

REPORT INTERNATIONAL BENCHMARKING

D.5.2

BUILD UP Skills SWEBUILD
Agreement number – IEE/13/BWI/708/SI2.680176



Rapporttitel
D.5.2

Dokumentdatum
2016-03-22

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Executive summary

The objective is to benchmark and pay attention to international comparisons of training systems in other European countries. This has been done through an international workshop and when meeting representatives from other BUILD UP Skills projects during the exchange-meetings. Through benchmarking, the SWEBUILD project saw both similarities and differences. This information was feed into the work with creating the training methods and the training material. For example, the consortium made a choice to focus on a thorough action plan for marketing when understanding that recruiting participants was a challenge for other BUILD UP Skills projects.



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OBJECTIVE

The objective is to benchmark and pay attention to international comparisons of training systems in other European countries. This is to prevent mistakes and create training that will be effective life-long learning. The results will feed into the development of the training and improve the development.

This will give the Swedish installers and construction workers the knowledge and skills to succeed at construction sites and be competitive from an international perspective. Construction workers are competing with construction workers from across Europe and therefore international benchmarking is of great importance.

METHOD

Various aspects of training and training materials for energy efficient building was compared.

The comparison was performed through international workshop with other European BUILD UP skills projects. The aim at the start of the project was to cooperate and make comparisons with the other Nordic countries due to many mutual conditions. After the exchange meeting in Brussels we also understood that Ireland had many similarities to the SWEBULD project and a cooperation started and evolved into a workshop.

BUILD UP Skills SWEBULD invited Finland, Ireland, Lithuania and Latvia to a workshop in Sweden. Ireland and Finland participated in a two-day workshop. Agenda and notes from the workshop presented in the deliverable D.5.3.

The comparisons from the workshop and exchange-meetings in Brussels was used to feed information into the development of various aspects of the training, training material and marketing of the training.

RESULT

Comparisons between the Swedish BUILD UP Skills SWEBUILD, the Finnish BUILD UP Skills BEEP and the Irish BUILD UP Skills Qualibuild. Summaries of the projects attached.

Result: training methods

| | BEEP | QualiBuild | SWEBUILD |
|-----------------------|---|---|-----------------|
| Teachers/top trainers | 2 separate 2 days sessions, + 1 session for discussion total 4-5 days | | 1 day |
| Trainer/Change Agent | 2 days | 4 modules each 2+1 days, total 8 days | 1 day |
| Construction workers | 2 days | 3 days or 5 evenings and 1 demo day, total 3 days | 4 hours |

Result: training material

| | BEEP | QualiBuild | SWEBUILD |
|-------------------|---|--|---|
| Training material | <p>Key issues: Structural physics, airtightness, heat insulation, moisture control</p> <p>Textbook in Finnish</p> <p>Instruction manual cards</p> <p>Educational videos: Introduction (planning of renovation), Ventilation, Insulation, Air heat pump, Adjustment of hybrid system, Energy efficiency tips, Monitoring</p> | <p>4 modules: Building for Energy Performance, Building Fabric, Building Services, Pedagogical Approach</p> <p>Handbooks for each module</p> <p>A summarized handbook for the construction workers</p> | <p>Digital and interactive modules. 6 modules: Introduction, The building as a system, Thermal insulation, Air tightness, Moisture, Installations</p> |

Result: raising awareness and ways to recruit trainers

| | BEEP | QualiBuild | SWEBUILD |
|-------------------------|--|---|--|
| Raising awareness | On-site training ambassador. Use newsletters and have big database for contacting right persons. Produces articles in magazines. They had a seminar last year where a leading building physics person participated, which was very successful and appreciated. | They are targeting the construction worker directly by email and have a great database. They use leaflets that they drop in strategic places. They organise breakfast meetings and are developing an e-book – if an email address is picked up, it will be registered in an e-book to widen the register. | Focus on right level communication with the right contacts. The communication need be organised in the right way with a top down perspective. Using the builders and installer’s local organisations, channels and member organisation we reach many in the target group |
| How to recruit trainers | In Finland so far it has been hard to recruit training ambassadors but they will continue the work. | In Ireland people working in strategic places in the partner organisations are the ambassadors. Ireland has also used a photo competition to gain extra interest. Ireland will organise a conference for BUS members pretty soon which they hope could gain extra interest. | In Sweden the bosses in the Construction Federation and people working in strategic places in the partner organisations are the ambassadors |

Result: evaluation

| | BEEP | QualiBuild | SWEBUILD |
|--------------------|---|---|---|
| Evaluation methods | Finland evaluate how many pupils that will be trained. Have had a short survey with 6 question. | Ireland has a ready survey for the construction workers. A self-judgement survey. To complete the survey a percentage mark is attached. | Sweden, both quantity and quality is needed and we are currently developing an evaluation strategy for the pilot cases. |

Result: challenges/difficulties/lessons learned so far

| | BEEP | QualiBuild |
|---|--|---|
| Challenges/Difficulties presented in the workshop | <ul style="list-style-type: none"> • Filter essence from volume of information • Theory is the basis – discussion on practical construction is essential • The training material is a toolkit – use it in a personal way • Pedagogical methods needs to be modernised • Workers prefer descriptive materials, not too much text • BUILD UP Skills scheme and awareness should be integrated in quality and human resource management • LESS IS MORE | <ul style="list-style-type: none"> • Difficulties in developing an effective training program for the target group • Some difficulties in achieving accreditation • Some difficulties in recruitment of course participants • Complications of integrating the registration system with existing systems • Difficulty in identifying the mechanisms and systems for sustainability |

ANALYSIS

At the time the workshop were arranged the projects, from Finland and Ireland were both in a later stage than SWEBUILD. Therefore, it was very interesting to the SWEBUILD project to listen and learn from “best practices” from other European countries.

Especially Ireland, were interested in creating some type of quality building registration system. SWEBUILD therefore presented the Swedish ID06 the competence database and how it will be connected to the training. The representative from the Swedish Construction Federation answered all questions about the registration system in Sweden.

The projects have many similarities for example, the content of the training material. In this comparison, all projects had some plan to train trainers that in the following will train construction workers and/or installers. Another similarity is the communication problems between craftsmen at the building site, meaning there will be faults since one doesn't know what the other is doing. Cross-craft understanding seems to be a problem for many of the European countries. Among others, the SWEBUILD project focuses on this through the module “The building as a system”.

Key factors that separates BUILD UP Skills SWEBUILD to other trainings are mainly in the training methods. What separates SWEBUILD from the other training methods is the time reserved for the training of construction workers and installers, the SWEBUILD projects aim is to produce training that can be completed in only four hours.

This is something that the SWEBUILD consortium has discussed many times and in cooperation with the industry, the consortium decided to keep the training to four hours. The aim of the project is to train as many as possible, the goal is to train 500 trainers and 100 000 craftsmen. To reach as many as possible the time was an important factor.

A similarity in all projects is the challenge to reach out to the target audience, to raise awareness and find people who would like to become trainers The SWEBUILD project took inspiration from the Finnish BUILD UP Skills project where they used a specific person that were chosen to act as an ambassador for the project. In the training material in the SWEBUILD project, a famous Swedish climate expert introduces the training via video clip.

The Finnish project used content marketing to market their training and this was something that the SWEBUILD project took inspiration from. The understanding that other countries experienced challenges in recruiting trainers, the SWEBUILD project created a thorough action plan for marketing.

SWEBUILD also took inspiration in the creation of the evaluation models. Ireland used a self-judgement survey and the SWEBUILD project now uses a self-judgment survey to evaluate the training and evaluate if the trading is effective.



Project overview

The project is carried out in seven different work packages. The project consortium has three different members, Motiva (MotivaS), Tampere University of Technology (TUT) and Work Efficiency Institute (TTS). The work packages and the responsible parties are listed below.

- WP1 Management (MotivaS)
- WP2 Training Materials Development Using the Best Practices of Energy Efficient Construction (TUT)
- WP3 Teacher Training Schemes and Pilots (TTS)
- WP4 On-site Training Schemes and Pilots (TTS)
- WP5 Coordination of Roadmap Implementation and Supporting Measures (MotivaS)
- WP6 Communication (MotivaS)
- WP7 EU Exchange Activities and Monitoring (MotivaS)

More details about the BUILD UP SKILLS Finland project and all the completed materials created during the project can be found from the project internet site.

http://www.motiva.fi/en/areas_of_operation/international_cooperation/build_up_skills_finland

Most important achieved results and lessons learnt

The most important results are listed below by package. WP1, WP5 and WP7 are mainly management related packages and in our view do not contain any relevance material for this meeting.

- WP2 Training materials development
 - o Best practices were collected by visiting building sites (and through other existing projects), documentation (photos, data). The best practices were processed and the need for different types of material for different target groups was taken into consideration. From that process it was decided that the material will consist of four different types of publishable materials.
 - A textbook in Finnish that presents the best practices in construction. It will serve as a guide and source for more detailed information. The material for the textbook is in final draft.
 - Multilingual PPT training package that has 10 different themes. This material is created for the teachers to be used in their training and to be used by them in

- their daily education purposes. PPT-material (FI+EN) has been finalised and published. Translation to other languages (RU, EE and SE) is in process
- 10 thematic instruction cards that demonstrate in detail the most critical phases of construction work. The cards were developed to be used on the construction sites by the workers. The instruction cards (FI+EN) are finalised and published. Translation to other languages is in process.
 - Energy efficiency thematic educational videos consisting seven different areas. The theme is how to reduce energy consumption by 50 % in an old house. The videos will be published in youtube. Educational videos are ready for editing and sub-titles.
- WP3 Teacher training scheme and pilots
 - Survey on teachers' competence done and report published.
 - Teacher training scheme developed based on the survey report. First pilot training was carried out in February 2015. Training was carried out using the PPT-material created in WP2.
 - WP4 On-site training scheme and pilots
 - On-site training scheme was developed. First pilot training was carried out in June 2015. Training was carried out using the PPT-material created in WP2. Education also included hands on training.
 - WP5 Coordination of roadmap implementation and supporting actions
 - Inventory of relevant strategies, programmes and projects compiled and complemented, on-going action
 - On-site training ambassador has been recruited has started working.
 - WP6 Communication
 - Communication tools have been prepared and published.
 - Project brochure (updated) has been produced and distributed.
 - Communication plan has been published, complemented and updated continuously.
 - Several press releases have been published; articles published in various sector and stakeholder publications.
 - Newsletters have been distributed regularly

The main preliminary lessons learnt emerging from the project:

1. Involvement of key stakeholders to the project objectives, activities and outputs is crucial for success. The Strategic Advisory Group of the project represents the key authorities, both public and private, in the construction and training sector. The Group is active in giving input to project actions, assisting in stakeholder involvement and in dissemination activities. Endorsement of the SAG members improves the implementation of the action.
2. Investing in material preparation thoroughly. The facts and details need to be checked to be correct. Also elaboration of the material in an adaptable format for two different target groups (teachers and workers) is laborious. Visual illustrations/photos/graphs complement the text and often are more important as they are easily comprehensible (with one look). Wide variety of material in different formats ensures wider adoption and acceptance for use.
3. Using new or different from the customary methods to raise interest in target groups is crucial. The project recruited a person to work as on-site training ambassador whose tasks include contacting the construction companies and training institutions in order to them up-take the training concept and materials. The method has already proved to be successful. The on-site

training ambassador is welcomed to present the training concept and construction companies have committed to send workers to pilot trainings

Main activities until the end of the action

Until the end of the action the main activities include tasks in all work packages.

In WP2 the training materials will be finalised and published in 3 more languages (SE, EE, RU), the videos will be finalised and published in 5 languages on the website, in SlideShare and in YouTube respectively, and to communicate on the availability of the materials. The textbook material will be finalised and published.

Teacher training scheme (WP3) will be developed on the basis of feedback from the pilot trainings and stakeholder consultation process. The scheme and respective training concept will be tested in second pilot training in September 2015. Feedback will be collected from the training sessions directly after trainings. We plan to organise a specific event for trainers/teachers participating in pilot trainings towards the end of 2015 to get feedback and recommendations for further elaboration based on their experiences of the training concept and materials after using them for several months. The training scheme and concept will be amended and finalised.

The on-site training scheme (WP4) will be developed on the basis of feedback from the pilot trainings and stakeholder consultation process. The scheme and respective training concept will be tested in second pilot training in October 2015. Collaboration with construction companies has been beneficial and three major construction companies registered workers for the first pilot training. Collaboration with the Trade Union of Construction Workers and Confederation of Finnish Construction Industries is still essential in dissemination of the training concept for larger uptake in the second pilot training. The on-site training ambassador (WP5) assists in the work.

Stakeholder collaboration (WP5) will focus on the wider uptake of the training schemes (WP3+WP4), elaborating the stakeholder platform and collaboration within. Meetings with selected stakeholder groups will be organised and/or project will partake in relevant meetings/events. Annual stakeholder events will be organised in the autumn 2015 and in spring 2016 (final event).

Communication actions (WP6) are in key role during the second half of the project as the training materials, training schemes and other relevant information are finalised and published. Communication to stakeholders and construction and education sector will be carried out through all relevant channels: project website, YouTube, SlideShare, newsletters, press releases and articles in relevant publications, and in relevant events. The project aims to utilise also partner organisations' and stakeholders' communication channels as effectively as possible.

In WP7 the project will participate and contribute in the upcoming EU Exchange meetings, and other events proposed by the EASME. Regular updates in the report on expected impacts will be prepared and submitted.



Background:

In Ireland it was established by the EU BUSI Build-Up Skills Initiative that approximately 60,000 building construction workers at the craft, general operative and supervisory level needed training in low energy building in order to meet Ireland's commitments to reduce total energy consumption by 20% by 2020. This report outlined a general strategy to set out specific actions to overcome barriers by addressing the knowledge and skills gap amongst construction workers.

QualiBuild was established to facilitate two of the **Training actions** and provide the required supporting actions, as follows:

Training Actions:

- Introduce a short Foundation Energy Training for all Building Construction Workers.
- Train the Trainers.

Supporting Actions:

- Introduce Industry driven market led training requirements
- To support implementation of the Building Contractors register
- Provide for the upskilling of Building Control Officers
- Develop a 'Good Construction Practice' information and awareness campaign
- Encourage a deeper engagement and exchange of information between the professionals and construction workers in regard to their cooperation in achieving low energy buildings
- Identify and develop sustainable funding mechanisms that will facilitate the provision of the training required.

Summary

The QualiBuild programme, which was established in November 2013 as part of wider efforts to create employment in the sector and to assist Ireland in achieving the EU 2020 energy efficiency target, is also working with Governmental Departments and relevant agencies on its proposal to make it a requirement for all Irish building construction workers to undergo training and up-skilling at a National Level. It is anticipated that 100 trainers and 200 trainers will be trained under this pilot scheme and the course will be rolled out nationally after 2017. A registration system for all construction workers is to be developed displaying their level of skill and competence. This register is to be supported with CPD training and run at a national level. The main objective is to develop a programme which will assist with the training and up skilling of all construction workers to provide low energy quality buildings in Ireland.

Objectives

The key objectives of the project is to:

Training – Train the Trainer and Foundation Energy Skills programmes

- a) Develop, Validate and Implement training for 100 Trainers.
- b) Develop Validate and Implement training for 200 building construction workers.

Communication

- a) Create and implement an innovative communication campaign. Focused on Quality Building via events, SM, website and media.

Registration System for Quality

- a) Develop and implement a Quality Building Registration System and a CPD programme nationally.

Finance & Sustainability

- a) Mobilise €1m additional funding by the project end.
- b) Transfer project outcomes to relevant agencies for National Roll Out.

Progress to date:

1. **Train the Trainer** programme
Has been developed with phase 1 completed in March 2015. Phase 2 is to commence in October 2015 over a 5 month period. It is a 4 module course where participants will receive a 20 credit Special Purpose Award on completion. The training coordinator is the Institute of Technology Blanchardstown, ITB.
2. **Foundation Energy Skills** course.
This course will be held nationwide with Phase starting in September 2015 with phase 2 due in February 2016. It is to be delivered over 3 full days or over 4 evenings with a practical demonstration day. On completion workers will receive a Special Purpose Certificate. A training manual for the trainers and a learner's handbook are being finalised. The topics covered will has emphasis on operations on site such as air tightness, continuous insulation, thermal bridging and controlled ventilation, as well as developing communication skills, awareness and how to work together to achieve **low energy quality building**.
3. **Communication** – A website has been setup www.QualiBuild.ie with active social media such as facebook, twitter and LinkedIn. There has been regular attendance at events in Ireland and abroad with breakfast coffee mornings, attendance at trade shows, conferences and seminars.
4. **Registration system** – A study on existing registration systems in Ireland and abroad has been carried out in great detail, but to finalise the structure of the register further work is needed. A CPD and training criteria will also be developed. Discussions have been held with Government Departments to determine the best approach for the registration of the construction workers. CIF have recently launched a register for construction companies, CIRI, and these may be developed together if compatible.
5. **Finance and Sustainability** – Self-financing models are being investigated to establish a sustainable project into the future and to transfer these project outcomes for a national roll-out. It is intended that the 2 course will be adopted nationally to enable every construction worker to register and have the opportunity to develop their training in the future.

Challenges

1. Difficulties in designing and developing a training programme for the varied cohort involved
2. Some difficulties in achieving accreditation for this QQI level of training
3. Some difficulties in recruiting course participants for the Train the Trainer course
4. Complications of integrating the registration systems and addressing some vested interests
5. Delays in identifying the mechanisms and systems for sustainability and national roll-out

Project Partners:



Project Coordinator: Limerick Institute of Technology (LIT)



Partner 1: Dublin Institute of Technology (DIT)



Partner 2: Irish Green Building Council (IGBC)



Partner 3: Construction Industry Federation (CIF)



Partner 4: Institute of Technology Blanchardstown (ITB)

Short summary of SWEBUILD, WP2 and WP3

SWEBUILD has 9 partner organisations:

- Energy Agencies of Sweden (coordinator)
- Swedish Construction Federation
- Swedish Association of Plumbing and HVAC Contractors,
- Association of Swedish Electrical Contractors
- Technological Institute Sweden, SP
- Technical Research Institute of Sweden,
- WSP Sverige
- Passive House Centre,
- NCC AB

Main objective for SWEBUILD is to educate 500 trainers (instructors) that in turn will educate 18 000 craftsmen to 2017 and 100 000 craftsmen to 2020.

The SWEBUILD project has decided to go for an all web based education with the 500 trainers be educated to be instructors for colleagues and craftsmen to be educated. The SWEBUILD project has chosen a name for the education campaign, Energibyggare (Energy builders), that will have a national roll out. The home page for the SWEBUILD project are: www.energibyggare.se We will try 4 of 7 learning modules at pilot sites during autumn 2015. The full developed education are planned to start spring 2016.

The project contains of seven work packages.

Swedish Construction Federation is in charge of WP 2 awareness raising and development of action-plan for implementation of large-scale on-site vocational training and work together with partner organisations with activities such as:

- Analyses about expectations of already gained experiences regarding training for energy efficient building techniques.
- Awareness raising – organisations and members.
- Development of structures for the establishment of life long learning.
- Prepare and support the implementation of life long learning.

Technological Research Institute, SP, are responsible for WP3 development of education material and work together with partner organisations with activities such as:

- Analyses of existing training material, for example Bygga-Bo-Dialogen, Passive house builders- Energy efficient buildings
- Development of course design and curricula for on-site training based on learning objectives and from experience made in previous courses
- The course design for the on-site training combines different methods for learning:
 - Video clip
 - Traditional lecture presentation
 - Animation
 - Practical exercises
- An important objective based on previous experience of training courses: to develop an easy and intuitive training material
- Training material is web-based and all training is carried out online
- Training activities are self-explanatory as the trainer will act as a guide more than a teacher
- Training-of trainers: the training material also includes pedagogical advices and instructions
- Group discussions are recommended
- Practical exercises will be optional
- Procedures for updating the training material and training course design remains to form
- Develop structure of feedback from performed training courses remains to form