Interreg Co-funded by the European Union

Alpine Space

RECENTRE

O.1.1 - RECENTRE Methodology for the manufacturing SMEs green transformation

Lead Beneficiary: University of Ljubljana

Main Author: Susanah Hribar, Jože Guna, Matej Kirn, Aleš Pevc, Gasper Juvančič

Delivery Date: 31.01.2026

This project is co-funded by the European Union through the Interreg Alpine Space programme

Interreg Co-funded by the European Union

Alpine Space

RECENTRE

DISCLAIMER

The information and views set out in this *type of document* are those of the authors and do not necessarily reflect the official opinion of the European Union. Neither the European Union institutions and bodies nor any person acting on their behalf may be held responsible for the use which may be made of the following information.

DOCUMENT SHEET

Project acronyms	Recentre
Full title	Support the green transformation of the Alpine manufacturing sector and the uptake of advanced technologies for the well-being of workers
Grant Agreement number	ASP0500348
Lead beneficiary (PP)	T2I - Italy

Output number	O.1.1
Output name	RECENTRE Methodology for the manufacturing SMEs green transformation
WP	1
Related activity	1
Type	Output
Dissemination level	Public
Delivery date	31/01/2026
Main author	PP5-UL NTF, PP4- Technology Park Ljubljana
VERSION	

This project is co-funded by the European Union through the Interreg Alpine Space programme

DOCUMENT HISTORY

Version	Date	Changes	Author(s)
1.0	[18/03/25]	Initial draft	[Susanah Hribar]
1.1	[30/09/25]	Final draft	[Susanah Hribar]
1.2	[31/01/26]	Final version	[Susanah Hribar]

This project is co-funded by the European Union through the Interreg Alpine Space programme

TABLE OF CONTENTS

This project is co-funded by the European Union through the Interreg Alpine Space programme

1. Executive Summary

This document, *Output 1.1,* presents the baseline assessment underpinning the RECENTRE approach to supporting the triple transition of small and medium-sized enterprises (SMEs) in the Alpine region. It establishes a comprehensive understanding of the current state of manufacturing SMEs and their value chains, providing the evidence base required to guide their transformation toward sustainable, digitalised, and human-centric models aligned with the principles of Industry 5.0.

The assessment focuses on analysing key dimensions that influence SME competitiveness and resilience, including the adoption of advanced technologies, progress toward the circular and green transition, and workforce skills and well-being. By combining quantitative and qualitative data, this output identifies strengths, bottlenecks, and systemic challenges across value chains, while highlighting opportunities for innovation and upgrading.

The RECENTRE approach follows a structured process consisting of data collection, value chain mapping, gap and constraint analysis, and opportunity assessment. This stepwise framework enables a clear identification of priority areas for intervention and supports informed, evidence-based decision-making.

In addition, this output lays the foundation for the RECENTRE support system, which will provide SMEs with tailored guidance, tools, and services in subsequent phases. These will address key transformation areas such as advanced technologies (e.g. AI, robotics, digitalisation), circular economy practices, and workforce skills development, particularly in sectors such as mechatronics, automotive, and bioeconomy.

By establishing a solid analytical baseline, RECENTRE contributes to the development of a more resilient, inclusive, and sustainable manufacturing ecosystem in the Alpine Space. It supports SMEs in defining targeted transition pathways and prepares the ground for their active role in Europe's transition toward Industry 5.0.

The overall logic of the baseline assessment and its expected outcomes is illustrated in Figure 1 below.

This project is co-funded by the European Union through the Interreg Alpine Space programme

INTRODUCTION

Output 1.1. establishes a clear understanding of the current state of key industrial value chains and the manufacturing SMEs within them in the context of Industry 5.0 transformation.

This baseline assessment provides the evidence needed to identify opportunities, address constraints, and design targeted interventions that enhance competitiveness, resilience, human-centric innovation, and environmental sustainability.

It serves as the starting point for informed decision-making and measurable impact.

KEY ACTIVITIES

1. **DATA COLLECTION**
   Gather quantitative and qualitative data on production, markets, actors, infrastructure, policies, and gender dynamics.
2. **VALUE CHAIN MAPPING**
   Map key value chain functions, stakeholders, and linkages to identify value flows and governance structures.
3. **GAP AND CONSTRAINT ANALYSIS**
   Identify bottlenecks, inefficiencies, and systemic challenges limiting value chain performance.
4. **OPPORTUNITY ASSESSMENT**
   Identify opportunities for improvement, innovation, and upgrading within the value chain.

KEY OUTPUTS

- Comprehensive baseline report on selected value chains, including quantitative and qualitative findings.
- Detailed value chain maps and stakeholder analysis.
- Identification of key constraints and opportunities for development.
- Evidence-based recommendations to inform project design and future interventions.

EXPECTED IMPACT

A solid evidence base that enables targeted, inclusive, and market-responsive interventions to strengthen value chains, support manufacturing SMEs and accelerate Industry 5.0 transformation in the Alpine Space.

This project is co-funded by the European Union through the Interreg Alpine Space programme

2. Introduction

The RECENTRE approach builds on the analysis conducted in Activities 1.1, 1.2 and 1.3 translating their findings into a structured baseline assessment of manufacturing SMEs and their value chains. These activities provided insights into digital maturity, workforce resilience, and regional support conditions, establishing a solid evidence base to understand current challenges and identify development pathways.

The manufacturing sector in Europe, particularly in the Alpine region, is undergoing a profound transformation driven by digitalisation, sustainability, and human-centric innovation. In line with the principles of Industry 5.0, Output 1.1 supports SMEs in identifying opportunities, addressing constraints, and strengthening their competitiveness through a structured assessment of value chain development.

Output 1.1 forms part of Work Package 1 (WP1) and consolidates inputs from SME questionnaires, internal surveys, webinars, and workshops. These sources provide both quantitative and qualitative data on production systems, markets, stakeholders, and sustainability priorities, forming the basis for value chain analysis.

The assessment follows a stepwise approach—data collection, value chain mapping, gap analysis, and opportunity identification—enabling the detection of bottlenecks and areas for innovation and growth. It also lays the foundation for subsequent support measures, guiding SMEs in designing transition pathways across green, digital, and organisational dimensions.

This document is the result of Task A1.1 and contributes to a scalable model supporting more than 450 manufacturing SMEs in the Alpine region in their transition toward a sustainable, digital, and human-centric future.

This project is co-funded by the European Union through the Interreg Alpine Space programme

3. Methodology Overview

The RECENTRE methodology is based on a structured, participatory, and practical approach. It recognises that successful transformation requires not only theoretical understanding but actionable guidance rooted in real SME needs.

3.1 Scope and Principles

The methodology covers the interconnected dimensions of the triple transition in Alpine manufacturing. Its core principles are::

- **Human-Centric Innovation** – Placing people at the centre of change, ensuring solutions enhance well-being, skills, and participation. Key strategies include empowering and upskilling employees, fostering human–technology collaboration (e.g., cobots, exoskeletons, ergonomic tools), creating an inclusive and agile workplace culture, and leveraging external support networks for training and funding.

- **Sustainability Integration** – Embedding resource efficiency, circular economy practices, and reduced environmental impact as integral business elements, not optional add-ons.

- **Digitalisation as an Enabler** – Leveraging advanced technologies to optimise processes, improve decision-making, and generate value while ensuring ethical and responsible use. The structured approach to digitalisation follows three steps:

    - **Assess digital maturity –** Evaluate IT systems, data quality, automation levels, and cybersecurity using tools such as the ADMA Digital Maturity Scan or national Industry 4.0 assessments (links in the annexes).

    - **Define vision and priorities –** Set clear objectives (e.g., reducing lead times, improving quality, entering new markets) and target high-value areas.

    - **Scale and integrate –** Expand successful pilots across the organisation, link data streams, and refine processes through continuous feedback loops.

This project is co-funded by the European Union through the Interreg Alpine Space programme

- **Practical Application and Real-World Relevance –** Offering SMEs tools, case studies, and methods they can apply immediately to their operations.

- **Integrated Support** – Addressing green, digital, and human-centric aspects together to create synergies and avoid fragmented or isolated initiatives.

3.2 Target Audience

The RECENTRE Methodology is primarily addressed to Small and Medium-sized Enterprises (SMEs) within the Alpine manufacturing sector. While broadly applicable, it focuses particularly on companies operating in the following sub-sectors:

- **Mechatronics**
- **Automotive**
- **Bioeconomy**

The methodology is also designed to be valuable for business support organizations, innovation intermediaries, regional and local authorities, and educational/research institutions that support these SMEs in their transformation journey.

4. Methods & Tools

The RECENTRE methodology builds on the activities defined in WP1 and WP2. It will be validated through **Pilot Action A** (development of 160 transition plans across 8 areas) and **Pilot Action B** (evaluation and implementation of 40 selected plans). These pilots test the methodology's components—needs assessment, transition planning, expert evaluation, match-making, and consulting-supported implementation—within the existing project scope and resources.

The methodology offers an integrated set of tools to guide SMEs through green, digital, and human-centric transformation. These instruments are modular, evidence-based, and aligned with proven innovation and management approaches. Their structured testing in Pilot A and Pilot B ensures that the methodology is practical, scalable, and suitable for wider deployment in the Alpine region.

4.1 Methodology steps

The RECENTRE methodology follows a streamlined and integrated four-step process that reflects the updated project design and the outcomes of the recent coordination meeting. It aligns fully with the activities and resources already foreseen in WP1 and WP2, ensuring feasibility within the project scope.

This project is co-funded by the European Union through the Interreg Alpine Space programme

Step 1: Expression of Interest & Initial Engagement

This first step brings together all SMEs that have expressed interest in participating in the RECENTRE pilot actions. Interest is gathered through three existing channels:

- SMEs that responded to the WP1 cross-regional survey;
- SMEs that took part in the CEO interviews under WP1;
- SMEs that submitted applications via the RECENTRE website.

Partners verify basic eligibility and compile a unified list of interested SMEs. At the same time, they collect initial, high-level information on each SME's motivations, expectations, and transformation priorities. This early engagement helps clarify why the SME seeks support, who will be involved in the process, and what strategic outcomes the company aims to achieve—following the value-oriented principles of the SEROI+ framework.)

Beneficials: SMEs

Executors: project partners

Step 2: Needs Assessment & Transition Plan Definition

This step integrates the assessment tools and data already produced in WP1. Each company completes the RECENTRE Application Form, which includes:

- **ADMA Digital Maturity Scan:** Provides a comprehensive overview of the company's current digitalisation level, highlighting strengths, weaknesses, and potential areas for growth.
- **SWOT Analysis template:** enabling the company and partners to capture internal capabilities and external conditions relevant to its transformation.

Partners process and summarise the collected information using a standardised template developed in WP2. These insights are then translated into a validated **SWOT matrix**, confirming that the identified challenges and opportunities accurately reflect the SME's situation.

This step results in:

- A clear and comparable picture of each SME's digital, green, and organisational maturity.
- A prioritised set of transformation needs and opportunities.
- A solid analytical foundation for designing the SME's personalised transition plan.
- **160 complete transition plans** (20 per area), which form the basis for Pilot B selection

This produces a consistent Needs Assessment that will feed into both Pilot Action A (transition plans) and Pilot Action B (investment assessment), ensuring that the steps build on robust, partner-validated evidence.

This project is co-funded by the European Union through the Interreg Alpine Space programme

Beneficials: SMEs

Executors: project partners

Step 3 — Call for Experts, Evaluation (160 → 40), and Match-Making

Step 3 clarifies the sequence of expert involvement and the transition from Pilot A to Pilot B. It distinguishes between two different expert groups and aligns the process with the project workflow.

1. **Implementation experts** (from the Call for Experts)

2. **External evaluators** + Advisory Board (for selecting 40 plans)

Step 3.1 Call for Experts (Implementation Experts pool)

Before the end of Pilot A, partners launch the Call for Experts to establish a shared pool of qualified experts. These experts are sourced from:

- clusters and industrial associations,
- chambers of commerce,
- regional innovation agencies and research organisations,
- professional networks and consultants.

This call creates a list of implementation experts who may later support SMEs during Pilot B implementation. At this stage, no selection or assignment occurs—only the creation of the expert pool.

Step 3.2 Pilot B: External Expert Evaluation (Selection from 160 → 40)

Once the 160 transition plans (Step 2) are completed, Pilot B begins. A separate group of external experts, together with the Advisory Board, carry out an evaluation process to select the:

- 40 most suitable transition plans (out of 160) to be implemented in Pilot B.

These evaluation experts are different from the implementation experts in the Call for Experts. Their role is exclusively to assess and rank the transition plans, following predefined WP2 criteria.

The detailed procedure—including scoring, documentation, and decision-making—will be described in a separate evaluation document.

This project is co-funded by the European Union through the Interreg Alpine Space programme

Step 3.3 Match-Making Between SMEs and Implementation Experts: end of pilot A

For each selected SME, partners identify the most suitable experts and support services to guide the implementation of its transition plan. Match-making is validated together with SMEs and recorded using a common template.

After the 40 SMEs are selected:

- partners review the needs of each SME,
- identify the most appropriate experts from the **Call for Experts pool**, and
- match SMEs with experts for Pilot B implementation.

This ensures that each SME is paired with experts whose competencies align with its transition plan, technological needs, sustainability ambitions, and human-centric priorities.

Outcome of Step 3:

- A completed pool of implementation experts (Call for Experts);
- External expert evaluation leading to the selection of 40 transition plans;
- Targeted match-making between the 40 SMEs and suitable implementation experts.

The match-making process is coordinated by project partners, validated with SMEs, and documented to ensure transparency and coherence across all regions.

This integrated approach connects SME needs, transition plans, and available expertise/resources, delivering targeted, feasible, and high-impact support.

Step 4: Transition Plan Refinement & Investment Planning: Consulting Support, Agile Transformation & Value Measurement

Selected SMEs refine and deepen their transition plans with support from assigned experts. This step focuses on developing more concrete, investment-ready plans through consulting-based support, rapid learning methods, collaborative ideation, and practical testing.

Partners and experts apply flexible, proven approaches such as:

Design Thinking (Human-Centric Design)

- Empathise: Understand workers' needs and operational challenges.
- Define: Frame the transformation problem.
- Ideate: Generate cross-disciplinary solution ideas.
- Prototype & Test: Trial low-cost models/proof of concept before scaling.

This project is co-funded by the European Union through the Interreg Alpine Space programme

Design thinking is a human-centred innovation method that encourages empathising with users, defining problems, ideating creatively, prototyping and testing. Applied to SME transformation, it helps teams uncover underlying barriers to sustainability or digitalisation, co-create solutions and iterate quickly. Workshops typically involve cross-functional participants, visual brainstorming tools and rapid prototyping. Facilitators guide teams through phases of divergent and convergent thinking.

Agile Sprints

- Structuring work in short iterations.
- Reviewing progress at the end of each sprint.
- Adjusting priorities based on feedback.

Agile fosters transparency, continuous improvement and rapid value delivery. When combined with design thinking, it ensures that prototypes are tested and refined in a controlled timeframe.

Impact Measurement (SEROI+-inspired logic)

Throughout implementation, partners and SMEs assess value creation using simple, shared indicators in three areas:

- **Economic performance**
- **Worker well-being and skills**
- **Environmental improvements**

Employees, experts, and other relevant stakeholders actively participate to ensure that solutions are **feasible, human-centred, and aligned with real operational conditions**. Progress and results are continuously monitored using the **value measurement logic (eg SEROI+)**, assessing economic, social, and environmental impact. This ensures that company-level change is **practical, measurable, and sustainable over time**.

These approaches are offered as **optional frameworks**, allowing each SME—together with its assigned experts—to select or adapt the tools that best fit its transformation objectives. Training and methodological guidance for partners and experts are provided through **WP2 Activity 2.1(train the trainer course)**, ensuring consistent and feasible application across all regions.

Outcome:

- Validated, evidence-based transformation actions that demonstrate tangible progress in sustainability, digitalisation, and human-centric processes.

This project is co-funded by the European Union through the Interreg Alpine Space programme

4.2 Summary of RECENTRE Methodology

The RECENTRE methodology provides a structured, progressive pathway for SMEs to undertake a digitally enabled, sustainable, and human-centred transformation. It combines evidence-based assessment tools, expert evaluation processes, and consulting-supported implementation methods to ensure that transformation activities are both strategic and practical.

The revised methodology follows a four-step framework:

- Expression of Interest & Initial Engagement
- Needs Assessment & Transition Plan Definition (160 transition plans)
- Call for Experts → External Evaluation (160 → 40) → Match-Making
- Pilot B Implementation: Consulting Support, Agile & Human-Centric Methods, and Value Measurement

These interconnected steps guide SMEs from initial engagement, through structured assessment and expert alignment, to real-world implementation generating measurable economic, social, and environmental benefits.

Stakeholder engagement—including SME managers, employees, experts, and partners—is embedded across all steps to ensure relevance, ownership, and long-term impact.

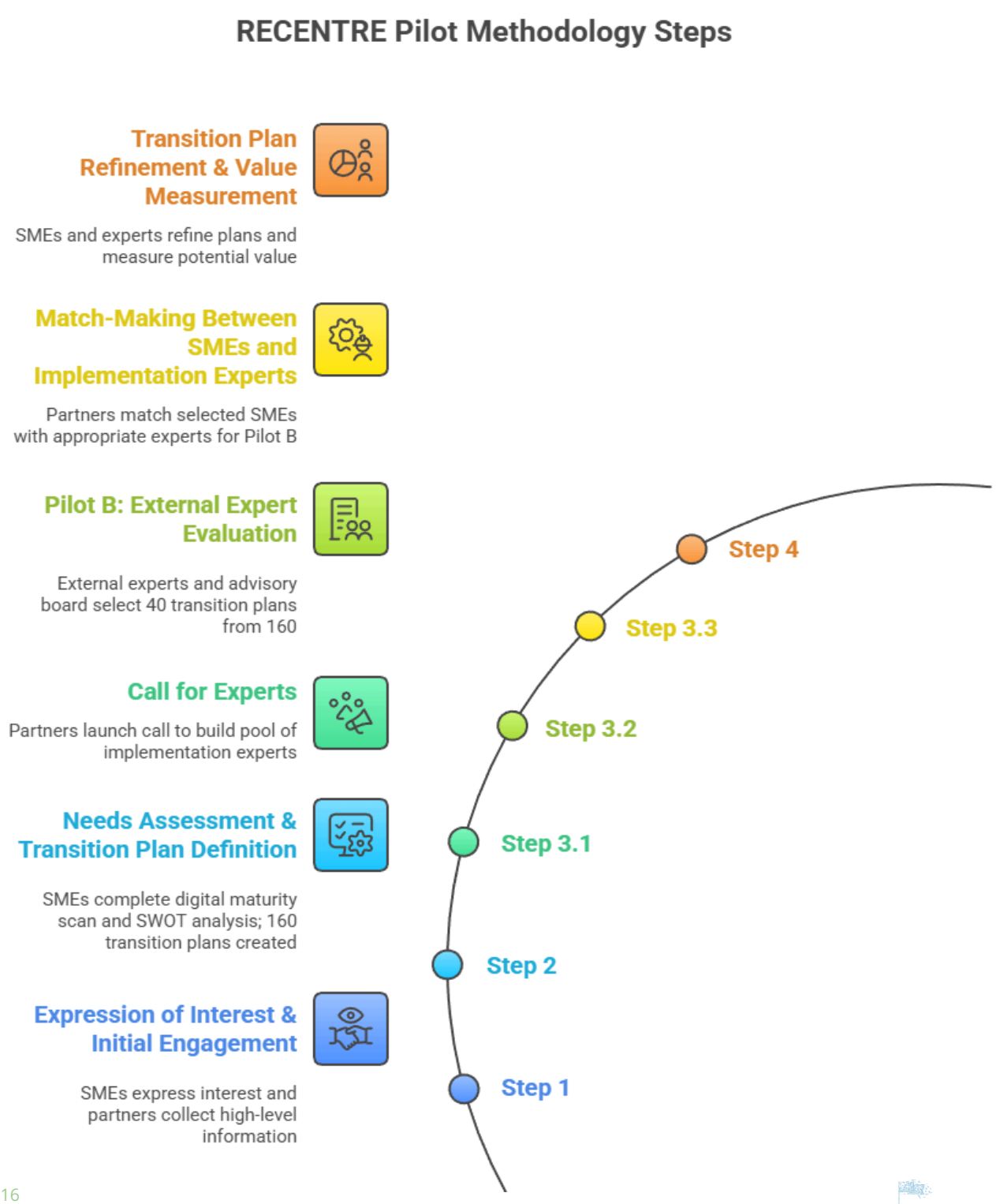
The table below summarises the main activities, methods, and expected results of each step.

Step	Main Activities	Key Tools / Methods	Expected Outcomes
1. Expression of Interest & Initial Engagement	Identify and register SMEs interested in participating; verify basic eligibility; collect initial motivation and context data.	CEO interviews (WP1); SME cross-regional survey (WP1); RECENTRE website applications; initial partner–SME engagement.	Unified list of eligible SMEs; clear understanding of motivations, priorities, and preliminary transformation goals.

This project is co-funded by the European Union through the Interreg Alpine Space programme

2. Needs Assessment & Transition Plan Definition	Gather assessment data; complete RECENTRE Application Form; conduct digital maturity scan; SWOT analysis; co-define SME goals; develop 160 transition plans (20 per area).	ADMA / Open DMAT / DIH Maturity Tools; SWOT methodology; WP2 Needs Assessment template; survey & interview insights; partner validation sessions.	Standardised Needs Assessment; validated SWOT; **160 transition plans** providing evidence-based transformation pathways.
3. Call for Experts → External Evaluation (160 → 40) → Match-Making	Launch Call for Experts to build implementation expert pool; external experts + Advisory Board evaluate 160 plans; select 40 for Pilot B; match SMEs with suitable implementation experts.	Call for Experts (clusters, chambers, agencies, RTOs, consultants); external evaluation criteria (WP2); advisory board review; match-making templates and coordination sessions.	Implementation expert pool established; **40 transition plans selected** for Pilot B; SMEs paired with appropriate experts for high-quality implementation.
4. Transition Plan Refinement & Investment Planning: Consulting Support, Agile Transformation & Value Measurement	Deliver expert-supported implementation; run design thinking and agile sprint cycles; co-create and test practical transformation actions; monitor economic, social, and environmental results.	Consulting support; Design Thinking; Agile Sprints; SEROI+-inspired value measurement; employee and stakeholder co-creation workshops.	Validated transformation actions; measurable improvements in digitalisation, sustainability, and human-centric performance; strengthened SME resilience.

This project is co-funded by the European Union through the Interreg Alpine Space programme



This project is co-funded by the European Union through the Interreg Alpine Space programme

The figure illustrates the four-step RECENTRE methodology guiding SMEs from initial engagement to the implementation of their transformation plans. It visually summarises the full process: collecting expressions of interest (Step 1), conducting needs assessments and preparing 160 transition plans (Step 2), launching the Call for Experts and selecting 40 plans through external evaluation followed by expert–SME match-making (Step 3), and finally supporting SMEs through consulting, design thinking, agile methods, and value measurement during refinement(Step 4). This flowchart provides an integrated overview of how SMEs progress through the RECENTRE support pathway.

5. Support System

The RECENTRE Methodology is intrinsically linked to the RECENTRE Support System, which acts as the practical implementation backbone of the methodology. While the methodology provides the structured approach for SMEs to navigate their Industry 5.0 transformation, the Support System operationalises it by guiding SMEs toward the most relevant resources, experts, and funding opportunities.

Rather than creating new structures, the Support System functions as a **single-entry guidance point**, helping SMEs access existing advisory services, financing instruments, training programmes, and peer-learning platforms at regional, national, and EU levels. This ensures that the methodology is not merely conceptual but directly connected to actionable support.

Its primary purpose is to simplify access, reduce fragmentation, and ensure SMEs can quickly identify the right tools and partners. RECENTRE complements existing initiatives by offering tailored guidance, curated information, and facilitation, ensuring SMEs benefit from existing resources without duplication. In this way, the Support System translates the methodology into concrete steps, linking strategy with practical assistance and enabling SMEs to apply Industry 5.0 principles effectively.

5.1 Components of the Support System: for pilot B

The Support System consists of four integrated components that together enable SMEs to use and implement the RECENTRE Methodology:

Advisory and Expert Services:

Providing SMEs with access to qualified experts in green manufacturing, advanced technologies, and human-centric organisational development. This includes:

- one-to-one support for the development of transition plans (Pilot A),

This project is co-funded by the European Union through the Interreg Alpine Space programme

- expert evaluation of plans (external experts in Pilot B), and
- implementation support for the selected 40 SMEs.

These services are delivered through partner networks and the Call for Experts (WP2).

Financial Access and Incentives

Facilitating access to funding instruments that support digital, green, and human-centric investments. Consistent with SME needs identified in D1.1, the Support System emphasises.

These financing mechanisms are aligned with the support pathways defined in D1.3.2, ensuring that SMEs can effectively leverage the recommended tools, advisory services, and maturity-building actions through appropriate and accessible funding opportunities.

Networking and Peer-Learning Platforms

RECENTRE helps SMEs connect with existing networks rather than creating new ones. SMEs will be referred to:

- regional clusters,
- business and professional associations,
- cross-regional networks,
- EU-level platforms for knowledge exchange.

This promotes cross-border learning, sharing of best practices, and long-term cooperation.

Regulatory Support and Compliance Guidance

RECENTRE provides simplified guidance on navigating complex regulatory frameworks such as:

- GDPR and data governance rules,
- the AI Act,
- occupational health and safety requirements for new technologies,
- environmental compliance frameworks.

This project is co-funded by the European Union through the Interreg Alpine Space programme

The emphasis is on directing SMEs to authoritative resources and support institutions rather than developing new regulatory tools.

5.2 Guidelines for Refinement

Several detailed tools referenced in the methodology—such as the standardised transition plan template and the investment feasibility assessment—will be finalised during the pilot phase. They will be developed iteratively and tested across different SME contexts to ensure practicality and usability.

Implementation of the RECENTRE Support System follows a step-by-step logic consistent with the four-step methodology described in Section 4.1:

1. Initial Assessment and Needs Identification

SMEs use the RECENTRE readiness and maturity assessment tools to diagnose their current situation. Regional intermediaries support SMEs in interpreting results and identifying priority transformation areas.

2. Tailored Transition Plan Development

Based on the assessment, SMEs co-develop transition plans with partner support using RECENTRE templates. During Pilot A, 160 transition plans will be completed across eight areas.

3. Selection and Expert Match-Making

External experts and the Advisory Board evaluate the 160 plans to select 40 for implementation (Pilot B). SMEs selected for implementation are then matched with the most suitable implementation experts from the Call for Experts pool.

4. Refinement and Monitoring

SMEs begin to refine and deepen their transition plans with consulting support. Throughout this phase, agile and human-centric methods (design thinking, agile sprints) are used, and progress is monitored using SEROI+-inspired value measurement indicators.

This project is co-funded by the European Union through the Interreg Alpine Space programme

6. Conclusion

The output *RECENTRE Methodology for the manufacturing SMEs green transformation* (O.1.1.1) represents a core output of RECENTRE's Work Package 1. It synthesises the diverse needs and expectations of Alpine SMEs—identified through extensive cross-regional surveys, interviews, and workshops—into a coherent and actionable methodology.

The strength of the methodology lies in its holistic and integrated approach. It addresses the green and digital transitions not as isolated processes but through the human-centric principles of Industry 5.0. It emphasises that technological and environmental innovation must be accompanied by strong attention to workforce well-being, skills development, and active participation.

Coupled with the RECENTRE Support System, the methodology provides SMEs with practical guidance, expert assistance, and clear steps to reduce investment risks, clarify transformation pathways, and build internal capabilities.

By enabling SMEs to confidently navigate the triple transition, RECENTRE contributes to a manufacturing sector that is competitive, sustainable, resilient, and inclusive—strengthening both human work and regional prosperity across the Alpine region.

This project is co-funded by the European Union through the Interreg Alpine Space programme

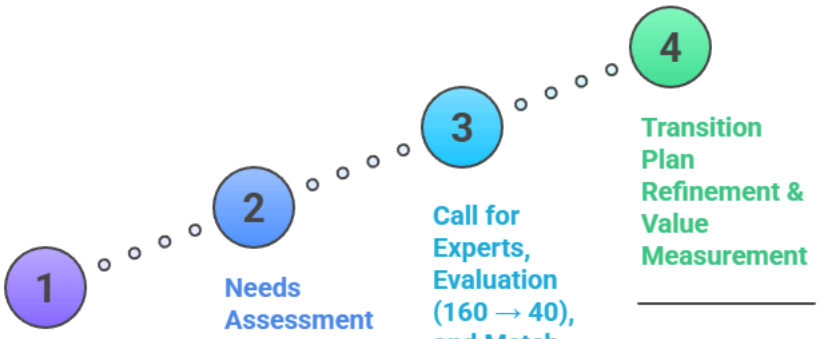
7. Annexes

Annex 1 – RECENTRE Methodology Cycle

This diagram illustrates the iterative five-step RECENTRE Methodology. It visually summarizes the process described in Section 4.2 and highlights how SMEs progress through each phase of their twin transition.

This project is co-funded by the European Union through the Interreg Alpine Space programme

Methodology steps



1 Expression of Interest & Initial Engagement

- SMEs that responded to the WP1 cross-regional survey
- SMEs that took part in the CEO interviews under WP1
- SMEs that submitted applications via the RECENTRE website
- Partners verify basic eligibility and compile a unified list of interested SMEs
- Collect initial, high-level information on each SME's motivations, expectations, and transformation priorities
- Clarify why the SME seeks support, who will be involved, and what strategic outcomes the company aims to achieve

2 Needs Assessment & Transition Plan Definition

- Each company completes the RECENTRE Application Form
- ADMA Digital Maturity Scan
- SWOT Analysis template
- Partners process and summarise the collected information using a standardised template
- Translate insights into a validated SWOT matrix
- Clear and comparable picture of each SME's digital, green, and organisational maturity
- Prioritised set of transformation needs and opportunities

3 Call for Experts, Evaluation (160 → 40), and Match-Making

- Implementation experts (from the Call for Experts)
- External evaluators + Advisory Board (for selecting 40 plans)
- Launch the Call for Experts to establish a shared pool of qualified experts
- Source experts from clusters, associations, chambers, agencies, networks, and consultants
- External experts and Advisory Board evaluate 160 transition plans
- Select 40 most suitable transition plans for Pilot B implementation
- Identify most suitable experts and support services for each selected SME

4 Transition Plan Refinement & Value Measurement

- Selected SMEs refine and deepen their transition plans with support from assigned experts
- Develop more concrete, investment-ready plans
- Utilize consulting-based support, rapid learning, collaborative ideation, and practical testing

This project is co-funded by the European Union through the Interreg Alpine Space programme

Annex 2 – Needs Assessment and Data Collection Tools

This annex provides examples of tools used to collect input for the methodology, including the semi-structured CEO interview guide, and a sample summary of a digital maturity scan. These materials demonstrate the evidence base for Step 1 of the methodology.

A2.1: STRUCTURE OF THE INTERVIEWS

CEO Interview Template: Leadership in Industry 5.0
This interview focuses on understanding how CEOs are guiding their companies through **Industry 5.0**, balancing **digital transformation, sustainability, and operational efficiency**. The discussion explores topics like **technology integration, environmental sustainability, business strategies, workforce development, and leadership** in the age of **AI-driven innovation**.

Interview Details:

- **Interviewee Name:**
- **Company:**
- Position within the company (job title and responsibilities)
- **Industry:**

Interviewer details:

- **Interviewer Name:**
- **Date&time:**
- **Method: in person/online**

Demographics:

- **What is your age:**
  - 18-29
  - 30-39
  - 40-49
  - 50-59
  - 60+
  - Prefer not to answer
- **What is your gender:**
  - Male
  - Female
  - Other
  - **o** Prefer not to answer

This project is co-funded by the European Union through the Interreg Alpine Space programme

Professional background:

- **How many years of professional experience do you have?** (years on the position)
- **What is your highest level of education?**
- Which field of expertise does your education cover:
    - **Natural sciences**
    - **Social sciences**
    - **Engineering/Technology**
    - **Arts**
    - **Humanities**
    - **Other (please specify):**

- **What are your primary areas of expertise?**
- **Personal motto?**

Introduction: (2 minutes)

- **Introduce yourself and the purpose of the interview.**
    - "The purpose of this interview is to gain insights into how your leadership is navigating the company through Industry 5.0. Specifically, we want to understand how digital transformation, sustainability, and operational efficiency are integrated into your business strategy."

- **Set the tone for an open, conversational exchange.**

"This will be a conversational interview, and I'll ask a few questions. Feel free to elaborate on your answers, and I may ask follow-up questions based on what you share."

This project is co-funded by the European Union through the Interreg Alpine Space programme

RECENTRE

Interview Questions:

Section 1: Technology and Digital Readiness (2 minutes)

🎬 Digital **Devices & Tools** (1 minute)

Which software, apps, or digital tools do you use most frequently in your work/personal life?

- *Follow-up:* What about AI tools?

What challenges do you face when using (new) technology?

Section 2: Industry 5.0 & Digital Transformation (3 minutes)

What does the term »Industry 5.0« mean for your company, and how are you, if, incorporating it into your business strategy?

- *Follow-up (if needed):* How do you balance human-centric innovation with automation in your operations?

Can you share any examples of technology integration or digital tools that have had a significant impact on your company?

What are the main challenges your company has faced in adopting AI, automation, and emerging technologies at scale?

- *Follow-up:* How do you ensure these technologies are integrated smoothly into your operations?

What ethical considerations do you take into account when implementing AI and automation in your business?

Is XR (AR/MR/VR) or digital twins part of your strategy? How do you see these technologies impacting your operations and decision-making?

- *Follow-up:* What are the biggest barriers to widespread adoption of XR and digital twins in your industry?

Section 3: Sustainability, green transition & Environmental Impact (3 minutes)

How does sustainability/green transition fit into your company's (long-term) strategy?

This project is co-funded by the European Union through the Interreg Alpine Space programme

- *Follow-up (if needed):* Are there any specific sustainability goals or initiatives you are currently focusing on? (e.g., carbon reduction, circular economy)

How do you ensure that sustainability efforts are aligned with operational efficiency without compromising on growth or profitability?

- *Follow-up (if needed):* Have you faced any challenges in integrating sustainability into your business model, and if so, how have you overcome them?

What role do government regulations and policies play in your sustainability initiatives?

- *Follow-up:* How do you navigate compliance challenges while fostering innovation in your company?

Section 4: Human-centric approach (3 minutes)

"To what extent does your company prioritize employee well-being in the digital transformation process?"

- **1** = Not a priority
- **2** = Low priority
- **3** = Moderate priority
- **4** = High priority

"How would you ensure that users' (customers, employees, etc.) needs and market demands are at the core of our product development and manufacturing strategy?"

"How would you foster a human-centered organization where employees are engaged, upskilled, and empowered to drive innovation?"

- *Follow-up:* What upskilling or reskilling initiatives do you have in place?

Section 5: Leadership in the Age of Innovation (3 minutes)

How do you, as a leader, balance the need for innovation and change with maintaining stability and consistency in your company's operations?

What leadership qualities do you believe are most important to guide a company through Industry 5.0, and how do you foster these qualities in your team?

This project is co-funded by the European Union through the Interreg Alpine Space programme

- *Follow-up (if needed):* How do you encourage your leadership team and employees to embrace change and stay adaptable to new technologies or market conditions?

What strategies do you use to attract and retain top talent in an increasingly digital world?

- What skills will companies require from workers in the future to ensure success?

Section 6: Challenges and Barriers (3 minutes)

What are the biggest barriers your company faces in adopting new technologies?

- *Follow-up:* How do you navigate these challenges while ensuring continued innovation?
-

How do you navigate the regulatory landscape while staying ahead of your competitors?

- *Follow-up:* How do you ensure compliance with data privacy and cybersecurity regulations?

Section 7: Finance and Public Support Systems (3 minutes)

- **SMEs' Barriers, Needs, and Expectations (1 minute):**

What are the main financial barriers that SMEs face when considering investments for their transformation into green and high-tech industries?

Follow-up: How do you identify the key needs and expectations of SMEs regarding financial support for these types of transformations?

- **Public Support Systems (1 minute):**

How do you perceive the role of public financial support systems in enabling SMEs to make the necessary investments for their green and high-tech transformation?

Follow-up: Can you share any examples where public support has made a significant impact on your investment decisions?

- **Advisory Board Recommendations (1 minute):**

This project is co-funded by the European Union through the Interreg Alpine Space programme

In your view, what key components should be included in a support system kit to effectively address the challenges SMEs face in transitioning to green and high-tech industries?

Conclusion: (2 minute)

1. **Final Thoughts**
   - Is there anything else you would like to share about your vision for Industry 5.0 and your company's approach to innovation, sustainability, and efficiency?
2. **Message to Future Leaders**
   - What message would you like to share with future business leaders and innovators?
3. **Vision and ambition (company, personal)**
   - "How do you envision the transformation of your company into "a Company of the Future", and what strategic priorities would you set for the next five years?

Would you agree to be linked on social media that you have been interviewed by Interreg Alpine Space RECENTRE?
(Y/N)

- **Thank the CEO for their time.**
  - "Thank you for sharing your insights today. It was a pleasure hearing about how you're leading your company into the future of Industry 5.0."

This project is co-funded by the European Union through the Interreg Alpine Space programme

A2.2: SAMPLE DIGITAL MATURITY SCAN SUMMARY

(Adapted from ADMA TranS4MErs and DIGI-START frameworks)

Company: [Anonymised SME]

Date of assessment: [Insert date]

Assessor: [UL NTF / Partner DIH / External Advisor]

Average maturity score: 2.54 / 5

Target benchmark (Factory of the Future): 4.00 / 5

Transformation Areas and Results

#	Transformation Area	Company Score (1–5)	Benchmark (FoF)	Gap to Benchmark	Qualitative Notes / Observations
1	Advanced Manufacturing Technologies	2.33	4.00	1.67	Partial automation; robotics in pilot stage; lacks data integration.
2	Digital Factory	1.75	4.00	2.25	Limited interconnection of machines; manual data exchange; low cybersecurity readiness.
3	ECO Factory	2.50	4.00	1.50	Initial steps toward circular economy; energy monitoring introduced.
4	End-to-End Customer Focused Engineering	2.25	4.00	1.75	Product customization developing; limited digital customer feedback loops.

This project is co-funded by the European Union through the Interreg Alpine Space programme

5	Human-Centred Organisation	3.00	4.00	1.00	Strong workforce engagement; needs more structured training on new tech.
6	Smart Manufacturing	3.25	4.00	0.75	IoT sensors in use; predictive maintenance not yet deployed.
7	Value-Chain Oriented / Open Factory	2.67	4.00	1.33	Collaboration with partners exists but lacks shared data platforms.

Interpretation Example – Area T2: Digital Factory

- Score: 1.75 / 5
- Stage: Early phase of digital transformation.
- Key findings:
  - Some production lines networked; others isolated.
  - Data is still exchanged manually (USBs, spreadsheets).
  - No unified MES/ERP integration yet.
  - Cybersecurity protocols under development.
- Priority actions:
  - Introducing real-time data collection.
  - Link ERP with production data.
  - Define and implement a cybersecurity baseline.

Next Steps and Recommendations

- Discuss assessment outcomes with RECENTRE advisors to identify priority transformation areas.
- Develop a Transition & Implementation Plan to close key gaps (e.g., Digital Factory, ECO Factory).
- Participate in peer-learning workshops to exchange experiences with SMEs that scored higher in digital readiness.
- Re-assess maturity in 12 months to track improvement.

This project is co-funded by the European Union through the Interreg Alpine Space programme

References

- ADMA TranS4MErs Sample Scan Results (2024): https://trans4mers.eu/assets/content/Resources/ADMA_TranS4MErs_Sample_Scan_Results.pdf
- DIGI-START Vital Check-Up Tool: https://digi-si.eu/product/digi-start-vital-check-up-of-your-digital-readiness/

Annex 3 – Example SWOT and Analysis Matrix

A sample SWOT matrix illustrates how SME data are translated into strategic insights, identifying strengths, weaknesses, opportunities, and threats. This template supports Step 2 (Analysis and Diagnosis) of the methodology.

Example of SWOT-based diagnostic tool used in Step 2 of the RECENTRE Methodology.

Barriers and bottlenecks	**Identified needs / challenges as a:**
• Rapid innovation outpaces worker adaptation. • Emotional resistance and fear toward AI and automation. • Cognitive overload from digitalization and constant notifications. • Technology implemented without worker input, reducing usability and acceptance. • Blurred work-life boundaries from remote/hybrid setups. • Inadequate ongoing training and support.	• Continuous skill development combining technical and soft skills. • Resilience and mindset coaching to handle stress. • Active worker involvement in co-designing technologies. • Frameworks and clear guidance for AI adoption. • Recognition of well-being as a key business metric.
Opportunities / Expectation	**Recommendations / Best practice**
• Growth opportunities through new	• Encourage adaptability and a culture

This project is co-funded by the European Union through the Interreg Alpine Space programme

green and digital skills. • Human-technology collaboration improves work quality. • Wearables, cobots, and smart environments enhance safety and comfort. • Development of a culture of continuous learning.	of "positive failure." • Combine technical and soft skills in modular, continuous training. • Keep humans in the decision-making loop. • Engage workers early in technology adoption. • Design tools that prioritize stress reduction and well-being. • Establish boundaries for digital use and ensure ethical data handling.

Barriers and bottlenecks	**Identified needs / challenges as a:**
• Persistent digital and technical skill shortages. • Resistance to change among staff. • Limited resources for training. • Overwhelming regulatory burdens. • Leadership challenges in guiding transformation.	• Structured upskilling and reskilling programs. • More inclusive approaches to involve workers in decisions. • Practical, SME-tailored solutions instead of generic ones. • External guidance for regulatory and compliance complexity.
Opportunities / Expectation	**Recommendations / Best practice**
• Human-centric innovation that integrates well-being. • Technologies as enablers when framed as simplifying work.	• Embed worker well-being into transformation strategies. • Offer modular, flexible, and co-designed training programs.

This project is co-funded by the European Union through the Interreg Alpine Space programme

• Peer learning and cross-sector knowledge exchange. • Public funding and incentives to support investments and workforce development.	• Strengthen leadership communication linking vision to worker benefits. • Provide SMEs with compliance guidance and advisory support. • Create platforms for peer learning across regions and sectors.

Annex 4 – Expert Match-Making and Support System Overview

This table maps the advisory, financial, and peer-learning components of the RECENTRE Support System, showing how SMEs are connected with suitable experts and resources. It complements Section 5 and demonstrates integration with existing regional and EU-level initiatives.

Table A4. RECENTRE Support System Components

Component	Description	Example Sources / Platforms
Advisory Services	Access to sustainability, digitalisation, and change management experts	EDIHs, innovation hubs, university labs
Financial Guidance	Identification of grants and funding calls	Alpine Space, Horizon Europe, EEN
Peer Learning	SME-to-SME exchange and best practice sharing	Regional clusters, digital innovation networks
Regulatory Support	Guidance on compliance (AI Act, OHS, GDPR)	National agencies, EU policy portals

This project is co-funded by the European Union through the Interreg Alpine Space programme

Annex 5 – Design Thinking and Agile Sprint Templates

This annex includes editable examples of a Design Thinking canvas and an Agile Sprint plan adapted for SMEs. These templates illustrate how participatory and iterative methods can be applied in Step 4 (Agile Transformation Process).

Table A2. Design Thinking Canvas (Example)

Phase	Key Questions	Example SME Application
Empathise	What are workers' main pain points in adopting digital tools?	Interviews reveal ergonomics issues at assembly stations.
Define	What challenge needs solving?	Improve comfort and acceptance of collaborative robots.
Ideate	What solutions could address it?	Develop an adjustable workstation and training module.
Prototype & Test	How can it be tested quickly?	Run a 2-week pilot with 5 employees using mock-up tools.

This project is co-funded by the European Union through the Interreg Alpine Space programme

Table A3. Agile Sprint Plan Template

Sprint #	Objective	Activities	Responsible	Duration	Deliverable
Sprint 1	Assess digital readiness	Conduct internal survey, map workflows	SME manager + consultant	2 weeks	Digital readiness map
Sprint 2	Pilot eco-efficiency tool	Install monitoring system, test KPIs	Technical team	3 weeks	Pilot results report
Sprint 3	Integrate worker feedback	Hold focus group, adjust processes	HR & workers	2 weeks	Updated transition plan

Template for structuring SME transformation into short, iterative Agile Sprints.

This project is co-funded by the European Union through the Interreg Alpine Space programme

Annex 6 – Extended List of References and Frameworks

An expanded bibliography lists methodological and policy sources (e.g., SEROI+, ADMA Digital Maturity Scan, EU AI Maturity Tool, Industry 5.0 policy framework).

- ASP0500348 RECENTRE Application Form Export (Version 3.0)
- D1.1.1 - Report on SMEs' Needs and Expectations for Their Green Transformation -1.DRAFT.docx
- D.1.2.1 - Report on how to improve workers' resilience to the SME twin transition.docx
- https://seroi.plus/
- https://www.arctur.si/en/portfolio/dih-assessment-tool and https://www.arctur.si/en/portfolio/digital-readiness-index-dri
- EU Commission. "Industry 5.0 - Towards a sustainable, human centric and resilient European Industry." (Relevant policy documents)
- https://european-digital-innovation-hubs.ec.europa.eu/open-dma/confirmation?token=xE6opwSJPXXJQf0ktZH0qs6MuEhR55ijyOR8T3k9kjs
- https://ai.eitcommunity.eu/services/ai-maturity-tool-2
- https://trans4mers.eu/resources
- https://digi-si.eu/storitve/
- https://digi-si.eu/
- https://digi-si.eu/product/digi-start-vital-check-up-of-your-digital-readiness/

This project is co-funded by the European Union through the Interreg Alpine Space programme