future research (projects) etc. Readers are advised to read more detailed descriptions of the summarised highlights in the Annexes.

| Implication (as reported by partners) | Short contextualization | Country |
|---|---|---------|
| Roadmap Austria 2030 | The main outcome of BUSLeague in Austria is going to be the foundation for the national qualification roadmap 2030 which will make use of the project's exploitable results. | AT |
| Lack of awareness in commissioning for proper use of energy systems or air-tightness | Knowledge of this blind spot on the market presents a significant potential for exploitation in the future, either as to do research on potential business niches, or to develop new projects focused specifically on the optimisation of processes in the finalizing stages of building renovation with the goal of maximizing building energy performance. | AT |
| Lack of engagement on the side of financial institutions | Given that finances are key in the area of building and renovation, future studies and efforts are necessary to provide ground for more effective planning and project realisation in construction and renovation sectors. | AT |
| The difference in approachability varies between experts and institutions of different professional background | Patterns were observed with regard to how individuals and institutions from different professional background react to demands for higher standards, regulation and control; in this case in particular this regards differences between engineers and architects. Targeted structured research on why this is so could help us search for more effective ways to orchestrate constructive future collaborations between different disciplines and experts, leading to better results and enhanced impact of projects such as BUSLeague. | BG |

| | | |
|---|---|----|
| Diversity, versatility and responsiveness of EnEffect's training offer | The outputs of the project enabled the diversification and versatility of partners' training offers , enabling collaborative development of various training courses which are expected to spread out within the formal and informal training practices, assuming that the support of other relevant industrial and institutional partners is given. | BG |
| Training clause for public procurement tenders & legal considerations as main obstacle to action | <p>Soon after the beginning of the project development Irish partners realised that there may be several legal considerations that hinder the implementation of a specific training clause within the established processes of procurement and other protocols, particularly those related to public tender.</p> <p>Significant work has been done in this area during the project and more work is still in progress. All of the existing and future results from this area of work, including the established relations with key stakeholders, will be exploited beyond BUSLeague lifetime.</p> | IE |
| Transition year for youth | During the interventions in Ireland, a prospect emerged for a more structured approach to introducing youth to NZEB construction and building renovation – the so called “transition year classes”. The aim is to encourage more schools to introduce their students to NZEB and apprenticeships in building construction and renovation crafts, as there is currently a shortage of qualified workers in all sectors. Programmes following successful models tested in Ireland have large potential for exploitation both within and beyond Irish national borders well beyond the project's lifetime. | IE |
| Research involving children | BUSLeague Grant Agreement explicitly denies partners to include children (directly) into the research activities, specifically due to ethical considerations and risks. Future projects have to consider enabling direct involvement of children in the project activities or even to design a specific project dedicated to working with younger generations, as this segment of the society proved to be significant for project long-term impact. | NL |
| The prospect of VR training | Virtual Reality training was tested in Ireland and was reported as successful and informative. The fact that several of our EU partners have expressed interest the Irish NZEB training courses indicates that such | IE |

| | | |
|---|---|----|
| | approaches and contents have a further exploitable value. | |
| The prominence of negative aspects | Experience from Irish BUSLeague interventions indicate that people tend to focus more on negative rather than positive aspects and prospects of change . Developing strategies and techniques to give more prominence (weight) to the positive aspects is a potential for future work that could have significant impact on public perception of the collective challenge, as well as the role of individuals (workers in the construction and renovation sector) in search for solutions. | IE |
| Untapped potential in training DIY stores staff | Through BUSLeague activities we realised that training in energy efficiency would facilitate the hardware staff to promote improved buildings to customers. Focusing on this specific segment has a further significant exploitation potential within and beyond Ireland. | IE |
| A community for future actions | The community built through BUSLeague activities should be considered an exploitable asset for future actions, targeted at specific groups, either in general or in specific ongoing or future projects, such as BUS-GoCircular. | ES |
| Spanish skills-recognition pilot as the base for development of a new business model | The pioneering experience from Spain provides information on its technical and economic viability of on-site skills-recognition that should be analysed by the key actors interested in launching similar initiatives for skills recognition. | ES |
| Heuts-de-France as a case study for local economic transition | The region of Heuts-de-France could be an interesting pilot case for a planned transition from one localized socio-economic system to another , partners report. With the prospect of all fossil-fuel related industries being gradually phased-out, we can expect socio-economic challenges, similar to that of lack of job opportunities, which was contextually addressed in the French case, to arise elsewhere in Europe. These localities would benefit greatly from experience and methods used in places where a successful systematic transition was carried out. | FR |

3 Annexes

1. Austrian T5.2 report, prepared by Naghmeh Altmann (AEA),
2. Bulgarian T5.2 report, prepared by Dragomir Tzanev (EnEffect),
3. Spanish T5.2 report, prepared by Pepa Esparza Arbona (IVE),
4. French T5.2 report, prepared by Narjisse Ben Mousa (AVE),
5. Irish T5.2 report, prepared by Benny McDonagh (TUS),
6. Dutch T5.2 report, prepared by Dirk de Wit (ISSO).

3.1 Annex I - Austria



T5.2 Report – Austria (AEA)

*A framework for reporting T5.2 activities on
Measuring Effectiveness and Timeliness of BUSLeague
from the Anthropological perspective*

| | |
|------------------------|----------------------|
| Prepared by: | AEA, Naghmeh Altmann |
| In collaboration with: | IRI UL, Domen Bančič |
| Date: | NOV-2022 |

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BUSLeague interventions – the highlights

In Austria, we focused on the following types of interventions:

Micro trainings → Trainings organised in collaboration with Energy Agency Styria, targeting specifically the Austrian energy advisors. Trainings were focused on specific topics. The 1st training was on the topic of construction site and relation of the renovation roadmaps, or how to make it better. It took place in December 2021 attracting 40 participants. The 2nd training was on the topic of ecological construction material management and took place in March 2022, attracting 37 participants. The final training was on the topic of the blower door test & the quality of indoor air, and was performed 8th Nov. 2022 online, attracting 30 participants.

Awareness raising and promotion activities → A cluster of activities (distributing brochures/promotion materials at fairs & exhibitions; writing articles and contributions in magazines) focused on awareness raising, sensibilisation and education of the public. These activities were performed in close collaboration with **klimaaktiv** – incentives given for high quality renovations; reaching the public. The mixture of promotional activities reached a wide variety of publics, such as homeowners, installers, manufacturers, and training providers.

Policy workshops → Meetings and discussions with representatives of 5 Austrian regions. AEA invited people involved in energy efficiency to discuss how we could get an Austrian variety of a training clause into the regional policy/public procurement processes.

Barriers and challenges addressed through BUSLeague

Micro trainings

With **micro trainings** specifically, we addressed the following barriers and challenges identified in D2.3¹⁸:

Supply side:

- Lack of knowledge, particularly by addressing interest of the energy advisors to learn /deepen the knowledge, increasing the demand for BUSLeague micro-learning.

Indirectly, we also addressed the following barriers and challenges on the demand side:

- Lack of knowledge and awareness, particularly the aspect of access to reliable information.
- Lack of demand for skilled workforce, specifically as demand for higher quality services and new requirements (in the building codes the requirements for energy efficiency of the buildings is becoming tighter; especially the proposed EPBD

¹⁸ See https://busleague.eu/wp-content/uploads/2021/05/D2_3_full_version.pdf

requires the zero emission buildings. The national building codes will have to be adapted to the new requirements.) for buildings.

New barriers and challenges (not explicitly identified in D2.3):

- Prioritising the enhancement of household energy efficiency before implementing renovation measures.

Awareness raising and promotion activities

With **awareness raising and promotion activities** specifically, we addressed the following barriers and challenges identified in D2.3:

Demand side:

- Lack of knowledge and awareness, particularly in the following aspects:
 - To understand the benefits of energy efficiency and high-quality buildings.
 - To understand how a trained and skilled professional (installer) can reduce frequently made mistakes in construction.
- Lack of demand for skilled workforce, both on the side of residential and non-residential sector, particularly in the following aspects:
 - To prioritise energy efficiency first in the renovation before installing heating system by renewable energy.
 - To demand high quality buildings.

New barriers and challenges (not explicitly identified in D2.3):

- To be able to construct energy efficient buildings and make less mistakes and have a cross trade understanding, further educations and trainings are needed.
- Involving the energy advisors to check the quality of work on-site. In most of Austria the advisors are actively present only before the start of a renovation, offering clients two hours of consultancy paid by the existing subsidy scheme. Only one region in Austria has a subsidy scheme that lasts for the entire duration of the renovation work. To involve energy advisors during the construction and/or renovation is a challenge because the homeowners do not want to pay extra for their work, especially if it is not subsidised by the region.

Policy workshops

With **policy workshops** specifically, we addressed the following barriers and challenges identified in D2.3:

Policy, Regulation, and Financing:

- Raising awareness about various aspects of policy and regulation as a barrier, including:

- The (lack of) knowledge and awareness regarding comparable systems in other EU countries.
- Lack of foresight.
- Lack of political willingness.
- Lack of financial incentives.

Effectiveness and timeliness of BUSLeague interventions

Micro trainings

With regard to **micro trainings**, we conclude they were **very timely** and **very effective**.

The micro trainings were developed in accordance to the needs of the energy advisors after having several meetings with training providers, installer, guilds, producers etc. The reason for developing micro trainings for energy advisors was that the manufacturers and installers provide training for their clients themselves and further cooperation regarding training material and providing training within BUSLeague seemed to be redundant.

At the beginning of the project, many meetings and telephone conferences were carried out (almost all online due to Covid), in order to make a plan for the best way of implementation. Only in recent months the connection with a DIY store was intensified in order to address the importance of the trainings and objectives of the project.

In terms of **timeliness** and **effectiveness**, the BUSLeague project addressed the great demand and awareness of the need for knowledge and action, both on demand and supply side. This was particularly reflected in the large number of participants attending the micro-trainings, their interest and (pro)active engagement during the training, as well as positive evaluation demonstrates that the trainings indeed were both timely and effective.

Awareness raising and promotion activities

With regard to **awareness raising and promotion activities**, we conclude they were **very timely** yet only **somewhat effective**.

In terms of **timeliness**, we believe our BUSLeague awareness raising activities were very timely because with increasing energy prices and future building requirements, the quality of work (installation of renewables on/in the buildings as well as air tightness), the energy efficiency and avoiding construction errors are becoming more important.

In terms of **effectiveness**, it is hard to assess the impact of the awareness raising activities. The promotion activities at the fairs or conferences is limited. In order to make the importance of energy efficiency in the buildings visible, different media such as social media and articles are more effective to reach the public. Reaching the professionals is more difficult. Therefore, by reaching out through (training) the energy advisors, raising awareness for both building owner and construction companies could be / proved to be more effective.

Nonetheless, our awareness raising activities were generally well received and also yielded some reactions. More specifically, our colleagues performing the activities were asked a lot for

information of all sorts related to our area of expertise (for example about replacement of fossil fuels heating systems).

Policy workshops

With regard to the **policy workshops**, we conclude they were **somewhat timely** but **not exactly effective**.

In terms of **effectiveness**, Austria has a different system from some other partners, so the goal of trying to promote changes was not as successful as initially expected. Barriers and challenges in this regard include:

- Highly complex construction tasks are performed by semi-skilled workers. The number of courses focusing on energy efficiency and cross trade understanding is rather limited.
- Objective trans-national recognition is hardly possible because clear descriptions of earned competences are missing in the field of further education.
- Further education modules often do not require an entry qualification or do not end with a certificate of earned competencies on an international, comparable standard.
- In Austria, there is no general training tax established which has to be paid by construction companies. Therefore, the costs for the training would need to be paid or subsidised by the government or the national provinces.
- Adding more quality criteria to subsidies will restrain building owners from applying for grants.
- The ongoing national campaign “out of fossil fuel” causes that thermal renovation of buildings to lack behind now because it is actually not politically binding or mandatory in opposite to the need of changing the heating system.
- Further quality criteria to procurement or grants should be harmonised throughout all Austrian provinces, which is a very time-consuming process.
- Construction companies fear that additionally trained construction workers ask for more wage.
- Right now all stakeholders from central and regional government wait for the impact of the further implementation of the European guidelines and directives going together with climate package “Fit for 55” in the following month. Before the national impact is not clarified in more detail they are not interested in tighten actual quality criteria for procurement or subsidies.

Most significantly, in Austria there is a dual system for the white and blue-collar workers: Schooling and apprenticeship. Besides there is no taxation for the education or trainings of the companies like in France, to be used for the training on site. All stakeholder mentioned that the French example is very interesting, but the funding of the training costs is a big challenge in Austria. The representatives of the federal provinces quoted that adding more quality criteria to

subsidies will restrain building owners from applying for grants. The willingness of the policy makers to change the system and implement new rules is therefore low, which rendered our policy workshops only **somewhat effective**.

Regarding the **timeliness** of the intervention, it can be stated that policy makers are being confronted with challenges in the job market and reaching the climate goals. In this sense, listening to new ideas about what is being done in other countries could have some impact.

However, discussions between stakeholders happened and were interesting. There were other benefits, such as exchange of good practices between regions, establishing new relations between the participants. An example of a concrete outcome of our interventions is that Styria proposed to cooperate with the national guilds and the chambers of commerce to raise the quality of craftsmanship. The representative of federal real estate agency stated that quality control on-site is of major importance to guarantee that energy efficient buildings are really built. Moreover, he stated that any activity regarding adding further quality criteria to procurement or grants need to be harmonised throughout all Austrian provinces.

Implications for BUSLeague dissemination

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth dissemination attention, include:

- **Response to market demand** – In Austria energy advisors are confronted with questions, mostly by the home owners, regarding new topics, such as the ecological construction material and indoor air quality. Our BUSLeague subcontractors thus provided the trainings on time and yielded great results.
- **Different cognitive models as a factor in upskilling** – Our experience from BUSLeague indicate that there is a significant difference between how (blue-collar) workers and (white-collar) professionals think about upskilling. Workers tend to focus on practical aspects, prefer hands-on training, and tend to follow obvious trends in market demand. Professionals, on the other hand, tend to appreciate the value of theory better, and also have the foresight to understand why it is important to upskill before the rise of market demand.
- **The impact of geopolitics** – During the lifetime of BUSLeague, we noticed how the war in Ukraine influenced the energy market, which has direct consequences for several aspects of the construction and renovation sector, as well as the (demand for) technologies and skills involved. A specific example would be the demand for solar hot water systems and the photovoltaic panels. After the start of the war and its impact on the market(s) the demand has increased immensely. Due to the lack of professionals, the work is done by semi-skilled workers.

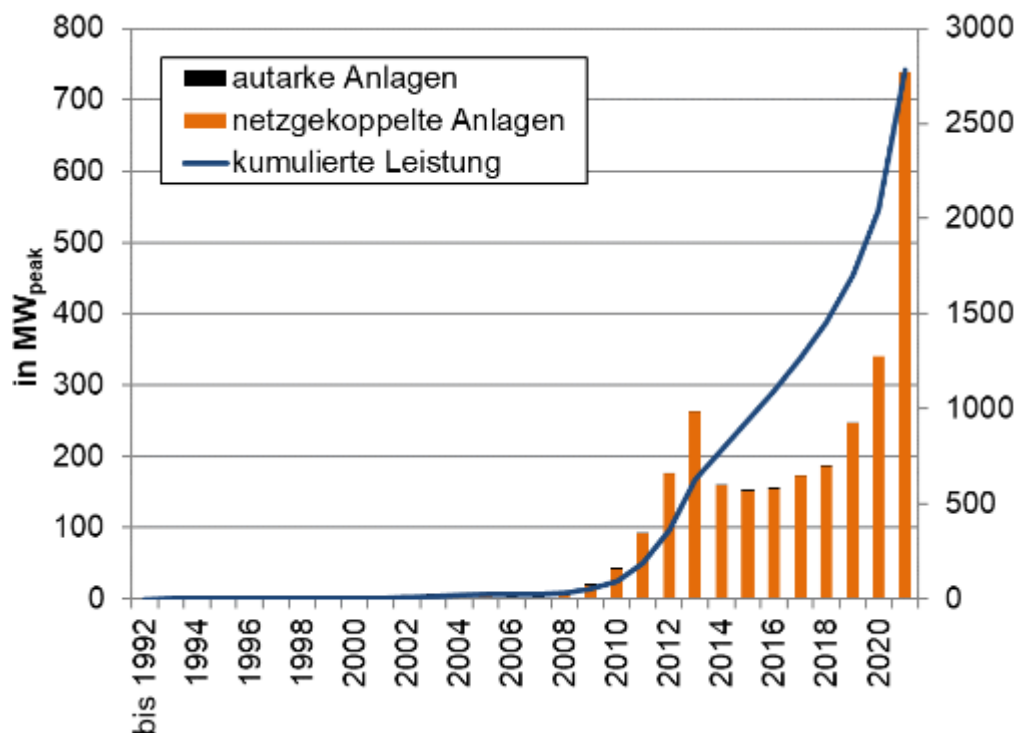


Figure 1: The graph shows installed PVs (in installed MW power) in Austria for the past two decades. In 2021 the total of installed PV capacity more than doubled. Based on our ethnographic insights, the demand in year 2022 is even greater, largely due to the war in Ukraine. Our informants say the demand is so big that some companies struggle to find enough installers trained for PV installations. As a result, they often turn to semi-skilled workers, which often leads to poor quality installations.

- **Issues of a “quick fix” market reaction** – We see that in every trade there are still training gaps. Due to the market situation (e.g., installing renewables on the buildings), which is exacerbated by the geopolitical situation, addressing these gaps is becoming more urgent. If not otherwise, these systems are either being installed improperly or the heating system faces malfunctioning!

Implication for BUSLeague exploitation

With regard to **unique qualitative insights** from the BUSLeague project, one of the main exploitable outcomes of BUSLeague for AEA is preparing a roadmap for 2030 as well as further engagement of stakeholders

- **Roadmap Austria 2030** – The exploitation of BUSLeague can be seen in regular contact with different stakeholders at all levels. The main party is an educational entity or training provider. In many cases the integration of cross trade understanding has to be within the basics of a profession. Therefore, working with the guilds and trades is important. Another positive issue to consider is the integration of klimaaktiv in the Public Procurement requirements for the building. The micro trainings developed within the project supports this requirement. Ultimately, the main outcome of the project is going to be the foundation for the road map for Austria 2030. This will guarantee the exploitation of the project.

- **Lack of awareness in commissioning for proper use of energy systems or air-tightness** – In Austria, we still have a significant lack of commissioning (e.g. heating system checks following the installation). This is due both to lack of demand and lack of awareness. This blind spot on the market presents a significant potential for exploitation in the future, either as to research potential business niches, or to develop new projects focused specifically on the optimisation of processes in the finalising stages of building renovation with the goal of maximising building energy performance.
- **Lack of engagement on the side of financial institutions** – In Austria, we experienced issues in working with financial institutions. Representatives of financial institutions tend to be both largely disinterested in constructive collaboration and strictly focused on finance and not on the broader picture around the issues we try to address. Given that finances are key in the area of building and renovation, future studies and efforts are necessary to provide ground for more effective planning and project realisation in construction and renovation sectors.

A hint regarding the logic of financial institutions

During the course of the BUSLeague project, one of the bank representatives engaged in a conversation with AEA wrote the following note that indicates towards the logic of financial institutions:

At present, we do not explicitly take into account the training of professionals/tradesmen [involved in construction] when granting loans. However, in the course of our audits, we make sure that our customers – also in the construction industry – conduct their business activities with the necessary care and in a reputable manner. This is to be ensured by obtaining various documents (e.g. plans, energy certificate, etc.) and information, which are checked accordingly. As a rule, this includes – especially in the commercial sector – a credit check of the professionals for the relevant trades. In the case of larger projects, there is also ongoing (partly external) construction controlling, in which construction progress and quality are assessed and documented in regular reports. A final on-site inspection is also carried out after completion of the relevant projects.

To be honest, assessing the training of professionals/tradesmen is not one of these core competencies of a financial institution, so that we cannot currently take this into account in this depth when granting loans.

3.2 Annex 2 - Bulgaria



T5.2 Report – Bulgaria (Eneffect)

*A framework for reporting T5.2 activities on
Measuring Effectiveness and Timeliness of BUSLeague
from the Anthropological perspective*

| | |
|------------------------|---------------------------|
| Prepared by: | EnEffect, Dragomir Tzanev |
| In collaboration with: | IRI UL, Domen Bančič |
| Date: | NOV-2022 |

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BUSLeague interventions – the highlights

In Bulgaria, we focused on the following types of interventions:

Stakeholder engagements → We established a practice of regular ongoing interaction and exchange (meetings, workshops, trainings etc.) between key stakeholders within the Bulgarian construction and renovation value chain, including product manufacturers, universities, branch chambers, industrial associations, public authorities in the area of energy efficiency and vocational training and education, energy agencies and consultants, environmentally-oriented NGOs, etc. Through these interactions we established a network of diverse stakeholders and consolidated trust and confidence in the value of upskilling in the construction and renovation sectors. We also established important alliances – both on individual and institutional levels – that will enable EnEffect to continue working on our mission and promoting the values of our business. The most valuable outcome of these engagements and the work done in relation to BUSLeague project (related to the topic of construction skills, particularly in the segment of building renovation and retrofitting) is that EnEffect is prepared to respond to any educational or training requests that might arise within Bulgaria.

CPD development activities → We have held meetings and individual exchanges with representatives of both private and public institutions (both educational and institutional) with the goal to push the development of the CPD framework within Bulgaria.

Barriers and challenges addressed through BUSLeague Stakeholder engagements

With **Stakeholder engagements** specifically, we addressed the following barriers and challenges identified in D2.3:

Supply side:

- Lack of quality training opportunities.
- Lack of demand for upskilling.
- Lack of training and demonstration equipment and opportunities for practical training.
- Lack of experience with digital technologies and distance learning platforms.

Policy, regulation and financing:

- Significant delays in the adoption of new minimum energy performance requirements (e.g. national nZEB definition still not enforced) and non-compliance with regulations.
- Lack of support from both private and public financial institutions.
- Lack of political willingness.

New barriers and challenges (not explicitly identified in D2.3):

- Lack of collaboration between stakeholders from different institutional and sectoral environments.
- Frequent change of responsible experts and decision-makers in the public authorities due to the ongoing political crisis.

CPD development activities

With **CPD development activities** specifically, we addressed the following barriers and challenges identified in D2.3:

Policy, regulation and financing:

- Policy and regulation as a barrier – lack of continuity in the financial support schemes and delay in adoption of more ambitious energy performance requirements

New barriers and challenges (not explicitly identified in D2.3):

- Lack of trustworthy (independent) and reliably available expertise within Bulgaria related to the field of CPD.
- Lack of operational platform for collaboration between public authorities in different fields, educational and training establishments, branch chambers and industry representatives. Related to the above-mentioned barrier of frequent change of responsible experts and decision-makers in the public authorities due to the ongoing political crisis

Effectiveness and timeliness of BUSLeague interventions

Stakeholder engagements

With regard to **Stakeholder engagements**, we conclude they were both **very timely** and **very effective**.

In terms of **timeliness**, the BUSLeague project happened in a unique moment of history when the need for sustainable energy transition overlapped with the COVID-19 pandemic and a political crisis in Bulgaria. Such a state of crisis enhanced the demand for quality external support to the sector of building construction and renovation, and particularly with regard to development and upskilling. This showed in the interest for collaboration between stakeholders from different institutional and sectoral environments, which was previously happening only occasionally and in relation with expected or running financial support programmes requiring concentration of effort in a short period of time.

The interactions between the various stakeholders were stimulated by the necessity to promote the construction sector as one of the most suitable for public interventions in light of the economic crisis widely expected after the COVID pandemic. Certainly, the arguments became even more viable after the Russian assault on Ukraine and the rapid increase of energy prices, bringing energy efficiency to the top of the policy agenda. However, with the ongoing political crisis in Bulgaria and 5 governments changing for a period of less than 3 years, interventions in

the building sector were not favoured by the decision-makers, as their political horizon was too short to validate the expected results. This required a very strong and coordinated pressure from the professional sector so that the long-term but sustainable solutions as the energy retrofitting of the building stock remained on the political agenda, despite the short life expectancy of the governments and their natural inclination to more visible measures as e.g. heating subsidies. This resulted in organisation of a number of national-scale events promoting the necessity for intensification of the support of energy efficiency measures in the building sector, direct engagement in the development of the national Long-term Renovation Strategy in which the need for extended support for VET activities was explicitly included, involvement of the national nZEB council and taking over the assignment to prepare a concept for improvement of educational, training and communication activities promoting the new building standards, and, most importantly, inclusion of financing support programmes of the volume of more than 1 billion Euro with increased energy efficiency requirements in the National Recovery and Resilience Plan.

In terms of **effectiveness**, with the help of BUSLeague we managed to build a strong alliance of relevant national stakeholders and representative bodies, including national authorities, professional chambers, universities and professional high schools, industrial associations, product manufacturers and energy experts. This is a setup needed for skills improvement at the Bulgarian national level, and allows EnEffect to lead the consortium of the BUILD UP Skills Bulgaria 2030 project, targeting to develop a national roadmap for improving the skills within the construction sector to deliver intelligent energy solutions, with the participation of arguably the most relevant partners – the national agencies for vocational education and training and for sustainable energy development, the Bulgarian Construction Chamber, and the Bulgarian Association for Construction Insulation and Waterproofing.

In terms of future improvement in the area of effectiveness of stakeholder engagements, EnEffect could invest more efforts into stronger collaboration with the Bulgarian chamber of architects. In the lifetime of BUSLeague project working with this specific institution proved to be too demanding in terms of energy and time, which is why we decided to avoid interaction altogether. Building a fruitful relationship with relevant members of the Architectural community in Bulgaria therefore remains both a need and a challenge for the future, particularly in the light of EnEffect's effort to build a strong and diverse community of national stakeholders dedicated to promotion of energy efficient skills in the construction and renovation sector.

CPD development activities

With regard to **CPD development activities**, we conclude they were **not really timely** yet still **somewhat effective**.

In terms of **timeliness**, our efforts to push for an institutionalized change in the area of Continuous Professional Development (CPD) were **not timely** and therefore somewhat ineffective, interestingly due to the same historical context that enhanced the success of our Stakeholders engagements. While the political turmoil in Bulgaria and the COVID-19 pandemics enabled us to build a strong non-institutionalized alliance between key stakeholders, the same historical context pushed topics of skills in construction and energy transition outside of the relevant field of political interest/focus, which largely rendered our efforts in the area of CPD fruitless. This could be observed especially in the lack of institutionalized collaboration platform between public authorities in energy, building and education sectors, educational and training

establishments, branch chambers and industry representatives. The reason for this was the frequent change of responsible experts and decision-makers in the public authorities due to the ongoing political crisis, which effectively prevented the establishment of a sectoral council despite the discussions between the Ministry and Education and Science, EnEffect and the Bulgarian Construction Chamber in the beginning of the project. This is evaluated as a significant barrier, since the development of a CPD system is largely dependent on the coordination and agreement of the relevant national authorities, the educational and training providers, and the industry sector, which could not be established due to the frequent changes of the decision-making personnel in the relevant ministries.

In terms of **effectiveness**, our work on the Bulgarian CPD framework was not completely in vain and can therefore be regarded **somewhat effective**. We managed to build ground for future work in this area, in the context of other projects or business activities. Concretely, we developed a CPD framework for energy efficiency in the construction sector which was broadly discussed with representatives of various stakeholders from the above-mentioned sectors, as there were no significant objections to either the logic of structuring or the proposed content of the framework. Within this framework, we positioned the ULOs developed under BUS League, and matched them to the existing programmes, materials and training equipment. In parallel, we aligned it to the national qualification framework, which in the future will enable us to provide recognition of skills acquired through formal or informal learning as per the national regulations.

In addition, through our activities we raised the awareness on how existing Bulgarian policy and regulation present a barrier to an effective CPD system. This was done through multiple events dedicated to ensuring quality of the construction activities, most notably at the traditional Bulgarian Renovation Day, nZEB Roadshow events and conferences and events with participation of the Bulgarian Construction Chamber. As mentioned above, this resulted in introduction of skills-related provisions in the national Long-term Renovation Strategy and the assignment of EnEffect to develop a concept for improvement of educational, training and communication activities within the national nZEB council. Subsequently, the CPD framework was included in the BUILD UP Skills Bulgaria 2030 project, and is expected to become a part of the national roadmap for improving the skills within the construction sector until 2030.

Under this framework, we also built capacity within EnEffect to offer trustworthy (independent) and reliably available expertise related to the field of CPD within Bulgaria, as well as to offer training in most of the learning outcomes specified within the BUS League qualification framework. This is evidenced by the multiple invitations to take lectures under different formats, including for the University of Architecture, Civil Engineering and Geodesy, for the Higher Construction School “Lyuben Karavelov”, for professional high schools for construction and architectures, and, very importantly, for regional branches of the Bulgarian Construction Chamber, targeting upskilling of active workers and specialists. That capacity enabled EnEffect to complete the ambitions indicators for conducted training courses for projects like INSTRUCT and nZEB Roadshow, and also fueled online training activities and distance learning platforms operated by the organization.

Implications for BUSLeague dissemination

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth dissemination attention, include:

- **The challenges of hierarchy** – Institutional hierarchies and other forms of explicit or implicit subordination present a barrier to positive change, particularly through consumption of time and effort, particularly on the side of the protagonists of the change.
- **The challenges of personal discretion** – Difficulties of institutional cultures and systems that give great power to individuals' personal judgement and discretion, often motivated by aspects such as pride, convenience, financial incentives and the limits of individual's knowledge and awareness.
- **The challenges of face-value judgements** – Difficulties of institutional cultures and systems that rely predominantly on direct interactions and relations between individuals, therefore systems which are based on loyalty and responsibility between the individuals that make up these systems, much of which is influenced and characterised by people's personal or cultural preferences. This is in contrast with systems based on checks and balances that favours loyalty and responsibility towards professionalism, expertise, and the larger community aspects.
- **Pertinence of individual personal relations** – Based on ethnographic experience of our team, gained both in the context of BUSLeague project and beyond, we realise that in Bulgaria efforts to work towards positive change is necessarily linked to building personal relations between individuals that represent (or themselves are) the key stakeholders or institutions that enable or support vital systems.
- **Persistence pays off... or the power of public exposure** – In Bulgaria, due to the low-cost oriented market and the delay in adopting ambitious energy performance standards, it was deemed necessary that the end-users/customers received hands-on evidence for the benefits of energy efficient buildings and importance of skilled labour. This was supposed to take place via local "nZEB days", combining various demonstrations, training courses, product exhibitions, media events, etc., stimulating the exchange and motivation of different stakeholders. However, with the advancing of the COVID pandemic, the organisation of such events was extremely difficult – not only they had to be organised on open air or with limited audience, but many of the invited actors refused due to the uncertainty if such events could at all be organised at the specified times. Thus, within the pilot events, the attendance was lower than expected. But even in that uncertainty, with extended media coverage (specific actions were taken to ensure media support), involvement of prominent public speakers, social media action, and collaboration with other events on connected topics – most notably financing for renovation projects, the initiative gained pace and during the spring and autumn of 2022, hundreds of participants were actively involved in the large-scale public events. A special highlight was the event in the University of Architecture, Civil Engineering and Geodesy in Sofia, where the joint stand and exhibition of EnEffect and Passive House Shop was visited by hundreds of students, promoting interest towards training courses in the EnEffect's Building Knowledge Hub and the new university discipline "Circularity in Construction".

Implication for BUSLeague exploitation

One of the main outcomes of BUSLeague for Eneffect is that **we have built responsiveness to demand for training and education at the national level**, especially for the suppliers of energy efficiency skills.

- **The difference in approachability varies between experts and institutions of different professional background** – In Bulgaria, architects (both within the professional chamber and the universities) proved to be generally less open to ideas of CPD and institutionalised demand for tighter standards in construction and renovation than, for example, the Construction Engineering faculty at the University of Architecture, Civil Engineering and Geodesy, or the Bulgarian Construction chamber. Understanding why this is so, and whether these attitudes are rooted in epistemological, cultural, historical, or other grounds, could help us search for more effective ways to orchestrate constructive future collaborations between different disciplines and experts, leading to better results and enhanced impact of projects such as BUSLeague.
- **Diversity, versatility and responsiveness of EnEffect's training offer** – The outputs of projects like BUSLeague, INSTRUCT, CraftEdu, nZEB Roadshow, BUSGoCircular enabled the diversification and versatility of EnEffect's and its partners' training offers, which is now covering the majority of learning outcomes defined under the BUSLeague qualification framework and the national vocational education and training system. This practice is informally recognised by the relevant industrial association (the Bulgarian Construction Chamber) through the collaborative development of various training courses and is expected to spread out within the formal and informal training practices with the support of other relevant industrial and institutional partners.

3.3 Annex 3 – France



T5.2 Report – France (AVE & PF)

*A framework for reporting T5.2 activities on
Measuring Effectiveness and Timeliness of BUSLeague
from the Anthropological perspective*

| | |
|------------------------|--|
| Prepared by: | AVE, Narjisse Ben Moussa PF, Manuel Esteban Arias |
| In collaboration with: | IRI UL, Domen Bančič |
| Date: | JAN-2022 |

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BUSLeague interventions – the highlights

In France, we focused on the following types of interventions:

BTP trainings → The Build your project methodology (BTP on its French acronym) seeks the scoring of training candidates in respect to their trainings and to employs at the construction subjects. The method makes use of the Practee's mobile pedagogic infrastructure for awaking the interest on the subject on potential workers and for evaluating the building skills. With a two-year experience in Bassin Minier area, BTP is expected to be executed by the Maisons de l'emploi in four territories of the Haut de France with the support of the regional institutions.

A training with a mobile unit for ADEO → Training for the Leroy Merlin installers, mostly SMEs recommended by Leroy Merlin, possibly also for Leroy Merlin employees, such as DIY store workers and/or advisory staff. Training will involve a mobile training unit – a deployable demonstration truck. The on-wheels training space is a universal solution to many issues, particularly those on the side of supply of EE Skills. This is the main target group in our intervention and many times highlights space and time constraints as the main barrier to upskilling. Practee Formation mobile training unit enables a hands-on training experience for up to 6 training participants at once, under direct supervision & mentorship of the person managing/displaying the unit. The training method is validated, visual and hands-on (practical), and the training contents (modules) are adjustable depending on the needs. In BUSLeague, this intervention is focused on the ex-mining region in the north of France and aims to address 2 decades of social issues, largely related to the decline of coal-mining and consequent issues of unemployment and retention of workforce. Based on the outcomes from the D2.3 ethnographic research, the match between BUSLeague goals and interests of the company ADEO is strong.

I. Barriers and challenges addressed via BTP

With **BTP training for transition workers** specifically, we addressed the following barriers.

Supply side

In a context where training organisations are often struggling to find candidates, **BTP contributed to the quantitative "sourcing" of training actions in the building sector.** BTP allows to:

- Get an idea of the trades "in real life", to discover them by touching them
- Change the way participants look at these little-known jobs, which have an image of difficulty. BTP contributes to change this image, thanks to the good atmosphere during workshops: as everyone has a good time and will keep a good impression of the building trades.
- Collect a qualified opinion on the participants' appetite, aptitudes and skills - an opinion that will allow them to be well oriented
- Test each participant's "desire to do".
- Provide participants with the benefit of a caring professional perspective that can:
 - support them in a professional project in the building industry,

- or, on the contrary, dissuade them from pursuing this path (which will then prevent them from dropping out during the training),
- or contribute to a reorientation towards another trade in the building industry.

Important remarks

- The presence at the BTP workshop of training organisations with training offers has a positive impact on "sourcing", since this presence makes it possible to organise a short recruitment circuit.
- For some people who are not ready yet to into training, BTP allows them to benefit from job offers via inclusion channels-possibly in connection with a "social clause".

New barriers and challenges

BTP has contributed to the creation and/or the reinforcement of a territorial dynamic, giving its positive impact on the networks of local stakeholders.

- In Saint Quentin, the partnership existed between the prescribers. BTP amplified it, and led to the setting up of a monitoring committee
- In Tourcoing, in the Bourgogne district (QPV), the dynamic is very strong: BTP has enriched, fed and strengthened the partnership relationship.
- In Armentières, BTP has notably allowed actors to get to know each other better and to develop bilateral links
- On Chateau Thierry, the main public and private actors came to see BTP: elected officials, sub-prefect, professional organisations (which recommended BTP that Catherine Gaveriaux came afterwards to present), training centers, Employment Services, inclusion services... their initial motivation: curiosity. It remains to capitalize on this action so that a territorial dynamic lasts - Laurence LOITS
- BTP has already allowed reinforcing the links between Inclusion workshops (ACI), and and the PLIE and the Mission Locale
- In the "Nouméa" district in the Bassin Minier, a "project team" has been formed around the BTP action, with the AFPA, the landlord, the MDE and Practee.

BTP contributes to these dynamics because:

- It is a federator tool, a booster, a catalyst for exchanges, for all those who share the same objective: access to training and employment for all those who are seeking it.
- It is an innovative guidance tool, available to all stakeholders

However, BTP is not enough to create this dynamic and, above all, for it to last we need to avoid the "one-shot" and privilege continuity in a long run. For this matter, a minimum of organisation (informal "follow-up committee" for e. i.) and a project manager are required (turnover is to be taken into account).

Effectiveness and timeliness of BTP

With regard to **BTP training for transition workers**, we conclude they were **very timely** yet only **somewhat effective**.

In terms of **timeliness**, the BTP training for transition workers is very timely due to several aspects of socio-economic issues that converge in the region where we are implementing BUSLeague interventions. Perhaps most relevant are issues related to a historic economic transition of the region's dependency on coal mining. Disintegration of the coal-mining industry has left a relatively large proportion of the population jobless, many of whom never transitioned into a different work sector. To a large degree, this is due to the fact that coal-mining was not effectively substituted with an alternative industry or other form of an economic enterprise that would create value for the local economic ecosystem, particularly in the form of prospective and desirable job opportunities. This and other contextual factors have led to an economic decline of the region, dependency on state-support for an entire generation of unemployed workers and their families, and emigration of younger generations. Recently, there is an increasing number of largely foreign immigrants into the region, which creates a different set of socio-economic and socio-cultural challenges. Through our BTP training interventions, we try to address these issues contextually, by building ground for the construction and the building renovation sectors to develop towards being an industry that offers prospective and desirable work opportunities for all generations of workers, disregarding the diverse socio-economic and socio-cultural backgrounds of the local population.

In terms of **effectiveness**, the BTP trainings can – so far – only be regarded as somewhat effective. There clearly are examples of training participants who gained skills and were connected with employers. However, there is also a significant segment of participants who only take part in these activities in order to get the financial compensation for the unemployed offered by the state. This segment does not effectively benefit from the trainings.

Implications for BUSLeague dissemination

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth dissemination attention include:

- **Lack of workforce** – During our work on BUSLeague, the lack of existing/available workforce in the construction and renovation sectors proved to be a larger issue relative to the lack of relevant EE Skills among the existing available workforce. This highlights the need to prioritise efforts to address the issue of the lack of workforce before we address the lack of EE Skills.
- **Renovation advisors** – In the course of BUSLeague, our partners from Leroy Merlin introduced us to a concept of renovation advisors. In large DIY stores, these would be specialists who advise customers not only on which materials to use/buy, but also on the process of planning and executing the renovation actions/measures. Customers would benefit from this service directly, by gaining trustworthy advice and guidelines on how to optimise their investment into the products and materials they buy in the store, but also indirectly, by learning about concepts and principles of good-quality building renovation practices and the value of EE Skills.
- **Nature of organisations** – Through our work on the BUSLeague project we learned how difficult the trans-sectoral collaboration can actually be. This has less to do with the willingness of the representative of parties involved in the project than

with the differences in the nature of organisations. In our case, ADEO is a big group, pursuing large-scale business ambitions which motivate their work on a very diverse set of challenges associated with their realisation. Practee Formations, on the other hand, is a much smaller institution, focusing on different and relatively much smaller set of ambitions and associated challenges. In this regard, a project such as BUSLeague is perceived significantly differently by each of the organisations, most significantly in the aspect of relevance and allocated efforts. In addition, differences in scale and complexity of institutions also have consequence on agility and the command chain for realisation of action. The latter is likely the main reason for delays in implementation of the main BUSLeague intervention planned in France.

- **Hierarchies and inertia of big organisations** – In relation to the point above, the way in how big institutions and organisations work makes quick action and adaptations difficult. This was evident in our case, where a change of a key person – a representative of ADEO working with Practee Formations on realisation of BUSLeague interventions – led to a setback in the project's progress. The structural change in ADEO's organisation in this case implied the need to re-establish certain relations and re-visit agreements made in the past, which required significant effort on the side of Practee Formations and led to delays in the planned implementation of interventions.
- **Importance of relation(ship)s between the individual representatives** – In relation to the points above, it is worth to highlight specifically that our experience with implementation of BUSLeague interventions exposed the importance of **relations and relationships between individual representatives of institutions** involved in a project. On the one hand, existing personal relationships between key representatives enabled the project to develop faster than expected at the beginning of the project. On the other hand, the example of a change in the institutional hierarchy indicates how much power there is in play, how relevant a single person in position of power and its agency is, and how problematic the rigid structures and systems/protocols of institutions can be.

Implication for BUSLeague exploitation

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth exploitation attention include:

- **Hauts-de-France as a case study for economic transition** – Based on experience from BUSLeague project, we observed that the region of Hauts-de-France could be an interesting pilot case for a planned transition from one localised socio-economic system to another. As noted above, disintegration of the coal-mining industry, which was the main source of economic prosperity in the region for generations, has created an array of issues, most notably the lack of alternative employment opportunities for workers in the industry and thus large unemployment rates. Among other things, this resulted in a collective trauma, associating the end of coal-mining industry with a sense of loss as an integral identity element of communities living in the region. We hypothesise that this trauma is less a result of a socio-cultural attachment to tradition of coal mining and more a sense of loss of quality of life and prosperity that this industry for decades was creating. Under assumption, that

construction and building renovation industry could fill the void of coal-mining industry and offer comparable value for the local economic ecosystem, particularly in the form of prospective and desirable job opportunities, such developments would be interesting as a pilot study for similar cases of socio-economic transition. With the prospect of all fossil-fuel related industries being gradually phased-out, we can expect similar sets of socio-economic issues emerging elsewhere throughout Europe. These localities would benefit greatly from experience and methods used in places where a successful systematic transition was carried out. Heuts-de-France could therefore be one such example, focused on construction and building renovation as a substitute industry, and Practee Formations could continue working with ADEO on foundations built in BUSLeague, specifically by offering systematic training for DIY stores, SMEs working in this sector, and job seekers from a variety of socio-economic backgrounds.

3.4 Annex 4 – Ireland



T5.2 Report – Ireland (TUS)

*A framework for reporting T5.2 activities on
Measuring Effectiveness and Timeliness of BUSLeague
from the Anthropological perspective*

| | |
|------------------------|----------------------|
| Prepared by: | TUS, Benny McDonagh |
| In collaboration with: | IRI UL, Domen Bančič |
| Date: | NOV-2022 |

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BUSLeague interventions – the highlights

In Ireland, we focused on the following types of interventions:

Training on introduction to heat pumps and NZEB Building for County Councils – A series of 4-hour interactive workshop at County Council offices including an onsite demo mobile training rig at 8 locations to date (Clare, Offaly, Laois, Tipperary, Roscommon, Kilkenny, Carlow, Cork). We are arranging for another workshop in Kildare in 2023. The training included:

1. An introduction to heat pumps
2. An introduction to heat loss calculations needed to assess viability of heat pumps
3. An overview of energy performance of buildings directive (EPBD) which is currently under EU review, and Irish building regulations.
4. Signposts to ETB NZEB courses for further learning
5. Practical training on mobile training rigs by various manufacturers.

Training on NZEB for DIY stores staff – The training was delivered at VET centres (Educational Training Boards-ETBs); TUS facilitated the relationship between the private DIY stores and VET centres as well as providing guidance on the content, which covered NZEB fundamentals, NZEB retrofitting, and NZEB ventilation.

Climate Action Days for County Councils – Awareness campaigns and showcase of product manufacturers and suppliers. Trade show type event with stands, demonstrations and networking.

Barriers and challenges addressed through BUSLeague

- **Introduction to heat pumps and NZEB Building**

With **Training on introduction to heat pumps and NZEB Building for County Councils** specifically, we addressed the following barriers and challenges identified in D2.3:



Participants of BUSLeague introduction to heat pumps and NZEB Building.

Demand side:

- Lack of knowledge and awareness, particularly of the understanding of the (basic/key) concepts and notions.

Supply side:

- Lack of (consistent) demand for EE Skills
- General lack of workforce in the construction sector
- Not enough stress on cross-trade collaboration on the building site

Policy, regulation and financing:

- Criteria for public tender
- Insertion of an energy efficiency training clause as a pilot into future local authority tenders
- Lack of supportive policy and regulation

New barriers and challenges (ones not explicitly identified in D2.3):

- The overwhelming administration/paperwork - requirements take away time for other practical things. People avoid action because of paperwork implied into the process.

Training on NZEB for DIY stores staff

With **training on NZEB for DIY stores staff** specifically, we addressed the following barriers and challenges identified in D2.3:

Supply side:

- Lack of quality training opportunities.
- Lack of training and demonstration equipment and opportunities for practical training.

Demand side:

- Lack of demand for EE products & skills.
- Lack of knowledge and awareness, particularly access to reliable information.

Climate Action Days for County Councils

With **Climate Action Days for County Councils** specifically, we addressed the following barriers and challenges identified in D2.3:

Policy, regulation and financing:

- Lack of general knowledge and awareness, particularly with regard to the basics of building renovations and the broad array of associated topics, such as climate/weather, biodiversity and other specific topics associated with retrofitting homes.

Effectiveness and timeliness of BUSLeague interventions

Introduction to heat pumps and NZEB Building

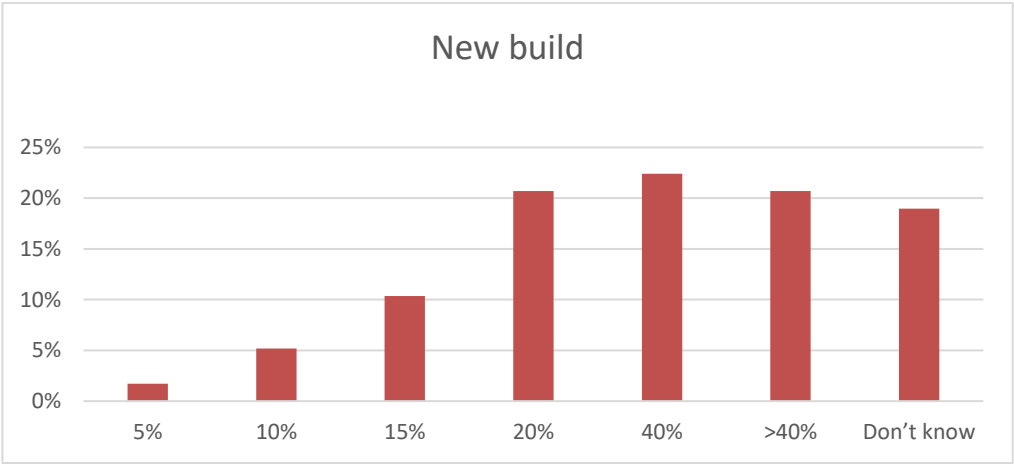
With regard to **Training on introduction to heat pumps and NZEB Building for County Councils**, we conclude they were both **very timely** and **very effective**.

In terms of **timeliness**, our training is in line with the Zeitgeist – the defining spirit or mood of the current era, shown by the ideas and beliefs of the time. In our case, the Zeitgeist is characterised by developments over the past few years, which includes the COVID-19 pandemic and Russian invasion of Ukraine, both of which had a major impact on society, economy, and the markets. We must also note the acceptance of climate change and the realisation that ensuring all buildings – both retrofitted and new – are sustainable, and that energy-efficient buildings will be key to our efforts to tackle climate change. This showed through the engagement of the training participants, who were generally all highly engaged and ready to learn.

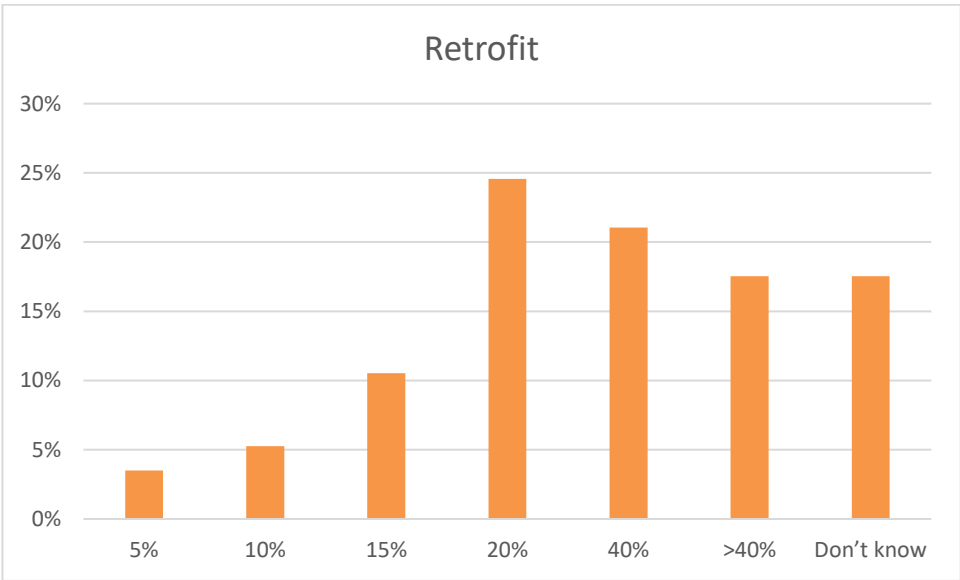
In terms of **effectiveness**, the trainings turned out to be very effective! This is reflected in the positive feedback we received through post training surveys¹⁹ from the training participants, relating to the Energy Performance Gap- the difference between the predicted energy performance and the actual energy performance of a building. The trainees were asked what

¹⁹ **BUSLeague post-training survey in Ireland.** See <<https://docs.google.com/forms/d/1Bdpc67xl8cgrAMuIz0WYLu87Dr3MpJIEDpDHO4ptsAg/edit#responses>>, last accessed 5. Dec. 2022.

they felt the increased knowledge through training would contribute to reducing the EPG of buildings by.



For new Build, over 60% stated that due to training they would be able to would reduce the EPG by a minimum of 20% and over 40%.



For Retrofitting: over 62% stated that due to training they would be able to would reduce the EPG by a minimum of 20% and over 40%.

In addition, feedback of the work done by TUS training and by other organisations we have recommended has been very positive. This includes feedback from individuals who have completed our renovation and retrofit courses, individuals who completed the various NZEB courses delivered through the Educational Training Boards, individuals who participated in the heat pump training in the mobile training rig, and people who joined the TÚS Talks webinars²⁰²¹

²⁰ **HP4ALL Homeowner Webinar Series** – A series of half-hour lectures by TUS and their partners for homeowner on all the information they need to efficiently heat their home and their hot water. See <https://www.youtube.com/playlist?list=PLrJa4Azt4NnD2_jZ60NITs5QIbhGEGbum>, last accessed 5. Dec. 2022.

²¹ **Comfort & Energy in Construction** – A series of half-hour lectures by TUS on topics of comfort and energy in construction. See:

or accessed the recordings on the TÚS talks Youtube channel. The links to educational materials produced in BUSLeague were reportedly used independently beyond the project scope, as far as out as in the UK, which clearly indicates that the quality and relevance of our contribution to the field was inspirational and very topical due to huge changes in the market.



Promotions for webinar series organised by TUS and their partners.

Training on NZEB for DIY stores staff

With regard to NZEB Training for DIY stores staff, we conclude they were both **very timely** and **very effective**.

We spoke to many of the hardware staff in hardware stores across the country that undertook the training and they said they loved it! All of them were inspired by the training and many also completed the survey. They explained their positive experience of the training by saying that now see the materials and equipment differently. They claimed that due to the training they now understand better how buildings can be made more energy efficient, airtight, comfortable and importantly, cheaper to run. They are also very enthusiastic that now they can communicate these benefits to customers and offer optimum solutions for buildings. What is more, some of the involved DIY hardware stores made alterations to their design of their Eco-Centres based on the BUSLeague project interactions to include short instructional/educational videos. They also now direct customers that are considering retrofitting, building a new-build or just purchasing a home to take a basic one-day introductory training course on NZEB fundamentals, as it gives a good introduction as to how buildings can operate best. This can be regarded as a major beneficial side-effect of BUSLeague interventions.

<https://www.youtube.com/playlist?list=PLrJa4Azt4NnD2_jZ60NITs5QIbhGEGbum>, last accessed 5. Dec. 2022.



NZEB training for the DIY stores staff



BUSLeague in one of the DIY hardware stores' Eco-Centres, in front of the demonstration unit with instructional videos.

Climate Action Days for County Councils

With regard to **Climate Action Days for County Councils**, we concluded that they were both **very timely** and **very effective**.

In terms of **timeliness**, participants found it very informative, as in the training and information we provided increased their knowledge of how to retrofit their current building stock in a correct incremental way. Additionally, there is overwhelming information available regarding all aspects of climate mitigation. So, we have provided simple introductory information to all departments of county councils which has made their selection of solutions easier and less stressful as they now know how to implement measures and, who to ask when they need clarifications and explanations. Additionally, we provided contacts where they could access advice and knowledge about sustainable products and energy efficiency equipment, such as heat pumps and Mechanical Heat Recovery Ventilation (MHRV) systems.



TUS and partners explaining principles of Climate Action to county council employees.

In terms of **effectiveness**, several participants came back after the training to request more information about the trainings, and some individuals even wanted technical assessment surveys on their own private houses. These surveys are carried out by a registered Building Energy Rating (BE) assessor who calculates the energy rating for the building and then writes a report with retrofit proposals to include getting the house to a heat loss and energy use level that is suitable for a heat pump. Such response indicates that of our intervention was effective and that we have sparked interest and built trust in members of the councils that we have addressed.



TUS and partners explaining principles of Climate Action to county council employees.

Implications for BUSLeague dissemination

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth dissemination attention, include:

- **Zeitgeist** – there are several indications that BUSLeague project is happening at the right moment in time. These include the fact, that the Irish government is starting to promote the NZEB fundamentals as a training path for all in the construction industry and promoting a TÚS catchphrase we have been presenting for a few years: ‘REDUCE THE USE!’^{22,23}



Examples of “Reduce your use!” campaigns supported by the Irish government.

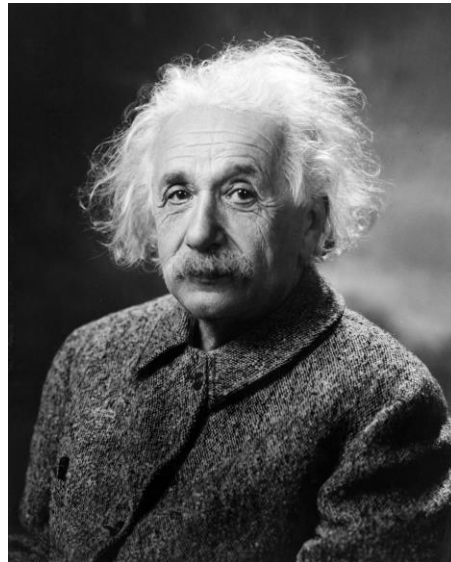
- **The need for cross-sector collaboration** – Experience with BUSLeague project in Ireland indicate that a holistic approach, connecting experts from a variety of disciplines, including highly motivated and enthusiastic individuals, leads to great success. A good example of this is piloting of the training clause for both Public Procurement tenders and private tenders. In Ireland we piloted a non-public sector clause insertion to a tender. This project was a renovation of a heritage community building that was originally a convent. This led to two of the main contractors doing the NZEB training course in the ways possible due to time constraints. Online for two half days and at the Mount Lucas NZEB training centre. There are also county councils

²² **Reduce your use** – A booklet containing advice for saving energy and money at home and when getting around, produced by the Sustainable energy home authority of Ireland and the Government of Ireland. See: <<https://www.seai.ie/publications/SEAI-ReduceYourUse-Booklet.pdf>>, last accessed 6. Dec. 2022.

²³ **Reduce your use** – A social media campaign for saving energy at home, produced by the South East Energy Agency, Sustainable energy home authority of Ireland, the Government of Ireland and others. See: <<https://www.instagram.com/p/CkyTNcmM6jC/>>, last accessed 6. Dec. 2022.

who will pilot the training clause in some tenders in 2023. This we hope will lead to an uptake of the NZEB training in most tenders for new buildings and retrofitting which will improve the building performance and reduce delivery time due to better workpersonship. As has been documented in France, this leads to less mistakes which means less resources spent on fixing the poorly done work. This increases the margins for contractors and adds rental and lease profits for clients where applicable.

- **The value of courage and positive provocation** – Experiences with the BUSLeague project in Ireland indicate that a healthy dose of controversy and constructive criticism (e.g., of the existing state of affairs), motivated and based in values such as honesty, operability and practicality, creates a more dynamic space for discussion and actionability. Introducing such elements and/or agents in a project environment is beneficial, creating positive environment for various stakeholder profiles to learn from hands on experience and mistakes. As Albert Einstein famously said, “anyone who has never made a mistake has never tried anything new”.



Albert Einstein.

Such approach has led to influencing many in the construction sector to upskill themselves and find their view of buildings to alter due to the understanding of basic building physics, such as Fabric First and envelope approach, the importance of air-tightness and ventilation etc. We have delivered and facilitated training to all roles, which like a hurling team²⁴, means everybody has the same match day plan working together to reach the group goal, which is better low-energy buildings.

- **Administration as a barrier for change** – Experience from Ireland indicate that administration is among the main barriers for positive change. This was evident from examining the grant and retrofit procedures which can be quite complex and disincentive for homeowners and contractors. However, due to our webinars and training we have been able to explain and guide all stakeholders through the process.

²⁴ **Hurling** – An Irish team game. See: <<https://en.wikipedia.org/wiki/Hurling>>, last accessed 6. Dec. 2022.

- **Hands-on training** – Among the most valuable insights we have gained from our BUSLeague activities is that practical hands-on training is by far most appreciated by training participants. This was evident in the case of many of the trainings we facilitated such as the \NZEB training at the ETBs, which had applying airtightness tapes to various building penetrations and installing insulations as part of the tasks during the training. For both types of trainings, we had very positive responses from those who attended.

Our Retrofitting course and Traditional Buildings course also had visits to training centres and hands on installation procedures, such as applying bio-based wall insulation, cork lime-based basecoat plaster etc. While many of the trainees will not be applying these materials as part of their daily practice, the feedback we got was that it was very beneficial and helped them to understand the positive performance and lower embodied carbon and environmental impact of the material. Additionally, the trainees confirmed applying this material permanently inserted the biobased solution into their memory, saying that they don't expect to forget these materials and their suitability for various typologies of buildings.

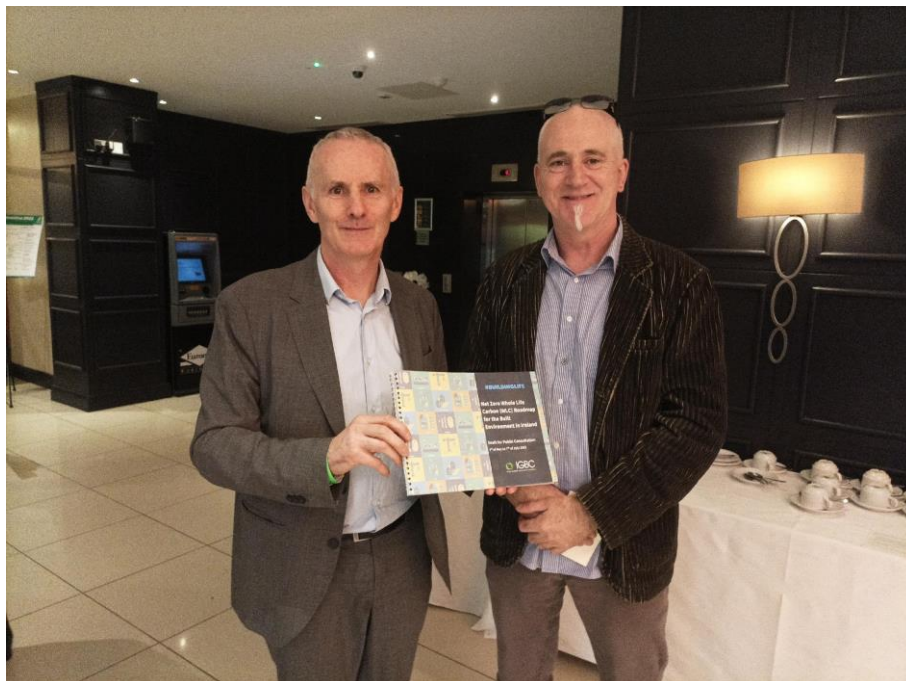
- **The value of Behavioural Economics** – Principles of Behavioural Economics, which applies the intersecting of the teachings of psychology and economics aspect of training, proved to be very beneficial to broaden people's perception. It proved to help participants to understand materials and equipment through process of planting a thought in a person's mind that will later influence their actions. Creating a new title, we invented in BUSLeague- 'The House Whisperer'²⁵!

²⁵ Irish contributors to this report explain the notion of 'The House Whisperer' in the following way: "A house whisperer is like a horse whisperer. You gently guide people then throw an idea or two to them when the interaction, training, meeting is over and let them take it with them and ponder on it to sink in to their psyche. Like a teacher who adopts a sympathetic view of the motives, needs, of people delivering energy efficiency of a house based on modern psychology, who purportedly has a magical ability that enables them to speak about and give guidance not orders to those wishing to learn. And also, someone with the gift of interpreting the body language of trainees and those at meetings, reacting and responding to them accordingly" (Benny McDonnagh, 6. FEB 2023).

Implication for BUSLeague exploitation

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth exploitation attention, include:

- **Legal considerations as main obstacle to action** – In Ireland, several municipalities wanted to adopt the training clause. TÚS and IGBC are in negotiations with 3 Local authorities and have piloted the training clause for a renovation project. Conversations with Ciarán Cuffe – the Rapporteur for the revision of the Energy Performance of Buildings Directive (EPBD) – have indicated that the insertion of training clauses into public procurement tenders to incentivise the whole sector is likely in the near future.



Meeting with Ciarán Cuffe MEP.

We soon realised there may be several legal considerations that hinder the implementation process. More specifically, these legal considerations are now being considered and reviewed and to give clarity for all partners with IGBC and collaboration with Philip Lee²⁶, who was awarded ‘Corporate Law Firm of the Year’ at the Irish Law Awards in 2021. Progress in this field and the established relations will be exploited beyond BUSLeague lifetime.

- **Training clauses into public procurement tenders** – Continuing on the same note as above, we will focus specifically on promotion of training clauses in public procurement tenders. In BUSLeague Ireland we piloted a training clause where the selection criterion was that the chosen tenderer accepted the requirement inserted

²⁶ **Philip Lee** – A leading Irish expert in the area of procurement, competition, trade and construction law. See: <<https://www.philiplee.ie/people/philip-lee/>>, last accessed 6. Dec. 2022.

into the tender to complete NZEB Fundamentals training before competition of the project.



•
Contactors who piloted training clause: left Mid-West Lime, right Mellotts Window Conservationists.

In the process we learned that the procurement criteria and decisions must:

- Be appropriate to achieve the objectives they pursue;
- Not go beyond what is needed to attain those objectives.

Proportionality is relevant when deciding which GPP criteria to apply and how to evaluate the evidence that bidders provide.

Developing a specialised method to tackle these barriers, as well as to propagate relevant policy change in the related areas, would be a valuable future development. In such context, insights gained through BUSLeague ethnographic research can be considered exploitable asset.

One approach we are considering for the future pilot in Ireland is to apply an **award criterion** based on the number of people working on the project who will receive the training. Possible wording (subject to legal/contracting authority review):

*“Energy-efficiency/NZEB training: A maximum of ***** marks (suggested 2-10% of non-financial marks) will be awarded based on the commitment to provide accredited training in energy-efficiency/NZEB requirements to relevant staff employed on the project. Bidders for the tenders would be required to indicate the number of staff in each relevant discipline who will receive energy-efficiency/NZEB training through an accredited third-party provider. To be eligible for award of marks, the training must be completed within the first ***** months [to be defined by contracting authority] following contract award.*

*And the learning outcomes defined in Annex X**** (key learning outcomes from relevant courses to be set out in Annex), must be met.*

Bidders should submit a table showing the number of staff to be trained in each discipline and the proposed course. The successful contractor will be invited to contribute to a case study/demonstration of skills developed through the training which will be disseminated at

European level as part of the H2020 BusLeague project. The training commitment will form part of the contract with the successful bidder.”

Those public and private piloting stakeholders will need to consider the appropriate number of marks, timeline for training to be provided and how they will evaluate/compare bids under this criterion (this does not need to be specified in the tender documents but needs to reflect the principles of equal treatment and transparency). Contracting Authorities are free to define the subject matter of each contract, and can do so in a way which explicitly includes environmental objectives.

- **The prospect of VR training** – A specific variety of “hands-on training” that TUS tested in the context of BUSLeague was Virtual Reality training. The Transition Year secondary school students enjoyed the VR Deep Retrofit training, tour of the WWETB where all apprenticeships were presented. They found the hands-on airtightness testing was extremely informative, as it gave them a deep understanding of energy efficiency measures to improve buildings.

The value and validity of the training experience referenced above is further accentuated by the fact that several of our EU partners have expressed interest in the Irish NZEB training courses, noting that they would like to access them, and preferably online.

- **Transition year for youth** – During the interventions in Ireland, a prospect emerged for a more structured approach to introducing youth to NZEB construction and building renovation. The so called “transition year classes” have visited Waterford Wexford Educational Training Board. We are trying to encourage more schools to bring their students and be introduced to NZEB, and apprenticeships available at the ETBs as there is currently a shortage of qualified workers in all sectors. Therefore, we need to train and supply more upskilled workers with knowledge in energy efficiency to the construction sector.

In the light of the lack of workforce in the construction and renovation sector, knowledge and experience generated through BUSLeague in this area is a valuable exploitable asset for development of future projects as well as for development of educational/training courses and contents targeting, specifically the younger generations.



A13 year old student training in VR retrofit



Transition year students in a VR retrofit training.



*Transition year students (15 years old) visit to WEEETB NZEB training centre.
Mind the gender balance!*

- **The prominence of negative aspects** – Experience from Irish BUSLeague interventions indicate that people tend to focus more on negative rather than positive aspects and prospects of change. This narrative is now changing due to realisation that we have a housing crisis in Ireland and that our emissions to mitigate climate change need to be reduced hugely over the next decade, as buildings are responsible for 40% of our environmental impact we need to address this now.

Developing strategies and techniques to give more prominence (weight) to the positive aspects is a potential for future work, which would benefit directly from the knowledge and insights generated within BUSLeague. In this light, TÚS and IGBC have been in discussions with policy makers and various government departments and discussed how

we may incentivise improvement of operational govt buildings and, hopefully, pilot building renovations of Govt. owned and operated building stock.



Minister Eamon Ryan – leader of green Party.



Pippa Hackett Laois-Offaly Senator & Minister of State for Land Use and Biodiversity.

- **Untapped potential in training DIY stores staff** – Through BUSLeague activities we realised that training in energy efficiency would facilitate the hardware staff to promote improved buildings to customers. The addition of the Eco-Centres also gives a practical option to explain material and equipment use for both retrofitting & new builds. The trainings have also through using the first principle “Build tight, Ventilate right,” allowed staff explain the importance of how a correctly insulated building will reduce heat loss, where common gaps and detailing defects occur, how these can affect the building performance and best-case examples on how to resolve them. The benefits and importance of airtightness for buildings can also be presented and explained to customers, and where sometimes requiring the necessity for controlled ventilation systems in nZEB buildings. All such approaches have a further exploitation potential within and beyond Ireland.

3.5 Annex 5 – Spain



T5.2 Report – Spain (IVE)

*A framework for reporting T5.2 activities on
Measuring Effectiveness and Timeliness of BUSLeague
from the Anthropological perspective*

| | |
|------------------------|--------------------------|
| Prepared by: | IVE, Pepa Esparza Arbona |
| In collaboration with: | IRI UL, Domen Bančič |
| Date: | NOV-2022 |

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BUSLeague interventions – the highlights

In Spain, we focused on the following types of interventions:

On-site recognition of professional competences on windows replacement →

This activity was a pilot for validating and improving of a methodology for the evaluation and recognition of skills and competences. It consisted of several days of evaluation. Professional evaluator from the Valencian Federation of Construction Companies (FEVEC) presented and doing individualised evaluations with 15 participants of the activity. The activity in total took approximately 2 h per person, including 20 min theoretical test and a practical test taking more than 1 hour and 30 min.

Microtrainings on basic energy efficiency → Training activities on the basic knowledge about energy efficiency in buildings and at home. The trainings are organised by IVE, working directly with a wide range of participant profiles – from youngsters (+16 year) and students to professionals from the construction and renovation sectors, interested housing dwellers and building managers, and significantly with teachers and professors from different levels of the Spanish educational system (mainly secondary levels). The trainings, were realised between December and January 2023. were executed as approximately 4 hours long online courses accompanied with complementary resources, such as guides and reports. IVE used Moodle as a platform for executing the training and 700 participants were registered.

Microtrainings for BAUHAUS employees → BAUHAUS is a leading brand in DIY, renovation, decoration, and gardening, committed to climate goals and has made it a priority to continue increasing the range of environmentally friendly products and to promote their sale through its stores. It is therefore important that its employees are familiar with energy efficiency concepts in order to advise their customers on the technical performance of their products for sale but also on their environmental benefits. IVE developed 10 micro-trainings whose overall learning objective was "energy efficiency literacy". The training was aimed at BAUHAUS employees and installers in Spain (approximately 1,500 people) and it was hosted on the BAUHAUS Moodle platform.

Barriers and challenges addressed through BUSLeague

On-site recognition of professional competences on windows replacement

With **On-site recognition of professional competences on windows replacement** specifically, we addressed the following barriers and challenges identified in D2.3²⁷:

Demand side:

- Lack of opportunities for on-site recognition of skills and competences.
- Low (perceived) value of qualifications and certificates.
- Lack of demand for recognition, particularly due to the lack of awareness.

²⁷ See https://busleague.eu/wp-content/uploads/2021/05/D2_3_full_version.pdf

Supply side:

- Lack of opportunities for on-site recognition of skills and competences.
- Low (perceived) value of qualifications and certificates.
- Lack of demand for recognition, particularly due to the lack of awareness.

Policy, regulation, and financing side:

- Low norms and standards for professionals.
- Political willingness.
- Awareness raising.
- Financial support.

New barriers and challenges (not explicitly identified in D2.3):

- Coordination of key agents

Microtrainings on basic energy efficiency

With **Microtrainings on basic energy efficiency** specifically, we addressed the following barriers and challenges identified in D2.3:

Demand side:

- Lack of knowledge and awareness, particularly in the following aspects:
 - Lack of understanding of the basic/key concepts and notions,
 - Lack of access to reliable information.
 - Lack of understanding of benefits of energy efficiency (skills).
- Lack of demand for skilled workforce, particularly on the side of the residential sector.
- Lack of motivation for investing financially towards the improvement of building's energy efficiency, as well as lack of motivation to work towards developing better habits (or changing the existing habits) of energy use in buildings.
- Doubt and denial in feasibility and efficacy of energy efficiency.

Supply side:

- Lack of demand for skilled workforce
- Lack of motivation
- Inertia of existing knowledge and practices

Policy, regulation, and financing side:

- Awareness raising.

New barriers and challenges (not explicitly identified in D2.3):

- There is too much information on the internet and the professional feels lost when selecting a quality course.

Microtrainings for BAUHAUS employees

With **Microtrainings for BAUHAUS employees** specifically, we addressed the following barriers and challenges identified in D2.3:

The trainings primarily addressed barriers and challenges on the Supply side:

- Lack of demand for upskilling, particularly in the aspect of lack of interest by employers.
- Lack of motivation.
- Lack of rewards.

Indirectly, training the DIY employees is also addressing the following barriers and challenges on the demand side:

- Lack of knowledge and awareness, particularly the following aspects:
 - Lack of general awareness regarding Energy Efficiency,
- Scepticism, particularly in form of doubt & denial in feasibility and efficacy of EE.

Policy, regulation, and financing side:

- Awareness raising.

Effectiveness and timeliness of BUSLeague interventions

On-site recognition of professional competences on windows replacement

With regard to **On-site recognition of professional competences on windows replacement**, we conclude they were **somewhat timely** yet **very effective**.

In terms of **timeliness**, the on-site recognition activities happened at the right time, or perhaps even a bit too early for the Spanish context. Currently, there is a lack of understanding of the value of these kinds of evaluations. We noticed this with several of our pilot participants who demonstrated lack of real understanding of the value of the opportunity that we offered in the context of the pilot. Before such recognitions can be expected to be most effective, the industry/companies have to elevate the level of knowledge and awareness in this area. What is more, a lot of time was spent in finding the 15 participants which made the process difficult. This fact demonstrates that the intervention was not timely from the point of view of the practitioner

who would have preferred a recognition scheme already in place rather than a recognition scheme under construction.



On-site skills recognition in action.

The notes on timeliness also relate to **effectiveness**. We conclude the recognition activities in Spain can be considered very effective, particularly as a successful proof of concept. It should be noted, however, that this was a pilot demonstration, and the actual effect of the intervention depends on the perspective. Participants in the pilot who spent two of their working hours only

to finally fail the exam likely see the effect differently. In fact, the majority of participants (10 out of 15) failed the skills-recognition test. Nonetheless, in the context of project developments, the successfulness rate does not undermine the effect of our intervention, as our goal was to test the method in real-life environment.



The certificate issued by IVE & FEVEC for candidates that successfully passed the test.

| | | |
|---|---|--|
| <p>15 PLAZAS LIMITADAS</p> | | |
| <p>PRUEBA CERTIFICACIÓN 21 AL 31 MARZO PRUEBAS INDIVIDUALES</p> <p>Coste del certificado gratuito Proyecto financiado por la Unión Europea</p> <p><small>Este proyecto ha recibido financiación del programa marco de investigación e innovación Horizonte 2020 de la Unión Europea en virtud del acuerdo de subvención n.º 892894.</small></p> | <p>CERTIFICADO DE EXPERTO</p> <p>EN SUSTITUCIÓN DE VENTANAS CONVENCIONALES POR LA INSTALACIÓN DE VENTANAS CON ROTURA DE PUENTE TÉRMICO SEGÚN LA NORMA UNE 85219:2016</p> <p>Consigue tu certificado de experto en una especialidad muy demandada en el sector de la rehabilitación.</p> <p>FEVEC certifica la capacitación para trabajar en la reforma y rehabilitación de edificios mediante la sustitución de ventanas convencionales por nuevas ventanas con rotura de puente térmico que permitan el aislamiento del edificio y la mejora en la eficiencia energética.</p> | |

Call for candidates for the skills recognition training and test.

Microtrainings on basic energy efficiency

With regard to **Microtrainings on basic energy efficiency**, we conclude they were both **very timely** and **very effective**.

In terms of **timeliness**, the micro-training activities seem to be very timely already judging by the numbers of 700 registered participants.

In terms of **effectiveness**, the microtrainings have met the good prospects. The fact is that we have been very effective already considering building a very diverse base of participants, which is very useful for future actions in the area of skills development, recognition and certification. In addition, by involving teachers at schools into the training programmes, the content we are providing will be passed on to an even broader and more diverse audience, most significantly the younger generations. Another indication of effectiveness of this intervention, which is also an exploitable result of our activities, is the 5 collaboration agreements that have been signed with training centres. Hopefully, these centres will be involved in future similar actions dedicated to the qualification of their members, partners or students.

The screenshot shows the IVE (Instituto Valenciano de la Edificación) website interface. At the top, there is a green header with the IVE logo and name. Below this, a navigation bar displays the course title 'c22_EFICIENCIA ENERGÉTICA Y AHORRO DE ENERGÍA EN VIVIENDAS' in green, along with a settings icon and a green 'ACTIVAR EDICIÓN' button. The main content area is titled 'Presentación' and features a large image of a modern lamp. To the right of the image, the course title is repeated in large blue letters. Below the title, there are logos for BUS LEAGUE, the European Union, and the Generalitat Valenciana, accompanied by text about funding from the European Union's H2020 framework. A paragraph of text describes the course content, and another paragraph mentions the project's development within the H2020 BUSLeague framework. At the bottom, a contact information line is provided.

IVE
INSTITUTO VALENCIANO
de la EDIFICACIÓN

c22_EFICIENCIA ENERGÉTICA Y AHORRO DE ENERGÍA EN VIVIENDAS

Página Principal / Mis cursos / CURSOS_22-23 / c22_Eficiencia energética

ACTIVAR EDICIÓN

Presentación

**EFICIENCIA ENERGÉTICA
Y AHORRO DE ENERGÍA EN VIVIENDAS**

BUS LEAGUE

EUROPEAN UNION

This project has received funding from the European Union's h2020 framework programme for research and innovation under grant agreement no 892894.

GENERALITAT VALENCIANA

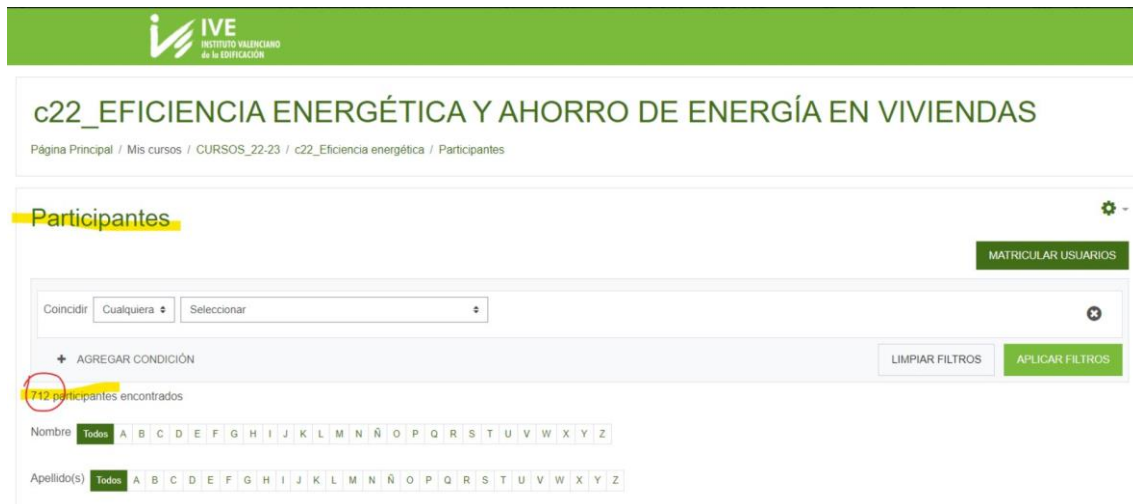
IVE

Este curso ofrece unas nociones básicas sobre eficiencia energética y ahorro de energía en viviendas. El curso se divide en 10 micro-formaciones sobre las que encontraréis videos y documentación complementaria para poder ampliar la información.

Este curso ha sido desarrollado en el marco del proyecto europeo H2020 BUSLeague cuyo objetivo es estimular la demanda de profesionales con formación en eficiencia energética en el sector de la construcción. Más información: Web, Twitter, LinkedIn / Suscripción e-newsletter.

¿Te interesa esta formación para tu alumnado, empleadas/os, asociadas/os, colegiada/os, compañeras/os de trabajo, etc.? Contacta: Pepa Esparza (IVE) pesparza@ive.es

Screenshot of IVE's microtraining.



Screenshot of participant page with more than 700 registered participants.



A screenshot of promotion for the microtraining.

Microtrainings for BAUHAUS employees

With regard to **Microtrainings for BAUHAUS employees**, we conclude they were **very timely** and **somewhat effective**.

In terms of **timeliness**, the training interventions have been very positive as it was an initiative started by the BAUHAUS training department who foresaw the need to upskill their employees in energy efficiency. Time has proved them right, as the Bauhaus management has set energy efficiency as a priority for the company by 2023.



Screenshot of one of the training videos for the BAUHAUS staff.

In terms of **effectiveness**, the training interventions have been somewhat effective. Most of the workers have taken the microtrainings on time but others have found it difficult to enrol perhaps due to lack of time or motivation. Now that energy efficiency is going to play a prominent role as the company's motto, these trainings will most probably be made available to the employees again.

The list of videos used in the training (all in Spanish language):

Introduction to EE-buildings: <https://youtu.be/S5EQ8axnSmM>

How to improve the EE: <https://youtu.be/wqnX63J68PE>

User behaviour: <https://youtu.be/k5HcVGRGYnc>

Insulation: <https://youtu.be/T6QMRBCxrO0>

Windows: https://youtu.be/o2-t_kPSHpM

Thermal installations: <https://youtu.be/SL1uLIHSAr8>

Existing thermal installations: <https://youtu.be/BKvS9M-R2fM>

Lightning: <https://youtu.be/Wz3nLDYQUxM>

Home appliances: <https://youtu.be/RkydyK5ar2k>

Renewable energies: <https://youtu.be/HUiQtbewlds>

All links last accessed: 10. January 2023.

Implications for BUSLeague dissemination

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth dissemination attention include:

- **Individual work enables quality but implies higher costs** – In our experience skills-recognition based on individual work enables good understanding of the actual depth of knowledge of workers' skills and competences, but also requires more time

and effort, thus implying higher cost (in our case, approximately 300 EUR per participant). This likely presents a major issue in future development of such schemes, especially under assumption that participants (or their employees) should have to cover the cost of skills recognition on their own.

- **Lack of understanding substantiates the lack of motivation** – Our pilot on-site skills recognition of professional competence for window replacement saw 10 out of 15 participants *fail* the test! We relate this largely to a lack of understanding of the value of such certification on the side of our participants.

This can be linked to several factors. A rather specific one could be a language barrier – many workers in the sector are migrants and tend to face difficulties understanding communications which in Spain are by-default targeted towards a Spanish-speaking public. Another specific one could be limited digital literacy, or less frequent use of contemporary digital media, which is a resource that BUSLeague tries to elevate. The latter could be linked with age as a demographic factor that implies its own specific set of challenges. A third factor could be framed as a culture of work – disregarding the ethnical background and associated language skills challenges, many workers find it hard to grasp the progressive and somewhat abstract ideas related to the future of construction skills.

All of the indicated factors and likely more lead to lack of motivation on the worker's side to prepare for the exam better. However, reasons for the lack of understanding and/or motivation should not be sought only at the level of individuals but also at the contextual level. Until the Spanish construction and renovation market does not prompt worker to associate significant value with upskilling and skills certifications, the prospect for motivating workers at scale will remain limited.

- **The future for trainings is with big companies** – In Spain, the upskilling and certification programmes developed in BUSLeague likely have best prospects for success in the context of big companies. Although these represent only 10 % of the market, they have the necessary revenue and systems in place to implement these contents in practice on scale. This could lead to a shift in paradigm by influencing the market, gradually leading SMEs to first recognize the value of certified EE Skills and secondly prompting them to engage more actively in both training and skills-recognition activities, in order to either gain market advantage or retain their competitiveness.
- **Microtrainings are a good format for upskilling** – Microtrainings proved to be very popular among working professionals (also for SMEs) as they are quite flexible and help to reconcile work and studies. They can also be organised quickly and respond to an innovative hot topic in the construction market. Micro-trainings can be small units within a more complex modular system, allowing for additive training pathways in the medium and long term. They are also very useful for including training clauses in public tenders and/or funding mechanisms.

Implication for BUSLeague exploitation

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth exploitation attention include:

- **A community for future actions** – During our work built a community of engaged and motivated training participants. These are very diverse and represent a valuable asset for future action in the area of skills development. Most significantly, by involving school teachers as participants in the training programmes, the content we are providing will be passed onto an even broader and more diverse audience, most significantly the younger generations. In this regard, the community built through BUSLeague activities should be considered an exploitable asset for future actions, targeted at specific groups, either in general or in specific ongoing or future projects, such as BUS-GoCircular.
- **Spanish skills-recognition pilot as the base for development of a new business model** – The recognition scheme developed in BUSLeague and the pilot with 15 participants carried out can form the basis for devising a business model. This pioneering experience in Spain provides information on its technical and economic viability that should be analysed by the key actors interested in launching this initiative.

3.6 Annex 6 – The Netherlands



T5.2 Report – the Netherlands (ISSO)

*A framework for reporting T5.2 activities on
Measuring Effectiveness and Timeliness of BUSLeague
from the Anthropological perspective*

| | |
|------------------------|----------------------|
| Prepared by: | ISSO, Dirk de Wit |
| In collaboration with: | IRI UL, Domen Bančič |
| Date: | January 2023 |

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BUSLeague interventions – the highlights

In the Netherlands, we focused on the following types of interventions:

Heatpumps activities → A cluster of activities (trainings and an online e-quiz) how to get in touch with craftsman, lead them to the training and have them understand work practices related to heatpumps (e.g. installation, calculations about capacity needed etc., maintenance). This program was developed together with an external company, but the program stopped due to internal issues. This company, a product supplier, has the policy that only trained professionals can get support by the assistance desk of the product supplier.

ISSO is trying to put the program to another company, named Breman²⁸ (one of the bigger and more innovative installers in The Netherlands). Breman has its own training centre, open for employees of all installation companies also when it comes to competitors. After all, Breman wants to have enough professionals in its area. ISSO want to have carried out the first trainings by the end of the project.

Basic trainings Spijkerkwartier → This is a series of hybrid trainings aimed at people from socially challenged communities and with a distance to the labour market to take basic EE measures in houses in their own neighbourhood, they neighbourhood they are familiar with, so there's trust between them and the home owners.

This program is organised by the local economy foundation²⁹, together with trainers and suppliers, the municipality of Arnhem and ISSO. People who have followed the complete program will get a badge, to show they have followed the training and showed their skills.

The hybrid trainings (trainings on insulation of floors, airtightness etc.) are organised as a combination of theory in the classroom (when possible, models are used) practice and some online activities. With this combination, people unfamiliar with training are also able to gain knowledge.

VHTO³⁰ programme for young generations, specifically girls → All female trainers from organisation VHTO performed workshops aimed at educating youngsters about technology, particularly for girls (" ...but mainly with the aim of also getting girls interested in engineering and normalise the image of women in engineering. This with the theme: energy transition" [source: flyer of the program]). More specifically, these activities were aimed at creating awareness among children aged 13 to 14 about energy transition, energy efficiency, installation of related materials and systems, and generally about jobs (working) in the construction and renovation sectors.

²⁸ <https://www.breman.nl/werken-bij/academy/>

²⁹ <https://www.dazo.nl/>

³⁰ VHTO presents itself as: "VHTO - Expertise centre on gender diversity in STEM, engineering and IT" website: www.vhto.nl

Barriers and challenges addressed through BUSLeague Heatpumps activities

With **Heatpumps activities** specifically, we addressed the following barriers and challenges identified in D2.3³¹:

Supply side:

- Lack of efficient communication, promotion and marketing
- Lack of knowledge and awareness
- Lack of experience (practice) with implementation of nZEB

New barriers and challenges (not explicitly identified in D2.3):

- Working with larger companies can be difficult when the different offices has each their own plan, aims, power and so on.

Basic trainings Spijkerkwartier

With **Basic trainings Spijkerkwartier** specifically, we addressed the following barriers and challenges identified in D2.3:

Supply side:

- General lack of workforce in the construction sector

Note: The people who are trained are at this moment not working in the installation sector (or even don't have a job). With the training program they can start on a basic level in the installation and construction sector. When everything is going well, the expectation is that some of them can develop themselves further to a full job on EQF3 or higher.

- Lack of experience (practice) with implementation of nZEB

New barriers and challenges (not explicitly identified in D2.3):

- Power from parties involved overruling doing the best thing
- Trained EE-measures cannot be applied due to the constraints of the landlord

VHTO programme for young generations

With **VHTO programme for young generations**, we addressed the following barriers and challenges identified in D2.3:

Supply side:

- Prejudice as a barrier

³¹ See https://busleague.eu/wp-content/uploads/2021/05/D2_3_full_version.pdf

- General lack of workforce in the construction sector
- Demographic factors – specifically age and gender

New barriers and challenges (not explicitly identified in D2.3):

- Working on diversity is working with a higher grade of vulnerability, which means that prudence can be put before speed by concerned external partners.

Effectiveness and timeliness of BUSLeague interventions

Heatpumps activities

With regard to **Heatpump activities**, we conclude they were both **not really timely** yet still **somewhat effective**.

In terms of **timeliness**, our heatpump program was developed together with an external company, but the program stopped due to internal issues, which rendered our attempt in the context of the BUSLeague programme **not really timely**. In practical terms, however, the heatpump training program was planned in alignment with both the existing needs of the market, as well as with the target group's work life: attracting them was planned to be done when they visit the store in the early morning when they pick the materials for that work day.

- **Be aware of the structure of and power in organisations.** For its organisation, it must also fit with the working methods of the product supplier's organisation. When it comes to timeliness, it appears that some programs, especially if they touch on more aspects such as marketing and training and back office, they touch on multiple departments that each have their own annual plan. Matching the program to these requires a lot of time is even impossible. In this case, the program got stuck when it turned out that there was a big marketing component in the first step and thus the marketing department had to be involved. For marketing, this program was not what they were looking for and they again found the contribution of other departments so great that they preferred the program to be housed there.

In terms of **effectiveness**, the training program is a good showcase of how to attract workers for training, theoretically. It is recognized by the product and training related departments as a good program. But due to the different departments that should be involved, the program is maybe too complex to implement effectively.

Basic trainings Spijkerkwartier

With regard to the **Spijkerkwartier basic trainings**, we conclude they were **very timely** yet only **somewhat effective**.

In terms of **timeliness**, the Spijkerkwartier basic trainings learn different lessons, based on experiences while conducting the training program.

- **Held trainings shortly before the first appliance of the knowledge acquired.** In general, the timeliness of the training is very good, because those involved in the training program can start applying the knowledge shortly after they follow the training. Also, the trainees were available shortly after they chose to be involved to the training.
- **Know the benefits of other options.** Getting trainees interested in the training program is sometimes hard, because the way to earn your first money is longer than for jobs as pizza or mail delivery drivers. For those jobs, no training is needed, so earning money starts soon after choosing to take the job. To organise these trainings well and in an attractive way, a bigger organisation is needed (e.g.: a big installation company, such as Breman). In the Spijkerkwartier project this is solved by a collaboration of several stakeholders, but a collaboration needs a lot more effort to

organise. Without a well organised and attractive training program it is not possible to hold people involved in the longer way to start the job.

- **Lack of basic knowledge is not a problem.** - The trainees did not have any basic knowledge about the topics of the training. Beforehand, it was questioned whether the training would then be successful. The evaluation showed that it worked out very well. So lack of prior knowledge is not a reason to exclude people. Thus, also without any basic knowledge a training can be on time for a trainee who is motivated.
- As described below, one topic was trained too early, based on the misuse of power of the main organisation involved.

In terms of **effectiveness**, the BUSLeague project stimulated the effectiveness of the training by...

- **a good mix of theory, practice and e-learning.** To be effective it is needed to explain at first the basic routine for doing the job and afterwards explaining the exceptions. When the exceptions are explained during the training, the trainees with less basic knowledge lose attention. This topic needs attention in the briefing of the trainers, because these are mostly a little idolatrous about their craft, which means they go too easily to the details and the special situations. In basic training, that greatly reduces effectiveness.
- **working with small groups.** In small groups the trainer and trainees can discuss what they are doing, both in the theoretical and in the practical part of the training. In this interaction on the models and doing the theory in practice, the questions of the trainees arise, which leads to the discussions wherein they learn the most.





Some pictures from the basic trainings, held at Bouwmensen Oss³². Source: Bouwmensen Oss

- **Experienced safety.** All trainees were highly motivated, but with low self-esteem. What worked was that the training was only for one little group all related to the Spijkerkwartier neighbourhood. This gave them a feeling of safety that will not be reached when someone unfamiliar with training situations has to go on their own to a training. Safety is also based on the attitude of the manager: is he involved, does he give enough time for the training, may trainees fail in training while the manager sees it?
- **Getting the managers involved in the group of trainees.** Even though he can create an effectivity-damaging dialog with the trainer, his attendance is very useful for bringing the knowledge in practice, because the manager has the power to change something in the organisation so the trainees (the employees of his organisation) can apply the new knowledge better. Example: getting a new tool to do the new jobs the trainees have trained for. Observation done by the employee from ISSO is that for trainees the threshold is high to ask for this kind of adjustments, such as extra tools.

Note: To get reaction from the trained people, some weeks after completion of the series of training an evaluation session was held with all people (including the trainees) and organisations involved. Most of the observations are based on the outcomes of this session.

VHTO programme for young generations

This program will not be performed as part of the BUSLeague project., due to time constraints. This means that there is no information on how the program is experienced by the trainers (and even the children reached; but see for the constrains on this, one of the next chapters) Included in this report, in

³² <https://bouwmensen.nl/vestigingen/oss/>

different chapters, are some choices made in the development of the program and some experiences that influenced the development and performance of the program.

With regard to **VHTO programme for young generations, especially girls**, we conclude they were both **very timely** yet still **very effective**.

In terms of **timeliness**, the VHTO programme targeting specifically young girls shows to be very effective by consideration of the following facts:

- that the program will be performed by people young enough that their opinion about diversity is set and on the other hand that having good examples gives them the courage to follow their dreams, even if it is against traditional roles.
- that there is a lot of work to do in the energy transition which means that going for a career in this field has a high success rate.
- is related to developments of the energy transition visible in the daily lives of the youngsters reached with the program, such as charging points for electric vehicles. This also affects the effectiveness in a positive way.

In terms of **effectiveness**, the VHTO programme for young generations, especially girls, we have no information available due to the programme not being held yet.

Evidence: *link to the Dutch flyer (no translation available)*
[Introductie_Energietransitie_in_het_klaslokaal_VHTO_ISSO.pdf \(mcusercontent.com\)](#)

In general on timeliness

In all three activities the development and implementation take more time (at least twice) than anticipated in advance.

Implications for BUSLeague dissemination

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth dissemination attention include:

- **Institutional hierarchies as a barrier** – In our experience from BUSLeague interventions, particularly in the case of the Heatpump training program, the institutional hierarchies, and even the power of each department in a large organisation, were among the main barriers to the realisation of our planned activities. Institutional hierarchies and other forms of explicit or implicit subordination present a barrier to positive change, particularly through consumption of time and effort, particularly on the side of the protagonists of the change, who in our case were us – ISSO and our stakeholders in the organisations we are working with.
- Working in real life means always working in a more complex environment than someone can expect in advance. Some examples:
 - **The institutional hierarchy** as mentioned above. - This also showed up in the trainings in the Spijkerkwartier neighbourhood. Here the main actor, the employer of the trainees, wanted to get the training about the topic with the highest energy saving (in their opinion), with as subject: CV-tuning, to be held as the first training. Background reasons are the Ukrainian war that raised energy costs and to get a grant from the municipality. From an educational perspective this should be the last training, because it then could build up knowledge from the earlier trainings, the trainees are familiar with the themes and have experience with being trained, so when this difficult topic is trained, the focus of the training can be pointed to the topic only and not to baseline knowledge or what is it to be trained. All other organisations involved disagree with this decision in the change of the order of the trainings. Based on the evaluation, it was decided to conduct the if the training program is conducted again the training on CV tuning on the last training day.
 - **Care in vulnerable subjects.** - From the VHTO-program we learned that for vulnerable topics, such as gender diversity, organisations will be very careful with their role models (the females from the field), even when this has the result that a training is held later.

Implication for BUSLeague exploitation

With regard to **unique qualitative insights** from the BUSLeague project, as promoted in T5.2, the key observations worth exploitation attention include:

- **Research involving children** – During our work we realised that the BUSLeague Grant Agreement explicitly denies partners to include children (directly) into the research activities, specifically due to ethical considerations and risks. This, among other things, makes it impossible to do interviews with children (people under age of 18). Given that age is a factor related to barriers of the construction and renovation sectors, future projects have to consider enabling direct interaction with children or even to design a specific project dedicated to working with younger generations.
- **Attention to the habits and attitudes of organisations** – About the habits, attitudes, and focus points of organisations, it is good to give attention to:
 - Transition is a long-term activity, earning money is a short-term activity. Companies in The Netherlands, particularly SMEs, don't have always the time and capacity to transform themselves into a company who offers energy transition related services and products, because their agenda within the timeframe they act (six months) has no space for thinking about the further future (three or five years) or making a development plan, related to applying the techniques and products, and the related business models, for the energy transition. This plan should be the base for the needed upskilling of the workers of the company, but without the plan there is no structured upskilling. Focus on the short term is based on the work practice that money is earned within six months and there is a lot of classic work that gives enough earnings on this short term. This means that there is no reason to go the difficult way of transformation to energy transition techniques.
 - Support both workers and companies in developing themselves into the field of the energy transition. In The Netherlands, workers are motivated to learn, but they need support for this. Because there organisations (SMEs) cannot give them the right support (see above) the support should be given by others, such as the schooling and development funds. To get the highest effort from the support, it should include support to the companies to transform themselves. (This point is not experienced in BUSLeague, but a result of research I have done for the installation sector).

Further research: These insights about attitudes, together with the underlying knowledge and experience generated in BUSLeague, present an exploitable asset which could be developed into a future project aimed at better understanding of these attitudes and behaviours, or for improvement of organisations and business models targeting the existing knowledge and skills gap in the sector. Only when the attitudes, barriers and work practices are well understood it is possible to develop programs that fit to both the needs and aims of the energy transition and touching points in the SMEs and workers.

- **Risk of having the manager or boss in a group of trainees.** This practice is common in the installation sector, but has the great risk that the boss/manager, who mostly already has a lot of knowledge, discusses everything that the trainer is telling.

When this happens, the trainee loses their attendance within a few minutes. Trainers have to be able to abort these negative working discussions. As mentioned earlier having the boss or manager in the group is needed because of the advantages it has. But as described, it is not without risks.

- **Give attention to the need for follow-up after training.** In the feedback session of the training program from the Spijkerkwartier, the trainees wanted something like a syllabus, wiki or so where they can look back on the knowledge transferred in the training. This reference work should be related to their level.

Other notes

Note: I (Dirk) have done most of the work for the BUSLeague work packages on stimulating demand for skilled craftsmen in The Netherlands. Because of the following experiences (and reasons as time available and so) there are no implementations done in The Netherlands.

About stimulating demand with financial mechanisms:

- **Different sectors have different basic principles** – My key insight is that financial institutions have their own way of thinking and basic principles they have to follow. These are for them the big issues. As an example, for banks who provide mortgages for dwellings: they have to follow the strict legislation which is hard to change (and thus hard to involve something about the request for recognised craftsmen, which is for the banks a very little and out of scope topic) and focus on financial aspects. On the other hand, the talk with a private sustainability fund was very easy, maybe because we are both little organisations working with a purpose.

About stimulating demand within public procurement:

- **Pride** – A main reason we couldn't implement the use of the NZEB clause was that at first the contractor associations said that they would reject the clause. In the Netherlands it is the pride of the contractors to solve the problem of the contracting authority based on their own knowledge and experience. NB: this does not mean that pride is always bad. The challenge is to use it well to achieve the goals of energy transition.
- **Avoidance of rules** – A second reason, partially a result from the market situation: contractors do not like extra rules in tenders. As a result, they choose the tenders with fewer rules and avoid the tenders with more rules (for example as described in the NZEB-clause). The contractors can do this, because of the market situation at that moment with a lot of work to do and to less contractors who can do the work.



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