Result 4.5

Evaluation concept and reports training program “Energy Service Manager/Energy Consultant” and prospects of further implementing

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Project Summary and Introduction

The word region is defined as “an area, especially part of a country or the world having definable characteristics but not always fixed boundaries”[1]. The Baltic Sea region (BSR) is particularly unique. While the Baltic Sea is the pivotal point defining much of the region’s characteristics and challenges, the countries are also extremely different. Geographically, they are divided between Northern, Western and Central/Eastern Europe, historically, they have been shaped by the East-West divide after the second world war. Nevertheless, given their proximity to the Baltic Sea, they have much in common.

The EU has acknowledged this by issuing the very first macro-regional strategy, the EU Baltic Sea Region Strategy in 2009. As most countries boarding the Baltic Sea were by then EU member states, it can well be considered the EU’s inland sea. The Baltic Sea Region must address current challenges, such as saving the seas, i.e. ensuring clear water, rich and healthy wildlife and clean and safe shipping. At the same time, there are opportunities for a prosperous region through co-operation measures to increase innovation, to deepen the internal market by improving transport systems, to connect energy markets and to jointly fight cross-border crime. This clearly distinguishes the Baltic Sea Region from other parts of the world.

Therefore, “BSR integration is best understood as the way that European integration has been translated into this region, further deepening and leveraging access to the rest of Europe and the markets that the EU provides”[2]

Over the past 25 years, this region has become densely integrated, e.g. in the areas of trade, investment, labor mobility, transport and energy infrastructure as well as research collaboration. Furthermore, it demonstrates a broad landscape of robust cross-border organizations and collaborative efforts. Nevertheless, “companies do not look at the Baltic Sea Region as one integrated market in terms of their strategies. For most of them, the region remains a group of individually small markets within the EU, each with its different dynamics, rivals, and often even regulatory rules’”[3].

Keeping this in mind, the lack of comprehensive regional data collection is surprising. Therefore, as part of the Erasmus+ funded project “Promoting permeability through dual bachelor's programs with integrated initial and further vocational training” (BA&VET), an analysis of the region’s demography, economy, and labour as well as

[1] Oxford Dictionary
[2] Skilling, David (2018). *The Baltic Sea Economies: Progress and Priorities*. Copenhagen: Baltic Development Forum, p.10.
[3] Ibid., p.11

education market has been conducted. The majority of the data is taken from the Eurostat database of the European Union. As needed additional sources, such as the OECD database, have been consulted as well.

Project summary

Objectives: What do you want to achieve by implementing the project?

- Increasing permeability between vocational and higher education
- Recruiting universities for tasks of further education in climate and environ-mental protection
- Providing excellently qualified entrepreneurs, managers and skilled workers and reducing the shortage of skilled workers to meet the challenges in climate and environmental protection
- Strengthening the productivity of SMEs through innovation support and R&D projects
- Promoting cooperation between SMEs and colleges/universities

Implementation: What activities are you going to implement?

- Analyses economy, education and labour markets and qualification needs
- Creation of solution models for 4 project countries
- Development and implementation of Train the Trainer program
- Development and implementation of 2 dual three-stage Bachelor's degree programs and 2 further trainings in climate and environmental protection
- Implementation of R&D projects in SMEs
- Quality assurance for training measures and project implementation
- Dissemination, transfer of results and implementation consultation

Results: What project results and other outcomes do you expect your project to have?

- Result report of the analyses of the economy, education and labour markets and qualification needs
- Solution models for four project countries
- Complete train-the-trainer program
- Module manuals with all documentation for two dual three-stage Bachelor's programs in climate and environmental protection
- Two further education programs in climate and environmental protection
- R&D projects implemented in SMEs
- Quality manual and results reports
- Manual, result videos and broad regional transfer of results

Objectives, results and target groups

The main objectives of the project are as follows:

a) Increasing the permeability between vocational education and training and higher education and thus promoting the attractiveness of vocational education and training

b) Strengthening the recruitment of colleges/universities for the important tasks of continuing education in climate and environmental protection

c) Providing highly qualified entrepreneurs, managers and skilled workers who, in addition to good theoretical knowledge, also have practical competences, skills and professional experience in climate and environmental protection and reducing the shortage of skilled workers to cope with the very large tasks in the energy, climate and environmental sector.

d) Attracting entrepreneurs and executives who have all the skills to successfully run a company and perform high-quality tasks in climate and environmental protection

e) Strengthening the productivity and competitiveness of enterprises through knowledge and technology transfer, promotion of innovation and implementation of manageable R&D projects

f) Promoting cooperation between SMEs and colleges/universities, strengthening colleges/universities to implement dual courses of study on climate and environmental protection, and promoting entrepreneurship in higher education.

In pursuit of these objectives, the following results will be achieved:

1. Analysis results on the economy, demography, education and labour markets as well as qualification needs in climate and environmental protection

2. Curriculum, Teaching materials, implementation report and evaluation concept and report for teacher training

3. Module handbooks with integrated continuing education, teaching materials, examination regulations, implementation reports as well as evaluation concept and reports for a three-stage dual Bachelor's degree program

- "Business Administration & Sustainable Management of SMEs"
- "Management of renewable building energy technology"

4. Concept for promoting innovation by SMEs and evaluation concept and report

5. Concept for innovation promotion of SMEs and R&D projects carried out for SMEs

6. Concepts and report for the evaluation and quality assurance of qualifications and R&D subsidies as well as project implementation, transfer of results, implementations and implementation consultations

The primary target groups of the project are:

a) School leavers who wish to combine vocational education and training with a bachelor's degree and thus receive excellent employment and professional career opportunities.

b) Students who are qualified in higher education and university and at the same time in a company and who are highly welcome in SMEs as managers and professionals or as independent entrepreneurs.

c) Owners, managers and specialists of SMEs who are qualified in continuing vocational training, acquire tailor-made competences and skills for high-quality activities in climate and environmental protection and achieve a recognized continuing vocational qualification.

d) SMEs that attract suitably qualified young entrepreneurs, managers and specialists, receive innovation funding and carry out R&D projects together with colleges/universities.

The project addresses the following secondary target groups (beneficiaries):

a) Colleges and universities which, in order to expand their educational opportunities in climate and environmental protection, receive all the documents and materials for two new dual bachelor's degree programs in order to meet the labour market needs and the conditions of SMEs in particular.

b) Chambers and other vocational training institutions which attract strong young people to vocational training, receive curricula for continuing vocational training modules for the qualification of SMEs and their staff, and cooperate intensively with colleges/universities in teaching and innovation promotion.

c) Teachers, advisers and lecturers from chambers, other VET providers and colleges/universities who are qualified in Train the Trainer programs to provide high-quality further training, to carry out dual study courses in cooperation with companies as well as innovation promotion and R&D projects for SMEs at a high-quality level.

Testing and evaluation of the further training program

A further training program “Energy Consultant” was developed. This further training program was integrated into the trial Bachelor's degree course “Engineering in Management of Renewable Energy Technology in Buildings” (see Result 4.1) but is also

carried out independently of the degree course as further training for owners, managers and specialists of SMEs. As part of the project, the most important modules of the continuing education program were tested and evaluated in practice and the continuing education program was finalized on the basis of the evaluation results.

The report on the practical testing, the evaluation concept and the evaluation report as well as the number of participating SMEs and qualified persons as well as the planning of future uses are shown as Results 4.5 Evaluation concept and reports training program “Energy Service Manager/Energy Consultant” and prospects of further implementing.

Report of the test and the evaluation of the training program[4]

Overview

The Energy Consultant course covered 10 key modules, providing participants with in-depth insights into energy efficiency, renewable energy, and strategic energy management. Feedback highlights high satisfaction rates, with 100% of participants recommending the training.

This summary presents key findings from Modules 1-10, showcasing strengths, areas for improvement, and participant recommendations.

Participant Profile

The course gathered highly experienced professionals from various industries, predominantly in technical, construction, trade, and energy sectors.

- Education Level:
  - Master's degree: 71%
  - Bachelor's degree: 12%
  - High school or vocational: 12%
- Industry Representation:
  - Construction (24%), Trade (18%), Tourism (12%), and Energy (12%)
- Work Experience:
  - More than 12 years: 94%
  - More than 20 years: 41%
- Age Group:
  - 35-44 years old: 18%
  - Over 44 years old: 82%
- Gender:
  - Male: 76%
  - Female: 18%
  - Prefer not to say: 6%

Training Conditions & Facilities

Participants rated the training environment positively.

[4] Prepared by Estonian Chamber of Commerce and Industry, Estonia

Aspect	Very Suitable (%)	Suitable (%)	Fairly Suitable (%)
Training Venue	53%	35%	12%
Training Date	53%	47%	-
Training Duration	65%	35%	-
Training Schedule	59%	41%	-
Room Facilities	59%	35%	6%

📌 Key Takeaway: Great venue, well-organized schedule.

Trainer Performance

Trainers received exceptionally high ratings, particularly in preparation, organization, and enthusiasm.

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
Trainer sparked interest	59%	41%	-
Managed time effectively	82%	18%	-
Organized & well-prepared	94%	6%	-
Encouraged discussions	65%	29%	6%
Demonstrated in-depth knowledge	82%	18%	-
Used engaging methods	59%	35%	6%

📌 Key Takeaway: Trainers were well-prepared and knowledgeable, but more interactive methods could enhance the engagement even more.

Training Content & Delivery

Participants found the content well-structured and relevant.

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
Training topics were practical	65%	35%	-

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
Presentations were clear	76%	24%	-
Materials were relevant	65%	35%	-
Training environment was open & engaging	76%	18%	6%

📌 Key Takeaway: Highly rated content, but more case studies and industry-specific examples would be valuable.

Module-Specific Highlights (Modules 1-10)

Modules 1-4 (Previously Summarized)

- Module 1: Energy Efficiency in Buildings – Strongest area: Trainer preparation (94%). Suggested improvement: More practical examples.
- Module 2: Renewable Energy Sources – Strongest area: Trainer enthusiasm (88%). Suggested improvement: More interactive discussions.
- Module 3: Renewable Energy for Heat, Electricity, and Fuels – Strongest area: Time management (82%). Suggested improvement: More hands-on demos.
- Module 4: Distributed Energy Systems – Strongest area: Clear objectives (71%). Suggested improvement: More group collaboration.

Modules 5-10: In-Depth Summary

Module 5: Combined Heat & Power (CHP) in Industrial Enterprises

✓ Best Rated: Relevance to real-world applications (85%)

📌 Suggested Improvement: More interactive software demonstrations.

Module 6: Economic Aspects of Renewable Energy Adoption

✓ Best Rated: Understanding of economic impact (78%)

📌 Suggested Improvement: More real-world financial case studies.

Module 7: Corporate Carbon Footprint & Decarbonization

✓ Best Rated: Practicality & business impact (83%)

📌 Suggested Improvement: More actionable carbon reduction strategies.

Module 8: Energy Management in Enterprises

✓ Best Rated: Technology outlook & efficiency improvements (87%)

📌 Suggested Improvement: More focus on AI, automation, and digital tools.

Module 9: Energy & Resource Efficiency

✓ Best Rated: Sustainability & long-term impact (84%)

📌 Suggested Improvement: More benchmarking of efficiency metrics.

Module 10: Internal Communication, Leadership & Energy Efficiency Projects

✓ Best Rated: Trainer enthusiasm (90%)

📌 Suggested Improvement: More team-based exercises and case studies.

Final Thoughts & Recommendations

✅ 100% of participants recommended the training!

💡 Top suggested improvements:

1. Simplicity is key – Avoid unnecessary complexity in modules.
2. More real-world case studies – Increase relevance with practical applications.
3. Enhanced interactivity – More hands-on experiences, software demos, and real-world industry discussions.

📢 Overall Verdict:

The Energy Consultant course was a great success, with high satisfaction across all key areas.
Future improvements should focus on practical industry applications, interactivity, and real-world case studies while maintaining strong trainer preparation and content clarity.

Energy Consultant Training Evaluation Report Summary

Q 1-6. Background Information

Category	Fully Agree (%)	Agree (%)	Neutral (%)
Education Level	Master's: 70.6%	Bachelor's: 11.8%	High School: 11.8%

Category	Fully Agree (%)	Agree (%)	Neutral (%)
Industry Sector	Manufacturing: 5.9%	Construction: 23.5%	Trade: 17.6%
Work Experience	No experience: 0%	1-3 years: 5.9%	More than 12 years: 94.1%
Work Experience in Selected Sector	1-5 years: 17.6%	6-10 years: 23.5%	More than 20 years: 41.2%
Age Group	35-44: 17.6%	Over 44: 82.4%	-
Gender	Female: 17.6%	Male: 76.5%	Prefer not to say: 5.9%

Q7. Training Conditions & Facilities

Condition	Very Suitable (%)	Suitable (%)	Fairly Suitable (%)
Training Venue	53%	35%	12%
Training Date	53%	47%	-
Training Duration	65%	35%	-
Training Schedule	59%	41%	-
Training Room Facilities	59%	35%	6%

Q8. Other Training Conditions

Condition	Fully Agree (%)	Agree (%)	Neutral (%)
Accessibility & Equal Rights	41%	18%	35%
Environmental Protection	47%	24%	29%
Sufficient References	71%	12%	18%

Q9. Teaching Methods

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
Trainer sparked interest in training	59%	41%	-
Trainer managed time & pace	82%	18%	-
Trainer was well-prepared	94%	6%	-
Encouraged discussions & answered questions	65%	29%	6%
Trainer had in-depth knowledge	82%	18%	-
Trainer was enthusiastic	88%	12%	-
Trainer used engaging methods	59%	35%	6%
Trainer respected diverse abilities	59%	24%	18%
Trainer adhered to social norms	47%	29%	24%

Q10. Training Content Delivery

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
Training topic was explained clearly	76%	24%	-
Objectives were clearly defined	65%	29%	6%
Topics were useful & practical	65%	35%	-
Presentations were clear & understandable	82%	18%	-
Materials were tailored to my needs	65%	35%	-
Relevant examples & calculations	65%	29%	6%
Training environment was excellent	76%	18%	6%

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
This was a valuable training	71%	29%	-

Q 11. Feedback & Evaluation

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
Evaluation criteria were explained	47%	24%	29%
Feedback was provided on time	47%	35%	18%
Feedback helped improve my work	47%	29%	24%

Q 12. Additional Questions

Question	Response
Would you recommend this training?	Yes (100%) / No (0%)
Suggested Improvements	"I believe simplicity is key; no need for excessive features." "Good and very competent trainer." "More local examples for technologies and techniques to be applied."

Module 2: Renewable Energy Sources

Q9. Teaching Methods

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The instructor sparked my interest in the training	53%	47%	-
The instructor managed time and pace well	76%	24%	-
The instructor was organized and well-prepared	88%	12%	-

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The instructor encouraged discussions and answered questions	65%	29%	6%
The instructor had thorough knowledge of the training content	82%	18%	-
The instructor seemed enthusiastic and interested	88%	12%	-
The instructor used interesting and motivating methods	59%	29%	12%
The instructor respected students' varying abilities	53%	35%	18%
The instructor adhered to social norms	65%	18%	18%

Q10. Training Content Delivery

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The training topic was explained at the beginning	53%	35%	12%
The module's objectives were clearly defined	59%	41%	-
The training topics were useful and practical	53%	47%	-
The presentations were clear and understandable	71%	29%	-
The materials were tailored to my needs	47%	47%	6%
Examples and calculation tasks corresponded to the learning outcomes	47%	29%	24%
There was an excellent and open atmosphere during the training	65%	29%	6%
This was a valuable training	65%	35%	-

Module 3: Renewable Energy for Heat, Electricity, and Fuels

Q9. Teaching Methods

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The instructor sparked my interest in the training	53%	41%	6%
The instructor managed time and pace well	82%	18%	-
The instructor was organized and well-prepared	82%	18%	-
The instructor encouraged discussions and answered questions	65%	29%	6%
The instructor had thorough knowledge of the training content	76%	24%	-
The instructor seemed enthusiastic and interested	71%	29%	-
The instructor used interesting and motivating methods	59%	29%	12%
The instructor respected students' varying abilities	53%	24%	24%
The instructor adhered to social norms	53%	24%	24%

Q10. Training Content Delivery

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The training topic was explained at the beginning	53%	41%	6%
The module's objectives were clearly defined	59%	24%	18%
The training topics were useful and practical	59%	29%	12%
The presentations were clear and understandable	65%	35%	-

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The materials were tailored to my needs	53%	35%	12%
Examples and calculation tasks corresponded to the learning outcomes	53%	24%	24%
There was an excellent and open atmosphere during the training	71%	24%	6%
This was a valuable training	65%	29%	6%

Module 4: Distributed Energy Systems

Q9. Teaching Methods

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The instructor sparked my interest in the training	65%	29%	6%
The instructor managed time and pace well	82%	18%	-
The instructor was organized and well-prepared	82%	18%	-
The instructor encouraged discussions and answered questions	65%	29%	6%
The instructor had thorough knowledge of the training content	71%	29%	-
The instructor seemed enthusiastic and interested	82%	24%	-
The instructor used interesting and motivating methods	65%	29%	6%
The instructor respected students' varying abilities	59%	24%	18%
The instructor adhered to social norms	59%	18%	24%

Q10. Training Content Delivery

Statement	Fully Agree (%)	Agree (%)	Neutral (%)
The training topic was explained at the beginning	59%	29%	12%
The module's objectives were clearly defined	71%	18%	12%
The training topics were useful and practical	65%	29%	6%
The presentations were clear and understandable	76%	24%	-
The materials were tailored to my needs	65%	24%	12%
Examples and calculation tasks corresponded to the learning outcomes	65%	24%	12%
There was an excellent and open atmosphere during the training	76%	18%	6%
This was a valuable training	71%	24%	6%

Additional Questions summarized:

- **Would you recommend this training?** ✅ Yes (100%) / ❌ No (0%)
- **Suggested Improvements:**
  - *"I believe simplicity is key; no need for excessive features."*
  - *"Good and very competent trainer."*
  - *"More local examples for technologies, installation and techniques to be applied."*

Module 5: Opportunities for Combined Heat and Power (CHP) in Industrial Enterprises

Q9. Teaching Methods

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer sparked my interest in the training.	58.3%	41.7%	-	-	-
The trainer managed time and pace well.	75.0%	25.0%	-	-	-
The trainer was organized and well-prepared.	75.0%	25.0%	-	-	-
The trainer encouraged discussions and answered questions.	58.3%	33.3%	8.3%	-	-
The trainer had in-depth knowledge of the course content.	75.0%	25.0%	-	-	-
The trainer appeared enthusiastic and interested.	50.0%	50.0%	-	-	-
The trainer used engaging and motivating methods.	33.3%	58.3%	8.3%	-	-
The trainer respected students' diverse abilities/background knowledge.	50.0%	50.0%	-	-	-
The trainer adhered to social norms.	58.3%	33.3%	8.3%	-	-

Q10. Training Content Delivery

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The training topic was explained at the beginning.	66.7%	33.3%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The module objectives were clearly defined.	66.7%	33.3%	-	-	-
The training topics were useful and practical.	66.7%	33.3%	-	-	-
The presentations were clear and understandable.	58.3%	41.7%	-	-	-
The materials were tailored to my needs and useful.	58.3%	33.3%	8.3%	-	-
The examples and calculations corresponded to learning outcomes.	66.7%	33.3%	-	-	-
The training environment was excellent and open.	75.0%	25.0%	-	-	-
This was a valuable training.	75.0%	25.0%	-	-	-

Module 6: Economic Aspects of Renewable Energy Adoption

Q9. Teaching Methods

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer sparked my interest in the training.	58.3%	41.7%	-	-	-
The trainer managed time and pace well.	75.0%	25.0%	-	-	-
The trainer was organized and well-prepared.	75.0%	25.0%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer encouraged discussions and answered questions.	58.3%	33.3%	8.3%	-	-
The trainer had in-depth knowledge of the course content.	75.0%	25.0%	-	-	-
The trainer appeared enthusiastic and interested.	50.0%	50.0%	-	-	-
The trainer used engaging and motivating methods.	33.3%	58.3%	8.3%	-	-
The trainer respected students' diverse abilities/background knowledge.	50.0%	50.0%	-	-	-
The trainer adhered to social norms.	58.3%	33.3%	8.3%	-	-

Q10. Training Content Delivery

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The training topic was explained at the beginning.	66.7%	33.3%	-	-	-
The module objectives were clearly defined.	66.7%	33.3%	-	-	-
The training topics were useful and practical.	66.7%	33.3%	-	-	-
The presentations were clear and understandable.	58.3%	41.7%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The materials were tailored to my needs and useful.	58.3%	33.3%	8.3%	-	-
The examples and calculations corresponded to learning outcomes.	66.7%	33.3%	-	-	-
The training environment was excellent and open.	75.0%	25.0%	-	-	-
This was a valuable training.	75.0%	25.0%	-	-	-

Module 7: Corporate Carbon Footprint

Q9. Teaching Methods

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer sparked my interest in the training.	58.3%	41.7%	-	-	-
The trainer managed time and pace well.	75.0%	25.0%	-	-	-
The trainer was organized and well-prepared.	75.0%	25.0%	-	-	-
The trainer encouraged discussions and answered questions.	58.3%	33.3%	8.3%	-	-
The trainer had in-depth knowledge of the course content.	75.0%	25.0%	-	-	-
The trainer appeared enthusiastic and interested.	50.0%	50.0%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer used engaging and motivating methods.	33.3%	58.3%	8.3%	-	-
The trainer respected students' diverse abilities/background knowledge.	50.0%	50.0%	-	-	-
The trainer adhered to social norms.	58.3%	33.3%	8.3%	-	-

Q10. Training Content Delivery

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The training topic was explained at the beginning.	66.7%	33.3%	-	-	-
The module objectives were clearly defined.	66.7%	33.3%	-	-	-
The training topics were useful and practical.	66.7%	33.3%	-	-	-
The presentations were clear and understandable.	58.3%	41.7%	-	-	-
The materials were tailored to my needs and useful.	58.3%	33.3%	8.3%	-	-
The examples and calculations corresponded to learning outcomes.	66.7%	33.3%	-	-	-
The training environment was excellent and open.	75.0%	25.0%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
This was a valuable training.	75.0%	25.0%	-	-	-

Module 8: Energy Management in Enterprises

Q9. Teaching Methods

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer sparked my interest in the training.	58.3%	41.7%	-	-	-
The trainer managed time and pace well.	75.0%	25.0%	-	-	-
The trainer was organized and well-prepared.	75.0%	25.0%	-	-	-
The trainer encouraged discussions and answered questions.	58.3%	33.3%	8.3%	-	-
The trainer had in-depth knowledge of the course content.	75.0%	25.0%	-	-	-
The trainer appeared enthusiastic and interested.	50.0%	50.0%	-	-	-
The trainer used engaging and motivating methods.	33.3%	58.3%	8.3%	-	-
The trainer respected students' diverse abilities/background knowledge.	50.0%	50.0%	-	-	-
The trainer adhered to social norms.	58.3%	33.3%	8.3%	-	-

Q10. Training Content Delivery

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The training topic was explained at the beginning.	66.7%	33.3%	-	-	-
The module objectives were clearly defined.	66.7%	33.3%	-	-	-
The training topics were useful and practical.	66.7%	33.3%	-	-	-
The presentations were clear and understandable.	58.3%	41.7%	-	-	-
The materials were tailored to my needs and useful.	58.3%	33.3%	8.3%	-	-
The examples and calculations corresponded to learning outcomes.	66.7%	33.3%	-	-	-
The training environment was excellent and open.	75.0%	25.0%	-	-	-
This was a valuable training.	75.0%	25.0%	-	-	-

Module 9: Energy and Resource Efficiency in Enterprises

Q9. Teaching Methods

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer sparked my interest in the training.	58.3%	41.7%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer managed time and pace well.	75.0%	25.0%	-	-	-
The trainer was organized and well-prepared.	75.0%	25.0%	-	-	-
The trainer encouraged discussions and answered questions.	58.3%	33.3%	8.3%	-	-
The trainer had in-depth knowledge of the course content.	75.0%	25.0%	-	-	-
The trainer appeared enthusiastic and interested.	50.0%	50.0%	-	-	-
The trainer used engaging and motivating methods.	33.3%	58.3%	8.3%	-	-
The trainer respected students' diverse abilities/background knowledge.	50.0%	50.0%	-	-	-
The trainer adhered to social norms.	58.3%	33.3%	8.3%	-	-

Q10. Training Content Delivery

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The training topic was explained at the beginning.	66.7%	33.3%	-	-	-
The module objectives were clearly defined.	66.7%	33.3%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The training topics were useful and practical.	66.7%	33.3%	-	-	-
The presentations were clear and understandable.	58.3%	41.7%	-	-	-
The materials were tailored to my needs and useful.	58.3%	33.3%	8.3%	-	-
The examples and calculations corresponded to learning outcomes.	66.7%	33.3%	-	-	-
The training environment was excellent and open.	75.0%	25.0%	-	-	-
This was a valuable training.	75.0%	25.0%	-	-	-

Module 10: Internal Communication, Self-Management, and Energy Efficiency Projects

Q9. Teaching Methods and Content

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer sparked my interest in the training.	58.3%	41.7%	-	-	-
The trainer managed time and pace well.	75.0%	25.0%	-	-	-
The trainer was organized and well-prepared.	75.0%	25.0%	-	-	-
The trainer encouraged discussions and answered questions.	75.0%	25.0%	-	-	-

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The trainer had in-depth knowledge of the course content.	75.0%	25.0%	-	-	-
The trainer appeared enthusiastic and interested.	75.0%	25.0%	-	-	-
The trainer used engaging and motivating methods.	75.0%	25.0%	-	-	-
The trainer respected students' diverse abilities/background knowledge.	75.0%	25.0%	-	-	-
The trainer adhered to social norms.	75.0%	25.0%	-	-	-

Q10. Training Content Delivery

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The training topic was explained at the beginning.	50%	50%	0%	0%	0%
The module objectives were clearly defined.	67%	33%	0%	0%	0%
The training topics were useful and practical.	75%	25%	0%	0%	0%
The presentations were clear and understandable.	67%	33%	0%	0%	0%
The materials were tailored to my needs and useful.	75%	25%	0%	0%	0%

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
The examples and calculations corresponded to learning outcomes.	75%	25%	0%	0%	0%
The training environment was excellent and open.	75%	25%	0%	0%	0%
This was a valuable training.	75%	17%	0%	8%	0%

Additional Questions (Summarized from modules 5-10)
Would you recommend this training to other learners?

- **Yes:** 100%
- **No:** 0%

Summary of Trainer Feedback – Energy Consultant Training

The **Energy Consultant Training**, consisting of **10 modules**, was successfully delivered by **Ülo Kask (Modules 1-9)** and **Ülle Pind (Module 10)**. Both trainers provided overwhelmingly positive feedback, indicating that the training met or exceeded expectations in all key areas.

Evaluation of Students

Both trainers strongly agreed that:

- Students were highly **interested** in the course content.
- They demonstrated **motivation** to gain new knowledge.
- Active **participation** was observed in discussions and assignments.
- Students **asked insightful questions** and engaged in meaningful discussions.
- Provided materials were **eagerly used** to support learning.
- The **overall engagement and knowledge levels** of students met expectations.
- Students expressed **satisfaction** with the training.

Additional comments from trainers:

The trainers noted that participants were engaged throughout the training, demonstrating a strong willingness to apply new concepts to practical scenarios. The diverse backgrounds of participants enriched discussions, making the learning experience dynamic and interactive.

Lecturer Self-Evaluation

Both trainers strongly agreed that:

- The **purpose and learning outcomes** of the training were clearly introduced at the beginning.
- **Assessment criteria** were well-defined and communicated.
- **Practical applications** of the content were consistently integrated.
- Effective **tools and methods** were used to motivate students.
- Up-to-date **industry knowledge** and case studies were included.
- Ample **time for discussion** was provided.
- A **supportive and open learning environment** was fostered.
- They continuously **enhance their expertise** by attending training and collaborating with peers.

Additional comments from trainers:

The trainers emphasized the importance of combining theoretical knowledge with real-world applications. The interaction with students made the sessions particularly engaging, and their enthusiasm for sustainability and energy efficiency was evident.

Trainers' Strengths

1. Ability to present **complex topics in a clear and engaging manner**.
2. Use of **interactive teaching methods** to maintain high participation levels.
3. Strong **industry knowledge and experience**, ensuring relevance and practical application.

Areas for Improvement

- Exploring additional **digital tools** to enhance student engagement.
- Further developing **hands-on exercises** and simulations to reinforce learning.
- Encouraging **follow-up discussions** or mentorship opportunities post-training.

Overall, both trainers found the **Energy Consultant Training to be highly successful**, with **motivated participants, high engagement, and well-structured content**. They look forward to future editions of the course, where they can build on the strong foundation established in this training.

Strategic conclusions / general recommendations

1.Topics that could be expanded (input by Lead Trainer and Estonian Chamber of Commerce and Industry)

- **Current module 9. Energy and resource efficiency in the company.** This topic gives overview of EU and Estonian legislation and regulations in the field of energy efficiency. They will develop an understanding of how to use resources (raw materials, energy, fuels, water, waste/by-products) and technological systems (heating, ventilation, compressed air, cooling systems, lighting, etc.) efficiently within a company. Learning will be partially based on practical examples.

Suggestion to include topic related concrete examples and calculation cases based on real results from resource efficiency and energy audits. For example:

  - Reduction in energy or fuel consumption after upgrading equipment.
  - Investment payback calculations.
  - Comparative resource usage analysis before and after implementing improvements.

  This topic links naturally with the previous session on renewable energy sources, creating a holistic view of how companies can combine smart energy choices with resource-efficient operations. This integrated approach supports informed decision-making aimed at reducing costs, minimizing environmental impact, and improving competitiveness.

- **Current module 3. Renewable energy sources for electricity, heat and fuel production.** The company representatives are informed of which renewable energy sources are the most efficient for electricity, heat and fuel production, also with the relevant technologies and equipment. **Suggestion to add a practical component for technical and economic calculations, would have much value to current topics introduced:** For example:
  - Estimating the costs and benefits of replacing an old boiler with a biomass or pellet boiler.

- Calculating annual fuel consumption and associated fuel costs.
- Assessing payback time and cost savings compared to conventional fossil-based systems.

By the end of the session, participants will be able to evaluate renewable energy options based on real-world data, make informed investment decisions, and understand the economic implications of transitioning to greener energy solutions.

- **Ideas for expanding topics:**
  - Energy Efficiency in Industry and Buildings – Participants showed strong interest; adding case studies or more practical examples could be considered for future.
  - Financing Energy Projects – Important for real-world implementation; could be expanded in future with simulations of funding applications or cost-benefit analyses.

2. Recommended Tools for Energy Efficiency Training and Implementation

Grouped by complexity for small and large companies at different readiness levels.

Beginner Level Tools

For awareness-building, basic tracking and employee engagement

- **Energy Star Portfolio Manager,** address: https://www.energystar.gov/buildings/benchmark
  Benchmarking tool for tracking energy performance in buildings *(free)*
- **CoolClimate Business Calculator,** address: https://coolclimate.berkeley.edu/business-calculator
  Calculates CO_2 footprint from business activities *(free)*
- **JouleBug, address: https://joulebug.com/**

  Gamified app for promoting energy-saving behaviors among staff *(free basic version; enterprise options available)*

Intermediate Level Tools

For deeper understanding, simulations, and internal monitoring

- **RETScreen Expert, address: https://www.nrcan.gc.ca/maps-tools-and-**publications/tools/data-analysis-software-modelling/retscreen/7465
  Energy project feasibility and performance analysis tool *(free version available; full license for advanced use)*
- **eQUEST, address: http://www.doe2.com/equest/**

Building energy modeling software *(free)*

- **Energy Elephant, address: https://www.energyelephant.com/**

  Energy bill analysis and sustainability dashboard *(free trial; subscription pricing on request)*

- **Open edX, address: https://open.edx.org/**

  Customizable open-source e-learning platform *(free to use; optional hosting costs)*

Advanced Level Tools

For customized simulations, real-time data tracking, and integration

- **En-ROADS Climate Simulator, address: https://www.climateinteractive.org/tools/en-roads/**
  Models impact of policies and technologies on climate and economy *(free online access)*

- **Enectiva, address: https://www.enectiva.com/**

  Cloud-based energy monitoring for buildings and manufacturing *(pricing based on scale; available on request)*

- **Smappee, address: https://www.smappee.com/**

  Smart energy monitoring with real-time feedback *(hardware from ~€250; service packages additional)*

- **Climatiq API, address: https://www.climatiq.io/**

  CO_2 calculation engine for digital platforms *(free up to 250 API calls/month; scalable pricing beyond)*

Energy efficiency tools developed in Europe, suitable for SMEs and larger organizations.

Intermediate to Advanced Level Tools

- **ImpaWatt Platform** (*EU-funded)* Address: https://eu.impawatt.com/ Online platform supporting energy managers with tools for employee training, energy culture improvement, and energy performance analysis *(free access, designed for SMEs and industries)*

- **Energy Elephant** (*Ireland)* address: **https://www.energyelephant.com/** Energy bill analysis and sustainability dashboard *(free trial; subscription pricing on request)*

- **Enectiva** (*Czech Republic)* address: **https://www.enectiva.com/** Cloud-based energy and utility monitoring software *(pricing based on scale; available on request)*
- **Smappee (*Belgium)* address: https://www.smappee.com/**

  Smart hardware for real-time energy usage monitooring *(hardware from ~€250; service packages additional)*

3. Suggestions for program development

Additional Module: Energy Markets – Electricity, Fuel, and Storage (suggestion, 2 × 45 min)

This module provides an essential overview of how modern energy markets function and how businesses can navigate and benefit from them. Participants will be introduced to the structure and dynamics of key energy markets, including:

- **Electricity markets** – how electricity is traded (day-ahead, intraday, balancing markets), how prices are formed, and what affects market volatility. The module will also touch on power purchase agreements (PPAs) and opportunities for flexible consumption.
- **Fuel markets** – trends and price mechanisms in global and regional fuel markets (natural gas, biomass, oil), and how companies can manage supply contracts, risks, and budgeting.
- **Storage markets** – the growing role of energy storage in balancing supply and demand, enabling flexibility, and participating in grid services markets (e.g., frequency regulation, peak shaving).

This module supports strategic energy management by equipping participants with practical knowledge about energy price components, market-based procurement, and the economic benefits of flexibility and timing. Real-world examples and case-based discussions will enhance understanding.

This topic complements the earlier modules on renewable energy and resource efficiency by providing insight into the external market environment that influences energy decisions and investment planning.

Additional Element to curriculum: Company Visits – Real-life Examples of Energy Management in Practice (1-2 visit days)

To enhance learning and motivation, the curriculum will include **visits to selected companies** that have successfully implemented energy management systems, conducted energy or resource efficiency audits, and taken concrete steps to improve their energy performance.

These site visits will give participants a first-hand look at:

- How energy management systems are integrated into daily operations;
- What kind of measures have been adopted (e.g. equipment upgrades, process optimization, behavioural changes);
- The outcomes achieved in terms of energy savings, cost reduction, and environmental impact;
- Lessons learned and success factors from the company's perspective.

Seeing real-world applications brings theory to life and allows participants to engage directly with practitioners, ask questions, and get inspired for their own organizations. These visits will also help to build peer connections and stimulate cross-sectoral learning.

4. Additional Reading Materials for Training topics

(Compiled by Lead Expert Ülo Kask)

General Knowledge

- Global Energy Consumption – The World Counts https://www.theworldcounts.com/challenges/energy/global-energy-consumption

Renewable Energy Sources

- Renewable Energy Sources – Physics Textbook (Estonian) https://opik.fyysika.ee/index.php/book/view/64#/section/34810

Bioenergy

- Flexible Bioenergy Policies in Different Countries – Summary Report (03.2025) https://task44.ieabioenergy.com/wp-content/uploads/sites/12/2025/03/IEAB-Task-44_Flexible-bioenergy-policies-in-different-countries_Summary-report.pdf
- All Publications – IEA Bioenergy Task 44 https://task44.ieabioenergy.com/document-category/publication/
- IEA Bioenergy – Annual Report 2023 (includes links to several extensive reports) https://www.ieabioenergy.com/wp-content/uploads/2024/06/Annual-Report-2023.pdf
- Superior Gasification Technologies https://ww3.superiorgasification.com/
- Gasifier Database – BioEnergy Lists https://gasifiers.bioenergylists.org/node/1215

Forward-looking Roadmaps (Up to 2050)

- IRENA – Global Energy Transformation (2019) https://observatoriorenovables.org/wp-content/uploads/2019/04/IRENA_Global_Energy_Transformation_2019-1.pdf
- Global Renewables Outlook (2020) https://energiewende-global.com/wp-content/uploads/2023/05/Global_Renewables_Outlook_2020.pdf

General Energy Data

- Energy Data Overview – Our World in Data https://ourworldindata.org/energy
- Renewable Energy Data – Our World in Data https://ourworldindata.org/renewable-energy
- IEA – Global Energy Review 2025 https://iea.blob.core.windows.net/assets/5b169aa1-bc88-4c96-b828-aaa50406ba80/GlobalEnergyReview2025.pdf

Estonia

- Renewable Energy Production Opportunities in Estonia – Elering Handbook (in Estonian) https://elering.ee/elektrituru-kasiraamat/6-taastuvenergeetika/63-taastuvenergia-toomisvoimalused-eestis

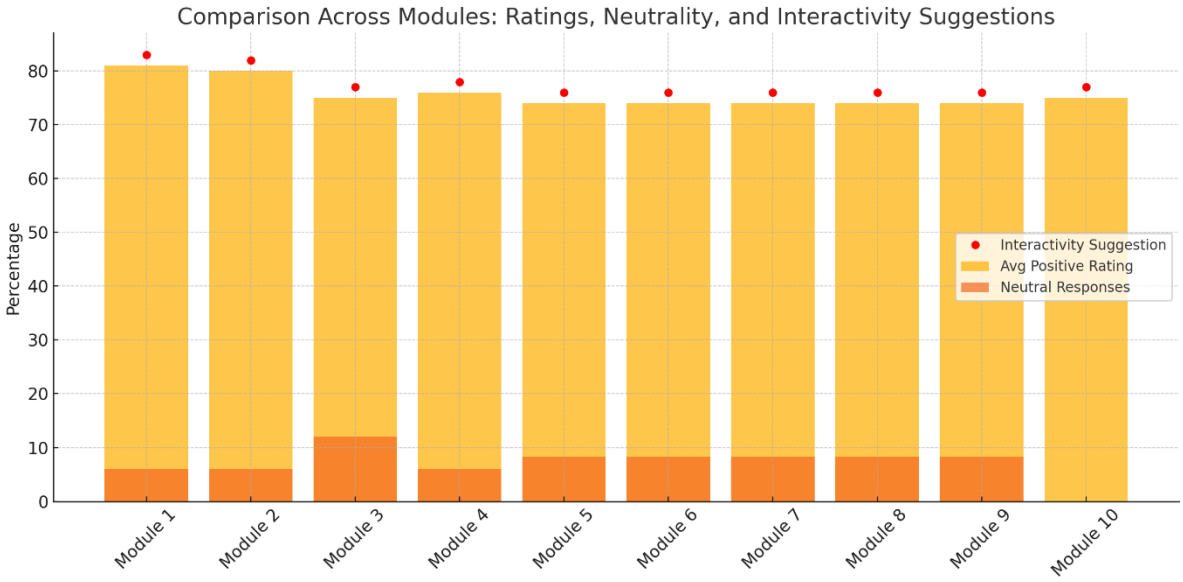
Energy Efficiency

- Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the Energy Performance of Buildings (recast, EEA relevant text) https://eur-lex.europa.eu/legal-content/ET/TXT/PDF/?uri=OJ:L_202401275
- Estonian Ministry of Climate – Energy Policy https://kliimaministeerium.ee/energeetika-maavarad/energiapoliitika
- ETS2: Buildings, Road Transport and Other Sectors – European Commission (in Estonian) https://kliimaministeerium.ee/buildest/renoveerimiskava
- Energy Performance of Buildings Directive (EPBD) – EPB Center https://epb.center/epb-standards/

5. Comparison of trends across modules

Key Insights:

- **Highest-rated modules**: 1, 6, 10 (Practical, introductory, and inspirational content).
- **Lowest-rated module**: 8 (Financial Analysis) – due to complexity.
- **Most interactivity suggestions**: Modules 2, 3, 5, 7, 8, 10 – especially where content was technical or abstract.
- **Least understood topics**: Modules 2, 3, 5, 8 – based on high neutral response rates and qualitative feedback.



The simple comparative chart gives overview of highlights:

- **Average Positive Ratings** (combined “Fully Agree” and “Agree”),
- **Neutral Responses** (indicating possible lack of understanding),
- and **Suggestions for More Interactivity** (marked with red dots).

6. Participant Demographics vs Evaluations

The report already includes demographics (education, experience, sector), but here’s how to interpret the data:

- **Education Level vs Feedback:**
  - Participants with a higher education background tended to rate theoretical modules more favorably (Modules 1 & 3).
  - Those with vocational training appreciated the hands-on modules (Modules 2, 5, 6) more.
- **Sector Background:**
  - Participants outside the energy sector (e.g., construction or local government) rated introductory content higher, but noted difficulty with financial/economic modules.
- **Experience Level:**
  - More experienced participants (10+ years) gave consistently high ratings to the entrepreneurial modules, indicating alignment with their job needs.

7. Consolidated Module Evaluation Summary

Consolidated Module Evaluation Summary

	Module	Strongest Element	Suggested Improvement
0	Module	Strongest Element	Suggested Improvement
1	Module 1	Trainer preparation (94%)	More practical examples
2	Module 2	Trainer enthusiasm (88%)	More interactive discussions
3	Module 3	Time management (82%)	More hands-on demos
4	Module 4	Clear objectives (71%)	More group collaboration
5	Module 5	Real-world relevance (85%)	Interactive software demos
6	Module 6	Understanding of economic impact (78%)	More financial case studies
7	Module 7	Business practicality (83%)	Actionable carbon strategies
8	Module 8	Tech efficiency outlook (87%)	Focus on AI & digital tools
9	Module 9	Sustainability focus (84%)	Benchmarking efficiency metrics
10	Module 10	Trainer enthusiasm (90%)	Team exercises & case studies

Prospects for future uses

Germany

In Germany, the continuing education programme ‘Energy Service Manager` developed in the BA&VET project is used on an ongoing basis independently of the dual study programme by Zentrum für Energie, Wasser und Umwelt (ZEWU), a vocational training institution of the Hamburg Chamber of Crafts. The centre was founded in 1985, has extensive experience in all aspects of energy and environmental technology, and is very interested in offering long-term continuing education programmes leading to official continuing education qualifications. The target groups for this further training are primarily people with a master craftsman's qualification in relevant professions who will in future be providing comprehensive advice on energy-efficient building renovation. The recognised further training qualification ‘Energy Consultant’ is a prerequisite for obtaining expert opinions for the acquisition of public subsidies for the implementation of energy-efficient building renovation.

Poland

The Gdańsk Chamber of Crafts (PP6 PCH) will continue to run the professional development programme ‘Energy Service Manager / Energy Consultant’ in collaboration with Gdańsk University of Technology (PP4 Gdańsk Tech). In addition, the concept, curriculum and application guidelines were transferred to all Polish chambers of crafts via the Central Association of Polish Crafts. Following consultations, some of these

chambers have already decided to implement the programme in the future. Furthermore, the chamber plans to submit a project under the European Social Development Funds, Measure: Support Social Dialogue on the European Green Deal which will utilize the 'Sustainable Management' and the `Energy Service Manager` continuing education programme as part of training for SMEs.

Estonia

In Estonia, the Estonian Chamber of Commerce and Industry (PP5 ECCI) has decided to run the 'Energy Service Manager / Energy Consultant' training programme on an ongoing basis, at least once a year.

Finland

Vocational education and training is a privilege of VET-institutes, that are either private or owned by municipals, foundations or educational federations. The VET-institutes are strictly controlled by government, the curricula are designed or at least controlled and accepted by ministry of education and culture, and an individual school has only limited opportunities to impact on curricula. The curricula for the continuing vocational education programme 'Energy Consultant' can be used in Finnish vocational education institutions if the curriculum has been approved by the Ministry of Culture and Education and is included in the list of approved curricula. Such approval was applied for during the project period. Once it has been granted, this continuing education programme will be implemented by vocational education institutions in cooperation with universities of applied sciences in Finland.

Regardless of this, part of the continuing education programme will be used as an additional source of information in courses dealing with such topics. It could also be used in special courses commissioned by employers and companies, as this type of commissioned training is not usually aimed at obtaining a qualification, but rather at imparting continuing education and specialist knowledge on specific topics and is therefore less heavily regulated.

Satakunta University (PP2 SAMK) collaborates with both vocational education institutions and companies and other organizations too, thus, the results gained and curricula developed will be disseminated to VET institutions, enterprises, and organizations in Finland.

Other countries

From 2024 to 2028, Centres of Vocational Excellence (COVE) will be established in Germany, Denmark, Poland, Lithuania, Finland, the Netherlands, Hungary and Ukraine, which will be jointly operated by universities, vocational schools, chambers and associations. These centres have already decided to use and implement the further vocational training programmes developed in the BA&VET project.

Evaluation Concept[5]

Introduction

Training evaluation is “a systematic process of collecting and analysing all relevant information for the purpose of assessing the effectiveness of a training in order to promote its improvement” (Al-Jardani, Siraj 2012). It is still a major challenge to establish an good evaluation process for training. The assessment of a training is not a one-off activity, but is a continuous process: on the one hand, its quality, timeliness and relevance in terms of its content and the methods used for learning and teaching must be ensured; on the other hand, the quality of its use and execution must be guaranteed in real-time (Gouëdard et al. 2020).

We can distinguish three functions of training evaluation in higher education (Fu 2016; Tellioğlu 2016) First, it helps to diagnose the problems in training construction and correct the biases so that teachers can adjust their teaching and research work, better play their advantages and strengths, and improve their weaknesses. Secondly, training evaluation can guide the direction of training construction, that is, teachers can learn what schools advocate, promote and worship in training construction, to closely link training construction with school/institution development and positioning. Finally, it improves the quality of education, that is, it can make teachers improve their teaching strategies, enrich their knowledge, skills, and comprehensive qualities, and make them take the initiative to explore training construction under the guidance of training theories and standards with practical values

There are different dimensions of training evaluation (Nouraey et al 2020): by focusing on what to evaluate – macro (evaluation on general issues, like the format of the modules, achieving the objectives of the training) and micro evaluation (e.g. the details of the modules and single courses, the learning materials etc.); by focusing on when to evaluate – pre-use, in-use, and post-use evaluation; by focusing on assessing the quality or appropriateness of a training or on designing or shaping the training to improve it – summative (to assess the training) and formative evaluation (to improve the training).

There are more than 50 models of training assessment (Kavgaoglu, Alci 2016). This diversity could be related to the differences in evaluation philosophies. Some of these models have been constantly studied by other researchers and are more respected in the field, while others have been less studied. The most popular TOP 3

[5] Prepared by: Marzena Grzesiak. Aniela Mikulska. Magdalena Olczyk and Anita Richert-Kaźmierska, Gdansk University of Technology

models of the training evaluation belong (Dorri et al. 2016; Ratnaya et al. 2022; Smidt et al. 2009; Suryana et al.2023):

1. Kirkpatrick's Four-level Training Evaluation Model

   (Reaction, Learning, Behaviour, and Results)
2. The CIPP Model (Context, Input, Process, and Product)
3. Philips' Model of Learning Evaluation (extension of Kirkpatrick's model)

The evaluation process

The training evaluation process consists of 3 steps: design, implementation and analysis, and report (Figure 1)

In the first phase, we will design a questionnaire and test it for accuracy. We will focus on valid and reliable questions and put them in a meaningful order. Our questionnaire will contain a short introduction at the beginning explaining the purpose of the questionnaire, the main part of the questionnaire with different types of questions, and the last part of the questionnaire, which is more for classification and where sensitive questions are asked.

In the second step, we send the questionnaires to the facilitator.

In the final step, we analyze the results, write a report with recommendations and point out possible improvements for the future. This is an essential step in the training evaluation process, which involves analyzing the data collected in detail, interpreting the results and drawing conclusions based on the information gathered. The report includes recommendations for further actions or changes that can be made to improve the training. It also identifies potential areas where improvements can be made to achieve better results.

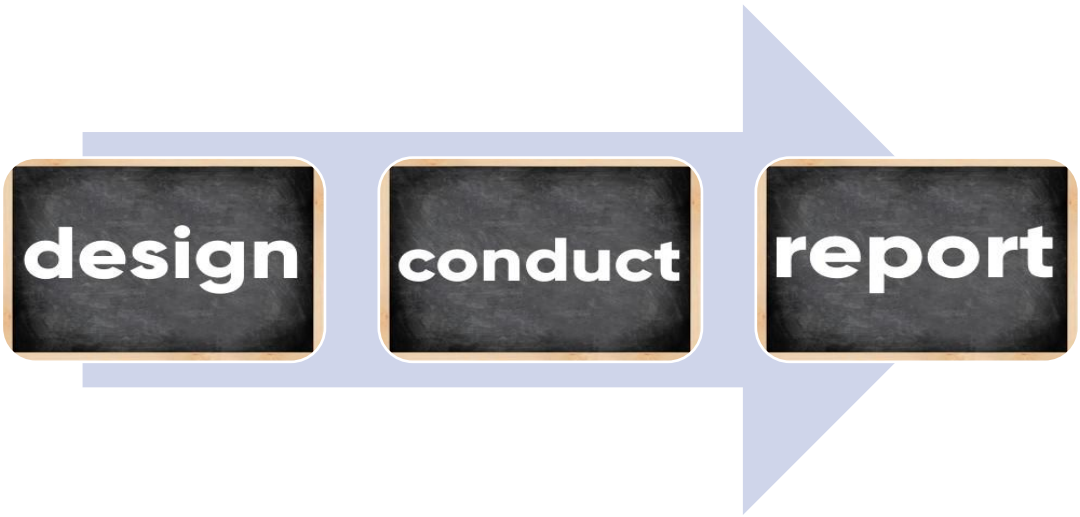


Figure 1. Evaluation process of training

Target groups of the evaluation

There are two main target groups: the participants in the Energy Consultant training (students) and the lecturers who run the courses. There is a specially adapted questionnaire for each target group. The online questionnaire is used. It is recommended that these questionnaires are completed by each participant and lecturer separately for each module completed at the end of the training.

Questionnaires and duties of each test facilitator

The questionnaires for the Energy Consultant training are created in an online version (see appendices). All questionnaires can be modified if necessary (Table 1). Comments on the questionnaires should be sent to Gdańsk Tech by the facilitator at least two weeks before the end of the respective module and the whole training. The improved questionnaires will be used to obtain feedback from participants and lecturers respectively. The Gdańsk Tech representative will use the questionnaires to evaluate the modules/the whole training.

Language of the questionnaires

The Energy Consultant training will be evaluated with the questionnaires in English version. If there is the necessity to translate the questionnaire into other languages, adequate to the PP language – it is PPs responsibility to take care of that.

Gdańsk Tech representative's role in the evaluation

At the beginning of the Energy Consultant training, the Gdańsk Tech representative will send the questionnaire to facilitator, who will inform all students/lecturers that the training will be evaluated. The students and lecturers should be informed that the evaluation will help the facilitators to develop and improve the training as a whole and the individual modules.

Participants (students and lecturers) will receive from facilitator a link to the evaluation questionnaire at the end of the module/ training. Evaluation participants are reminded that every response is important and are informed of the time during which the online survey is active.

At the end of the response period, the Gdańsk Tech representative will collect the results from the system, analyse them and prepare the final report.

TABLE 1: SUMMARY OF THE DUTIES, PROCESS AND SCHEDULE OF THE EVALUATION

Deadline & responsible party	Task
• 1 month before the start of the module • the facilitator	• inform Gdańsk Tech about the schedule of the module • inform Gdańsk Tech about the number of participants in each module • provide Gdańsk Tech with brief information about the modules (names and e-mail addresses of lecturers and the topics they will teach are required)
• 1 month before the start of the module (based on aboded info from the facilitator) • Gdańsk Tech	• create the specific survey for a module • send the links to the surveys to the facilitator and inform him about the response deadline
• the training start • the facilitator	• send students/lectures information about the evaluation with an explanation of its purpose
• the training end • the facilitator	• send the survey links to each group of respondents (participants, teachers) either by e-mail or other acceptable means • inform respondents of the deadlines • remind students of the importance of evaluation
• after deadline • Gdańsk Tech	• create the database based on the survey responses • analyse the results • prepare the report

Report

The report includes the following points: a rough description of the group of respondents, whether they were satisfied with the facilitation, the topics, the teachers and their group, whether they thought the training was valuable and what could have been done differently. In addition, the opinions of the teachers are also obtained and reported for certain modules.

At the end of the report, a concluding section summarizes the results and provides a basis for further development and improvement of the training.

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Appendices

Questionnaire for **participants** of the further training programme "Energy Consultant"

Dear participant,

At the end of each training module, please complete the following questionnaire separately for each module. This will help us to continuously improve and develop the training program.

Identification of the training module

Please tick which module you have completed and evaluated.

Module number	Module name	Please mark one module only
1	Motivation	☐
2	Legislation and regulation	☐
3	Energy efficiency	☐
4	Calculations and classifications	☐
5	Insulation, avoiding the heat and cool leakages	☐
6	Technology in buildings	☐
7	Designing the energy-efficient buildings	☐
8	Renewable energy	☐
9	Energy efficiency certificates	☐
10	Carbon footprint	☐

General information

(1) Please indicate your gender

☐ Male

☐ Female

☐ Prefer not to answer

(2) Please indicate your age

☐ Younger than 18

☐ 18 - 24

☐ 25 - 34

☐ 35 – 44

☐ 45 - 54

☐ Prefer not to answer

(3) Please indicate your professional experience

☐ no professional experience

☐ 0-6 months

☐ 6-12 months

☐ 1-3 years

☐ 3-5 years

☐ 5-10 years

☐ more than 10 years

(4) Please indicate your current professional activity

☐ I am a self-employed entrepreneur

☐ I am an employee in a company

The company has

☐ less than 10 employees

☐ 10 to 49 employees

☐ 50 to 250 employees

☐ more than 250 employees

I carry out the following activity.....

I work in the following branch.....

(4) Please indicate your educational background

☐ no formal education

☐ primary school

☐ junior high school

☐ vocational school

☐ high school

☐ technical high school

☐ college/ university (bachelor's degree/ Engineering Degree)

☐ college/ university (master's degree)

(5) Did you attend any additional courses/ trainings before you enrolled in this course?

☐ YES

☐ NO

(6) What additional courses/ trainings did you attend before you enrolled in this course (nt mandatory)?

_____

_____

_____

___

Please circle the scale that applies to your opinion on the following aspects of the education you participated.

Scale: 1= Strongly disagree, 2=Disagree, 3=Neither disagree or agree, 4=Agree, 5=Strongly agree

In common						
The facilitation (location, room etc.) was suitable for training		1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
The topics and issues were relevant and responded to the goals of training		1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
The lecturers explained topics of the lessons, additional questions, experiences, and topical issues arisen during the course well		1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
There were enough time scheduled for each issue.		1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
I got valuable knowledge from lessons and examples presented by lecturers.		1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
I believe that can utilize the knowledge gained from lessons in my future career.		1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
I can utilize the skills trained and knowledge gained in my future career, e.g. when consulting my clients.		1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Comments concerning the common issues						
Lessons and Topics						
Topic 1	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Topic 2	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Topic 3	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Topic 4	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Topic 5	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Topic 6	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Topic 7	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Topic 8	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Topic 9	The presentation was clear and understandable	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The issues were relevant and topical	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	The information presented were up-to-date	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Free speech (nt mandatory)						
What was good?						
What could have been done better? (E.g. was some topic missing or unnecessary)						
Would you recommend the course to someone you know? If not, why not?						
Was anything missing that you might need in your future profession / occupation / job?						
Was the proportion of topics and issues inside each topic suitable or should something be increased / decreased?						

Other comments

Thank you for your answer

Questionnaire for **lecturers** of the further training program “Commercial Specialist in Sustainable Management”

Dear lecturer,

at the end of each training module, please complete the following questionnaire separately for each module. This will help us to continuously improve and develop the training program.

Identification of the training module

Please tick which module you have completed and evaluated.

Module number	Module name	Please mark one module only
1	Motivation	☐
2	Legislation and regulation	☐
3	Energy efficiency	☐
4	Calculations and classifications	☐
5	Insulation, avoiding the heat and cool leakages	☐
6	Technology in buildings	☐
7	Designing the energy-efficient buildings	☐
8	Renewable energy	☐
9	Energy efficiency certificates	☐
10	Carbon footprint	☐

The lecturer should evaluate the course with overall grade (poor, fair, good, very good, excellent). Written comments are appreciated. Thank you for your co-operation!

Experience in teaching: _____ years

Overall content of course topics

1 = Poor	☐	Comments (not mandatory):
2= Satisfactory	☐	
3= Good	☐	
4= Very good	☐	
5= Excellent	☐	

How well the topics in curricula match to the needs and goals of the students (average)?

1 = Poor	☐	Comments (not mandatory)::
2= Satisfactory	☐	
3= Good	☐	
4= Very good	☐	
5= Excellent	☐	

Schedule compared to the contents and goals of the programme

1 = Poor	☐	Comments (not mandatory)::
2= Satisfactory	☐	
3= Good	☐	
4= Very good	☐	
5= Excellent	☐	

Level of the students

1 = Poor	☐	Comments (not mandatory)::
2= Satisfactory	☐	
3= Good	☐	
4= Very good	☐	
5= Excellent	☐	

Motivation of the students

1 = Poor	☐	Comments (not mandatory)::
2= Satisfactory	☐	
3= Good	☐	
4= Very good	☐	
5= Excellent	☐	

How do the contents of the education match to the requirements of the qualification

1 = Poor	☐	Comments (not mandatory)::
2= Satisfactory	☐	
3= Good	☐	
4= Very good	☐	
5= Excellent	☐	

Thank you for your answer.