



SUSTAIN

**cluSter bUilding SmarT
reAdiness INdicators**

(Grant Agreement No 101074311)

**D3.3 Developed portfolio of services regarding reskilling and
upskilling offered by cluster organisations to SMEs v.1**

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List of Abbreviations

SME	Small and medium-sized enterprises
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BIM	Building information modelling
IoT	Internet of things
ERP	Enterprise resource planning
Q&A	Questions and answers

Executive Summary

SUSTAIN project will implement actions to foster clusters' skills capacity-building and to promote cross-cluster learning in order to help cluster managers, cluster organisations and their members to acquire the necessary skills and take actions to explore and take up innovative solutions related to buildings' energy efficiency and smartness (WP3). The present deliverable derives from WP3: Skills capacity-building and cross cluster learning promotion and it includes the joint services developed for SMEs for reskilling the workforce and talent management. More specifically, D3.3 "Developed portfolio of services regarding reskilling and upskilling offered by cluster organisations to SMEs v.1" presents the development of thematic workshops and webinars regarding smart energy buildings and contains the resulting training material.

1. Introduction

1.1 Scope and objectives of the deliverable

The objectives of WP3: Skills capacity – building and cross- cluster learning promotion, as described in Grant Agreement are the following:

1. Training to foster-up and re-skill the workforce whilst attracting talents.
2. Improvement of human resources skills.
3. Training of cluster managers and members.

The scope of the deliverable 3.3 “Developed portfolio of services regarding reskilling and upskilling offered by cluster organisations to SMEs v.1”, is to fulfill the above objectives. The objectives of the deliverable is to develop a portfolio of training materials which will be addressed to the employees in SMEs. The training materials focus on the green and digital transition for companies related to the market of building sector, by promoting innovative solutions concerning buildings’ energy efficiency and smartness.

Deliverable D3.3 will be updated by the forthcoming deliverable D3.4 “Developed portfolio services regarding reskilling and upskilling offered by cluster organisations to SMEs v.2” due in M24.

1.2 Structure of the deliverable

“D3.3- Developed portfolio of services regarding reskilling and upskilling offered by cluster organization to SMEs v.1” is structured according to the following sections:

Section 1 includes the scope and the objectives of the deliverable and the relation to other tasks and deliverables.

Section 2 outlines the purpose and objectives of the training materials, the target group, the methodology for the development of training material and the final content of the courses.

Section 3 presents the conclusions of the deliverable as well as the future steps.

1.3 Relation to other Tasks and Deliverables

Deliverable 3.3 relates to various associated deliverables of SUSTAIN project.

For the needs of deliverable 3.3, the outcomes of the deliverable D2.1 “New-to-firm products and/or services in the industrial ecosystem/s” in M4 were taken into account.

The content of deliverable 3.3 will have a major influence on several related deliverables within SUSTAIN, and these are listed below in Table 1.

Table 1. Relationship to other Deliverables

Deliverable	Title	Lead	Type
D2.3	Technical assistance to SMEs	IsZEB	Public report – M36
D3.4	Developed portfolio of services regarding reskilling and upskilling offered by cluster organisations to SMEs v.2	IsZEB	Public report – M24
D5.1	Open Calls and Selection of Funded mini projects	CERTH	Sensitive report – M36
D7.1	Communication outreach	CEEC	Sensitive report – M36

1.4 Relation to Milestones

Regarding the Milestones of SUSTAIN project, deliverable 3.3 is related to Milestone No 3: “Implementation of the training material v.1” due in M12. Milestone No 3 as described in the Grant Agreement concerns the preparation of the first version of the training material intended to be used for the scheduled training activities. The means of verification of the Milestone No 3 is the finalization of the training material. Milestone 3 will be followed by a second version (M4: “Implementation of the training material v.2”) due in M24.

2. Training Materials

2.1 Training areas and purpose of the training materials

The COVID-19 crisis highlighted the inability of European businesses, and particularly small and medium-sized organizations (SMEs)¹, to adapt both novel procedures and technology to fulfill new customer demands, as well as to acquire or enhance skills in order to deal with the ongoing and future changes of the business conditions. Therefore, the purpose of the training materials is to equip employees with the necessary tools to adjust to the evolution of the construction market.

2.2 Methodology for the development of training material and courses

In order to develop training material and courses that will be efficient, interesting and in line with the training objectives, a systematic methodology should be used. An overview of the process for developing training materials and courses is provided below.

Step 1: Conduct a need analysis.

According to the research carried out in the context of deliverable D2.1 “New-to-firm products and/or services in the industrial ecosystem/s” in M4, the innovative tools in the building construction were outlined. More specifically, it emphasized the necessity of providing digital skills and digitalization training to the employees of the SMEs that are active in the construction sector.

Step 2: Define learning objectives.

The next step was for each partner who developed a training material to define the learning objectives of each training programme in terms of the benefits that the participants would gain from attending. The learning objectives are defined as the specific knowledge, skills or attitudes that learners should be able to demonstrate as a result of a learning experience. For creating and delivering effective instruction, these objectives offer a crystal-clear focus and direction.

Step 3: Create a course outline.

Once the learning objectives had been defined, the outline of each training programme was drawn up.

Step 4: Develop the content.

According to the outline of each course, the appropriate material was developed after literature research and internal training of the SUSTAIN consortium partners, in order to acquire additional information and expertise and finally conduct the training programme.

Step 5: Engaging format.

As the training programme will be conducted through several online courses, it is crucial to adopt an engaging format to stimulate the interest of the participants. For this reason, the training material is enriched with videos, photos and interactive modules as well as Q&A modules for interaction with the public.

¹ According to the study “Social and Economic Consequences of COVID-19” which was provided by the Policy Department for Economic, Scientific and Quality of Life Policies at the request of the special committee on COVID-19 pandemic: lessons learned and recommendations for the future (COVI).

Step 6: Evaluation.

According to the GA there are specific KPIs for monitoring and control for the evaluation of the developed training programs. Further information regarding evaluation process can be found in Section 3 of this document.

2.3 Developed training material and courses

2.3.1 Upskill your digital capabilities

The IsZEB Cluster undertook the implementation of online courses entitled “Upskill your digital capabilities” addressing to Construction SMEs, with the contribution of the DCSME-Team consortium². More specifically, IsZEB Cluster engaged in a comprehensive learning experience by participating in online training sessions provided by the DCSME-Team. Through this immersive training, IsZEB employees gained invaluable expertise and developed skills in the art of integrating digital strategies into the operations of SMEs.

Inspired by the commitment to foster digital transformation, IsZEB cluster then took the initiative to develop training materials tailored to the unique needs of Greek SMEs. The objective was to ensure that Greek SMEs, often the backbone of the economy, have access to cutting -edge knowledge and resources to navigate the digital landscape effectively.

It’s crucial to mention that the collaboration with DCSME-Team was not only marked by the exchange of knowledge but also by a commitment to maintain the confidentiality of proprietary information. This commitment was formalized through a non-disclosure agreement (NDA) between DCSME-Team and IsZEB cluster during the implementation of the initial training of IsZEB employees. In the present deliverable we acknowledge the significant role played by DCSME-Team and this recognition is the reason why their contribution to the produced training material and courses it is needed to be mentioned in this deliverable.

The training courses are designed to help SMEs to get a clear understanding of the criteria and implications of digital upgrade. Each training course is developed to be carried out either online or in person. During the first year of the project a primary approach to Greek SMEs was agreed to be made by the project consortium, and thus all courses were offered in Greek language, free of charge, to ensure accessibility and relevance to the local target group. While the training itself was conducted in Greek, the produced training material has been developed in English. This decision aimed at fostering a collaborative and forward- thinking approach. By doing so, it was ensured that the training material created serves as a valuable asset for future trainings undertaken not only for IsZEB cluster but also for the rest of the consortium of SUSTAIN project.

The courses are divided into the 3 following thematic sections:

1. Benefits form technology enablers

This first course presents innovations in construction which is the driver of the 4th industrial revolution. More specifically, introduces the 7 most valuable technology enablers for Construction SMEs: BIM, 3D printing, Robotics, 3D scanning, Drone, Sensors and IoT.

The objectives of this course are the following:

- Demonstrate the importance of going digital for construction SMEs.
- Highlight the impact on growth and competitiveness.

² The DCSME-Team a project consortium consisting of Ecorys, TNO, IMP³ROVE and EMG Group and act on behalf of the European Innovation Council and SMEs Executive Agency (EISMEA) and DG for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW).

- Introduce the 7 most valuable technology enablers.
- Gain insights on possible applications.
- Gain inspiration from case examples.
- Share experiences with peers.
- Gain confidence in implementing technology enablers.

The total duration of the course is approximately two hours.

2. Set-up of Digital company culture and processes

The second course presents methods that could be utilized by a company in order to initiate the integration of technology enablers, and additionally to remove the cultural barriers towards digitalization.

The course outline is the following:

Section 1: Digital infrastructure – The right tool set

- Overview on digital company processes
- Building information model (BIM) – processes
- Enterprise resource planning (ERP) – processes
- External help and initiatives

Section 2: Digital skills – The right mindset and behavior

- Overview on the key dimensions of an innovation organization and culture
- Cultural barriers
- Develop solutions to remove cultural barriers
- Partnerships' benefits
- Data security

Section 3: Technical integration – The right mindset and behavior

- Digital process implementation
- Introduction to the “Design Sprint” technique

The total duration of the course is approximately two hours.

3. Digital transformation strategy

The third course explains the need of a digital transformation strategy for construction SMEs.

The objectives of this course are the following:

- Demonstrate importance of a digital transformation strategy for SMEs.
- Highlight impact on growth and competitiveness.
- Introduce a pragmatic 10 step approach to develop innovation strategies.
- Experience tools to support the process.
- Gain inspiration from case examples.
- Gain confidence in developing a digital transformation strategy.

The course outline is the following:

- Understanding the need of a digital transformation strategy
- 10 steps to develop a digital transformation strategy (External and Internal Analysis)
- Defining the digital transformation strategy

The total duration of the course is approximately two hours.

2.3.2 Basic principles of the Smart Readiness Indicator

The IsZEB cluster also developed training material concerning Smart Readiness Indicator. SUSTAIN project as mentioned in GA will focus on introducing an innovative digital tool that assesses the buildings Smart Readiness Indicator (SRI) using Building Information Modelling (BIM) technologies. SRI is a voluntary European scheme for rating the smart readiness of buildings to operate in an energy efficient way and to interact with their inhabitants and grid. It aims to make the added value of building smartness more tangible for building users, owners, tenants, and smart service providers.

The SRI rates the Smart Readiness of buildings (or building units) in their capability to perform 3 key functionalities:

- Optimise energy efficiency and overall in-use performance
- Adapt their operation to the needs of the occupant
- Adapt to signals from the grid (for example energy flexibility)

The objectives of this fundamental course are the following:

- Demonstrate the need for the development of the SRI.
- Understand the benefits that arise by adopting the SRI.
- Present the current situation in Europe regarding SRI.
- Introduce the methodology for calculating SRI score.

The course outline is the following:

- Definitions of SRI
- Why SRI? European Union's objectives and measures proposed by the EU and Smart Technologies
- SRI related standards -EN 15223
- Documentation of current situation in Europe and Greece
- Methodology for calculating the SRI.

The total duration of the course is approximately two hours.

2.3.3 GreenTech training material

The Greentech undertook the implementation of online course entitled “Sustain project” addressing to Construction SMEs in Latvia.

The training program aims to provide small and medium-sized enterprises (SMEs) with a comprehensive grasp of environmentally conscious construction policies, focusing on the European context and the state of the Latvian building sector. It will also cover the adoption of digital tools within construction, highlighting current trends in the industry.

Training course is developed to be carried out either online or in person. The course is offered in English and Latvian language, free of charge with thematic section.

Sustain project

Course presents EU legislative framework for energy efficient buildings, Construction statistics and their impact on energy consumption, Innovation culture in small and medium-sized construction companies, Future challenges and trends in construction, Examples of usage of digital tools such as Building Information Modeling (BIM), 3D printing, Robotics 3D scanning, Drones, Internet of Things (IoT) and sensors, Virtual and augmented reality, Smart Readiness Indicator (SRI) and SUSTAIN Open Calls.

The aims of this course encompass the subsequent objectives:

- Showcase the significance of embracing digitalization within small and medium-sized enterprises (SMEs) in the construction industry.
- Illuminate the consequences of this digital shift on both expansion and competitiveness aspects.
- Familiarize participants with the most advantageous technological facilitators in this context.
- Acquire a deeper understanding of potential applications for these technologies.
- Draw motivation from real-life instances and illustrations.
- Facilitate the exchange of experiences among colleagues and peers.
- Cultivate self-assurance in the effective integration of these technology enablers.

The total duration of the course is approximately three hours.

2.3.4 Intro to AI for SMEs in the Construction sector

ahedd developed the material for a training session that introduces the main concepts and applications of Artificial Intelligence (AI) tailored to professionals working in the Construction sector. AI entails a wide range of technologies that have a transformative nature affecting many business sectors and creating opportunities for growth and innovation. Thus, the familiarization of professionals in the construction industry with the potentials of AI in their business is essential.

The objectives of this training session are:

- acquaint professionals with the definition of AI and relevant terminology
- present the benefits of incorporating AI into operations or products
- explore indicative applications of AI in the construction industry
- suggest a pathway for SMEs that want to find AI solutions and innovation support

The outline is the following:

1. Introduction to Artificial Intelligence. What is AI and what is not AI? What are the main related terms, and what do they mean?
2. The benefits for SMEs. Boosting success through AI innovation.
3. AI applications in Construction Industry. Transforming Construction with Innovative tools.
4. DIHs and SMEs. How can Digital Innovation Hubs support SMEs?

The session concludes with some time for discussion with the participants. The approximate duration is one hour.

2.4 Foreseen usage of developed training material and courses

Training material developed by the members of the consortium is available in the Sustain platform at the following link: <https://sustain-digital.iti.gr/login>. Although the training courses were firstly conducted in local languages (Latvian & Greek), all the produced training material is already available in English. By providing an English version of the material in SUSTAIN platform, best practices, insights, and expertise are shared with other countries, thus maximizing the impact of the SUSTAIN project. In addition to English versions, there is training material of two specific topics available in Greek and Latvian languages. "Basic principles of the Smart Readiness Indicator" by IsZEB and "GreenTech training material" by GreenTech are both accessible in these local languages, providing even more options for individuals who prefer learning in their native tongue.

The availability of training material in multiple languages is a testament to the inclusivity and reach of the Sustain platform. It ensures that a diverse and international audience can benefit from the valuable insights and knowledge shared by the consortium members. This is especially important in fields related to sustainability and green technology, where global collaboration and understanding are crucial.

All training material & courses developed and conducted within the framework of Task 3.3 "Training programs for cluster members on digitalization and digital skills" is intended to be accessible and beneficial to all members of the consortium. Any modifications, enhancements or additions to the existing training material are not only allowed but also encouraged. This flexibility ensures that the material can continuously evolve to meet the evolving needs and challenges of SMEs.

In terms of the format, it is important to highlight the significance of accommodating taking into account each circumstance and preference. Therefore, the training sessions can be conducted either online or on-site depending on the specific requirements of each case. Additionally, all the training material conducted in local languages are being reproduced in English language to ensure broader accessibility and outreach beyond the local regions. Furthermore, members of Task 3.3 IsZEB, ahedd and GreenTech will reproduce at least two more times the training courses outlined in the present deliverable.

The outreach to the target groups will be achieved through a combination of dissemination and communication strategies, including the use of social media platforms and participation in relevant events. Moreover, a proactive approach will be taken by sending tailored questionnaires to Small and Medium-sized Enterprises (SMEs). These questionnaires are designed to gather crucial insights regarding the specific requirements and preferences of SMEs, which will, in turn, inform the ongoing development of the existing training material.

This comprehensive approach ensures that the project is not only making its resources widely accessible but is also actively seeking feedback and engagement from the SME community. By utilizing social media and participating in events, the project aims to create a dynamic and interactive channel for sharing information and fostering discussions. On the other hand, the tailored questionnaires represent a targeted effort to better understand the unique needs and challenges faced by SMEs in order to refine and expand the training material accordingly.

Finally, in order to adapt and address the specific needs of the SMEs, additional training material and courses will be developed and conducted for at least two more topics by the members of Task 3.3 until the end of the SUSTAIN project. The content and focus of these upcoming training material will be determined following the announcement of the awards resulting from the 1st open call. This approach helps to tailor the content to the unique requirements of the SMEs that will receive these awards, ensuring support in the successful implementation of their projects.

3. Evaluation and Monitoring of the Training Material

The aim of the evaluation is to ensure the accomplishment of the project's objectives through the development of the aforementioned training material. Every course that is created and the produced training material by cluster organisations will be followed up on a regular basis and the outcomes will be assessed, and alterations will be performed as needed. To guarantee the efficacy of updating and upgrading the training material, and moreover to ensure the quality of the training material this evaluation needs to be conducted on an ongoing basis.

Monitoring includes performance and impact measurement in order to evaluate to what extent the training material fulfilled the desired results. Evaluating impact is a common practice through the use of indicators, particularly quantitative ones, which must be taken into account throughout the entire duration of the SUSTAIN project. Table 2 demonstrates the target values for each key performance indicator.

Table 2. Indicators of assessment

KPI	Target Value
Number of employees in cluster organisations which received trainings	>500
Number of SMEs investing in skill development of their employees in the scope of the project	>100
Number of businesses/SMEs directly benefitted from joint skills related services offered through the project	>100
Number of workers that received training, upskilling and reskilling as a result of the joint activities of the project	>300
Number of training plans supported for clusters and their managers/staff	>5

Table 3 presents the KPIs values addressed by the implementation of the courses and the training material developed by the three cluster organisations of the consortium until the submission of the deliverable 3.3 in August 2023 (M12).

Table 3. Implementation of Training material and courses

Training material	Method of conduct	Cluster organisation	Date	Number of participants	Number of SMEs
Benefit from technology enablers	Online	IsZEB	23/3/2023	14	8
Set up of Digital Company Culture and Processes	Online	IsZEB	31/3/2023	7	5
Digital Transformation Strategy	Online	IsZEB	6/4/2023	8	7
Basic Principles of the Smart Readiness Indicator	Online	IsZEB	23/5/2023	18	10

Sustain project	Online	GreenTech	14/7/2023	33	32
Intro to AI for SMEs in the Construction sector	Online	ahedd	Planned for 9/2023	TBC	TBC
Total:				80	62

4. Conclusions

Developing training material for SMEs requires a tailored approach to meet their unique needs and challenges. The pandemic laid bare the vulnerabilities within many SMEs, emphasizing the need for adaptability and resilience in the face of unexpected disruptions. More specifically, reskilling and upskilling is crucial to help SMEs and their employees to adapt to the evolving industry trends and maintain their competitiveness. The emergence of COVID-19 pandemic highlighted the significance of long-standing issues within the domain. Indeed, stagnant productivity, low levels of digitization, low profitability as well as the domain highly bespoke building approach, fragmented ecosystem, and high share of on-site manual labour have signaled disruption over the last years. Furthermore, a combination of increasingly stringent sustainability requirements, rising cost pressure, labour scarcity, and new available materials, production approaches, and digital tools are forcing the industry to innovate.

Key area that training materials must address is digital transformation. Many SMEs struggle with low levels of digitization, which has become a significant barrier to their competitiveness. Developing training modules focused on digital literacy and technology integration is essential for streamlining operations, reducing costs, and ensuring they can thrive in an increasingly digital world. Additionally, the emphasis on sustainability and compliance is crucial, considering the growing demand for eco-friendly practices and adherence to environmental regulations. Training should help SMEs adopt sustainable techniques and minimize their environmental impact. Encouraging innovation and adaptability should also be a core focus, empowering SMEs to embrace new materials, production methods, and digital tools to stay ahead in a competitive marketplace. Moreover, workforce empowerment is key; a well-trained, adaptable workforce is a valuable asset, and training should encompass both technical and soft skills. Finally, continuous learning should be instilled as a core principle, as the construction and manufacturing industries are dynamic, requiring SMEs to stay updated with the latest industry developments.

In conclusion, SMEs must be equipped with targeted training materials to address the challenges posed by the COVID-19 pandemic and the evolving industry landscape. These materials should focus on digitization, sustainability, cost management innovation, workforce empowerment, and a culture of continuous learning. By reskilling and upskilling their employees through these tailored materials, SMEs can not only adapt to industry changes but also drive business growth, ensuring their long-term success and competitiveness. During the first year of SUSTAIN project succeeded in developing four training materials in English and local languages marking a significant milestone in the effort to empower Small and Medium Enterprises (SMEs) in the construction and manufacturing sector. The localization of training materials in the native language lays the foundation for building strong relationships with stakeholders. Moreover, it reflects a dedication to addressing the immediate challenges and opportunities that SMEs face within specific regions. The decision to transition to conducting all training materials in English in the project's second year (M12-M24) is a strategic step towards expanding the project's impact across borders. By offering training materials in the language of the European business world, the project will reach a wider audience of SMEs and foster the sharing of knowledge and best practices beyond national boundaries. This shift toward a more pan-European approach aligns with the project's overarching goal of promoting sustainability and growth within the sector. It signifies a commitment to facilitating collaboration, knowledge exchange, and the empowerment of SMEs throughout Europe, ultimately contributing to the industry's resilience and competitiveness in a global context.