SUSTAIN

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List of Abbreviations

BIM	Building Information Modeling
EE	Energy Efficiency
EU	European Union
ESCA	European Secretariat for Cluster Analysis
EPC	Energy Performance Certificate
AI	Artificial Intelligence
SME	Small and medium Enterprises

Executive Summary

The SUSTAIN project's Work Package 3 (WP3), titled "Skills Capacity-Building and Cross-Cluster Learning Promotion," is dedicated to enhancing the skills of cluster managers and facilitating cross-cluster knowledge sharing. The primary objective is to empower cluster managers with the necessary expertise to explore and adopt innovative solutions in the realm of building energy efficiency and smart technologies. "D3.1 – Training for Cluster Managers v.1" represents the initial phase of this endeavor. This document outlines the planning and content of the first set of thematic webinars that will be conducted as part of the cluster managers' training program. These webinars are meticulously crafted to provide valuable insights and practical guidance to cluster managers, enabling them to take proactive steps toward embracing cutting-edge technologies and practices in the building sector.

1. Introduction

1.1   Scope of the Deliverable

The deliverable aims to produce a skilled and informed cohort of cluster managers who are well-prepared to drive innovation and sustainability within their clusters. The scope of this deliverable is to implement actions aimed at fostering the skills of cluster managers, enhancing their capacity-building, and promoting cross-cluster learning. The overarching goal is to empower cluster managers with the necessary expertise to explore, embrace, and implement innovative solutions in the domain of buildings' energy efficiency and smart technologies. This deliverable will focus on the development and deployment of customized training seminars and electronic learning materials (e-material).

The pages that follow will delve into the detailed planning and content of the initial phase of these training efforts - "D3.1 – Training for Cluster Managers v.1." This document represents the first step towards realizing the broader vision of empowering cluster managers as drivers of change in the pursuit of energy-efficient and smart building solutions. The document is divided into two parts.

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

Section 2 presents the calendar and structure of the training plan for Cluster staff. The entire program is built around the support of an innovative cluster strategy project.

Section 3 offers the first content and description of the entities that will participate in the training webinars organized in September, October, November and December 2023.

1.2   Relation to other Deliverables and milestones

The content of deliverable 3.1 will have a major influence on deliverable D3.2 – Training for cluster managers v.2 (M24), the work presented in this document is fundamental to achieving milestone number 3 of the Grant Agreement regarding the implementation of the training material v.1/v.2.

2. Training webinars

Cluster managers occupy a central role within their respective clusters, serving as catalysts for innovation and sustainability. To effectively navigate the rapidly evolving landscape of energy-efficient and intelligent building solutions, they must be equipped with the knowledge and tools necessary to drive transformative change. This section is designed to address this need by providing cluster managers with the resources and support required to acquire the critical skills essential for success in this dynamic field.

2.1   Structure and planning

The training plan is divided into two modules of courses: on the one hand, transversal courses will be organized for cluster managers, policymakers and ecosystem developers, focused on developing skills for cluster management, the content and type of these courses are specifically transversal and will touch on topics of common interest to different sectors and value chains. On the other hand, the second group of courses will have a purely technical nature and will touch on issues related to the training objectives of the SUSTAIN project aimed at promoting knowledge of some of the technologies applicable to the construction sector. This group of courses will be provided by research centres and academic entities experts in

developing innovative solutions in the field of use of BIM in energy certification of buildings Digital solutions for EE in buildings; Digital twins and artificial intelligence; Building inventory management tools Both modules present the latest best practices and strategic processes from successful innovation clusters and companies.

Table 1. Training courses calendar

Courses Module 1	Supplier	Keywords	Dates	INVITED CLUSTERS
Essence of Cluster Excellence Management	ACCIÓ	Cluster management, cluster policies	sep-23	Packaging, Foodservice, Beauty Cluster, CWP.
Financial management for EU projects		Project management, EU funding	abr-24	
Shared value through Clusters	ACCIÓ	Clusters management	mar-24	Modacc. R4S
Cluster services development and financing sustainability	TCI NETWORK	Cluster development	may-24	
Process Digitalization for Clusters		Innovative clusters	jun-24	
Courses Module 2	Supplier	Keywords	Dates	INVITED SMEs
Guides for the use of BIM in energy certification of buildings	LA SALLE	BIM	oct-23	ARCBcn
Digital solutions for EE in buildings: digital twins and artificial intelligence	EURECAT	AI; digital twins	nov-23	
Building inventory management tools	LA SALLE	digital twins' platform	feb-24	

Module 1: Transversal Courses

- Main Target Audience: Cluster managers, policy makers, and innovation ecosystem developers.

- Purpose: Develop skills for cluster management.

- Content: The courses in this module cover topics of common interest to different sectors and value chains.

- Nature: These courses are transversal, meaning they cut across different areas and are not sector-specific.

- Topics covered:

  1. Essence of Cluster Excellence Management

  2. Financial management for EU projects

  3. Shared value

  4. Cluster services development and financing sustainability

  5. Process Digitalization for Clusters

Module 2: Technical Courses

- Main Target Audience: SUSTAIN Project consortium members, construction sector clusters employees.

- Purpose: Promote knowledge of technologies applicable to the construction sector.

- Content: These courses focus on technical issues related to the SUSTAIN project's training objectives. Expert Involvement: The technical courses (Module 2) will involve research centers and academic entities with expertise in developing innovative solutions in the construction sector.

- Topics Covered:

    1. Use of BIM (Building Information Modelling) in energy certification of buildings.

    2. Digital solutions for energy efficiency in buildings.

    3. Digital twins and artificial intelligence in the construction sector.

    4. Building inventory management tools.

Common Features of Both Modules:

- Latest Best Practices: Both modules present the latest best practices and strategic processes from successful innovation clusters and companies.

In summary, this training plan aims to equip Cluster staff with the skills and knowledge necessary to support an innovative cluster strategy project. It does so by offering a combination of transversal courses for cluster management skills and technical courses focused on technology-related topics specific to the construction sector. The involvement of experts and the incorporation of best practices ensure that participants receive high-quality training.

Course Format:

1. **Online Participation:** The courses will be conducted online, allowing participants to attend remotely.

2. **Webinar Format:** The courses will be structured as webinars, typically featuring a speaker or a panel of experts delivering content.

3. **Duration:** Each course will have a duration of one hour.

Course Structure:

1. **General and Introductory Content (30 Minutes):** The initial half-hour of each course will be dedicated to providee a broad overview and introduction to the course topic. This portion will likely cover fundamental concepts and background information.

2. **Practical Examples and Best Practices (30 Minutes):** The second half of each course will focus on practical examples and best practices related to the topic. This section will provide real-world applications and insights into how the concepts discussed can be implemented effectively. Within the second half of the course, 15 minutes will be allocated to each practical example or best practice. This allows for an in-depth exploration of multiple real-world scenarios.

Course Materials and Availability:

1. **Recording:** Each webinar will be recorded, ensuring that participants who may have missed the live session can access the content at their convenience.

2. **Educational Materials:** Educational materials related to the presentations, such as slides, documents, or resources, will be prepared and made available to participants.

3. **Virtual Platform:** All course materials, including recordings and educational resources, will be accessible through the Virtual Platform of the SUSTAIN Project. This centralized platform serves as a hub for project-related information and resources.

The format and delivery approach aim to make the courses accessible, informative, and flexible for participants. The combination of general content, practical examples, and the availability of recorded sessions and materials on the Virtual Platform ensures that participants can engage with the content in a way that suits their needs and schedules.

3. Courses content

This section provides an overview of the webinar's content and schedule, presented in chronological order starting with the initial meeting scheduled for September 27, 2023. While the meeting structure and organization remain consistent, slight variations may arise based on participant availability.

3.1.   Webinar 1: Essence of Cluster Excellence Management

Overall, the webinar seeks to enhance the knowledge and skills of cluster administrators and staff in managing clusters effectively, with a focus on the ESCA labelling system as a key component of cluster management excellence. The background information provided contextualizes the development of cluster initiatives and the importance of professionalizing cluster management.

Date: September 27th, from 10 to 11 am CET.

Part 1: Improving the day-to-day management skills of cluster administrators and staff Introduction to the ESCA system and label evaluations (30 min).

Provider: Emma Vendrell, Head of International Projects Clusters Unit - ACCIÓ | Government of Catalonia.

• Explanation of the ESCA system and its importance in the daily management of the cluster.

• Details on the different bronze, silver and gold labels and how they are valued.

• Practical examples to help understand how the labeling system works.

• ESCA system experts and evaluators will give detailed answers on the indicators.

• Clarification of doubts and concerns related to the evaluations.

Part 2: Successful experiences of certified clusters (2 x 15 min)

Providers: El Cluster de la Maquinària i dels Medis de Producció Agrícola de Catalunya | Inici (femac.org) INICI -   and the Catalan Water Partnership (cwp.cat)

• Presentation of two concrete cases of clusters that have successfully completed the certification process.

• Description of the challenges they faced during the process and how they overcame them.

• Highlight the benefits and improvements observed after the certification.

• Possibility for participants to learn from the experiences of other clusters.

3.2. Webinar 2: Use of BIM (Building Information Modelling) in energy certification of buildings

This webinar is scheduled for October 26 and lasting for a total of one hour. The technical part, which lasts for 30 minutes, is provided by La Salle Higher Technical School of Architecture – Ramon Llull University. La Salle researchers have expertise in the development of information systems for energy planning, which integrate data from multiple domains and scales, using Semantic Web technologies and in urban regeneration projects at various scales, from the building to territorial scale, and the protection of architectural heritage. Additionally, there is a practical part with examples of technology use by SMEs in the sector, which takes up 30 minutes, divided into two 15-minute segments. Here's a breakdown of the content:

Date: October 26; from 10 to 11 am CET.

Provider of the Technical Part: [Profesor Álvaro Sicilia Head of Architecture Representation Computing research line of Human Environment Research group – La Salle Higher Technical School of Architecture – Ramon Llull University](.).

Technical Part (30 minutes):

- **Content:** This section of the webinar will focus on presenting guidelines for generating energy performance certificates (EPCs) from Building Information Modeling (BIM) models. It will address challenges in two scenarios: creating a BIM model for certification and validating an existing BIM model for EPC generation. The goal is to explain the process of extracting relevant data from BIM models and translating them into inputs for accurate EPC calculations, using BIM as a source of reliable and consistent data. The emphasis will be on open interoperability, aiming to establish standardized and reliable protocols. Attendees will gain insights into how BIM integration can contribute to a sustainable and energy-efficient future for the built environment.

Topics to Address in the Technical Part:

1. Current Status of BIM in Energy Performance Certification Processes:

    - Overview of the Energy Performance Building Directive recast.

    - Discussion of open interoperability in the context of EPCs.

2. Guidelines for the Generation of EPCs from BIM Models:

    - Introduction to the relationship between BIM and EPC tools.

    - BIM modeling strategies for EPC assessment.

    - Information exchange processes for EPC assessment.

    - Special considerations for modeling certain building elements.

3. Examples:

    - Real-world examples or case studies illustrating the application of the guidelines and concepts discussed in the technical part.

Practical Part of Examples (30 minutes, 15 minutes for Each Case):

- **Participants:** ARCNbcn

This practical part involves showcasing two examples of cases where technology is used by Small and Medium-sized Enterprises (SMEs) in the sector. Each case will be presented for 15 minutes, providing practical insights into how technology is being utilized by SMEs in the context of energy performance certification and BIM.

3.3. Webinar 3: Digital Solutions for Energy Efficiency in the Building, Digital Twins and Artificial Intelligence

The webinar is scheduled for November 28, 2023, with a total duration of 1 hour (60 minutes) and it is divided into two main sections: theory and practical use cases.

This webinar aims to provide valuable insights into the practical application of digital twins and artificial intelligence in improving energy efficiency within the building sector, with real-world examples and lessons learned from SMEs in the field. The application of digital twins and artificial intelligence (AI) in the building sector is revolutionizing how we approach energy efficiency. Digital twins create virtual replicas of buildings, capturing real-time data on everything from temperature and occupancy to energy consumption and equipment performance. AI algorithms then analyze this data to make informed decisions that optimize energy usage. For instance, AI can adjust heating, cooling, and lighting based on real-time conditions, ensuring comfort while minimizing energy waste. Predictive analytics can forecast energy demands, optimizing usage during peak hours. Fault detection algorithms can identify and address equipment inefficiencies before they escalate. Moreover, digital twins and AI foster sustainability by integrating renewable energy sources and managing energy storage solutions. They also enhance occupant engagement, providing real-time feedback on energy consumption to encourage responsible usage. In essence, digital twins and AI transform buildings into smart, energy-efficient ecosystems that reduce costs, lower environmental impact, and create more comfortable and sustainable living and working environments. Their application is pivotal in addressing energy challenges, reducing greenhouse gas emissions, and advancing the building sector towards a greener and more efficient future.

The first part of the webinar will be presented by Regina Enrich Sard, a senior researcher at EURECAT,

Topics to Address in the Technical Part:

1. Theory on Digital Twins and Artificial Intelligence in Energy Efficiency (30 minutes):
2. In this section, the webinar will cover the theoretical aspects of digital twins and artificial intelligence in the context of energy efficiency in buildings. The following topics will be addressed:
3. What are Digital Twins and Their Application in Construction:
4. Explanation of digital twins and their relevance in the construction industry.
5. Role of Artificial Intelligence in Energy Optimization of Buildings:
6. Discussion of how artificial intelligence contributes to energy optimization in building operations.
7. Previous Success Stories in the Implementation of These Technologies:
8. Presentation of real-world success stories and case studies that showcase the effective use of digital twins and artificial intelligence in achieving energy efficiency goals.

Practical Part of Examples (30 minutes, 15 minutes for Each Case):

In this section, the webinar will delve into practical use cases, specifically focusing on how digital solutions based on digital twins and artificial intelligence have been applied to address energy efficiency challenges in the building sector. Two use cases will be presented, each lasting for 15 minutes:

Use Case 1 (15 minutes):

- Specific Energy Challenges Faced by SMEs in the Building Sector:
- Identification of the energy-related challenges encountered by SMEs in the building sector.
- Adoption of Digital Solutions Based on Digital Twins and Artificial Intelligence:
- Explanation of how digital solutions leveraging digital twins and AI were adopted to address these challenges.
- Quantitative Results:
- Presentation of measurable outcomes in terms of energy efficiency gains, cost savings, and sustainability improvements.
- Lessons Learned and Recommendations:
- Insights into the lessons learned during implementation and practical recommendations for other SMEs interested in similar solutions.

Use Case 2 (15 minutes):

- Description of the SME and Its Focus on Energy Efficiency in Buildings:
- Introduction to the SME and its specific focus on energy efficiency in building operations.
- Concrete Examples of Digital Twin and AI Implementation:
- Showcase of concrete examples highlighting how digital twin and artificial intelligence technologies were implemented.
- Impact on Energy Consumption Reduction and Operational Management:
- Discussion of the measurable impact on reducing energy consumption and enhancing operational management.
- Challenges and Path to Success:
- Reflections on the challenges encountered during the implementation journey and the steps taken to achieve success.

3.4.   Webinar 4: Shared value through Clusters

The webinar is scheduled for 20 of February 2024, with a total duration of 1 hour (60 minutes) and it is divided into two main sections: theory and practical use cases.

The concept of Shared Value[1] holds immense significance for cluster development policy. Shared Value represents a transformative management strategy that transcends traditional corporate approaches by emphasizing the creation of measurable business value while simultaneously addressing pressing social issues. In essence, it establishes a framework where companies, civil society organizations, and governments collaborate to strengthen the nexus between market competition and societal needs. Shared Value introduces novel ideas that involve generating economic value while concurrently benefiting society. By tackling social needs and community challenges, Shared Value elevates entrepreneurship to a level where business success becomes inherently linked with social progress. Importantly, this approach positions the business as an active participant in addressing social issues, while still maintaining its core identity as a profit-driven entity, without morphing into a non-governmental organization (NGO).

This concept fosters an equation where the company's productivity remains the central focus, but variables such as environmental impact, resource utilization, occupational safety, supplier viability and accessibility, and employee skills and well-being are no longer viewed as independent factors. Instead, they are integrated into a holistic, interdependent equation, where collective success is contingent on the synergy between business profitability and societal betterment.

For cluster development policy, embracing the principles of Shared Value means recognizing that economic development, social welfare, and environmental sustainability can be mutually reinforcing objectives. It

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[1] Porter, Michael and Kramer, Mark (January 2011): Creating Shared Value, Harvard Business Review, Boston

offers a compelling framework for fostering innovation, collaboration, and economic growth within clusters, ensuring that the benefits of economic activity extend beyond profit margins and positively impact the well-being of communities and society at large. Therefore, integrating the concept of Shared Value into cluster development policy is not just a matter of choice; it is a strategic imperative for driving inclusive and sustainable economic development in today's interconnected world.

Section 1: Theoretical Framework and Shared Value Introduction

In the first section of the webinar, we will lay the groundwork for understanding the concept of shared value. We will delve into the theoretical framework that underpins shared value, drawing from insights and contributions of various authors and thought currents. This section is designed to provide participants with a comprehensive understanding of the intellectual foundations of shared value.

This part will explore how shared value emerged as a response to the limitations of the commonly used wealth indicator, GDP. This exploration is crucial as it shift the perspective from merely measuring economic output to a more socio-economic viewpoint. By doing so, the webinar will present how shared value strategy aims to quantify wealth in a way that encompasses social and economic factors. Additionally, the section will provide an annex that includes a collection of alternative measures to GDP as development indicators, showcasing the diversity of approaches in this field.

An ACCIÓ expert will then take the stage to elucidate what shared value is, emphasizing its distinctiveness from conventional corporate social responsibility (CSR). This clarification will help participants grasp the unique value that shared value creation brings to businesses and society. To illustrate these concepts in practice, we will showcase various local and international business cases that exemplify shared value in action.

Section 2: Shared Value in Clusters and Catalonian Initiatives

In the second section the content will shift focus to the relationship between shared value and clusters, with a particular emphasis on initiatives in Catalonia.

This section will spotlight initiatives such as the [Catalan Cluster of Agricultural Means (FEMAC](#)) and the [Catalan Water Partnership(CWP).](#) These initiatives are aimed at promoting rural aquaculture among small producers in an inclusive and sustainable manner. Through these examples, we will demonstrate how shared value principles can be applied at a cluster level to drive economic growth while addressing social and environmental challenges.

Additionally, this part will explore the efforts of organizations like the [Catalan Pork Sector Innovation Association (INNOVACC)](#) and the Catalan Water Partnership (CWP). These initiatives focus on improving water treatment in purification processes, showcasing how shared value can be integrated into industries and sectors critical to the region's development.

Overall, this webinar aims to provide participants with a comprehensive understanding of shared value, its theoretical underpinnings, and its practical applications within clusters, with a specific focus on Catalonia. Through a combination of theory and real-world examples,the webinar aims to inspire innovative thinking and action in the pursuit of inclusive and sustainable clusters economic development.

4. Conclusion

In the pursuit of fostering excellence and innovation within European clusters, the organization of webinars as a cornerstone of our training material for cluster managers emerges as a strategic imperative. Through this comprehensive training plan, consisting of two distinct modules, we are not only equipping cluster managers with the tools and knowledge necessary for success but also catalysing a broader transformation within cluster ecosystems.

The first module, comprising transversal courses, is meticulously designed to address the common challenges and opportunities faced by cluster managers, policymakers, and ecosystem developers across various sectors and value chains. By delving into topics of universal significance, these courses empower participants to develop essential skills in cluster management while fostering collaboration and idea exchange that transcends sector boundaries.

On the other hand, the second module, with its purely technical courses, aligns seamlessly with the objectives of the SUSTAIN project. These courses are thoughtfully crafted to impart critical knowledge about innovative technologies applicable to the construction sector. Delivered by experts from research centers and academic entities, these sessions cover a spectrum of topics, including BIM in energy certification, digital solutions for energy efficiency in buildings, digital twins, artificial intelligence, and building inventory management tools. By equipping cluster managers with technical expertise, we are not only enhancing their capabilities but also directly contributing to the advancement of sustainable practices within the construction industry.

Importantly, those webinars serve as a repository of the latest best practices and strategic processes gleaned from successful innovation clusters and companies. This wealth of knowledge is invaluable in guiding cluster managers towards effective strategies and tactics that drive growth and competitiveness. Furthermore, our commitment to accessibility and knowledge dissemination is exemplified by the recording of these webinars, which will be made available on our online platform. This ensures that a wider audience, beyond the live participants, can access and benefit from this educational material, amplifying the impact of our training initiative.

Moreover, the webinars will be recorded and subsequently made available on the SUSTAIN online platform. This initiative is intended to facilitate access to educational material for a broad and diverse audience.

Furthermore, it is worth highlighting that within the forthcoming second volume of this deliverable, there will be a comprehensive summary and presentation of all conducted webinars. This inclusive approach encompasses both past webinars and those planned for the year 2024, ensuring that our audience gains access to a wealth of valuable content and insights.