



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach

Deliverable D1.4.1

Produced by

PPT 7: TZE



Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create 10 action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP07 TZE
Author(s)	Astrid Heindel

Short Description
This document provides guidelines for the needs analysis of the industrial parks and for the development of tailored action plans for each park.

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	04.05.2023	Astrid Heindel	TZE
V1.1	14.05.2023	Astrid Heindel, Tina Pezdirc Nograšek	TZE, RRA-LUR
V.1.2	25.05.2023	Astrid Heindel, Georgeta Auktor, Tina Pezdirc Nograšek	TZE, TUMInt, RRA-LUR
...			
Final Document			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



The document has been prepared by the project partners of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI

PP 2 – Trieste Economic Development Agency (IT): COSELAG

PP 3 – Development agency Sora Ltd. (SI): RA sora

PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR

PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ

PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB

PP 7 – Landshut University of Applied Sciences (DE): TZE

PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM

PP 9 – Grenoble-Alps Metropole (FR): GAM

PP10 – POLYMERIS (FR): POL

PP 11 – Lombardy Foundation for the Environment (IT): FLA

PP 12 – Lombardy Foundation for the Environment (DE): TUMint



REFERENCE DOCUMENTS

D.1.1.1

D.1.1.2

D.1.2.1

D.1.3.1

ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader



INDEX

PROJECT PARTNERS	2
REFERENCE DOCUMENTS	3
ABBREVIATIONS USED	3
1. Objective and summary.....	5
2. Basis for developing an action plan	6
3. Pilot site / industrial park analysis and description	6
3.1. General description of the IP	7
3.2. SWOT Analysis.....	11
3.3. Main Challenges' definition	13
4. Action plan structure	15
4.1. Action plan	16
4.2. Overview of the actions needed to achieve the SOs	17
5. Topic selection for the pilots.....	19
5.1. Concept main questions.....	19
5.2. Pilot Questionnaire	19
Annex I – Form for the Action Plan elaboration	23
Annex II – UNIDO Indicators for status quo.....	42

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



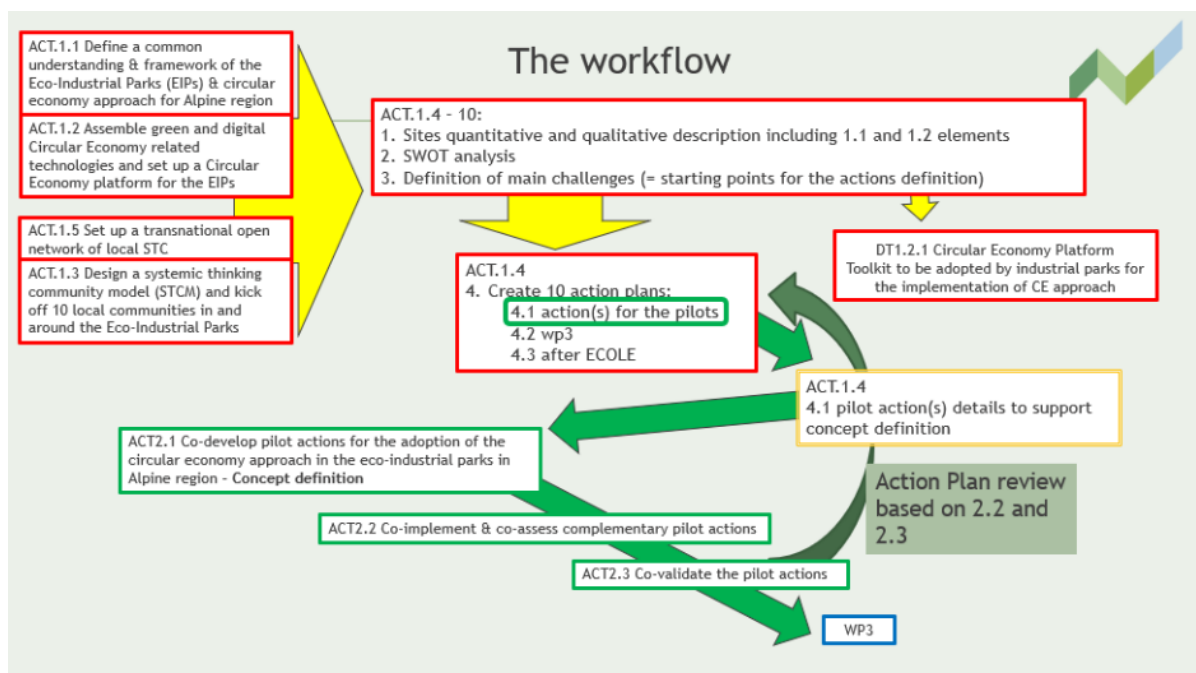
1. Objective and summary

ECOLE provides recommendations for the integration of circularity and sustainability concepts into industrial parks. For this purpose, project partners cooperate with ten industrial parks (IPs) as pilot sites for testing of different approaches and solutions developed during the project. For each pilot park, an individual action plan will be elaborated based on in-depth analysis of SWOT, physical characteristics and discussions with each STC, including park management and tenant companies if applicable.

This document aims to guide PPs in collecting and analysing relevant information to provide an overview of the participating IPs. It outlines which information needs to be provided by the IPs/implementing partners to define the challenges that will be addressed in the action plans. Further, the structure for the individual action plans including KPIs will be outlined. The action plan developed by each of the ten IPs is to be provided in a separate document, highlighting the roadmap of comprehensive actions that the IPs should follow to transform the IPs into eco-industrial parks (EIPs) (or develop greenfield EIPs). A set of actions will then be prioritized for immediate implementation, to be integrated into activity 2.1, i.e. the co-design of the concept, and 2.2. i.e. the co-development of the pilots.

After the completion of the WP2, the Action Plans will be updated based on the achievements of the 2.3, i.e. transnational co-validation of the pilots.

The continuation/implementation of the action plans is ensured through WP3. In particular, the overall goal of A.3.2 is the confirmation that the action plans will be considered for future park management and development by the respective stakeholders through a signed Memorandum of Understanding.



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

Project-ID: ASP0100091



2. Basis for developing an action plan

An action plan outlines all necessary activities and tasks that need to be carried out to achieve the transformation of the IP into an EIP. This overall goal is divided into specific objectives (SO), making it easier to define specific actions and to identify parts that can be changed during and after the project. For each SO, the necessary actions are defined and connected to a key performance indicator (KPI) for measurement. Each action can be described through different categories such as needed resources, costs/risks and benefits, needed stakeholders, implementation timeline and cross-cutting issues.

To ensure the uptake of the action plans, the documents should be concise and, as far as possible, designed in an easy to read way (e.g. through tables, figures, illustrations, colouring etc.).

3. Pilot site / industrial park analysis and description

Name	Type	Location	Responsible
Marangona Area	Greenfield	Verona, Italy	LP
	Greenfield	Trieste, Italy	PP2
Industrial zones Železniki, Trata, Žiri, Todraž (Gorenja vas)	Brownfield	Železniki, Trata, Žiri, Todraž (Gorenja vas), Slovenia	PP3
Zalog Economic and Business Zone	Greenfield (2.7h), brownfield (7h)	Zalog, Slovenia	PP4
	Brownfield (50%), greenfield / planned (50%)	Weiz, Austria	PP5
	Brownfield	Rudersdorf / Deutsch Kaltenbrunn, Austria	PP6
Siemens Technopark	Brownfield	Ruhstorf an der Rott, Germany	PP7
Cleantech Innovation Park	Partially completed	Hallstadt, Germany	PP8
Tbd.	Brownfield, partially greenfield	Grenoble	PP9

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



In this section each PP shortly summarises the main features of their IP. The description and analysis is necessary in order to (1) understand the needs and challenges of the industrial park, (2) cluster the selected actions at IP level into pilot actions in WP2, and (3) get an understanding of the technologies to be tested during pilot implementation.

This section provides the methodology for the description and analysis. The collection of data can be supported by a questionnaire document to be filled at the level of each IP (see Annex I).

For each IP, the following information should be collected:

- (i) Qualitative and quantitative descriptions including elements of D.1.1.1 and D.1.1.2, followed by
- (ii) SWOT analysis, from which
- (iii) main challenges will be defined as starting points for the development of the action plans. The methodologies for those is given in the next section, based on which ten individual action plans will be created in separate documents.

3.1. General description of the IP

A) Please read carefully the Deliverable D1.1.1 Benchmarking study on the circular economy approach in industrial parks in order to answer the following questions:

- Is your IP a greenfield or a brownfield or a combination of both?

A Greenfield

- Which benefits/drivers of performance are most relevant for your IP and why? Please choose from the categories environmental, economic and social. (Note: Reflecting on these aspects should help you define the overall short and long-term objective towards becoming an eco-industrial park Table 1/p.11)

Environmental because this new group of industries will cooperate to create a new way of working that aim to a more efficient use of resources and to increase the green innovation and reducing the emissions. In particular, the IP will be able to benefit of a more efficient use of resources (e.g., energy, water, materials), a lower waste generation and reduced emissions and land degradation.



- Which is the most relevant characteristic associated with your IP? (Please refer to D.1.1.1.1. main characteristics in Table 2/p.13)

Greenfield industrial park:

- In the design phase, greenfield projects offer the highest degree of freedom for applying and testing new approaches.
- Points of control in the design process (i.e., cost/benefit analysis, regulation, planning, and zoning) are relatively well defined and commonly understood).
- Greenfield design projects also often engender a high level of innovation in participants and the envisioned solutions.

B) Please describe the profile of, and resources available in your IP:

The IP is an area of about 1,500 hectares and it is totally Greenfield (100%). The IP is divided in 5 sectors and one of them has been sold to only an important European operator that will develop a logistics park. The other four at the moment are without tenants. It is totally greenfield so there are no infrastructures, no roads and no power supply. Consorzio ZAI is working with the Municipality of Verona and the Province of Verona, to find important stakeholders and start the implementation of the IP.

- Evaluation of the status quo according to UNIDO (please see Annex II)
- Sizes and types of buildings, years of installation, purpose It is totally greenfield without any type of buildings in it.
- Park structure (management unit and governance structures) The area is totally greenfield, and by now is formally divided in 5 sector. Only one sector has been sold to an important logistics operator. Into the area there is not any kind of infrastructure, power supply or water supply.
- Description of tenant companies: sectors, type of firms, type of products and services, market niche, etc. The only one company settled down in our area is VGP: a pan-European owner, manager and developer of high-quality logistics and semi-industrial real estate that operate a fully integrated business model with capabilities and long-standing expertise across the value chain, from land acquisition to development and asset and property management. Today, their strategic focus is on the development of large multi-tenant business parks. They are a family-owned business operating in 17 European countries.
- Park infrastructure and facilities (e.g. Roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services) The area is totally greenfield so there isn't any type of infrastructure.
- Energy consumption profiles for the tenant firms (heat, electricity, natural gas) At the moment there aren't companies settled down in the area and there isn't any type of energetic or power consumption.



- Sources for energy consumption in the IP Consorzio ZAI is collaborating with AGSM-AIM (Local company for energetic and gas supply) with the goal of providing new sources for energy consumption.
- Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices At the moment there is no production of waste material.
- Which types of industrial synergies could be exploited within your IP?

UTILITY SYNERGIES:

Consorzio ZAI is involving AGSM (municipal company in the field of energy, gas and other services) in the development of the new area. The goal is to create synergies with the landlords within the IP. All this has the aim of minimizing waste and generating a self-sufficient energy community.

SERVICE SYNERGIES:

Consorzio Zai will personally be the general service provider. In favour of the companies located in the park, it will carry out services such as maintenance and supply the telematic network. The goal is to recreate a structure similar to the one that operates today in the Interporto Quadrante Europa area, the first in Italy and at the top in Europe. All operators will therefore have common services managed efficiently.

C) Please describe the relevant technologies for your IP

- Please choose technologies outlined in D.1.2.1.
Photovoltaic, Electric mobility, Waste utilisation

D) Regional context

- Please provide an overview of the economic and social context of the region your IP is located in. (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)

REGIONAL CONTEXT

- TERRITORY

The territory of the province of Verona extends over an area of 3,096.39

sq km, and is distributed

58% in the plains, 23% in a hilly area and 19% in the mountains.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular **E**conomy

The province of Verona counts, at 31

December 2022, a resident population of 923,950 units. In the town hall Capital reside 255,588 people.

- OCCUPATION

The labour force for the province of Verona indicates an unemployment rate equal to 3.2%, lower than the regional figure (4.3%) and to the national one (8.2%). The female unemployment rate (4.0%) decreases compared to the figure of 2021, but still remains lower compared to the male one by 2.5%.

6.0% of employees work in agriculture, 23.0% in industry, 7.4% in construction, 11.6% in commerce and the 51.9% in other services.

The industrial sector count a total of 9,320 companies (9.8% of the total businesses), while services of accommodation and catering affect for 7.5%.

People who, for various reasons, on 31 December 2022 are present in the company of our territory are 148,201.

- POPULATION

The population in our territory is characterized by a strong weight of the elderly: the over seventy-five year olds are 13.6%, when they were 11% in 2011, and they outnumber minors under 15 who are 11.8% (13.4% in 2011), while the central ages 30-49 years represents 23.2%.

- SOCIAL COHESION

Actually our IP, as said before, is totally Greenfield but when the new EIP will be realize we'll be able to count on a strong social and economic cohesion between the landlords in this area and the other industrial reality of the area. We will also be able to count on a strong relationship between the new companies established on the IP and the residents of the neighboring areas, as we can already do now.

- SOCIAL IMPACTS AND CONFLICTS

At present some lands of the "Marangona" are not yet owned by Consorzio ZAI. Some current landlords will have to be expropriated, with honest compensation. This action could develop some social discontents. But the new logistics community that will be created will bring numerous benefits to the community of the city of Verona and the surrounding areas.

- Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research

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

Project-ID: ASP0100091



projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..): **Consorzio ZAI area consists of 100% greenfield and by now only one portion of the area has been acquired by a logistics operator. The actual landlords are talking with Consorzio ZAI, company owned by Municipality of Verona (33%), Chamber of Commerce of Verona (33%) and Province of Verona (33%). Therefore, talking with Consorzio ZAI means to talk with the regional communities.**

- **Please describe the industrial context in the IP area, i.e. in the surrounding community/municipality, if applicable: Currently, there are not enterprises settled in the area. However, the industrial park of Verona (called Marangona) is divided in 5 zones and one of them is currently owned by a relevant European logistics operator. The other zones will be developed soon according to the circular economy requirements.**

3.2. SWOT Analysis

The information collection in section 3.1.1 will help you get a sense of the positive and less positive aspects towards achieving your transformation goals. The SWOT analysis helps you synthesize this information, which is key to deducing the challenges that will be addressed in the action plan, and those that will be tackled during pilot action implementation. Figure 1 provides a template for how information is synthesized through a SWOT analysis. Please use a Word or Excel document to compile this information.

Figure 1: SWOT matrix



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

Project-ID: ASP0100091



- 1) **Strengths:** Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:
 - Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices.
 - Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles.
 - Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance the sustainability and competitiveness of the eco-industrial park.

- 2) **Weaknesses:** Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:
 - Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process.
 - Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives.
 - Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation.

- 3) **Opportunities:** Opportunities are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them. Opportunities might include:
 - Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies.
 - Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park.

- 4) **Threats:** Threats are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat. Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.



3.3. Main Challenges' definition

Based on the SWOT analysis, **key challenges** need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include (examples, non-exhaustive list):

- Complex value chains
- Resistance to change
- Limited availability of circular materials
- Technical challenges

For each challenge, please describe:

1. **Concise introduction:** summarize the context for the challenge and emphasizes the need for transitioning to an Eco Industrial Park.
2. **Current State Assessment:** underline the current limitations that hinder the achievement of sustainable and eco-friendly practices. Please include when applicable the negative consequences, such as pollution, habitat destruction, carbon emissions, and potential health risks for nearby communities. This analysis helps emphasize the urgency and importance of the transition.
3. **Key Challenges:** identify the main obstacles faced in transitioning to an Eco industrial park (technological limitations, regulatory barriers, financial constraints, lack of awareness or motivation among stakeholders, or resistance to change). Possibly, prioritize the challenges based on their significance and potential impact.
4. **Goals and Objectives:** Clearly state the goals and objectives of transitioning to an Eco industrial park. These may include reducing carbon emissions, minimizing waste generation, improving resource efficiency, promoting renewable energy adoption, enhancing ecosystem protection, and fostering sustainable economic development.

	Limited awareness and expertise	Geopolitical Challenge	Technical challenges
Concise Introduction	Area owners may not have a great deal of knowledge about circular economy and sustainability.	Consorzio ZAI is a public body owned by the Municipality of Verona by 33%. a total change of representatives in the City Council	The area by now is only a Greenfield, it will not be easy for Consorzio ZAI to find important stakeholders and convince them to adopt the correct

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

Project-ID: ASP0100091



		could lead to the approval or abolition of some projects.	uses to apply the principles of the circular economy. The organization of meetings and webinars could be a way to share with the new partners this principles.
Current State Assessment	The area is divided in 5 sectors, only one is owned. Now Consorzio ZAI is searching for potential important stakeholders.	By now, Consorzio ZAI is collaborating, and in the past years always collaborated, with the Municipality of Verona without any trouble.	By now, Consorzio ZAI is searching for new stakeholders. Big and important companies in the logistics field that could easily settle in the area and give/receive from Verona node and the other near municipalities an economic advantage.
Key Challenges	To introduce them to the main principles of the circular economy and convince them to adopt a new way of work.	To keep working with them and to cooperate to obtain great results.	Involve new partners into this main principles of the circular economy
Goals and Objective	Create a new logistics area, that is at forefront of innovation and introduce all new partners into the main pillars of circular economy.	To keep working with the Municipality of Verona and to keep strong relationships with them.	To create a well tested system that could start in Verona freight village a new and advanced method of work.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



4. Action plan structure

Each individual action plan follows a given structure in order to ensure comparability and joint conclusions as blueprint for future industrial park projects. The action plans are, however, adjusted according to the specific characteristics. In this document, the structure of the action plans is provided, based on which a total of ten individual documents will be prepared (ten action plans, one for each IP).

The action plan provides information on the actions to be implemented in order to transform the IP into an eco-industrial park. It addresses the challenges identified in the prior section, building on strengths and integrating opportunities, while tackling weaknesses and managing threats.

The action plan includes three types of actions:

- i. Pilot action(s): action(s) to be developed within the ECOLE pilots,
- ii. WP3 action(s): action(s) to be considered during WP3 for recommendations and further dissemination by a transnational exchange of experience between the 3 pilots

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



- iii. Impact action(s): action(s) addressed after the completion of the project in terms of additional impact of ECOLE transnational learning process.

Each action plan should be designed according to the following structure.

4.1. Action plan

1) Overall goal

Which is the main goal that should be achieved by the implementation of the action plan? The overall goal should be specific, measurable and realistic.

2) Specific objectives (SO) and KPIs

Which specific objectives will lead to the achievement of the overall goal? The number of SOs depends on the complexity of the overall goal and can be adjusted accordingly. For each SO, a corresponding action should be formulated. Additionally, a KPI should be defined. KPI stands for Key Performance Indicator. It is a measurable value that helps organizations track their progress towards specific goals and objectives. KPIs are used to monitor and evaluate performance over time and can be used to identify areas for improvement or optimization. In essence, KPIs help organizations stay focused on their strategic objectives and measure their success in achieving them. Please refer to the UNIDO KPIs for framework and reference. Own KPIs can also be created.

Examples of SOs, related actions and KPIs:

- Objective: Enhance resource efficiency and circularity
 - Develop a comprehensive waste management system to promote recycling, reuse, and resource recovery. KPI: Monitoring system is in place (yes/no)
 - Facilitate the establishment of symbiotic relationships and resource-sharing among companies within the industrial park. KPI: Legally binding agreement between firms and park authority is in place (yes/no)
 - Implement measures to minimize waste generation and optimize resource utilization across all industrial processes.
- Objective: Promote renewable energy adoption and energy efficiency
 - Encourage the installation of renewable energy generation systems, such as solar panels or wind turbines, within the industrial park. KPI: Total renewable energy use for electricity and heat production in the industrial park is equal to or greater than the renewable energy share in the annual national electricity mix in the grid. / Share of renewable energy in total energy consumption of the IP (%).
 - Implement energy management programs to optimize energy use and improve energy efficiency in industrial processes. KPI: Proportion of the park management and tenant firms that have a metering system in place.
- Objective: Foster sustainable water management
 - Implement water conservation measures and technologies to minimize water consumption in industrial processes.
 - Promote water recycling and reuse systems within the industrial park.
 - Collaborate with local water management authorities to develop sustainable water sourcing strategies and protect local water resources.
- Objective: Enhance green infrastructure and biodiversity

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

Project-ID: ASP0100091



- Incorporate green spaces, parks, and green corridors within the industrial park to improve aesthetics, air quality, and biodiversity.
- Implement sustainable landscaping practices, including native plant species and rainwater harvesting systems.
- Establish measures to protect and restore local ecosystems and habitats, such as wetlands or wildlife corridors.
- Objective: Foster sustainable mobility and transportation
 - Develop an efficient transportation system within the industrial park, promoting the use of electric vehicles, shared mobility options, and alternative fuels.
 - Implement measures to reduce transport-related emissions and congestion, such as promoting carpooling or establishing logistics consolidation centers.
 - Encourage the use of sustainable transportation modes for commuting, such as cycling or public transportation.
- Objective: Strengthen stakeholder engagement and collaboration
 - Establish a platform for regular communication and collaboration among industrial park tenants, local communities, and relevant stakeholders.
 - Encourage knowledge-sharing and best practice exchange through workshops, seminars, and networking events.
 - Foster partnerships with research institutions, universities, and industry associations to promote innovation and sustainable practices.
- Objective: Ensure compliance with environmental regulations and standards
 - Develop mechanisms to ensure industrial park tenants' compliance with relevant environmental regulations and standards.
 - Establish monitoring systems to track and report environmental performance indicators.
 - Provide support and guidance to help tenants adopt and implement sustainable practices.wat

4.2. Overview of the actions needed to achieve the SOs

Based on the actions defined in the previous section, an overview should be created following the table structure. This adds some additional information, such as needed resources, technologies, tools etc., needed stakeholders, a time frame for implementation, and risks/costs and benefits. This overview also indicates if the action will be (i) part of the pilot, (ii) addressed during WP3, or (iii) part of ECOLE’s impact, i.e. implemented after the end of the project by the IP.

For each SO, the actions shall be listed following the given structure:

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Analysis of waste heat production	Data on waste heat streams	Companies that produce waste heat, park management	2 month / until February 2026		i / ii / iii

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

Project-ID: ASP0100091



2	Analysis of heat demand	Data on heat demand in the IP	Heat consuming companies, park management	2 month / until February 2026		i / ii / iii
3	Implementation of electricity storage (battery)	Investment into a battery system	Park management, battery provider	6 month / until June 2026	High investment, options for more energy self-sufficiency	i / ii / iii
4	Implementation of internal heat network	Investment, reconstruction costs	Park management	24 month / until December 2027	Very high investment costs	i / ii / iii
5	Other (please specify)					i / ii / iii

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



5. Topic selection for the pilots

This section is a summary of the analysis and the action plan table. It consists of two stages (a list of questions and a questionnaire) in order to provide an overall overview the co-design of the concept (2.1) and later the co-development of the pilot actions (2.2).

5.1. Concept main questions

Please answer the questions concisely and comprehensively:

What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action? Building an efficient EIP: Coordinating the activities of the different operators involved in the field of the renewable energy to balance its use. This action requests significant investments in circular economy

- I. **What goal are you targeting / aiming to achieve at your pilot site and why?** To create an energy community with the aim to create a link between energy producers and consumers
- II. **At what stage in the process** (to address this challenge) are you at the moment (“what is the baseline”)? **At the beginning of the process**
- III. **Provide just the main steps** (in bullets) **that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?** **Involve stakeholders and make them aware of the fundamental principles of the circular economy and all the benefits that the adoption of these principles could bring**
- IV. **What are the three main aspects of circular economy approaches that you are going to use at your pilot site?** **Reuse, Refurbishment and recycling**
- V. **What it is the expected solution/deliverable that will come out of the piloting process** (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.) **Circular economy guidelines on how the settled companies should operate in this field.**
- VI. **What will you be measuring at you pilot site in the framework of Ecole and how?** **Consorzio Zai and the other players will measure the amount of waste and energy produced**

5.2. Pilot Questionnaire

In order to prepare the concept and the pilot implementation, by taking in consideration the actions “i” the ones to be developed during the ECOLE pilot (2.2):

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



1. Please read the [document ACT.1.2 Assemble green and digital Circular Economy](#) related technologies and set up a Circular Economy platform for the EIPs carefully and answer the question below:
 - 1.1 **WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?** Photovoltaic, Electric Mobility and Waste Utilisation

2. Please read the [document Design a systemic thinking community model \(STCM\)](#) and kick off 10 local communities in and around the Eco-Industrial Parks and answer the question below - **HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?** In Verona area, Consorzio ZAI should involve consolidated stakeholders that could have from the local community an economic advantage, also thank to the strategic position of Verona.
 - 2.1 **IDENTIFY STAKEHOLDERS:** WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT? (Please use Figure 1 on p.8)

Internal: Park operator and management and park tenants, Big Enterprises, SMEs

Regional/local:

- Municipality of Verona
- Chamber of Commerce of Verona
- Province of Verona
- Veneto region
- AMIA and AGSM-AIM
- Acque Veronesi

National:

Ministry of Transport and Infrastructure

- 2.2 **ANALYSE STAKEHOLDERS:** THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT? (Please answer these questions in relation to your pilot site, use [Table 1 on p.9](#))
Very strong interest from the **Big Enterprises** and the **SMEs** that will set up in the area.

Strong interest from the **Municipality of Verona** with the “City Planning Department”.

AMIA and **AGSM-AIM:** Very strong interest and power. They are the two main public bodies that offer service like electricity, gas, and waste disposal.

Very strong interest also from **Chamber of Commerce** and **Province of Verona**. In fact, they are shareholders with Municipality of Verona, of Consorzio ZAI.

Ministry of Transport and Infrastructure: Align EIP with national policy priorities



2.5 The guiding questions for setting up a structured STCM process are (Please answer these questions in relation to your pilot site, see the explanation on [p. 17-18](#)):

- 2.5.1 Who should be engaged?
- 2.5.2 How should they be engaged?
- 2.5.3 How often and for what purpose?
- 2.5.4 What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform)

Big Enterprises and SMEs should be engaged regularly (weekly) with videocalls, meetings in person and newsletter. Consorzio ZAI will manage the area and provide all the key services.

The municipality of Verona, the Chamber of Commerce and the Province of Verona will be engaged monthly through meetings in person and email conversation to talk about the services offered by **AMIA** (Waste disposal Company) and **AGSM** (Gas and Electric supply company) and to be update on the current situation of the IP.

Veneto region and the Ministry of Transport and Infrastructure every six month via email or videocalls meetings. They will be updated on the ongoing development of the IP.



Annex I – Form for the Action Plan elaboration

1. IP Analysis

1.1 General description of the IP

<p>Please read the document ACT.1.1 Define a common understanding & framework of the Eco-Industrial Parks (EIPs) & circular economy approach for Alpine region carefully and answer the question below.</p> <p>WHAT WOULD WE LIKE OUR EIP TO BE?</p>	
<p>EIP planners can consider choosing between two possible types of EIP sites: greenfield developments (on virgin land), and brownfield developments. All these types of sites offer very different challenges and opportunities for creating EIPs (p.13).</p> <p>WHICH IS THE MOST RELEVANT CHARACTERISTIC ASSOCIATED WITH YOUR PILOT SITE?</p> <p>(First, choose the relevant type for your pilot site/Greenfield, Brownfield then see the main characteristics in Table 2/p.13 and answer the question.)</p>	<p><input checked="" type="checkbox"/> Greenfield <input type="checkbox"/> Brownfield</p> <p>The IP's zone consists of a greenfield area of 1,500 hectares totally greenfield (100%).</p> <p>The IP is divided in 5 sectors and one of them (218,000 sqm) has been sold to an important European operator that will develop a logistic park. The Park is located in an urban area, namely the Municipality of Verona.</p>
<p>WHICH BENEFITS/DRIVERS OF PERFORMANCE ARE FROM YOUR PERSPECTIVE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please see the table on p. 12 and choose max 3 most relevant benefits from each category/Environmental, Economic, Social)</p>	<ul style="list-style-type: none"> • Economic: This site will provide to a high reduction of waste costs and will implement the productivity of the area; • Environmental: This new group of industries will cooperate to create a new way of working that aim to a more efficient use of resources and to increase the green innovation and reducing the emissions. • Social: This new industrial area will include a stronger energetic community that will cooperate to the creation of sustainable works and a new model of efficient organization between two or more companies
<p>Please elaborate in greater detail. Your IP might have characteristics of both greenfield and brownfield IPs, or some other options might need to be considered.</p>	<p>As described earlier, this area has never been built. It has always been a greenfield with no previous construction on it.</p>
<p>Which is the most relevant characteristic associated with you IP?</p>	<p>Our industrial park is closely connected to the urban context of the municipality of Verona. It is nearby the A4 Verona Sud</p>

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

Project-ID: ASP0100091



	<p>highway exit and not so far from Verona Est highway exit.</p> <p>It is also important to mention the proximity of Veronafiere, the headquarters of the Verona fair, where every year are held global event.</p>
IP profile	
Please fill out the questionnaire in Annex II.	
Please describe the infrastructural conditions of the IP (sizes and types of buildings, year of installation, purpose)	<i>The IP is an area of 1,500 hectares and it is totally GREENFIELD (100%).</i>
Please describe the park structure (management and tenants)	<i>The IP is divided in 5 sectors and one of them (218,000 sqm) has been sold to an important European operator that will develop a logistics park. The Park is located in an urban area, namely the Municipality of Verona.</i>
Please describe the current tenant companies	<i>Currently there are not enterprises settled in the area. However, the industrial park of Verona (called Marangona) is divided in 5 zones and one of them is currently owned by a relevant European logistics operator. The other zones will be developed soon according to the circular economy requirements.</i>
Please describe the park infrastructure and facilities (e.g. roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services)	<p><i>Infrastructure: There are no roads and no railway in our area.</i></p> <p><i>Power Supply: There are no power supply station in our area.</i></p> <p><i>Water Supply:</i></p> <p><i>Solid Waste Management: At the moment there is no need to manage solid waste, but Consorzio ZAI is in constant talking with AMIA, the municipal agency for the management of solid waste.</i></p>
Please describe the energy consumption profiles (heat, electricity, natural gas)	<i>At the moment there are no energy consumption in the area.</i>
Please describe the current waste situation: Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices	<i>At the moment there are no production of waste in the area and there is no need to manage solid waste, but Consorzio ZAI is in constant talking with AMIA, the municipal agency for the management of solid waste.</i>
The type of sectors in EIPs and their needs also define the type of industrial synergies that can be exploited within an EIP.	<p><u>UTILITY SYNERGIES:</u></p> <p>Consorzio ZAI is involving AGSM (municipal company in the field of energy, gas and other services) in the development of the</p>

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

Project-ID: ASP0100091



<p>WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p>(Please tick the appropriate box below. Please shortly elaborate on the right. Please mention the tenant companies that need to be involved in creation of said synergies, if applicable.)</p> <p><input type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p> <p><input checked="" type="checkbox"/> Utility synergies: shared used of utility infrastructure, mainly revolving around water and energy (e.g., water recovery and energy cogeneration);</p> <p><input checked="" type="checkbox"/> Service synergies: sharing of services and activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p> <p><input type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): the use of previously disposed waste (as solid, liquid, gas) from one facility to another facility to provide a valuable by-product.</p>	<p>new area. The goal is to create synergy with the landlords within the IP. All this has the aim of minimizing waste and generating a self-sufficient energy community.</p> <p>SERVICE SYNERGIES: Consorzio Zai will personally be the general service provider. In favor of the companies located in the park, it will carry out services such as maintenance and supply the telematic network. The goal is to recreate a structure similar to the one that operates today in the Interporto Quadrante Europa in Verona, the first in Italy and at the top in Europe. All operators will therefore have common services managed efficiently.</p>
<p>PLEASE INDICATE/CHOOSE WHICH PERFORMANCE REQUIREMENT FROM EACH FIELD: RELATED TO PARK MANAGEMENT, ENVIRONMENTAL, SOCIAL, ECONOMIC IS MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from Tables 7 - 10, p. 20 - 24).</p>	<p>PARK MANAGEMENT: Monitoring performance and risks: The park management entity has established and maintains a system for monitoring achievement of threshold EIP performance targets and management of critical risk factors within the park.</p> <p>ENVIRONMENTAL: Energy efficiency: Energy efficiency opportunities should be identified at the park and firm levels to reduce energy use and associated greenhouse gas emissions. EIPS should identify and promote technological ad process-related interventions in their own and resident business operation. The equivalent of at least 10% of the total CO2 emissions (scope 1 and 2) is covered by the percentage of firms that have a qualified energy efficiency certification (LEED, Industry EDGE, German Sustainable Building Council (DGNB) or ISO 50001 or their national equivalent).</p>

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

Project-ID: ASP0100091



	<p>Renewable and clean energy: The industrial park leverages available renewable energy with plans to increase its contribution for shared services (e.g., solar streetlamps). Total renewable energy use for electricity and heat production in the industrial park is equal to or greater than renewable energy share in the annual national electricity mix in the grid.</p> <p>Water efficiency, reuse and recycling: Park management entity has operational plans to increase water reuse in next five years. This would be achieved by either reuse of industrial effluents, or by rainwater/storm water collection. 25% of total industrial wastewater from firms is reused responsibly within or outside the industrial parks.</p> <p>Resource conservation: Obeying the principles of circular economy is part of the Park’s Code of Conduct, and any legally binding agreement between tenant firms and the park authority. 20% of manufacturing firms adopt circular economy practices, including engagement in Industrial Symbiosis Networks in the park; or actively exchanging secondary raw materials, or waste, or other circular economy practices.</p> <p>SOCIAL:</p> <p>Management team: Dedicated personnel exists (as part of the park management entity) to plan, manage and enforce social quality standards.</p> <p>ECONOMIC:</p> <p>Maximizing local benefits: Park management entity has a strategy in place to maximize local benefits.</p>
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE? (Please choose from the Table 4: EIP Technologies, p. 16.)</p>	<p>ENERGY: Energy management, solar power and wind power WATER: To use technologies that can help us to reduce the waste of water. MATERIAL AND WASTE HEAT: Industrial symbiosis</p>
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE? (Please refer to D.1.2.1)</p>	<p>PHOTOVOLTAIC ELECTRIC MOBILITY WASTE UTILISATION</p>
<p>Surrounding regional context</p>	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)

Points might be:

- Workforce demographics: Age, gender, education levels, and skill sets of population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges.
- Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers.
- Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, supports local businesses, and engages in social responsibility activities.
- Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities.
- Social infrastructure: Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community.

• TERRITORY

The territory of the province of Verona extends over an area of 3,096.39 sq km, and is distributed 58% in the plains, 23% in a hilly area and 19% in the mountains.

The province of Verona counts, at 31 December 2022, a resident population of 923,950 units. In the town hall Capital reside 255,588 people.

• OCCUPATION

The labour force for the province of Verona indicates an unemployment rate equal to 3.2%, lower than the regional figure (4.3%) and to the national one (8.2%). The female unemployment rate (4.0%) decreases compared to the figure of 2021, but still remains lower compared to the male one by 2.5%.

6.0% of employees work in agriculture, 23.0% in industry, 7.4% in construction, 11.6% in commerce and the 51.9% in other services.

The industrial sector count a total of 9,320 companies (9.8% of the total businesses), while services of accommodation and catering affect for 7.5%.

People who, for various reasons, on 31 December 2022 are present in the company of our territory are 148,201.

• POPULATION

The population in our territory is characterized by a strong weight of the elderly: the over seventy-five year olds are 13.6%, when they were 11% in 2011, and they outnumber minors under 15 who are 11.8% (13.4% in 2011), while the central ages 30-49 years represents 23.2%.

• SOCIAL COHESION

Actually our IP, as said before, is totally Greenfield but when the new EIP will be realize we'll be able to count on a strong social and economic cohesion between the landlords in this area and the other industrial reality of the area. We will also be able to count on a strong relationship

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

Project-ID: ASP0100091



<ul style="list-style-type: none"> • Social cohesion and integration: Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups. • Social impacts and conflicts: Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management's efforts to address these impacts and resolve conflicts. • Education and skill development: Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement 	<p>between the new companies established on the IP and the residents of the neighboring areas, as we can already do now.</p> <ul style="list-style-type: none"> • SOCIAL IMPACTS AND CONFLICTS At present some lands of the "Marangona" are not yet owned by Consorzio ZAI. Some current landlords will have to be expropriated, with honest compensation. This action could develop some social discontents. But the new logistics community that will be created will bring numerous benefits to the community of the city of Verona and the surrounding areas.
<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)</p>	<p><i>Our area consists of 100% greenfield and by now only one portion of area has been acquired by a logistic operator. The actual landlords are talking with Consorzio ZAI, company owned by Comune di Verona (33%), Camera di Commercio di Verona (33%) and Province of Verona (33%). And so, talking with Consorzio ZAI means talk with the regional communities.</i></p>



1.2. SWOT Analysis

SWOT analysis	
<h1 style="margin: 0;">SWOT ANALYSIS</h1>	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center; width: 45%;"> <p style="font-weight: bold; color: #0070C0;">Helpful</p> <p style="font-size: small; color: #0070C0;">to achieving the objective</p> </div> <div style="text-align: center; width: 45%;"> <p style="font-weight: bold; color: #E91E63;">Harmful</p> <p style="font-size: small; color: #E91E63;">to achieving the objective</p> </div> </div>
<p style="font-weight: bold; color: #0070C0;">Internal origin</p> <p style="font-size: x-small; color: #0070C0;">(attributes of the organization)</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="background-color: #C8E6C9; padding: 10px; border: 1px solid #0070C0; text-align: center; width: 45%;"> <p style="font-size: 2em; color: #0070C0; opacity: 0.5;">S</p> <p style="font-weight: bold; color: #0070C0;">Strengths</p> </div> <div style="background-color: #FFCCBC; padding: 10px; border: 1px solid #0070C0; text-align: center; width: 45%;"> <p style="font-size: 2em; color: #0070C0; opacity: 0.5;">W</p> <p style="font-weight: bold; color: #0070C0;">Weaknesses</p> </div> </div>
<p style="font-weight: bold; color: #0070C0;">External origin</p> <p style="font-size: x-small; color: #0070C0;">(attributes of the environment)</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="background-color: #C8E6C9; padding: 10px; border: 1px solid #0070C0; text-align: center; width: 45%;"> <p style="font-size: 2em; color: #0070C0; opacity: 0.5;">O</p> <p style="font-weight: bold; color: #0070C0;">Opportunities</p> </div> <div style="background-color: #D1C4E9; padding: 10px; border: 1px solid #0070C0; text-align: center; width: 45%;"> <p style="font-size: 2em; color: #0070C0; opacity: 0.5;">T</p> <p style="font-weight: bold; color: #0070C0;">Threats</p> </div> </div>
<p>Please elaborate the strengths of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:</p> <ul style="list-style-type: none"> Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices. Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles. Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance 	<p><u>Collaboration potential:</u> Various stakeholders will coexist in the area that will be created. The management of the IP will be entrusted to Consorzio ZAI which will take care of making the different realities established in the park collaborate and coexist. In our park idea, the companies will collaborate in a well-tested system of communication networks to achieve together the goals set by the IP management.</p> <p><u>Location advantages:</u> The advantages of the park's location are considerable. The area, called "Marangona", covers 1.5 million square meters in the southern area of the Municipality of Verona, very close to the Municipality of Villafranca, site of the Catullo airport of Verona. In addition to its proximity to the airport, the Marangona area is closely connected with the Verona Sud and Verona Nord motorway exits. The park construction project also will provide for the creation of a special exit for</p>

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

Project-ID: ASP0100091



<p>the sustainability and competitiveness of the eco-industrial park.</p>	<p>entering the ring road to facilitate access to the area. Very close to the IP is also Veronafiere, the headquarters of the Verona fair, the place where the most important national and international trade fairs are held every year.</p>
<p>Please elaborate the weaknesses of your IP. Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:</p> <ul style="list-style-type: none"> • Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. • Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. • Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	<p>Limited awareness and expertise: Initially, a possible weakness could be represented by the owners of the areas. Area owners may not have a great deal of knowledge about circular economy and sustainability. In this, Consorzio ZAI is giving them support to convey to them what the possible advantages are for introducing the circular economy in our new area.</p>
<p>Please elaborate the opportunities. These are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them. Opportunities might include:</p> <ul style="list-style-type: none"> • Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies. • Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an 	<p>Innovation and technology: The IP, as previously mentioned, represents a great opportunity for growth and technological development for Consorzio ZAI. The companies established within the EIP will be introduced to the good practices of the circular economy, the use of solar panels and sustainable practices for the adoption and study of new clean technologies.</p>

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

Project-ID: ASP0100091



<p>eco-industrial park can enhance the competitiveness of businesses within the park.</p>	
<p>Please elaborate the threats. These are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.</p> <p>Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.</p>	<p>Geopolitical risks:</p> <p>The ZAI Consortium is a public body owned by the Municipality of Verona, the Chamber of Commerce of Verona and the Province of Verona and works closely with them on a daily basis. Any concerns could arise from radical changes at the top. For example, a total change of representatives in the City Council could lead to the approval or abolition of some projects. In any case, the ZAI Consortium collaborates with these entities which always prove inclined to new projects.</p>



1.3. Main Challenges' definition

Challenges: Based on the SWOT analysis, challenges need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include:

- **Complex value chains:** Industrial parks typically involve multiple stakeholders, including manufacturers, suppliers, and customers, which can make it challenging to establish a circular system. For example, one company might produce waste that could be a valuable resource for another, but coordinating the exchange of materials between these companies may require significant effort and investment.
- **Resistance to change:** The shift towards circularity often involves changes to established business models and processes. Some stakeholders may be resistant to these changes, particularly if they see short-term costs without a clear path to long-term benefits.
- **Limited availability of circular materials:** Circular systems depend on the availability of materials that can be reused, recycled, or repurposed. In some cases, these materials may be in short supply or difficult to source, which can limit the potential for circularity.
- **Technical challenges:** Circularity often requires advanced technologies and processes, such as material separation and purification, that may be complex and expensive to implement. Industrial parks may need to invest in these technologies and develop new expertise to effectively integrate circular approaches.

#	Concise introduction	Current State Assessment	Key Challenges	Goals and Objectives
1	Building an efficient EIP:	first development stage: the industrial park of Verona (called Marangona) is divided in 5 zones and one of them is currently owned by a relevant European logistics operator. The other zones will be developed soon according to the circular economy requirements. The energy community deals with the future players with the scope to use the renewable energy produced inside the community to power the companies in the area	Coordinating the activities of the different operators involved in the field of the renewable energy to balance its use. This action requests significant investments in circular economy	create an energy community with the aim to create a link between energy producers and consumers
2	Technical constraints:	Consorzio Zai has recently awarded a contract to develop a feasibility study for the creation of an energy community which will define the key standards for an efficient realization of the Industrial Park.	The adoption of circular economy principles is often linked to the implementation of advanced technologies and processes.	define the best solution to develop an Industrial Park that respects most of the the circular economy principles, through the identification of advanced technologies for specific applications, developing the necessary expertise and knowledge within the IP
3	Resistance of current and future tenants:	The timeline to develop the Verona EIP is very long since there will be a lot of tenants in the area to come to an	The shift towards circular economy in the Verona Industrial Park is a complex process due to	Create a sort of control booth to coordinate all the settled tenants, following the circular

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

Project-ID: ASP0100091



		agreement easily. Therefore, Consorzio Zai will meet frequently the tenants to make them aware about the benefits of the circular economy	the relevant number of tenants in the area. Overcoming resistance to change among stakeholders is crucial for successful implementation.	economy perspectives. Therefore, there will be an incentivizing campaign to foster the tenants in the adoption of the circular initiatives through the promotion of the collaboration and knowledge sharing principles among stakeholders.
...				
...				
...				
...				



2. Action plan

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Assess the application of circular economy principles in the IP. Open a dialogue with the stakeholders.	Make meetings with the stakeholders to verify their interest into the topic.	Big Enterprises, SME	10 months	<p>Risk:</p> <p>The companies are not willing to apply the principles of the circular economy in the IP.</p> <p>Benefits:</p> <p>To involve a greater number of stakeholders and focus on an increasingly green and economically sustainable work process.</p>	i
2	Open a dialogue with the stakeholders, explaining them the main principles of circular economy. Evaluate the real interest of every stakeholder into the topic and, for the one interested, organize	Describe to the stakeholders the main principles of circular economy and organize work meeting to explaining them the benefits of the Circular Economy.	Big Enterprises, SME	8 months	<p>Risk:</p> <p>To lose some stakeholders who may be disinterested in the process.</p> <p>Benefits: To involve only the interested players into the project and create a more affordable network.</p>	i

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

Project-ID: ASP0100091



	several meetings.					
3	Develop a first draft of a waste management plan in close cooperation with the public body in charge of this process (AMIA).	Have a constant dialogue with the public body to outline a detailed workplan.	Public authority	6 months	<p>Risk:</p> <p>Delay in the workplan caused by encountering bureaucratic problems along the way.</p> <p>Benefit:</p> <p>To optimize the overall management of the Industrial Park as well as enhancing the working performance in the area.</p>	ii
4	Develop a communication network with all the local authorities and companies settled in the IP.	Development of a new platform to allow the dialogue with the partners.	Public authority, Big enterprises, SME	6 months	<p>Risk:</p> <p>Communication problems and difficulty to talk with public bodies.</p> <p>Benefits:</p> <p>Create a functional communication network between all the partners.</p>	ii
5	Testing the real efficiency of the project. Daily meetings with the companies established in the IP.	Meetings with the companies located in the IP area.	Public authority, Big enterprises, SME	6 months	<p>Risk: Difficulty to have a constant dialogue with all the companies that can cause a delay in the operations.</p>	iii

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

Project-ID: ASP0100091



					<p>Benefits: Testing the real efficiency of the project means to have a well-tested product to present to all the future partners for the project.</p>	
6	Create a marketing plan to communicate the project results	Contents strategy	Social Media, Newspaper, local media (TVs)	6 months	<p>Risk: Make a wrong marketing campaign could generate the opposite effect to that intended.</p> <p>Benefits: Generate a deep awareness in the public audience. Using in the correct way the media channels could be a good way to communicate the outputs of the project.</p>	iii
...						i / ii / iii
...						i / ii / iii



3. Topic selection for the pilots

3.1. Concept main questions

Question	Answer
<p>I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?</p>	<ul style="list-style-type: none"> • Coordinating the activities of the different operators involved in the field of the renewable energy to balance its use • The adoption of circular economy principles is often linked to the implementation of advanced technologies and processes • The shift towards circular economy in the Verona Industrial Park is a complex process due to the relevant number of tenants in the area. Overcoming resistance to change among stakeholders is crucial for successful implementation
<p>II. What goal are you targeting / aiming to achieve at your pilot site and why?</p>	<p>Establish a Collaborative Energy producing Network to optimize the use of resources:</p> <ul style="list-style-type: none"> • create an energy community with the aim to create a link between energy producers and consumers • define the best solution to develop an Industrial Park that respects most of the circular economy principles, through the identification of advanced technologies for specific applications, developing the necessary expertise and knowledge within the IP • Create a sort of control booth to coordinate all the settled tenants, following the circular economy perspectives. Therefore, there will be an incentivizing campaign to foster the tenants in the adoption of the circular initiatives through the promotion of the collaboration and knowledge sharing principles among stakeholders.
<p>III. At what stage in the process (to address this challenge) are you at the moment (“what is the baseline”)?</p>	<p>PREPARATORY STAGE:</p> <ul style="list-style-type: none"> • We are analyzing the interest among future partners • We are studying the possible alternative forms of collaboration within the partnership in order to

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

Project-ID: ASP0100091



	select the proposal with best value for money
IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?	<ul style="list-style-type: none"> • We have externalized the feasibility study for the realization of the Energy Community • Starting from the analysis and action plan we will develop Energy Community guidelines to exchange experiences and best practices to be implemented • If feasible, we will establish the Energy Community • We will involve the tenants in the Energy Community • Go-live • We will draft a report describing the results obtained thanks to the pilot action
V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?	
VI. What it is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)	<ul style="list-style-type: none"> • Thanks to the energy community created within ECOLE, the IP of Verona will have the opportunity to produce energy from renewable sources in order to contribute at increasing public acceptance of renewable energy projects and make it easier to attract private investments in the clean energy transition. • The IP of Verona have the potential to provide direct benefits to citizens/companies by increasing energy efficiency, lowering their electricity bills and creating local job opportunities. • By supporting citizen participation, energy communities can help provide flexibility to the electricity system through demand response and storage.
VII. What will you be measuring at you pilot site in the framework of Ecole and how?	<p>Possible indicators could be (tbc):</p> <ul style="list-style-type: none"> • Energy Community is in place (yes/no) • Kilowatts produced through renewable resources

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



3.2. Pilot Questionnaire

Please read the document *ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs* carefully and answer the question below.

WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?

- *Photovoltaic*
- *Waste Utilisation*
- *Electric Mobility*

Please read the document *Design a systemic thinking community model (STCM) and kick off 10 local communities in and around the Eco-Industrial Parks* and answer the question below.

HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?

IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT?

(Please use Figure 1 on p.8)

Internal: Park operator and management and park tenants, Big Enterprises, SMEs

Regional/local:

- Municipality of Verona
- Chamber of Commerce of Verona
- Province of Verona
- Veneto region
- AMIA and AGSM-AIM

National:

- Ministry of Transport and Infrastructure

ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT?

(Please answer these questions in relation to your pilot site, use Table 1 on p.9)

Very strong interest from the **Big Enterprises** and the **SMEs** that will set up in the area.

Strong interest from the **Municipality of Verona** with the “City Planning Department”.

AMIA and **AGSM-AIM:** Very strong interest and power. They are the two main public bodies that offer service like electricity, gas, and waste disposal.



	<p>Very strong interest also from Chamber of Commerce and Province of Verona. In fact, they are shareholders with Municipality of Verona, of Consorzio ZAI.</p> <p>Ministry of Transport and Infrastructure: Align EIP with national policy priorities</p>
<p>MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM?</p> <p>(Please answer these questions in relation to your pilot site, use Figure 2 on p.10)</p>	<p>Big Enterprises and the SMEs: they will have a high interest in the area and a low influence for the area. The impact will be medium.</p> <p>Municipality of Verona, Chamber of Commerce and Province of Verona will have a high interest and a high influence. Their impact will be fundamental.</p> <p>AMIA and AGSM-AIM: Very high interest and a medium influence in the project. Their impact will be medium.</p> <p>Ministry of Transport and Infrastructure (Government): it will have a medium interest and a low influence on the project. Its impact will be low.</p> <p>Every single stakeholder of the project has the need to cooperate.</p>
<p>PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM?</p> <p>(Please answer these questions in relation to your pilot site, use Figure 6 on p.14)</p>	<p>Big Enterprises and SMEs will be directly involved in the project.</p> <p>The municipality of Verona along with Chamber of Commerce and Province of Verona will be involved directly thanks to the existing relation with Consorzio ZAI and with the park management structure.</p> <p>AMIA and AGSM-AIM will be involved in the project with daily or weekly meetings. They are responsible of the supply of relevant services such as the waste disposal and the electric and gas supply.</p> <p>Veneto region and Ministry of Transport and Infrastructure will be involved as institutions to act as a link between the different local realities and the UE.</p>

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

Project-ID: ASP0100091



The guiding questions for setting up a structured STCM process are:

- Who should be engaged?
- How should they be engaged?
- How often and for what purpose?
- What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform)

(Please answer these questions in relation to your pilot site, see the explanation on p. 17-18)

Big Enterprises and SMEs should be engaged regularly (weekly) with videocalls, meetings in person and newsletter. Consorzio ZAI will manage the area and provide all the key services.

The municipality of Verona, the Chamber of Commerce and the Province of Verona will be engaged monthly through meetings in person and email conversation to talk about the services offered by **AMIA** (Waste disposal Company) and **AGSM** (Gas and Electric supply company) and to be update on the current situation of the IP.

Veneto region and the Ministry of Transport and Infrastructure every six month via email or videocalls meetings. They will be updated on the ongoing development of the IP.



Annex II – UNIDO Indicators for status quo

Source: UNIDO, 2019: International Guidelines for Industrial Parks. PP 112-114,
https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
1. Good economic governance		
Robust economic system tracking economic analysis quantitatively showing a positive economic return (i.e., in terms of employment, taxes, net exports, forex, local supplies), after such factors as land, CAPEX and OPEX costs and subsidies are taken into account	(Yes =1; No =0)	
Private participation in industrial park planning	(Yes =1; No =0)	
Private participation in industrial park ownership	(Yes =1; No =0)	
If industrial park is on public land, Operator sourced on the basis of an open competitive tender	(Yes =1; No =0)	
Private sector represented on Board of Regulator	(Yes =1; No =0)	
Existence of 60% occupancy rate within 6 years (ha of land used by companies for productive use) ¹⁷	(Yes =1; No =0)	
Existence and functioning of a formal Industrial Park marketing department/unit	(Yes =1; No =0)	
User Maintenance & Operation fees or charges collected by the Operator	(Yes =1; No =0)	
% user enterprise satisfaction with the services provided by the Industrial Park Operator	(≥51% =1; ≤49% =0;)	
Operator Customer Relationship Management (CRM) system in place	(Yes =1; No =0)	
Operator ISO 9001 certification	(Yes =1; No =0)	
Good Economic Governance Score	(Scale of 0-11)	
2. Economically-enabling site & infrastructure 'hardware' (appropriate site selection)		
Unencumbered land title	(Yes =1; No =0)	
Phased site development strategy and implementation	(Yes =1; No =0)	
Proximity to urban centre*(with country significant population) ¹⁸	(Yes =1; No =0)	
Proximity to appropriate highway*	(Yes =1; No =0)	
Proximity to power transmission or distribution grid*	(Yes =1; No =0)	
Proximity to gas transmission mains and gas 'city-gate'*	(Yes =1; No =0)	
Proximity to microwave tower for broadband GSM mobile telephony and Wi-Fi connectivity*	(Yes =1; No =0)	
Appropriately-sized (wide) internal roads*	(Yes =1; No =0)	
Proximity Operational Public Port, Airport of use and of interest to the Industrial Park's users*	(Yes =1; No =0)	
[% hours power outage per period in Industrial Park /% hours power outage nationally]	(≥1 =0; <1 =1)	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



[% hours of interruption of water supply, quality or quality in INDUSTRIAL PARK/% hours of interruption of water supply, quality or quality nationally]	(≥1 =0; <1 =1)
Economically-Enabling Site & Hardware Score	(Scale of 0-11)
3. Economically-enabling services 'software'	
Regular, Scheduled Maintenance of buildings, as well as dedicated Rapid-Response or Emergency Maintenance, Repair, Rectification & Restoration Service, including for utilities and superstructure assets	(Yes =1; No =0)
Dedicated or localized industrial park Business Support, Business Association Support, Incubation, Innovation or Competitiveness programs on effective offer	(Yes =1; No =0) (Depending on # of programs available)
Industrial park user enterprises have access to specific financial support programmes	(Yes =1; No =0)
Dedicated One-Stop Shop/Single-Window in industrial park	(Yes =1; No =0)
E-government services dedicated to the industrial park	(Yes =1; No =0)
[#services offered through One-stop shop in industrial park /# services offered through One-stop shop in nearest urban community]	(≥1 =1; <1 =0)
Formal industrial park B2B Gatherings held on formal Industrial Park B2B Platforms on regular basis	(Yes =1; No =0)
Operator landscaping, gardening and cleaning services	(Yes =1; No =0)
Presence of mechanical cargo loading and off-loading services for users	(Yes =1; No =0)
Operation of product exhibition centres, product display areas, conference centres, and/or auditoria	(Yes =1; No =0) (depending on # and variety)
Presence of on-site banking, bureaux-de-change and ATM Facilities	(Yes =1; No =0) (depending on # and variety)
Presence of Human Resources Agency & Recruiting Services	(Yes =1; No =0)
Presence of manpower training services, in coordination with recognized specialized technical training institutions in various fields	(Yes =1; No =0)
Presence of dedicated on-site R&D, patenting, and product commercialisation services, in conjunction with recognized universities and/or legal services providers	(Yes =1; No =0)
Presence of dedicated on-site matching, twinning, and local supplier and buyer forward and backward linkages schemes	(Yes =1; No =0)(Depending on # and sophistication of schemes)
Presence of Quality, Product, Process Standards, and/or Trade Certification services	(Yes =1; No =0)
Economically-Enabling Software & Services Score	(Scale of 0-16)
4. Economically impactful nature: Employment, investment, turn-over	
[Per Capita Income in the industrial park /Per Capita Income Nationally]	(≥1 =1; <1 =0)
[Full-time equivalent employment/hectare in industrial park]/ Full-time equivalent employment/hectare / In industrial parks Nationally]	(≥1 =1; <1 =0)
[(Investment/ha) In Industrial Park /(Investment/ha) Nationally]	((≥1 =1; <1 =0)
[(US\$ sales revenues/ha) In Industrial Park /(US\$ sales revenues/ha) Nationally]	(≥1 =1; <1 =0)

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



[% manufacturing inputs sourced domestically In Industrial Park/ % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales /US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)
[US\$ Economic value addition ('EVA', calculated as output-inputs) per capita In Industrial Park/US\$ EVA per capita nationally]	(≥1 =1; <1 =0)
[(Exports minus Imports) In Industrial Park / (Exports minus Imports) Nationally]	(≥1 =1; <1 =0)
[FDI % of total investment (or GFCF) In Industrial Park/FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)
[(US\$ exports/ha) In Industrial Park / (US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports /US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)
[(Enterprises/ha) In Industrial Park / (Enterprises/ha) Nationally]	(≥1 =1; <1 =0)
[(IPR registrations/year/company) In Industrial Park / (IPR registrations/ year/company) nationally]	(≥1 =1; <1 =0)
Economically Impactful Nature Score	(Scale of 0-13)
Economic performance score	(Scale of 0-61)

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plan

**for the COSELAG and the uptake of
the circular economy approach**

Deliverable D1.4.1

Produced by

PPT 2: COSELAG





Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create an action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plan for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP02 COSELAG
Author(s)	

Short Description
This document provides guidelines for the needs analysis of the industrial parks and for the development of tailored action plans for each park.

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	12.10.2023		COSELAG
...			
Final Document			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular **Economy**



The document has been prepared by the project partner PP2 – Trieste Economic Development Agency (IT) - COSELAG, of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

1 PROJECT PARTNERS

- LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI
- PP 2 – Trieste Economic Development Agency (IT): COSELAG
- PP 3 – Development agency Sora Ltd. (SI): RA sora
- PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR
- PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ
- PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB
- PP 7 – Landshut University of Applied Sciences (DE): TZE
- PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM
- PP 9 – Grenoble-Alps Metropole (FR): GAM
- PP10 – POLYMERIS (FR): POL
- PP 11 – Lombardy Foundation for the Environment (IT): FLA
- PP 12 – TUM International GmbH (DE): TUMint

2 REFERENCE DOCUMENTS

D.1.1.1

D.1.1.2

D.1.2.1

D.1.3.1

D.1.4.1

3 ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader



INDEX

1 PROJECT PARTNERS 3

2 REFERENCE DOCUMENTS 4

3 ABBREVIATIONS USED..... 4

1 Overall goal..... 6

2 Specific Objectives (SOs) & Key performance indicators (KPIs) 7

Specific objective 1: Facilitate the establishment of symbiotic relationships and resource-sharing among companies, institutions, and local community in the Trieste Industrial Zone 7

Action 1: Analysis of the status and potential of the application of circular economy principles in the industrial park and identification of public bodies involved. 7

Action 2: Creation of an IT platform where enterprises share energy demand and waste production to check the feasibility of renewable energy production and industrial symbiosis. 8

Specific Objective 2: Strengthen the engagement and collaboration with the local community and promotion of the IP platform..... 10

Action 3: COSELAG holds a meeting with its stakeholders to develop circular economy concepts in the industrial zone 10

Action 4: AP Testing, refinement, and optimization of the platform..... 11



1 Overall goal

Our action plan, set up by the Trieste Economic Development Agency (Consorzio di Sviluppo Economico Locale dell'Area Giuliana), is strategically aimed at advancing the implementation of circular economy practices within the Trieste Industrial Park. This overarching initiative seeks to propel the transformation of the industrial park into a cutting-edge Eco-Industrial Park (EIP) by establishing an innovative IT platform. This platform will facilitate the exchange of crucial data on circular economy metrics, including environmental impact, energy consumption, and waste production.

The pivotal objective of this comprehensive action plan is to seamlessly integrate circular economy principles within the industrial park. The plan strategically addresses key areas such as optimizing waste management practices, promoting collaboration and cooperation among tenants and stakeholders within the industrial park, and create or identify opportunities for industrial symbiosis within the park. Simultaneously, the plan is designed to generate socio-economic benefits by fostering research collaborations, technological advancements, and the development of new circular economy solutions, and offer incubation programs or support structures specifically tailored to circular economy startups.

Our plan is steered by three different categories of actions: Pilot actions, marking the initial phase for real-world testing of our platform; WP3 actions, ensuring widespread dissemination of our experiences and insights; and Impact actions, guaranteeing the sustained, far-reaching effects of our efforts beyond the immediate phases of our plan.

To accomplish these ambitious goals, a series of strategic actions have been proposed. This includes increasing local awareness on waste exchange synergies opportunities and participation in energy sharing networks, with a specific focus on creation of energetic communities alimented by photovoltaics.



2 Specific Objectives (SOs) & Key performance indicators (KPIs)

Specific objective 1: Facilitate the establishment of symbiotic relationships and resource-sharing among companies, institutions, and local community in the Trieste Industrial Zone

Action 1: Analysis of the status and potential of the application of circular economy principles in the industrial park and identification of public bodies involved.

The project will start with a thorough examination of the current application of circular economy principles within the industrial park. This involves reviewing existing policies, conducting interviews with key stakeholders, and collecting data on waste management, resource utilization, and environmental impact. The outcome of this step is an initial report detailing the current state of circular economy application.

Next phase requires to identify governmental and non-governmental bodies responsible for the collection, monitoring, and dissemination of environmental, energetic, and waste information. This step involves comprehensive research and establishing contacts with relevant agencies. The output is a compiled list of public bodies and a clear understanding of their roles.

One-on-one meetings or workshops at different levels will be organized to understand stakeholders' needs.

Following the collection of data the project team will proceed to the hiring of a consulting company with expertise in database operations and algorithm execution. This is achieved by developing a Request for Proposal (RFP), evaluating proposals, and selecting a consulting company. The output is a signed contract with the chosen consulting company.

The project team will then collaborate closely with the consulting company to create a detailed functional flow chart. Activities include conducting workshops to define database operations, providing data requirements and algorithm specifications, and reviewing and iterating on the flow chart design. The result is a comprehensive function flow chart for the database operations.

Needed resources, technologies, and tools:

Assess the degree of potential interest towards circular economy topics between tenant companies through in person/online meetings.

Have access to environmental and energetic data on tenant companies.

**Stakeholders involved/Systemic Thinking Community (STC):**

SMEs;

Big Enterprises;

Regional Agency for Environmental Protection of Friuli Venezia Giulia (ARPA FVG);
AcegasApsAmga Trieste (Gruppo Hera);

Friuli Venezia Giulia Region - Department of waste management and polluted sites;

Chamber of Commerce.

Time frame:

11/2022 – 08/2023

Risks and benefits:

Breach of privacy legislation during the collection of data; inability to access and gather data from public platform (e.g. the regional energy register)

Adoption and Participation: The success of the platform depends on the active participation of stakeholders. Encouraging organizations to give out their data is essential to the creation of the platform and may require incentives, clear value propositions, and active engagement strategies. Overcoming resistance to change and ensuring broad participation can be a significant challenge.

Detailed understanding of the state of the art and current interest of the companies to these topics.

KPI: Number of companies involved.**Action 2: Creation of an IT platform where enterprises share energy demand and waste production to check the feasibility of renewable energy production and industrial symbiosis.**

The action involves the development of the database based on the finalized function flow chart based on results from the previous action. This involves engaging database developers to translate the flow chart into tangible database structures and functions. The output is an initial version of the database.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



Next step is the conceptualization of an IT platform designed for enterprises to share critical data on energy demand and waste production. This involves defining the scope, objectives, and potential benefits of the platform.

This will be achieved through continuous collaboration with the consulting company throughout the database development phase. Regular meetings are held to review progress and address any challenges encountered during development. The output is regular updates on the status of the database development. The project team will then engage with stakeholders, including industrial enterprises, to gather specific requirements for the IT platform and hold collaborative meetings and consultations to ensure that the platform aligns with the needs of the industrial park.

Lastly, there will be the development of the IT platform based on the gathered requirements and the project plan thanks to collaboration with software developers and IT specialists to create a robust platform that facilitates data sharing on energy demand and waste production.

Needed resources, technologies, and tools:

Detailed project plan outlining the design, development, and implementation stages of the IT platform. This plan should include a timeline, resource allocation, and key milestones, as well as an evaluation of technological requirements and estimating costs.

Information-sharing platform among stakeholders.

Stakeholders involved/Systemic Thinking Community (STC):

Public bodies and entities in charge of the collection, monitoring and dissemination of environmental, energetic and waste information (e.g. ARPA, Acegas etc..)

Time frame:

08/2023 – 12/2023

Risks and benefits:

Interoperability and Integration Challenges: Integrating data from diverse sources and systems is complex. The platform should support interoperability standards, allowing seamless integration of data from different stakeholders. Compatibility issues and technical challenges may arise, requiring dedicated resources for system integration and maintenance.

Creation of the information-sharing platform tailored to the Trieste Industrial Zone reality. This project is co-funded by the European Union through the Interreg Alpine Space programme.

Project-ID: ASP0100091



KPI: Creation of the platform

Specific Objective 2: Strengthen the engagement and collaboration with the local community and promotion of the IP platform

Action 3: COSELAG holds a meeting with its stakeholders to develop circular economy concepts in the industrial zone

This action focuses on conducting awareness campaigns and informational sessions to disseminate the project objectives and the completion from the IT platform project. This will further engage the broader community to foster understanding and support.

The aim of the meeting is to explain the functionalities of the platform and clear out any potential obstacles to its utilisation by stakeholders.

Needed resources, technologies, and tools:

None

Stakeholders involved:

SMEs

Big companies

Friuli Venezia Giulia Region

Time frame:

The meeting should be held on October 2023

Risks and benefits:

Cultural and Organizational Barriers: the lack of awareness of possible benefits related to CE practices among stakeholders might hinder participation to the meeting.

Knowledge Sharing: increased awareness and understanding of the circular economy concept among stakeholders.

Stakeholder Engagement: This type of events can facilitate engagement among various stakeholders, such as government agencies, businesses, research institutions, and NGOs. It allows them to collaborate, exchange ideas, and work together towards common environmental objectives

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

**KPIs: Number of meetings held****Action 4: AP Testing, refinement, and optimization of the platform**

During this phase, the IT platform undergoes rigorous testing to ensure its functionality, security, and usability. This involves a multi-faceted approach:

Functionality Testing: the project team will evaluate each function of the platform to ensure it performs as intended. This includes verifying data sharing mechanisms, calculators for energy demand, and waste production tracking.

Security Testing: Conduct thorough security assessments to identify and address vulnerabilities. This involves testing for potential breaches, data leaks, and ensuring compliance with data protection regulations.

Usability Testing: Engage users in simulated scenarios to evaluate how easily they can navigate the platform. Identify any user interface issues, confusion points, or areas for improvement.

Needed resources, technologies, and tools:

The platform put in place in the previous phase and the participation of the larger possible number of companies.

Stakeholders involved:

SMEs and other companies existing within the IP.

Time frame:

12/2023 – 03/2024

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plan

**for the EBZ Zalog and the uptake of the
circular economy approach**

Deliverable D1.4.1

Produced by

PPT 4: RRA LUR





Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create an action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plan for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP04 RRA LUR
Author(s)	Tina Pezdirc Nograšek

Short Description
This document provides guidelines for the needs analysis of the industrial parks and for the development of tailored action plans for each park.

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	23.06.2023	Tina Pezdirc Nograšek	RRA LUR
V2.0	19.12.2023	Tina Pezdirc Nograšek	RRA LUR
...			
Final Document			

The document has been prepared by the project partner PP4 – Regional Development Agency of the Ljubljana Urban Region (RRA LUR) of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI

PP 2 – Trieste Economic Development Agency (IT): COSELAG

PP 3 – Development agency Sora Ltd. (SI): RA sora

PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR

PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ

PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB

PP 7 – Landshut University of Applied Sciences (DE): TZE

PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM

PP 9 – Grenoble-Alps Metropole (FR): GAM

PP10 – POLYMERIS (FR): POL

PP 11 – Lombardy Foundation for the Environment (IT): FLA

PP 12 – TUM International GmbH (DE): TUMint



REFERENCE DOCUMENTS

D.1.1.1

D.1.1.2

D.1.2.1

D.1.3.1

D.1.4.1

ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader



INDEX

1. Overall goal	5
2. Specific objectives (SOs) and Key performance indicators (KPIs)	6
<u>Specific objective 1: Facilitate the establishment of symbiotic relationships and resource-sharing among companies, institutions, and the local community in the EBZ Zalog</u>	6
Action 1: Clustering of partners in the supply and value chain waste management in EBZ Zalog.	
<u>Specific Objective 2: Planning sustainable resource management and community collaboration in the EBZ Zalog.</u>	8
Action 2: Develop a waste management plan for the collection of edible waste oil from the local community to provide a resource for biofuel.	
Action 3: Establish a Strategy for community interaction and communication.	
<u>Specific Objective 3: Foster effective waste management and community engagement practices in EBZ Zalog.</u>	11
Action 4: Testing the strategies from the waste management plan: minimize waste generation and optimize resource utilization across.	
Action 5: Initiate community interaction and communication efforts.	
3. Overview of the actions	15



1 Overall goal

Our action plan is centered on realizing the transformation of the industrial park EBZ Zalog into an eco-industrial park. Its blueprint follows a structured framework, tailored to the unique characteristics of our target area while ensuring comparability and providing a reference point for future projects aimed at transforming other industrial parks.

The core objective of the action plan is to enhance the environmental sustainability of industrial operations within the park. This will be achieved by integrating circular economy principles into waste management practices, promoting the efficient use of resources, and reducing environmental footprint. At the same time, the plan also intends to generate social and economic benefits by encouraging local participation, creating business opportunities, and improving regulatory frameworks.

Guiding our mission are three specific types of actions: Pilot actions that form the initial step and allow for real-world testing of our strategies, WP3 actions which ensure the broader dissemination of our experiences and learnings, and Impact actions that ensure the long-term sustainability and far-reaching effects of our efforts even beyond the immediate phases of our plan.

To accomplish this, we have proposed a series of actions: increasing local awareness and engagement in sustainable waste management practices, particularly focusing on the collection of edible waste oil for biofuel production; developing a set of recommendations to incentivize and facilitate the transformation of existing industrial parks into eco-industrial parks; and creating a knowledge repository that consolidates insights and best practices for eco-industrial park development.

These actions will be implemented through educational outreach, collaboration with relevant stakeholders, comprehensive research, and experience exchange. The action plan seeks to involve a broad spectrum of stakeholders, including local community members, waste management and biofuel production companies, government agencies, and sustainability experts, among others.

By adhering to the structured framework, our action plan promises to not only advance the sustainable transformation of the industrial park in EBZ Zalog but also to serve as a valuable model for similar initiatives in the future. The ultimate vision is a network of eco-industrial parks that embody environmental sustainability, economic viability, and social inclusivity, contributing positively to local communities and the wider ecosystem.

Specific Objectives (SOs) & Key performance indicators (KPIs)

Specific objective 1: Facilitate the establishment of symbiotic relationships and resource-sharing among companies, institutions, and local community in the EBZ Zalog

i. Action 1: Clustering of partners in the supply and value chain waste management in EBZ Zalog.

Firstly, the assessment of waste management capabilities in EBZ Zalog will be conducted to understand the existing resources. This includes identifying companies, institutions, waste management organizations, and community representatives involved in waste management.

Next a plan to facilitate information sharing and collaboration among the identified stakeholders will be developed in order to enable for stakeholders to connect, exchange knowledge, and explore potential partnerships.

Meetings at different levels will be organized. This will provide the opportunity to meet, share expertise, discuss challenges and opportunities, and explore potential collaboration.

The aim is to encourage and facilitate the formation of symbiotic relationships and resource-sharing among stakeholders. Partnerships are based on complementary waste management capabilities and goals.

The overall objective is to foster collaboration, enhance waste management practices, and promote sustainable resource utilization within the EBZ Zalog community.

Needed resources, technologies, and tools:

Resource mapping and analysis of waste management facilities and capabilities in EBZ Zalog.

Expertise in waste management practices and technologies.

Meetings to facilitate partnerships.

**Stakeholders involved/Systemic Thinking Community (STC):**

Regional Development Agency of the Ljubljana Urban Region

Municipality of Ljubljana

Companies operating in EBZ Zalog/KOTO

Waste management organizations/Voka–Snaga municipal waste treatment service

Local community representatives/Specific local areas, communities, citizens

The quarter community of Polje

Time frame:

Conduct resource mapping and analysis: 2 months, develop a plan to facilitate information sharing: 2 month, organize networking events/workshops: 2 months/altogether 6 months

Risks and benefits:

1. Resistance or reluctance from some companies to share information or collaborate

Technical challenges in integrating different waste management systems

Potential conflicts of interest among stakeholders

2. Increased efficiency and effectiveness in waste management through collaboration and resource-sharing

Reduction of redundant waste management infrastructure and costs

Enhanced sustainability practices within the EBZ Zalog community

KPI: Number of engaged stakeholders.



Specific Objective 2: Planning sustainable resource management and community collaboration in the EBZ Zalog.

ii. Action 2: Develop a waste management plan for the collection of edible waste oil from the local community to provide a resource for biofuel.

The action involves conducting research on the local community's waste oil generation and disposal practices. This includes understanding the quantity of waste oil generated, current disposal methods, and potential sources of edible waste oil.

Infrastructure setup is another important step, which entails establishing collection infrastructure such as collection bins and transportation vehicles. This infrastructure will enable the efficient and safe collection of edible waste oil from the local community, tailored to meet the specific requirements of waste oil collection.

Identifying and implementing appropriate treatment and processing technologies for converting the collected waste oil into biofuel is another key aspect of the action. This may involve partnering with biofuel production companies or adopting established conversion technologies.

Needed resources, technologies, and tools:

Research capabilities to assess waste oil generation and disposal practices.

Collection infrastructure such as collection bins, vehicles, and storage facilities.

Treatment and processing technologies for converting waste oil into biofuel.

Expertise in waste management, biofuel production, and community engagement.

Stakeholders involved/Systemic Thinking Community (STC):

Local community members who generate edible waste oil.

Waste management companies (Koto, Voka – Snaga) responsible for collection and transportation.

Biofuel production companies involved in converting waste oil into biofuel.

Regional organizations providing expertise and guidance (RRA LUR).



Local authorities responsible for waste management regulations and policies (Municipality of Ljubljana).

Time frame:

Research: 1-2 months, infrastructure setup: 2-4 weeks/altogether 4-6 months.

Risks and benefits:

1. Limited participation or awareness among the local community, leading to low waste oil collection rates.

Technical challenges in waste oil collection, transportation, and processing.

Market viability and demand for the produced biofuel may be uncertain.

Regulatory compliance and adherence to waste management guidelines.

1. Reduced environmental impact by diverting waste oil from improper disposal.

Closing the loop by creating the biofuel resource, contributing to energy sustainability.

Increased community engagement and awareness of waste management practices.

Potential economic opportunities in the biofuel production sector.

Enhanced collaboration and partnerships among stakeholders, fostering a more sustainable ecosystem.

KPI: Waste management plan prepared.**iii. Action 3: Establish a Strategy for community interaction and communication.**

This action aims to establish a communication plan for community interaction that includes various channels and platforms, such as websites, social media, and newsletters. The strategy will foster effective information sharing, engagement, and feedback between the local community and the companies/institutions, promoting transparency, understanding, and collaboration.

Needed resources, technologies, and tools:

Communication channels and platforms (e.g., websites, social media, newsletters).

Community engagement tools for interactive communication.

Expertise in communication and public relations.

Data collection and analysis tools to gather feedback and assess communication effectiveness.

Stakeholders involved:

Local community members residing in and around EBZ Zalog.

Companies and institutions operating in EBZ Zalog (Koto etc.).

Community organizations or representatives (Quarter Community Polje).

Communication and PR professionals or consultants (RRA LUR, Voka – Snaga, MOL).

Time frame:

Development of the strategy: 6 months

Risks and benefits:

1. Limited participation or interest from the local community.

Communication gaps or misunderstandings leading to misalignment of expectations.

Challenges in accessing communication channels.

2. Enhanced engagement and collaboration between the local community and companies/institutions.

Improved transparency and trust through regular and effective communication.



Opportunities for community input, feedback, and involvement in decision-making processes.

Strengthened relationships and a sense of ownership among community members.

KPI: Strategy for community interaction and communication prepared.

Specific Objective 3: Foster effective waste management and community engagement practices in EBZ Zalog.

iv. **Action 4: Testing the strategies from the waste management plan: minimize waste generation and optimize resource utilization across.**

This action focuses on establishing a waste exchange system where edible waste oil from the local community is collected and used to produce biofuel. Simultaneously, measures will be implemented to reduce waste generation and optimize resource utilization in various industries within EBZ Zalog. This will involve the setup of waste oil collection infrastructure, the development of resource optimization strategies, and the promotion of collaboration. The goal is to minimize waste, maximize resource efficiency, and create a sustainable circular economy within the community.

Needed resources, technologies, and tools:

Waste oil collection infrastructure (as mentioned in Action 2).

Resource optimization and waste minimization strategies tailored to specific industries, which may include process modifications, technology upgrades, and waste reduction initiatives.

Monitoring systems for waste generation and resource utilization to track progress and identify improvement areas.

Collaboration networks for waste exchange opportunities, allowing companies to share and exchange by-products or waste materials for beneficial use.

**Stakeholders involved:**

Local community members who generate edible waste oil.

Waste management companies (Koto, Voka – Snaga) responsible for collection and transportation.

Biofuel production companies involved in converting waste oil into biofuel.

Regional organizations providing expertise and guidance (RRA LUR).

Local authorities responsible for waste management regulations and policies (Municipality of Ljubljana).

Regulatory authorities overseeing industrial processes to ensure compliance and provide necessary approvals.

Time frame:

The implementation of waste oil collection is an ongoing process, requiring continuous efforts to collect edible waste oil from the local community. The development and implementation of resource optimization measures are part of a continuous improvement process, requiring periodic assessments, adjustments, and refinement over time/8 months.

Risks and benefits:

1. Resistance or scepticism from companies in adopting waste exchange practices due to concerns about logistics, feasibility, or additional costs.

Complexity in implementing resource optimization strategies, requiring tailored approaches, and overcoming technical or operational challenges.

Regulatory challenges or compliance issues in aligning industrial processes with waste exchange and optimization initiatives.

2. Reduction in waste generation and associated disposal costs, leading to environmental benefits and improved sustainability.

Enhanced resource efficiency and cost savings for participating companies through the utilization of by-products or waste materials.



Strengthened collaboration and relationships among industrial partners in the EBZ Zalog community, fostering a culture of resource sharing and sustainable practices.

KPIs: Quantity of produced biofuel, measuring the output of the biofuel production from the collected waste oil.

Calculation of reduced Carbon Footprint, assessing the environmental impact reduction achieved through waste oil collection and biofuel production.

v. Action 5: Initiate community interaction and communication efforts.

This action involves interaction with local communities to raise awareness about the principles of circular economy and the positive impact of proper waste management. Through educational materials, outreach campaigns, and collaboration with waste management and biofuel production companies, the goal is to educate and engage the local community in the collection of edible waste oil for biofuel production. By promoting recycling, this action encourages sustainable practices and reduces the environmental footprint of the community.

Needed resources, technologies, and tools:

Educational materials on circular economy concepts and practices.

Awareness campaigns and outreach materials (e.g., brochures, videos, workshops).

Collaboration with waste management companies.

Stakeholders involved:

Local community members residing in and around EBZ Zalog.

Companies and institutions operating in EBZ Zalog (Koto etc.).

Community organizations or representatives (Quarter Community Polje).

Communication and PR professionals or consultants (RRA LUR, Voka – Snaga, MOL).



Local authorities (MOL).

Time frame:

6 months

Risks and benefits:

1. Limited awareness or understanding of circular economy concepts.
Resistance to change or adoption of new waste management practices.
Scepticism regarding the benefits or feasibility of waste oil collection for biofuel production.
2. Increased awareness and understanding of circular economy principles among the local community.
Promotion of recycling, reuse, and resource recovery.
Reduced environmental impact through proper waste oil disposal and biofuel production.

KPIs: Number of events organized to engage the local community.

Number of engaged community members.



		practices and technologies.	Local community representatives/Specific local areas, communities, citizens Quarter community of Polje			
2	Develop a waste management plan for the collection of edible waste oil from the local community to provide a resource for biofuel.	Research capabilities to assess waste oil generation and disposal practices. Collection infrastructure such as collection bins, transportation vehicles, and storage facilities. Treatment and processing technologies for converting waste oil into biofuel.	Local community members who generate edible waste oil. Waste management companies (Koto, Voka – Snaga) responsible for collection and transportation. Biofuel production companies involved in converting waste oil into biofuel. Regional organizations providing expertise	6 months	<ol style="list-style-type: none"> Limited participation or interest from the local community. Communication gaps or misunderstandings leading to misalignment of expectations. Challenges in accessing communication channels. Enhanced engagement and collaboration between the local community and companies/institutions. Improved transparency and trust through regular and effective communication. Opportunities for community input, feedback, and involvement in decision-making processes. Strengthened relationships among companies and community members. 	i

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

Project-ID: ASP0100091



		Expertise in waste management, biofuel production, and community engagement.	and guidance (RRA LUR). Local authorities responsible for waste management regulations and policies (Municipality of Ljubljana).			
3	Establish a Strategy for community interaction and communication.	Communication channels and platforms (e.g., websites, social media etc.). Community engagement tools for interactive communication. Expertise in communication and public relations.	Local community members residing in and around EBZ Zalog. Companies and institutions operating in EBZ Zalog (Koto etc.). Community organizations or representatives (Quarter Community Polje). Communication and PR professionals or	6 months	1. Limited participation or interest from the local community. Communication gaps or misunderstandings leading to misalignment of expectations. Challenges in accessing communication channels. 2. Enhanced engagement and collaboration between the local community and companies/institutions. Improved transparency and trust through regular and effective communication. Opportunities for community input, feedback, and involvement in decision-making processes.	ii

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



			consultants (RRA LUR, Voka – Snaga, MOL).		Strengthened relationships and a sense of ownership among community members	
4	Testing the strategies from the waste management plan: minimize waste generation and optimize resource utilization across.	<p>Waste oil collection infrastructure.</p> <p>Resource optimization, process modifications, technology upgrades, and waste reduction initiatives.</p> <p>Monitoring systems for waste generation and resource utilization to track progress and identify improvement areas.</p> <p>Collaboration networks for waste exchange opportunities, allowing companies to</p>	<p>Local community members who generate edible waste oil.</p> <p>Waste management companies (Koto, Voka – Snaga) responsible for collection and transportation.</p> <p>Biofuel production companies involved in converting waste oil into biofuel.</p> <p>Regional organizations providing expertise and guidance (RRA LUR).</p> <p>Local authorities responsible for waste management regulations and</p>	8 months	<p>1. Resistance or skepticism from companies in adopting waste exchange practices due to concerns about logistics, feasibility, or additional costs.</p> <p>Complexity in implementing resource optimization strategies across diverse industries, requiring tailored approaches and overcoming technical or operational challenges.</p> <p>Regulatory challenges or compliance issues in aligning industrial processes with waste exchange and optimization initiatives.</p> <p>2. Reduction in waste generation and associated disposal costs, leading to environmental benefits and improved sustainability.</p> <p>Enhanced resource efficiency and cost savings for participating companies through the utilization of by-products or waste materials.</p> <p>Strengthened collaboration and relationships among industrial partners in the EBZ Zalog</p>	iii

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

Project-ID: ASP0100091



		<p>share and exchange by-products or waste materials for beneficial use.</p> <p>Regulatory authorities overseeing industrial processes to ensure compliance and provide necessary approvals.</p>	<p>policies (Municipality of Ljubljana).</p>		<p>community, fostering a culture of resource sharing and sustainable practices.</p>	
5	<p>Initiate community interaction and communication efforts.</p>	<p>Awareness campaign and outreach materials (e.g., brochures, videos, workshops).</p>	<p>Local community members residing in and around EBZ Zalog.</p> <p>Companies and institutions operating in EBZ Zalog (Koto etc.).</p> <p>Community organizations or</p>	6 months	<p>1. Limited awareness or understanding of circular economy concepts.</p> <p>Resistance to change or adoption of new waste management practices.</p> <p>Skepticism regarding the benefits or feasibility of waste oil collection for biofuel production.</p>	iii

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

Project-ID: ASP0100091



			<p>representatives (Quarter Community Polje).</p> <p>Communication and PR professionals or consultants (RRA LUR, Voka – Snaga, MOL).</p> <p>Local authorities (MOL).</p>		<p>2. Increased awareness and understanding of circular economy principles among the local community.</p> <p>Promotion of recycling, reuse, and resource recovery.</p> <p>Reduced environmental impact through proper waste oil disposal and biofuel production</p>	
--	--	--	--	--	---	--

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plan for the S7 - Rudersdorf Business Park and the uptake of the circular economy approach

Deliverable D1.4.1

Produced by

PPT 6: WAB



RRA LUR



ITALCAM
ITALIENISCHE HANDELSKAMMER
MÜNCHEN - STUTTGART



Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create an action plan for the uptake of circular economy approach in the EIP of Rudersdorf.
Deliverable	D1.4.1 Action plan for the Eco-Industrial Park and the uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.09
Dissemination	PPs
Partner in charge	PP06 WAB
Author(s)	Gerald Peischl Sarah Hedden Joachim Schmidt

Short Description
This document provides a detailed overview of the challenge, vision and plan to integrate enhanced circularity at the S7-Rudersdorf Business Park, Burgenland, Austria.

Dissemination level		
PU	Public	X
PP	Restricted to other programme participants	
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author(s)	Organization
V1.0	28.06.2023	Gerald Peischl Sarah Hedden	WAB
V2.0 (Comments & Feedback)	15.09.2023	Astrid Heindl	TZE
Final Document	28.09.2023	Gerald Peischl Sarah Hedden Joachim Schmidt	WAB

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

Project-ID: ASP0100091



The document has been prepared by the project partner PP6 - Wirtschaftsagentur Burgenland (WAB) of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI

PP 2 – Trieste Economic Development Agency (IT): COSELAG

PP 3 – Development agency Sora Ltd. (SI): RA sora

PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR

PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ

PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB

PP 7 – Landshut University of Applied Sciences (DE): TZE

PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM

PP 9 – Grenoble-Alps Metropole (FR): GAM

PP10 – POLYMERIS (FR): POL

PP 11 – Lombardy Foundation for the Environment (IT): FLA

PP 12 – TUM International GmbH (DE): TUMint

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

Project-ID: ASP0100091



ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
RBP	Rudersdorf Business Park
SO	Specific Objective
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader

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

Project-ID: ASP0100091



INDEX

PROJECT PARTNERS	2
ABBREVIATIONS USED	3
1. Introduction	5
Summary Masterplan Intercommunal Business Park S7-Node Rudersdorf	5
Summary of Challenge & Vision	6
2. Summary of Pilot Concept and Technical Energy Resilience Solution for Greenfield Sites	8
3. Specific Objectives (SOs) & Key performance indicators (KPIs)	10
Annex I- Compressed Master Plan File	14
Annex II - Form for the Action Plan elaboration	15
Annex III - UNIDO Indicators for status quo	39

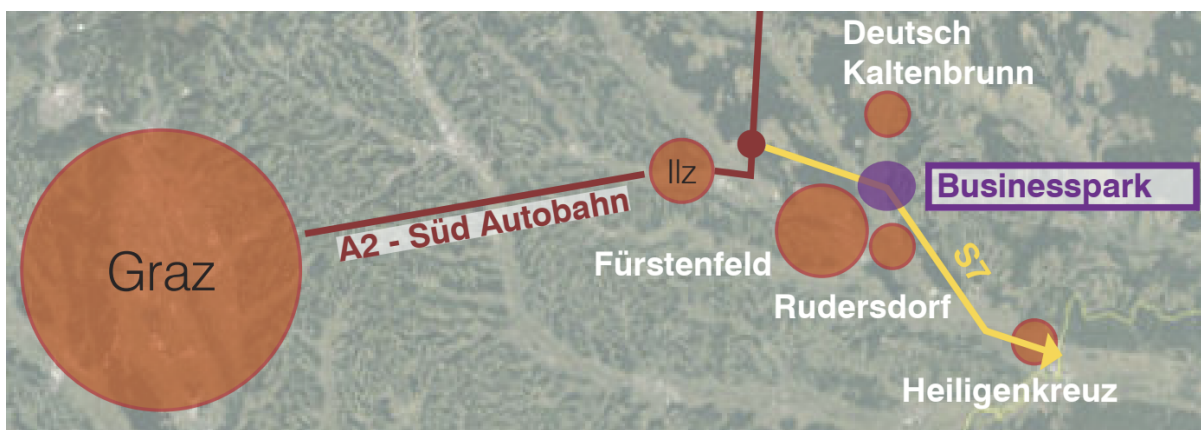
This project is co-funded by the European Union through the Interreg Alpine Space programme.

Project-ID: ASP0100091

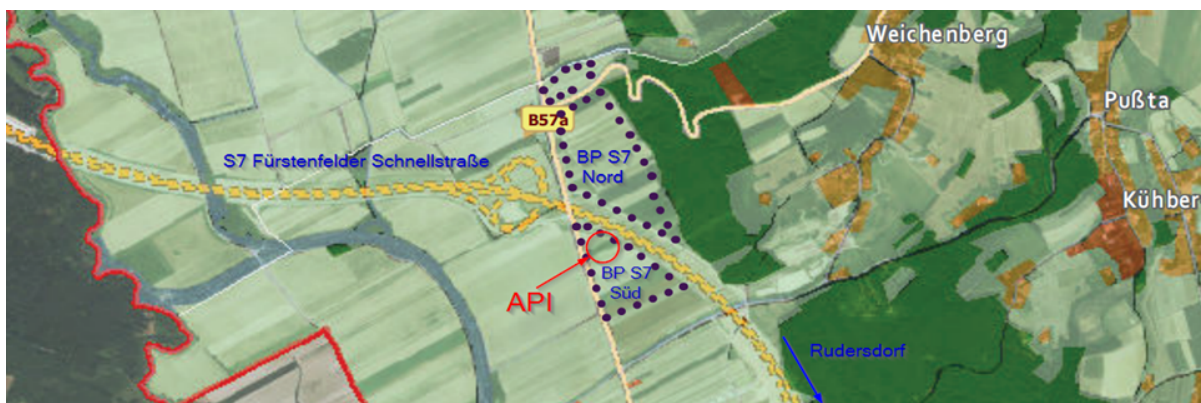
1. Introduction

Summary Masterplan Intercommunal Business Park S7-Node Rudersdorf

The Business Agency Burgenland has developed an Inter-municipal Business Park in Rudersdorf with the involvement of a total of 12 municipalities in the district of Jennersdorf. The location was determined due to its position at the junction of the S7 expressway on the municipal area of Rudersdorf with an area of about 17 ha in the middle of an intensively agriculturally used area and directly adjacent to the national road B57a. In the east, a forest area borders the relatively structure-poor open space between the settlement areas of the market community Deutsch Kaltenbrunn (distance: 1.7 km) and the market community Rudersdorf (distance: approx. 700 m).



The master plan creates the basis for the planned specifications at the level of zoning planning and forms the framework for action for the establishment and further development of the new inter-municipal business location. Objectives and measures are defined for the modules of the master plan, which are to be taken into account in the planning and implementation steps.



Green and open spaces make an important contribution to the quality of stay of the users: passive flood protection through surface pavements capable of infiltration, improvement of thermal comfort for employees through bright surface pavements and building greening, heat and cold protection of buildings through roof greening or facade greening and contribution to rainwater management

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

Project-ID: ASP0100091



through roof greening. Employee open spaces could have a positive impact on employees' daily lives. The areas should also serve as compensation areas and are planned to the extent of more than 1 ha.

In the area of construction and energy, there are opportunities to reduce the space heating/cooling requirements: optimization of the ratio of heat-transferring external wall surfaces (A/V ratio), use of passive solar energy through arrangement of the buildings, orientation of the rooms in the buildings, natural and artificial shading in summer or arrangement of the rooms, greening of facades and roofs, insulation and targeted ventilation, avoidance of thermal bridges, energy-conscious use and ongoing operation (e.g. use of energy-saving appliances and lighting fixtures). The use of renewable energies is possible by means of solar heat through thermal solar collectors and for electricity generation through photovoltaic systems, as well as geothermal heat and the heat of the air via heat exchangers.

The traffic-technical development takes place via a collector road and subsequently via subordinate service roads and cycling paths. The business park is therefore also attractively accessible by bicycle. The location of the S7 junction is on an already well-established public transport line with stops within walking distance. Appropriate cross-section widths for the access roads must be ensured in order to meet the user demands of all road users.

The aim of the resulting specifications in the master plan is to anchor the design principles and specifications in a future development plan as well as in the specification of the qualitative requirements in private-law contracts.

In summary, corresponding specifications are recommended in a development plan:

- Development method, development density, building line
- Building height, number of floors
- Outbuildings, parking facilities
- General provisions on the external design of the buildings
- Design of green areas
- Design of traffic areas
- Advertising facilities

Summary of Challenge & Vision

The Master Plan of Rudersdorf Business Park (RBP), provides a great basis for enhancing energy resilience and security of supply for potential future residents. The Plan provides insights on reasonable steps that resident tenants could take in order to improve sustainability and energy circularity in the park.

However, the masterplan does not mandate the uptake of these technologies and principles for resident tenants when they are building their premises on the park. Tenants are required to meet the local building ordinances, which determine how Austrian law is implemented in the specific territory. These conditions are set by the office of the mayor of the municipal government, who provides approval for specific building plans.

Therefore, there is no certainty that the masterplan will be delivered as written, as each premises will be developed by individual companies who approach the Business Park and the mayor's office for approval to build.

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

Project-ID: ASP0100091



The vision of WAB is to establish a process to engage with potential future Business Park residents/ tenants to explain, economically and technologically, the benefits of following the masterplan and ultimately onboarding technology which can enhance each resident tenant's energy resilience and improve the whole business park's circularity.

The ECOLE project offers a perfect environment to design and test this process, before rolling it out to all SMEs interested in becoming residents on the RBP. The following pages of this document explain more about the objectives of this pilot and the measurable outcomes WAB hopes to achieve in the coming year of pilot testing.



2. Summary of Pilot Concept and Technical Energy Resilience Solution for Greenfield Sites

As expressed in the introduction of this document, WAB intends to develop a process to engage early with future resident tenants of the RBP to convince them of the benefits of the masterplan. This could be simply described as the development of a consulting service which provides educational information and technical decision support for the SMEs, so they can understand the benefits that these technologies and business models can bring to them.

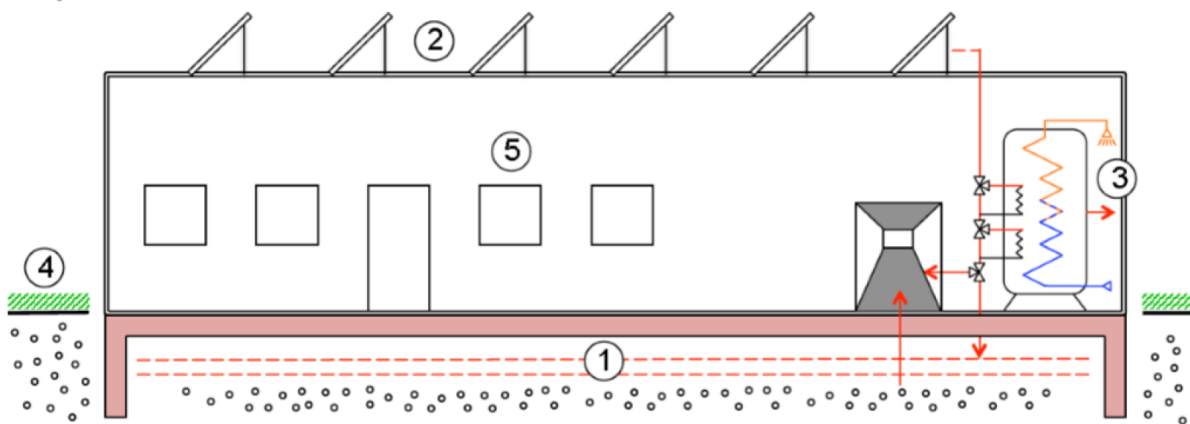
Background to Solution Engineering

The business park Rudersdorf-Deutsch Kaltenbrunn is a greenfield-site, so at the moment there is no available source of renewable energy like biomass, district heating or biogas. The dimension of new energy centers is an enormous economic risk in the case of greenfield business parks because there is no detailed information on what kind of buildings will be built and in which time they will be finished. Because of this it makes sense to utilize existing energy infrastructure like the natural gas or electrical power grid.

Also the available floor space is very expensive, so it's useful to search for green technologies which are working without any energy centers or a grid on development areas.

Installing just solar thermal panels or photovoltaic systems on the roof area of the business buildings won't solve the requirements for renewable energy over the course of a year. The larger the solar energy system is dimensioned, the more important is the integration of an energy storage. Conventional seasonal energy storages need a lot of space, they suffer from substantial storage heat losses and are very expensive. So we have to establish a system, fitting to new business buildings, including renewable energy and seasonal energy storages. A way to increase the heat storage capacity of a building is to make use of the thermal capacity of construction components. All solid components such as ceilings, walls and foundations can basically be used as sensible heat storage elements, i.e. by increasing their temperature. This process is called thermal activation.

In combination with solar-thermal or solar-electric systems, a high level of solar coverage of the building's energy needs can be achieved, enabling a far-reaching supply with renewable energy. For several years, this approach has been followed by individual pioneers in the construction industry and has already been implemented in several promising construction projects.



An additional consulting service is strictly technologically specific for the usage of plastic heat exchanger tubes as well as the Smart Grid interface of the heat pump installation respectively the Smart Meter of the network operator which makes the communication in the system possible. As even these technology specific components have multiple uses it is difficult to separate the added value. The scope of the possible effects, which are beneficial for the system through the thermal inertia of the heating and cooling load of buildings, will presumably strongly increase in the future.

In the course of ECOLE we will support the initial consulting process to the interested companies (small and medium-sized businesses), including all the stakeholders. Every separate innovative building will increase the energy efficiency of the business park without any influence to others. For further information there will be technology consulting folders and posters to support the stakeholder process.

3. Specific Objectives (SOs) & Key performance indicators (KPIs)

Specific objective 1 : Design an approach to engage with companies to make this cost-benefit clear and understood.

Action 1: Support service concept

Needed resources, technologies and tools:

Information service with a standard process and repeatable tools, designing a checklist with a matrix

Possibilities for subsidies and financial support by the government, local, district, national, EU

Stakeholders involved/Systemic Thinking Community (STC):

Implementing agency /staff

Technology experts

Service providers (Internet, Phone, Electricity, Water, Waste providers, Public Transport)

Time frame:

Desk research (1-2 months); documentation/advertising material generation (1-2 months). Completed by January 2024

Risks and benefits:

No companies at the moment

KPI:

PowerPoint Deck/Word Document detailing the modules of the consulting service, and advertising material/approach to transfer this knowledge to companies.

Action 2: Support service test with companies from Burgenland

Needed resources, technologies and tools:

Analysis with potential SMEs that might become residents of the park

Stakeholders involved/Systemic Thinking Community (STC):

Potential SMEs

Time frame:

Exact time frame can be adjusted based on approaches from interested tenants.

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

Project-ID: ASP0100091



Test subjects (3 companies) are identified (1-2 months). Completed by January 2024.

Test will start in February 2024 and run until April 2024.

Risks and benefits:

Finding appropriate companies

KPI:

Number of companies tested (signature list, photo)

Action 3: Rolling out the official support service

Needed resources, technologies and tools:

Round table for new companies, kick off meetings

Introducing „Klimaaktiv Gebäude“, benefit for EU taxonomie

Focus on life cycle costs and energy resilience

Discussion of the masterplan targets and requirements – optional or mandatory, economical benefits

Who is the owner of the building, who is the user (benefit of lower energy costs)?

Stakeholders involved/Systemic Thinking Community (STC):

Tenant firms

Implementing agency /staff

Service providers (Internet, Phone, Electricity, Water, Waste providers, Public Transport)

Time frame:

Round table with stakeholders in May or June 2024

Advertising campaign from June to September 2024

Risks and benefits:

No companies at the moment

KPI:

1 Round table with all key stakeholders (local STCM)

ECOLE exchange discussions on value-chain resilience (total number TBD).

RBP service advertising (posters, photos, LinkedIn outreach, exact material TBD based on service design & best channel to market)

Specific objective 2: Complete research on optimal combinations of technologies for the greenfield site, and establish a process to transfer this knowledge to interested companies and stakeholders.

Action 1: Technical paper on available and recommended technologies for the park (advertised at the park)

Needed resources, technologies and tools:

Reference to technical energy concept for greenfield IP

Stakeholders involved/Systemic Thinking Community (STC):

Tenant firms

Implementing agency /staff

Time frame:

Desk research (1-2 Months) & writing (1 month) , completed by January 2024 (aligned to the consulting service development)

Risks and benefits:

No companies at the moment

KPI:

Detailed technical descriptions on the five-scoped technologies

Action 2: Establish a technology round table for all interested stakeholders, to gather requirements and discuss technology needs and opportunities for the RBP

Needed resources, technologies and tools:

Getting feedback to improve the tools, lessons learned

Stakeholders involved/Systemic Thinking Community (STC):

Tenant firms

Implementing agency /staff

Technology experts

Time frame:

Round Table with stakeholders in May or June 2024 (Aligned to consulting service roll-out)

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

Project-ID: ASP0100091

Risks and benefits:

No companies at the moment

KPI:

Technology round table

Specific objective 3: Design an approach to transfer outcomes of the build and test of the support service to the individuals responsible for developing IPs and BPs in Burgenland.

Action 1: Recommendations paper**Needed resources, technologies and tools:**

Technical services which will be provided & the tools which might be used to make those decisions

Stakeholders involved/Systemic Thinking Community (STC):

Implementing agency /staff

Time frame:

From the end of the roll-out period to the end of the pilot period (September 2024 to December 2024)

Risks and benefits:

Completely other requirements in other BP/IP

KPI:

1 recommendations paper on transferring the knowledge to other BPs/IPs

Number of BP/IP to develop (post-project KPI), Target 1 during project.

Action 2: Circular caravan/discussion with stakeholders on the paper**Needed resources, technologies and tools:**

Checking business model for consulting service

Stakeholders involved/Systemic Thinking Community (STC):

Implementing agency /staff

Technology experts

Time frame:

Open Day, alongside commissioning on the first building (Dec 2024 to Sept 2025, likely date Feb/March 2025)

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

Project-ID: ASP0100091

Final stakeholder roundtable/transfers (March 2025 to project close).

Risks and benefits:

Completely other requirements in other BP/IP

KPI:

Number of BP/IP to develop (post project KPI), Target 1 during project.

1 open day with the STC (in project KPI)

1 round table with any additional stakeholders (in project KPI)

Annex I– Compressed Master Plan File

Hyperlink to Compressed File.

https://drive.google.com/file/d/1AEFv_8OJaYbbTe8RzI12X7yhO8ggZx-H/view?usp=drive_link



Annex II – Form for the Action Plan elaboration

1. IP Analysis

1.1 General description of the IP

Please read the document ACT.1.1 Define a common **understanding & framework of the Eco-Industrial Parks** (EIPs) & circular economy approach for Alpine region carefully and answer the question below.

WHAT WOULD WE LIKE OUR EIP TO BE?

EIP planners can consider choosing between two possible types of EIP sites: greenfield developments (on virgin land), and brownfield developments. All these types of sites offer very different challenges and opportunities for creating EIPs (p.13).

Greenfield Brownfield

WHICH IS THE MOST RELEVANT CHARACTERISTIC ASSOCIATED WITH YOUR PILOT SITE?

(First, choose the relevant type for your pilot site/Greenfield, Brownfield then see the main characteristics in Table 2/p.13 and answer the question.)

INTERKOMMUNALER BUSINESSPARK S7-KNOTEN RUDERSDORF ('S7-RBP') is a greenfield site in the south of Burgenland. Currently the site is in the design phase, whereby a completed Masterplan (compressed version attached as Appendix 1) has been established to showcase the build-out concept for potential residents of the park. The site has no official residents yet, but residents are currently being addressed to establish themselves in the park.

Points of control in the design process (i.e. cost/benefit analysis, regulation, planning, and zoning) are relatively well defined and commonly understood, but as there are no residents yet - there is some way to go before the industrial park is operational.

WHICH BENEFITS/DRIVERS OF PERFORMANCE ARE FROM YOUR PERSPECTIVE MOST RELEVANT FOR YOUR PILOT SITE?

(Please see the table on p. 12 and choose max 3 most relevant benefits from each category/Environmental, Economic, Social)

- More efficient use of resources (e.g. energy, water, materials)
- Lower emissions and land degradation
- Drive environmental policy change
- Lower operation costs
- Lower production cost due to energy efficiency

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

Project-ID: ASP0100091



	<ul style="list-style-type: none"> ● Compliance with regulatory policies ● Creation of (non-relocatable) jobs ● Stronger community networks and trust building / community cohesion ● Transition to sustainable land use
<p>Please elaborate in greater detail. Your IP might have characteristics of both greenfield and brownfield IPs, or some other options might need to be considered.</p>	<p>S7-RBP is located directly at the new S7 freeway entrance, so there are areas to seep away and collect surface water as well as conservation areas to take into account.</p> <p><i>Please refer to the Masterplan Appendix for more insight about the site's design.</i></p>
<p>Which is the most relevant characteristic associated with your IP?</p>	<p>S7-RBP is uniquely surrounded by a municipal community model including 12 communities. The theoretical design of the park looks to establish a central Business Park which services all 12 communities, instead of each community designing their own park.</p>
<p>IP profile</p>	
<p>Please fill out the questionnaire in Annex II.</p>	
<p>Please describe the infrastructural conditions of the IP (sizes and types of buildings, year of installation, purpose)</p>	<p>S7-RBP is a greenfield site, as previously described. There is a design masterplan which exists to assist potential residents to understand what services have been laid to service the premises developed on the site. Currently there are no buildings on the business park. The Masterplan (and related services which have been laid on site) foresee that only SME residents are planned to inhabit the site.</p>

	 <p>The Masterplan of S7-RBP is available as an additional appendix of this report, and provides further detail of the project's existing infrastructure plan.</p>
<p>Please describe the park structure (management and tenants)</p>	<p>S7-RBP is managed similarly to the other business parks and industrial parks in Burgenland. The planning is executed by the Wirtschaftsagentur Burgenland (who coordinate the service infrastructure to be developed).</p> <p>After this point, tenants/residents of the park are secured on an ad-hoc basis, in keeping with the service restrictions of the park. Only selling defined developed areas. Tenants will develop their own building infrastructure, aligned to local, regional, and national building regulations.</p> <p>No central management of the park exists after residents have secured contracts for their premises.</p> <p>ASFINAG will manage cutting the grass, de-icing the street;</p> <p>The service providers (Water, Waste, Electricity, and IT) are responsible for maintaining each service to the individual buildings of the park (based on individually</p>

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

Project-ID: ASP0100091



	<p>negotiated contracts to those businesses(i.e. residents, tenants).</p>
<p>Please describe the current tenant companies</p>	<p>No tenants, no companies at the moment.</p> <p>However, the first tenant is going to be the regional office of the highway police.</p> <p>There are a total of 29 combined spaces available at RBP broken down as follows: in the BP (Sued) south (11) and BP (nord) north1 (17) and BP (nord) 2 (1).</p>
<p>Please describe the park infrastructure and facilities (e.g. roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services)</p>	<p>Services which have been laid are as follows:</p> <p>water, waste water, surface water drainage, electricity, internet/telecoms, and natural gas. No district heating is planned to be laid due to the location of the park as it relates to critical federal highway infrastructure (ASFINAG), as the park is critically located next to one of the only federal highway tunnels in Burgenland.</p> <p>On this topic, the park has been established next to the new federal highway (S7), which represents a very important transit route which connects multiple villages, and services thousands of cars, trucks, vans and buses on a daily basis.</p> <p>The road has been under discussion for over 30 years, and is ready to open in Autumn of 2023.</p> <p>The road’s unique characteristic is that it shortens the route to western Hungary and connects the border region of Austria/Hungary, to the A2 (Sud-Autobahn) which connects Vienna and Graz. It will become a very important transit route to facilitate transportation from Hungary, Slovenia etc. On the Hungarian side, complementary transport links are also being designed to further free-up transit pathways for the cross-border region.</p>

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

Project-ID: ASP0100091

	<p>Note: there is some space around the park for private ventures to promote the delivery of waste-heat and cooling services, but as there are no tenants this has not been pursued yet.</p>
<p>Please describe the energy consumption profiles (heat, electricity, natural gas)</p>	<p>No buildings at the moment, therefore there are no consumption profiles which are available.</p>
<p>Please describe the current waste situation: Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices</p>	<p>No buildings at the moment, therefore there are no waste production profiles which are available for the site.</p>
<p>The type of sectors in EIPs and their needs also define the type of industrial synergies that can be exploited within an EIP.</p> <p>WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p>(Please tick the appropriate box below. Please shortly elaborate on the right. Please mention the tenant companies that need to be involved in creation of said synergies, if applicable.)</p> <p><input type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p> <p><input checked="" type="checkbox"/> Utility synergies: shared used of utility infrastructure, mainly revolving around water and energy (e.g., water recovery and energy cogeneration);</p> <p><input checked="" type="checkbox"/> Service synergies: sharing of services and</p>	<p>No buildings and no tenants are currently at the site. Therefore, it is challenging to determine potential industrial synergies. However, as the tenants are likely to be</p>

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

Project-ID: ASP0100091



<p>activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p> <p><input type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): the use of previously disposed waste (as solid, liquid, gas) from one facility to another facility to provide a valuable by-product.</p>	<p>SMEs (non-heavy industry producers), we can extrapolate that utility synergies and service synergies could be expected between tenants.</p> <p>As previously mentioned, there are opportunities for industrial waste heat and cooling to occur on site, but this must be established via private venture and therefore has not been pursued yet (as there are no residents of the park, yet).</p>
<p>PLEASE INDICATE/CHOOSE WHICH PERFORMANCE REQUIREMENT FROM EACH FIELD: RELATED TO PARK MANAGEMENT, ENVIRONMENTAL, SOCIAL, ECONOMIC IS MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from Tables 7 - 10, p. 20 – 24).</p>	<ul style="list-style-type: none"> ● A master plan for the EIP is developed by park developers and is applicable to both planning and operations by park managers. ● Energy efficiency opportunities should be identified at the park and firm levels to reduce energy use and associated greenhouse gas emissions. EIPS should identify and promote technological and process-related interventions in their own and resident business operation. The equivalent of at least 10% of the total CO2 emissions (scope 1 and 2) is covered by the percentage of firms that have a qualified energy efficiency certification (LEED, Industry EDGE, German Sustainable Building Council (DGNB) or ISO 50001 or their national equivalent). ● Dedicated personnel exists (as part of the park management entity) to plan, manage and enforce social quality standards. ● A market demand and feasibility study, supported by a business plan for specific “green” infrastructure and services has been undertaken to justify planning and implementation in the industrial park.
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p>	<ul style="list-style-type: none"> ● Solar power ● Green roofs

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

Project-ID: ASP0100091



(Please choose from the Table 4: EIP Technologies, p. 16.)	
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please refer to D.1.2.1)</p>	<ul style="list-style-type: none"> ● Photovoltaic ● Heat pumps ● Smart energy measuring ● Electric mobility
Surrounding regional context	
<p>Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)</p> <p>Points might be:</p> <ul style="list-style-type: none"> ● Workforce demographics: Age, gender, education levels, and skill sets of population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges. ● Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers. ● Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, supports local businesses, and engages in social responsibility activities. ● Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. 	<p>The region around Rudersdorf including the business park is predominantly characterised by forests, meadows and fields.</p> <p>Rudersdorf is close to the border to Hungary and very close to the city of Fürstenfeld in Styria. The average age of the people is about 46 years, there are about 5 % of foreigners. There are primary and secondary schools, some shops and restaurants, a bank branch and a gas station. Higher education is available around about 50 km, academical education only in the next main cities Graz and Wien.</p> <p>There is some industry like SATTLER PRO-TEX, one of the leading manufacturers of PVC-coated textiles or KATZBECK, a leading manufacturer of windows and doors made of wood.</p> <p>For the region the business park is a major source of employment for the local community.</p>

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

Project-ID: ASP0100091



<p>Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities.</p> <ul style="list-style-type: none"> • Social infrastructure: Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community. • Social cohesion and integration: Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups. • Social impacts and conflicts: Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management's efforts to address these impacts and resolve conflicts. • Education and skill development: Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement 	
<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)</p>	<p>No companies at the moment. The first tenant will be the regional office of the highway police.</p>

1.2. SWOT Analysis

SWOT analysis

SWOT ANALYSIS



Please elaborate the **strengths** of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:

- Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices.
- Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles.
- Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and

Located directly at the freeway entrance, ideal for companies looking for a fully developed location with motorway connection. As discussed in the previous section, the federal highway's unique characteristic is that it shortens the route to western Hungary and connects the border region of Austria/Hungary, to the A2 (Sud-Autobahn) which connects Vienna and Graz. It will become a very important transit route to facilitate transportation from Hungary, Slovenia etc.

Additionally, the existing Masterplan design of RBP emphasizes the importance of green and energy resilient practices.

1st tenant/resident planned will be owned by the regional office of the highway police;

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

Project-ID: ASP0100091



<p>transportation networks that can enhance the sustainability and competitiveness of the eco-industrial park.</p>	
<p>Please elaborate the weaknesses of your IP. Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:</p> <ul style="list-style-type: none"> ● Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. ● Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. ● Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	<p>No general management framework of the RBP, after the contractual negotiations on the premises for future residents/tenants.</p> <p>Additionally there are no obligations (rules) for park tenants to incorporate the green and circular technologies into their premises. This limits the scope of intervention for Wirtschaftsagentur Burgenland.</p> <p>Only little financial support is available to support future residents/tenants to adopt these technologies. Furthermore, with the processes of each plot for a future premise being negotiated separately, it is challenging to build a business case for more advanced energy resilience technology (for example, there is no bio-gas plant or biomass district heating on the site).</p>
<p>Please elaborate the opportunities. These are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them. Opportunities might include:</p> <ul style="list-style-type: none"> ● Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies. ● Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the 	<p>RBP has been founded based on a community model including 12 communities, this unique collaboration with local authorities/municipalities provides a strong basis for linking to community interests on the topic of energy resilience and green futures.</p> <p>The 12 communities (12 community of the district of Jennersdorf) which have come together are:</p> <p>Deutsch Kaltenbrunn, Eltendorf, Heiligenkreuz im Lafnitztal, Jennersdorf, Königsdorf, Minihof-Liebau, Mogersdorf, Mühlgraben, Neuhaus am Klausenbach,</p>

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

Project-ID: ASP0100091



<p>competitiveness of businesses within the park.</p>	<p>Rudersdorf, Sankt Martin an der Raab, Weichselbaum.</p> <p>Benefits for RBP is that all communication, all planning for buildings on the park, can be done by 1 organisation, and not 12 times (central managed aspect of the 12 community model), but it also becomes a single location where commercial benefit can be derived for all user communities. Risk and benefits are spread, creating more motivation for external service providers to provide services to the park.</p> <p>Economic conditions can be considered an opportunity, as increasing prices of energy (especially market rate of electricity and gas) lead to improved cost-benefit modelling and shorter RoI periods for onboarding energy resilient technologies.</p> <p>Global markets & global politics therefore also bring an opportunity (albeit it sounds counter-intuitive) - increasing concerns about security of supply, can enhance the narrative and cost-benefit analysis for many enterprises looking to onboard technologies.</p>
<p>Please elaborate the threats. These are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.</p> <p>Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.</p>	<p>Competition to other industrial parks is one of the largest threats, as potential residents/tenants do have power to choose between parks, therefore WAB has a decision it has to make about how many rules or regulations are put in place during the premises negotiation phase. There are large, famous industry parks with short geographical distance to RBP, meaning there is more localised competition.</p> <p>Market dynamics can also have a threatening role to play - as the energy prices stay low, companies are less incentivized (on a price point) to adopt green technologies.</p>

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

Project-ID: ASP0100091



1.3. Main Challenges' definition

Challenges: Based on the SWOT analysis, challenges need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include:

- Complex value chains: Industrial parks typically involve multiple stakeholders, including manufacturers, suppliers, and customers, which can make it challenging to establish a circular system. For example, one company might produce waste that could be a valuable resource for another, but coordinating the exchange of materials between these companies may require significant effort and investment.
- Resistance to change: The shift towards circularity often involves changes to established business models and processes. Some stakeholders may be resistant to these changes, particularly if they see short-term costs without a clear path to long-term benefits.
- Limited availability of circular materials: Circular systems depend on the availability of materials that can be reused, recycled, or repurposed. In some cases, these materials may be in short supply or difficult to source, which can limit the potential for circularity.
- Technical challenges: Circularity often requires advanced technologies and processes, such as material separation and purification, that may be complex and expensive to implement. Industrial parks may need to invest in these technologies and develop new expertise to effectively integrate circular approaches.

#	Concise introduction	Current State Assessment	Key Challenges	Goals and Objectives
1	Promoting energy resilience for companies in the IP, supporting the master plan's eco-principles to be delivered & influencing companies to adopt the eco-principles described in the master plan (cost-benefit analysis with the companies)	<p>No companies exist in the park right now, but all companies are facing rising energy costs (and challenging economic conditions), bringing concerns about security of supply (of energy);</p> <p>Master plan presents good concepts to promote energy resilience and circularity on the park, however there is no mandatory obligation on companies to adopt these concepts into their own premises construction</p>	<p>convincing companies that technologies to promote energy resilience do bring value-adding benefits to the company;</p> <p>Convince or entice companies who will be future tenants/residents of the park to adopt the eco-principles.</p>	<p>design an approach to engage with companies to make this cost-benefit clear and understood</p> <p>Tangible Output:</p> <ol style="list-style-type: none"> 1. support service concept; 2. support service test with companies from Burgenland 3. roll out support service officially
2	Determining what the best technology and business model equation for energy resilience can be on a greenfield site	<p>There are numerous technologies which are available to be used on a greenfield site;</p> <p>A combination of these technologies are preferred. However, the specific combination of technologies suitable for Rudersdorf tenants is unknown.</p> <p>The specific combination we talk about in the technical</p>	<p>mainstreaming these technology combinations (which are proven in practice, but not available on the standard market).</p> <p>demonstrating that the combinations fulfil the requirements of the masterpan and are economically relevant.</p>	<p>complete research on optimal combinations of technologies for the green field site, and establish a process to transfer this knowledge to interested companies and stakeholders.</p> <p>Tangible output:</p> <ol style="list-style-type: none"> 1. technical paper on available and recommended

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

Project-ID: ASP0100091



		<p>specifications, have been tested (but is not standard).</p> <p>Most of these tests are supported by detailed R&I projects, but not derived from the standard technology market.</p>		<p>technologies for the park (advertised at the park)</p> <ol style="list-style-type: none"> 2. establish a technology round table for all interested stakeholders, to gather requirements and discuss technology needs and opportunities for the RBP.
3	Transferring knowledge and outputs to other IPs & BPs in Burgenland		<p>ensure outcomes and approaches are designed in a way to ensure transferability (and applicability) to other sites</p>	<p>design an approach to transfer outcomes of the build and test of the support service to the individuals responsible for developing IPs and BPs in Burgenland.</p> <p>Tangible Output:</p> <ol style="list-style-type: none"> 1. recommendations paper 2. circular caravan/discussion with stakeholders on the paper.



2. Action plan

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
SO1 Action 1 SO2 Action 1	Define the energy value chain resilience consulting service & business model which sits behind the service	Analysis with potential SMEs that might become residents of the park Technical services which will be provided & the tools which might be used to make those decisions Cost structure to enable this service & the benefit the company get (cost-benefit analysis structure so the companies are convinced to buy the service)	Implementing agency /staff Technology experts Service Providers (Internet, Phone, Electricity, Water, Waste providers, Public Transport)	09/23 to 02/24	No companies at the moment	i
SO1 Action 2	Test the consulting service with enterprise stakeholders & eco-system/enabling	Enabling a testing environment (how to ID which companies can be included in	Potential SMEs	ID until 01/24 Test 02/24 to 04/24	Finding appropriate companies	i

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

Project-ID: ASP0100091

	stakeholders	the test), competition framework				
SO2 Action 2	Refine energy consulting service & demonstrate long term business model to enable the service (i.e. energy agency support/audit & recommendation on what type of subsidies someone can use to enable this technology)	Information service with a standard process and repeatable tools, designing a checklist with a matrix Possibilities for subsidies and financial support by the government, local, district, national, EU	Tenant firms Implementing agency /staff Service Providers (Internet, Phone, Electricity, Water, Waste providers, Public Transport)	Round table 05 or 06/2024	No companies at the moment	i
SO1 Action 3	Market energy consulting service (via a Caravan/Workshop series with other IP stakeholders)	Checking business model for consulting service	Implementing agency /staff Technology experts	advertising campaign 06/24 to 09/24	Completely other requirements in other BP/IP	i
SO1 Action 3	Roll out the services to the market & Exchange with the PPs on our findings as we develop the consulting service, providing lessons learnt & potential scope of transnational	Round table for new companies, kick off meetings Focus on life cycle costs and energy resilience Who is the owner of the building, who is the user (benefit of	Tenant firms Implementing agency /staff Service Providers (Internet, Phone, Electricity, Water, Waste providers, Public Transport)	Roll out Round table 05 or 06/2024 and exchange with PPs ongoing from Feb2024 to Dec 2024	Completely other requirements in other BP/IP No companies at the moment	ii

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

Project-ID: ASP0100091



	services to the group	lower energy costs)? Technical services which will be provided & the tools which might be used to make those decisions	Implementin g agency /staff			
SO3 Action 1 and Action 2	Knowledge Transfer & Exchange to other IP/BPs in Burgenland	Lessons Learnt & a recommendat ions paper & Caravan timeplan	WAB management ; other interested government stakeholders working on circular economy;	09/24 to 09/25	too early (or too late) to embed in new park designs	ii & iii

3. Topic selection for the pilots

3.1. Concept main questions

Question	Answer
<p>I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?</p>	<p>Implementation of the masterplan. Most important challenges for EIP are included there. There is no legal requirement for the master plan to be implemented as written, as the targeted residents have autonomy to build their premises to whichever specifications they want, as long as they meet the building regulations.</p> <p>However, this does not always mean eco-industrial park principles are adopted. Therefore, the most critical challenge is to support the targeted residence of the IP to have enhanced energy value chain resilience, showcasing to them the cost-benefit of incorporating these principles of energy resilience value-chains into their design and operation.</p> <p>This challenge has been chosen in discussion with key Industry Park stakeholders in Burgenland and is specifically relevant for the</p>

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

Project-ID: ASP0100091



	<p>Rudersdorf site which is in the early stages of Industry Park establishment.</p>
<p>II. What goal are you targeting / aiming to achieve at your pilot site and why?</p>	<p>Ultimately we would like to achieve the adoption of more resilient energy value chains across Rudersdorf, including the greening of energy use and reducing CO2 emissions. We will take the first steps towards this during ECOLE by:</p> <p>Goal 1. Elaborate an enticing consulting service offer for companies/IP residents to adopt circular design principles into the building they build on the EIP & adopt circular operating principles during the life-cycle of their operation on the IP. Mixture of technical services / cost-benefit analysis + marketing of the service;</p> <p>Goal 2. Elaborate lessons learnt from the test discussion on this consulting service to identify the tipping point where cost-benefit from the company/IP resident-side meets regulatory requirements of the IP management.</p>
<p>III. At what stage in the process (to address this challenge) are you at the moment (“what is the baseline”)?</p>	<p>Definitions for an ecologically improved business park do exist in a masterplan, but no process exists to translate the benefit of these approaches to the target residents of RBP.</p> <p>Conversations with IP management stakeholders addressing the key needs have taken place, but no approach to companies/IP future residents has started (this is a greenfield site in early stages of its establishment).</p> <p>The 1st tenant of the RBP has been identified as the regional office of the highway police.</p>
<p>IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?</p>	<p>See Action Plan (for main steps)</p>
<p>V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?</p>	<p>Circular Design (towards energy resilient value chains)</p> <p>Circular Operation (towards energy resilient value chains)</p>

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

Project-ID: ASP0100091



	Circular Innovation & Exchange (towards energy resilient value chains)
<p>VI. What it is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)</p>	<p>No companies at the moment.</p> <ol style="list-style-type: none"> 1. Consulting service design & decision tree on circular design and operation of energy resilient value chains. 2. Concept note including lessons learnt for WAB to help embed EIP principles into the future (according to the Master Plan), what are the base requirements which should be put on IP residents to meet the master plan's vision. 3. Knowledge transfer process to transfer these lessons to other IPs in Burgenland (especially to their Master Plans & the contracting process with potential residents). <p>Note: We are still in discussions with our key stakeholders about the appropriate mode of these outputs (excel model vs checklist document), especially for the consulting service.</p>
<p>VII. What will you be measuring at your pilot site in the framework of Ecole and how?</p>	<p>x number of master plan eco/sustainability targets and technologies are included in the consulting service (target = 5 - representing: Photovoltaic, Solar Thermal, Heat-Pump, Thermal Activation, and Heat Storage; additional technologies can be considered depending on the specific needs of the companies and outcomes of the optimization discussions).</p> <p>x number of companies/potential IP residents participating in a test of our consulting service design (target = 3 - 10% of all plots available at RBP, this number can stretch depending on number of companies which approach WAB during the pilot year and can be completed as open round tables for multiple companies to join).</p> <p>x number of workshops with stakeholders of the IP management, to elaborate lessons learnt and transfer knowledge (target = 2, 1 will be the RBP Open Day and 1 will be a specific transfer event).</p>

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

Project-ID: ASP0100091



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

Project-ID: ASP0100091



3.2. Pilot Questionnaire

Please read the document *ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs* carefully and answer the question below.

WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?

- **Circular Design principles to establish a resilient energy value chain, choosing the most optimal energy technologies before the buildings are built.**
- **Circular manufacturing/operating principles to ensure the company operates a resilient energy value chain (PROSUMERISM/Energy communities).**

Please read the document *Design a systemic thinking community model (STCM) and kick off 10 local communities in and around the Eco-Industrial Parks* and answer the question below.

HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?

IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT?

(Please use Figure 1 on p.8)

Local Actors:

Community model including 12 communities. Community Model Manager (good point to start engagement with the 12 municipalities)

Chamber of Commerce Burgenland (who can help market to companies to come to the IPs)

Wirtschaftsagentur Burgenland (Industrial Park Development Department)

Local Business Owners (who can become residents of the EIP);

Local Banks (who can help finance the technology)

Service Providers (Internet, Phone, Electricity, Water, Waste providers, Public Transport)
i.e. internet /phone - A1/ 3/ Magenta;

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

Project-ID: ASP0100091



	<p>i.e. electricity - Burgenland Energie, Verbund, smaller energy retailers; i.e. water/ waste water - Wasserverband/Abfallwasserverband i.e. public transport</p> <p>Local citizens living around the park (farmers, normal residents, etc.)</p> <p>Regional/national:</p> <p>Funding agencies - WAB (regional funding department) education institutions - FH Burgenland innovation hubs - Forschung Burgenland</p> <p>Government/regulators - building regulators in Austria</p> <p>Industry Associations</p> <p>European Actors: ECOLE project partners & the partners of complementary projects on circular economy in manufacturing</p> <p>EUSALP action groups</p> <p>Research labs (on complementary topics)</p>
<p>ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT?</p> <p>(Please answer these questions in relation to your pilot site, use Table 1 on p.9)</p>	<p>See Table 1</p>
<p>MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM?</p> <p>(Please answer these questions in relation to your pilot site, use Figure 2 on p.10)</p>	

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

Project-ID: ASP0100091



<p>PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM?</p> <p>(Please answer these questions in relation to your pilot site, use Figure 6 on p.14)</p>	<p><u>Keep satisfied</u> Government/Policy makers</p> <p><u>Manage Closely</u> WAB (department in charge of IPs & BPs)</p> <p><u>Monitor (maximum effort)</u> Tenant firms Technology experts</p> <p><u>Keep informed</u> Investors Employees Civil society</p>
<p>The guiding questions for setting up a structured STCM process are:</p> <ul style="list-style-type: none"> • Who should be engaged? • How should they be engaged? • How often and for what purpose? • What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform) <p>(Please answer these questions in relation to your pilot site, see the explanation on p. 17-18)</p>	<p>Who should be engaged?</p> <p>Government/Policy makers</p> <p>Wirtschaftsagentur Burgenland’s IP/BP management team</p> <p>Future tenant companies (e.g. Highway police)</p> <p>Technology experts</p> <p>How should they be engaged?</p> <p>Meetings with workshops & round tables</p> <p>Information events</p> <p>How often and for what purpose?</p> <p>The frequency depends on the project progress, more often, if there are many potential tenant firms to keep them informed of possible green technologies and renewable energy</p>



	<p>What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform)</p> <p>No digital tools will be used (besides email between stakeholders), however physical meetings (workshops & round tables will be used)</p>
--	---

Table 1

Stakeholder category	Institutions / Organisations	Roles	Influence	Interest
Tenant firms	Highway Police Unknown potential future tenants	Executive for highway S7/employer	Increasing motivation for higher qualification in the region	Business case
Implementing agency /staff	Wirtschaftsagentur Burgenland	Development of national programs supported by inter-government working group	Initiation of company settlements	Promoting of the economy/investment in green technologies and renewable energy
Government/Policy makers	Federal Government	Legislator	Enacting laws	Company settlement - taxes
	State authority	Legislator	Enacting laws	Employee protection
	District Authority & Municipalities	Trade authority	Issuance of an operating permit	Proper system operation
	Mayor	First building authority	Issuance of building permit	Company settlement - generation of local taxes
Investors	Communities/Tenant firms	Provision of infrastructure/Founding a company	Initiation of company start-ups/Initiation of jobs	Company settlement - communal taxes/Business case
Business associations / Chambers of commerce	Wirtschaftsbund/Wirtschaftskammer Burgenland	Supporting companies advertising and continuing education	Political advocacy	Increase in membership numbers

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

Project-ID: ASP0100091



Service providers	Netz Burgenland/Telekom/Kabelplus	Supporting electricity grid/Supporting telefon and IT grid/Supporting telefon and IT grid	Development of the plots	Business case
Employees	People around Rudersdorf	Needed for settling companies	Depends on necessary qualification	Well paid jobs
Customers of tenant firms	Depends on the business, probably the region of Jennersdorf	Generating sales	Enabling business operations	High quality and affordable services
International organisations	UNIDO/Global 2000/Greenpeace/BirdLife/WWF	Safeguarding the environment	Possible party position	Protection of nature
Civil society	People around Rudersdorf	Formation of opinion	Acceptance of surface sealing and increasing of traffic	Increase in job numbers and better infrastructure
Suppliers	Burgenland Energie/Wasserverband/Abwasserverband/Telefon and IT service provider	100% renewable electricity and fossil natural gas/Drinking water/Wastewater disposal/Telefon and IT services	Offering renewable and cheap energy or affordable services	Business case

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

Project-ID: ASP0100091



Annex III – UNIDO Indicators for status quo

Source: UNIDO, 2019: International Guidelines for Industrial Parks. PP 112-114,

https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
1. Good economic governance		
Robust economic system tracking economic analysis quantitatively showing a positive economic return (i.e., in terms of employment, taxes, net exports, forex, local supplies), after such factors as land, CAPEX and OPEX costs and subsidies are taken into account	(Yes =1; No =0)	1
Private participation in industrial park planning	(Yes =1; No =0)	0
Private participation in industrial park ownership	(Yes =1; No =0)	0
If industrial park is on public land, Operator sourced on the basis of an open competitive tender	(Yes =1; No =0)	1
Private sector represented on Board of Regulator	(Yes =1; No =0)	1
Existence of 60% occupancy rate within 6 years (ha of land used by companies for productive use) ¹¹⁷	(Yes =1; No =0)	1
Existence and functioning of a formal Industrial Park marketing department/unit	(Yes =1; No =0)	1
User Maintenance & Operation fees or charges collected by the Operator	(Yes =1; No =0)	1
% user enterprise satisfaction with the services provided by the Industrial Park Operator	(≥51% =1; ≤49% =0;)	1
Operator Customer Relationship Management (CRM) system in place	(Yes =1; No =0)	1
Operator ISO 9001 certification	(Yes =1; No =0)	1
Good Economic Governance Score	(Scale of 0-11)	9
2. Economically-enabling site & infrastructure 'hardware' (appropriate site selection)		
Unencumbered land title	(Yes =1; No =0)	1
Phased site development strategy and implementation	(Yes =1; No =0)	1
Proximity to urban centre*(with country significant population) ¹¹⁸	(Yes =1; No =0)	1
Proximity to appropriate highway*	(Yes =1; No =0)	1
Proximity to power transmission or distribution grid*	(Yes =1; No =0)	1
Proximity to gas transmission mains and gas 'city-gate'*	(Yes =1; No =0)	1
Proximity to microwave tower for broadband GSM mobile telephony and Wi-Fi connectivity*	(Yes =1; No =0)	1
Appropriately-sized (wide) internal roads*	(Yes =1; No =0)	1
Proximity Operational Public Port, Airport of use and of interest to the Industrial Park's users*	(Yes =1; No =0)	0
[% hours power outage per period in Industrial Park /% hours power outage nationally]	(≥1 =0; <1 =1)	1

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

Project-ID: ASP0100091



[% hours of interruption of water supply, quality or quality in INDUSTRIAL PARK/% hours of interruption of water supply, quality or quality nationally]	(≥1 =0; <1 =1)	1
Economically-Enabling Site & Hardware Score	(Scale of 0-11)	10
3. Economically-enabling services 'software'		
Regular, Scheduled Maintenance of buildings, as well as dedicated Rapid-Response or Emergency Maintenance, Repair, Rectification & Restoration Service, including for utilities and superstructure assets	(Yes =1; No =0)	1
Dedicated or localized industrial park Business Support, Business Association Support, Incubation, Innovation or Competitiveness programs on effective offer	(Yes =1; No =0) (Depending on # of programs available)	1
Industrial park user enterprises have access to specific financial support programmes	(Yes =1; No =0)	1
Dedicated One-Stop Shop/Single-Window in industrial park	(Yes =1; No =0)	1
E-government services dedicated to the industrial park	(Yes =1; No =0)	1
[#services offered through One-stop shop in industrial park /# services offered through One-stop shop in nearest urban community]	(≥1 =1; <1 =0)	1
Formal industrial park B2B Gatherings held on formal Industrial Park B2B Platforms on regular basis	(Yes =1; No =0)	1
Operator landscaping, gardening and cleaning services	(Yes =1; No =0)	1
Presence of mechanical cargo loading and off-loading services for users	(Yes =1; No =0)	1
Operation of product exhibition centres, product display areas, conference centres, and/or auditoria	(Yes =1; No =0) (depending on # and variety)	1
Presence of on-site banking, bureaux-de-change and ATM Facilities	(Yes =1; No =0) (depending on # and variety)	1
Presence of Human Resources Agency & Recruiting Services	(Yes =1; No =0)	1
Presence of manpower training services, in coordination with recognized specialized technical training institutions in various fields	(Yes =1; No =0)	1
Presence of dedicated on-site R&D, patenting, and product commercialisation services, in conjunction with recognized universities and/or legal services providers	(Yes =1; No =0)	1
Presence of dedicated on-site matching, twinning, and local supplier and buyer forward and backward linkages schemes	(Yes =1; No =0)(Depending on # and sophistication of schemes)	1
Presence of Quality, Product, Process Standards, and/or Trade Certification services	(Yes =1; No =0)	1
Economically-Enabling Software & Services Score	(Scale of 0-16)	16
4. Economically impactful nature: Employment, investment, turn-over		
[Per Capita Income in the industrial park /Per Capita Income Nationally]	(≥1 =1; <1 =0)	1
[Full-time equivalent employment/hectare in industrial park]/ Full-time equivalent employment/hectare / In industrial parks Nationally]	(≥1 =1; <1 =0)	1
[(Investment/ha) In Industrial Park /(Investment/ha) Nationally]	((≥1 =1; <1 =0)	1
[(US\$ sales revenues/ha) In Industrial Park /(US\$ sales revenues/ha) Nationally]	(≥1 =1; <1 =0)	1

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

Project-ID: ASP0100091



[% manufacturing inputs sourced domestically In Industrial Park/ % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)	1
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales /US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)	1
[US\$ Economic value addition ('EVA', calculated as output-inputs) per capita In Industrial Park/ US\$ EVA per capita nationally]	(≥1 =1; <1 =0)	1
[(Exports minus Imports) In Industrial Park / (Exports minus Imports) Nationally]	(≥1 =1; <1 =0)	1
[FDI % of total investment (or GFCF) In Industrial Park/FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)	1
[(US\$ exports/ha) In Industrial Park / (US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)	1
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports /US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)	1
[(Enterprises/ha) In Industrial Park / (Enterprises/ha) Nationally]	(≥1 =1; <1 =0)	1
[(IPR registrations/year/company) In Industrial Park / (IPR registrations/ year/company) nationally]	(≥1 =1; <1 =0)	1
Economically Impactful Nature Score	(Scale of 0-13)	13
Economic performance score	(Scale of 0-61)	58

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.

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

Project-ID: ASP0100091

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach

Deliverable D1.4.1

Produced by

PPT 8: ITALCAM



Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create 10 action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP08 ITALCAM
Author(s)	Lorena Melis

Short Description
This document provides a detailed overview of the actions and challenges of the Cleantech Innovation Park, Hallstadt

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	04.05.2023	Lorena Melis Martina Agosti	ITALCAM
V2.0 Feedback & Comments	13.09.2023	Astrid Heindel	TZE
V.3.0	29.11.2023	Lorena Melis Eleonora Zerbi	ITALCAM
Final Document			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

The document has been prepared by the project partners of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI

PP 2 – Trieste Economic Development Agency (IT): COSELAG

PP 3 – Development agency Sora Ltd. (SI): RA sora

PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR

PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ

PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB

PP 7 – Landshut University of Applied Sciences (DE): TZE

PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM

PP 9 – Grenoble-Alps Metropole (FR): GAM

PP10 – POLYMERIS (FR): POL

PP 11 – Lombardy Foundation for the Environment (IT): FLA

PP 12 – TUM International GmbH (DE): TUMint

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

INDEX

PROJECT PARTNERS	2
ABBREVIATIONS USED	3
1. Introduction	5
Annex I – Form for the Action Plan elaboration	5
1. IP Analysis.....	5
2. Action plan.....	0
3. Topic selection for the pilots	0
Annex II – UNIDO Indicators for status quo	3

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

1. Introduction

...

Annex I – Form for the Action Plan elaboration

1. IP Analysis

1.1 General description of the IP

<p>Please read the document ACT.1.1 Define a common understanding & framework of the Eco-Industrial Parks (EIPs) & circular economy approach for Alpine region carefully and answer the question below.</p>	
<p>WHAT WOULD WE LIKE OUR EIP TO BE?</p>	
<p>EIP planners can consider choosing between two possible types of EIP sites: greenfield developments (on virgin land), and brownfield developments. All these types of sites offer very different challenges and opportunities for creating EIPs (p.13).</p> <p>WHICH IS THE MOST RELEVANT CHARACTERISTIC ASSOCIATED WITH YOUR PILOT SITE?</p> <p>(First, choose the relevant type for your pilot site/Greenfield, Brownfield then see the main characteristics in Table 2/p.13 and answer the question.)</p>	<p><input checked="" type="checkbox"/> Greenfield <input checked="" type="checkbox"/> Brownfield</p> <p>Both</p> <p>50.000 mq are still Greenfield</p>
<p>WHICH BENEFITS/DRIVERS OF PERFORMANCE ARE FROM YOUR PERSPECTIVE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please see the table on p. 12 and choose max 3 most relevant benefits from each category/Environmental, Economic, Social)</p>	<p>More efficient use of resource Contributing to industrial decarbonization and green innovation Creation of non-relocatable jobs</p>
<p>Please elaborate in greater detail. Your IP might have characteristics of both greenfield and brownfield IPs, or some other options might need to be considered.</p>	
<p>Which is the most relevant characteristic associated with your IP?</p>	<p>Job creation, economic strength, decarbonization</p>
<p>IP profile</p>	
<p>Please fill out the questionnaire in Annex II.</p>	
<p>Please describe the infrastructural conditions of the IP (sizes and types of buildings, year of installation, purpose)</p>	<p>Innovation Center (6034 sqm/ 2024/ labs, test space, training, collaborative projects (tech, R&D))</p> <p>Creative Forum (3063 sqm/2026/ events, training, offices, initialization of</p>

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

	collaborative projects (socialisation, creative space))
Please describe the park structure (management and tenants)	Some areas of the park are sold, some are rented, some are leased. The rent has an average duration of 4/5 years
Please describe the current tenant companies	University Bamberg, Training high voltage, innovative forklift system
Please describe the park infrastructure and facilities (e.g. roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services)	36500 sqm roads, central power supply, high speed internet (glass fiber), central sewerage, water supply by city infrastructure & independent water rights, waste separation
Please describe the energy consumption profiles (heat, electricity, natural gas)	Connection to local district heating network in preparation
Please describe the current waste situation: Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices	They do the classic waste collection as in Germany is used. They do not host producing companies at the moment. The remains of the old Michelin factory have been used for the construction of the new Cleantech Innovation Park; the waste products, such as concrete, are the foundations of the streets and infrastructures of the new Industrial park.
<p>The type of sectors in EIPs and their needs also define the type of industrial synergies that can be exploited within an EIP.</p> <p>WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p>(Please tick the appropriate box below. Please shortly elaborate on the right. Please mention the tenant companies that need to be involved in creation of said synergies, if applicable.)</p> <p><input type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p> <p><input checked="" type="checkbox"/> Utility synergies: shared used of utility infrastructure, mainly revolving around water and energy (e.g., water recovery and energy cogeneration);</p> <p><input checked="" type="checkbox"/> Service synergies: sharing of services and activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p>	Cleantech, Energy Efficiency, Digitalisation

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

<input type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): the use of previously disposed waste (as solid, liquid, gas) from one facility to another facility to provide a valuable by-product.	
<p>PLEASE INDICATE/CHOOSE WHICH PERFORMANCE REQUIREMENT FROM EACH FIELD: RELATED TO PARK MANAGEMENT, ENVIRONMENTAL, SOCIAL, ECONOMIC IS MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from Tables 7 - 10, p. 20 – 24).</p>	Energy efficiency
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from the Table 4: EIP Technologies, p. 16.)</p>	Not applicable for CTIP
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please refer to D.1.2.1)</p>	Not applicable for CTIP; the technologies are going to be decided by the universities/companies that are going to work in the facilities of the park.
Surrounding regional context	
<p>Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)</p> <p>Points might be:</p> <ul style="list-style-type: none"> • Workforce demographics: Age, gender, education levels, and skill sets of population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges. • Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers. 	<p><i>The Cleantech Innovation Park in Hallstadt, located in the Bamberg region, is developing as a hub for clean green mobility and innovation. It provides an environment for companies, universities, and research institutions to focus on sustainable technologies, such as clean energy, new drive technologies, resource-efficient production, artificial intelligence, and digitalization. The park is situated on the site of a former tire plant, showcasing a transformation towards sustainability¹.</i></p> <p><i>The Bamberg region, with a population of around half a million, is part of the Nuremberg metropolitan area. It is recognized for its commitment to sustainable practices, notably in urban gardening.</i></p>

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

<ul style="list-style-type: none"> • Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, supports local businesses, and engages in social responsibility activities. • Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities. • Social infrastructure: Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community. • Social cohesion and integration: Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups. • Social impacts and conflicts: Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management's efforts to address these impacts and resolve conflicts. • Education and skill development: Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement 	<p><i>The city of Bamberg is a UNESCO World Heritage site, featuring the Market Gardeners' District. This tradition of urban gardening is promoted by the state through initiatives protecting gardening areas and promoting local produce²³.</i></p> <p><i>On the industrial front, the region is investing in industrial expansion and sustainable development projects. Initiatives such as the expansion of the Bamberg County Industrial Park aim to create jobs and stimulate economic growth. The region hosts a range of industrial activities, accommodating both large multinational corporations and small and medium-sized companies⁴⁵.</i></p>
---	---

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)</p>	<p><i>Cleantech Innovation Park is planning on creating an environment in which universities and companies can work on new technologies, in an inspiring environment. Furthermore, by working with experts, the IP, tries to stay up to date on the newest trends (for example, they are building a hydrogen filling station).</i></p> <p><i>Then, one of the objectives of the IP, is to create a regional system, in which different companies work together and help each other.</i></p>
---	---

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

1.2. SWOT Analysis

SWOT analysis													
<h1 style="margin: 0;">SWOT ANALYSIS</h1> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="background-color: #90EE90; padding: 5px;">Helpful <small>to achieving the objective</small></td> <td style="background-color: #FFB6C1; padding: 5px;">Harmful <small>to achieving the objective</small></td> </tr> <tr> <td style="background-color: #90EE90; padding: 20px; font-size: 2em;">S</td> <td style="background-color: #FFDAB9; padding: 20px; font-size: 2em;">W</td> </tr> <tr> <td style="background-color: #90EE90; padding: 5px;">Strengths</td> <td style="background-color: #FFDAB9; padding: 5px;">Weaknesses</td> </tr> <tr> <td style="background-color: #ADD8E6; padding: 5px;">External origin <small>(attributes of the environment)</small></td> <td style="background-color: #ADD8E6; padding: 5px;">Internal origin <small>(attributes of the organization)</small></td> </tr> <tr> <td style="background-color: #ADD8E6; padding: 20px; font-size: 2em;">O</td> <td style="background-color: #9370DB; padding: 20px; font-size: 2em;">T</td> </tr> <tr> <td style="background-color: #ADD8E6; padding: 5px;">Opportunities</td> <td style="background-color: #9370DB; padding: 5px;">Threats</td> </tr> </table> </div>		Helpful <small>to achieving the objective</small>	Harmful <small>to achieving the objective</small>	S	W	Strengths	Weaknesses	External origin <small>(attributes of the environment)</small>	Internal origin <small>(attributes of the organization)</small>	O	T	Opportunities	Threats
Helpful <small>to achieving the objective</small>	Harmful <small>to achieving the objective</small>												
S	W												
Strengths	Weaknesses												
External origin <small>(attributes of the environment)</small>	Internal origin <small>(attributes of the organization)</small>												
O	T												
Opportunities	Threats												
<p>Please elaborate the strengths of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:</p> <ul style="list-style-type: none"> Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices. Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles. Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of 	<p>Flexible, divisible/adaptable workshop halls,</p> <ul style="list-style-type: none"> - Network of companies, universities & institutions - Know-how of different heterogeneous Stakeholders (Universities & Companies) - In comparison to other Industrial Parks, Cleantech Innovation Park, features a very large surface area, that allows the simultaneous presence of many companies. 												

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

<p>natural resources, access to markets, and transportation networks that can enhance the sustainability and competitiveness of the eco-industrial park.</p>	
<p>Please elaborate the weaknesses of your IP. Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan.</p> <p>Weaknesses might include:</p> <ul style="list-style-type: none"> • Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. • Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. • Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	<ul style="list-style-type: none"> - Liberately kept open to all technologies. - Many would prefer a technological focus) - The mindset of the region in which the Park is located is still very conservative; companies prefer to collaborate with other companies that they know and not all are not very open to new challenges. - No access to start-ups
<p>Please elaborate the opportunities. These are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them.</p> <p>Opportunities might include:</p> <ul style="list-style-type: none"> • Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies. • Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the 	<ul style="list-style-type: none"> - Strengthening the economic performance of the entire region in a long-term perspective - Contribute to decarbonization - The facilities give everyone the opportunity to work on new technologies that can be of great importance in the future.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

competitiveness of businesses within the park.	
<p>Please elaborate the threats. These are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.</p> <p>Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.</p>	<p>- Innovation Park becomes the place for everyone and therefore the place for no one</p>

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular **E**conomy

1.3. Main Challenges' definition

Challenges: Based on the SWOT analysis, challenges need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include:

- **Complex value chains:** Industrial parks typically involve multiple stakeholders, including manufacturers, suppliers, and customers, which can make it challenging to establish a circular system. For example, one company might produce waste that could be a valuable resource for another, but coordinating the exchange of materials between these companies may require significant effort and investment.
- **Resistance to change:** The shift towards circularity often involves changes to established business models and processes. Some stakeholders may be resistant to these changes, particularly if they see short-term costs without a clear path to long-term benefits.
- **Limited availability of circular materials:** Circular systems depend on the availability of materials that can be reused, recycled, or repurposed. In some cases, these materials may be in short supply or difficult to source, which can limit the potential for circularity.
- **Technical challenges:** Circularity often requires advanced technologies and processes, such as material separation and purification, that may be complex and expensive to implement. Industrial parks may need to invest in these technologies and develop new expertise to effectively integrate circular approaches.

#	Concise introduction	Current State Assessment	Key Challenges	Goals and Objectives
1	The Park's approach to embracing all technologies vs. the need for specific focus.	Lacks a clear technological focus, with a preference for specialization.	Balancing broad technological openness with focused excellence.	Establish thematic focus areas aligning with global trends and regional strengths.
2	Conservative regional mindset impacting innovation and collaboration.	Conservative attitudes limit collaboration with new entities.	Encouraging a culture of innovation and risk-taking.	Launch initiatives to foster networking and collaborative projects.
3	Establishing circular economy practices within complex value chains.	Limited coordination for circular economy initiatives.	Building an ecosystem that supports circular economy principles.	Create a platform for resource sharing and circular initiatives.
4	Establishing a clear identity and value proposition.	Risk of becoming too generic and diluting appeal.	Defining a unique identity for the Park.	Develop a branding and marketing strategy highlighting the Park's unique strengths.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

2. Action plan

2.1. Actions

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development*
1	Develop Thematic Focus Areas	Market analysis, expertise in cleantech domains, funding for research and development.	Universities, research institutions, industry experts, investors.	1-2 years	Risk of misaligning with market needs. Benefit of attracting targeted investments and talent.	ii
2	Launch Collaboration Initiatives	Platforms for networking and collaboration, funding for joint projects, innovation challenge programs.	Companies, startups, academic institutions, local government.	6-12 months	Risk of low participation. Benefit of fostering a vibrant innovation ecosystem.	i
3	Implement Circular Economy Frameworks	Infrastructure for material exchange, technology for waste-to-resource processes, legal and regulatory support.	Companies within the park, environmental agencies, circular economy experts.	2-3 years	Risk of logistical challenges. Benefit of promoting sustainability and resource efficiency.	iii
4	Sharpen Branding and Outreach	Marketing expertise, digital and traditional media platforms, success stories, and case studies.	Marketing professionals, public relations firms, media outlets.	6-12 months	Risk of not reaching the intended audience. Benefit of enhanced visibility and attractiveness to potential partners.	i

*Phase of development: **i = Pilot**; **ii = WP3**; **iii = After ECOLE Impact**

2.2 Expected results

	<i>Action</i>	<i>Expected Results</i>	<i>KPI</i>
1	Develop Thematic Focus Areas	<p>1.1 Identification of specific areas of technological and industrial focus that leverage regional strengths and align with global trends.</p> <p>1.2 Increased specialization and expertise in selected thematic areas, enhancing the park's competitive advantage.</p> <p>1.3 Attraction of investments and partnerships focused on the identified thematic areas.</p> <p>1.4 Development of targeted research and development projects, leading to innovation and new product or service development.</p>	<ul style="list-style-type: none"> ○ Number of focus areas identified. (1.1) ○ Growth in the number of companies operating in identified focus areas. (1.3) ○ Number of new R&D projects initiated. (1.4)
2	Launch Collaboration Initiatives	<p>2.1 Establishment of formal partnerships between companies, academic institutions, and government entities.</p> <p>2.2 Increased number of joint projects and collaborative ventures, promoting innovation and shared knowledge.</p> <p>2.3 Creation of networking platforms that facilitate interaction and cooperation among stakeholders.</p> <p>2.4 Enhanced startup ecosystem with more opportunities for mentorship, funding, and growth.</p>	<ul style="list-style-type: none"> ○ Number of partnerships with companies, academic institutions, and government entities (2.1) ○ Duration of partnerships (average) (2.1) ○ Number of networking events hosted (2.3) ○ Number of participants in networking events (2.3) ○ Number of new startups incubated (2.4)
3	Implement Circular Economy Frameworks	<p>3.1 Development of resource-sharing platforms that reduce waste and increase the reuse of materials.</p> <p>3.2 Establishment of new business models that prioritize sustainability and resource efficiency.</p> <p>3.3 Reduction in the park's environmental impact through circular practices such as recycling and upcycling.</p> <p>3.4 Strengthened position as a leader in sustainable and circular economy practices within the industrial sector.</p>	<ul style="list-style-type: none"> ○ Number of participating companies in the resource-sharing platform (3.1) ○ Reduction in total waste generated (in tons) (3.3) ○ Percentage of materials recycled or upcycled (3.3) ○ Carbon footprint reduction of the park (in CO2 emissions) (3.3) ○ Percentage of stakeholders adopting circular economy practices (3.4)

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **Leveraging smart and Circular Economy**

4	<p>Sharpen Branding and Outreach</p>	<p>4.1 Clear and distinctive branding that differentiates the eco-industrial park from competitors.</p> <p>4.2 Increased visibility and recognition at regional, national, and international levels.</p> <p>4.3 Higher stakeholder engagement through targeted marketing and outreach strategies.</p> <p>4.4 Attraction of new businesses, investors, and talent due to the park's enhanced reputation and image.</p>	<ul style="list-style-type: none"> ○ Brand awareness score (measured via social media reach) (4.1) ○ Increase in brand engagement (e.g., website traffic, social media interactions) (4.1) ○ Number of publications or media appearances (4.2) ○ Increase in stakeholder engagement rate (e.g., participation in events) (4.3) ○ Number of new businesses established in the park (4.4) ○ Increase in number of investors expressing interest (4.4) ○ Number of skilled talents recruited (or applications received) (4.4)
---	---	---	---

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular **E**conomy

3. Topic selection for the pilots

3.1. Concept main questions

Question	Answer
I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?	Further regional economic strengthening aligned with Paris climate agreement in the context of the industrial transformation
II. What goal are you targeting / aiming to achieve at your pilot site and why?	Support to SME in the context of point I
III. At what stage in the process (to address this challenge) are you at the moment ("what is the baseline")?	Creating infrastructure and offer
IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?	Creating infrastructure and creating regional innovation cluster
V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?	To be finalized
VI. What it is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)	Will be developed in collaboration with companies, universities and institutes. CTIP is facilitator but not converter
VII. What will you be measuring at you pilot site in the framework of Ecole and how?	KPIs (number of cluster members, training evaluation of cluster employees, exchange with partners, value of projects in regard to climate impact)

3.2. Pilot Questionnaire

<p>Please read the document <i>ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs</i> carefully and answer the question below.</p>	
<p>WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?</p>	
<ul style="list-style-type: none"> • ... • ... • ... • ... 	
<p>Please read the document <i>Design a systemic thinking community model (STCM) and kick off 10 local communities in and around the Eco-Industrial Parks</i> and answer the question below.</p>	
<p>HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?</p>	
<p>IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT? (Please use Figure 1 on p.8)</p>	<p>SMEs, universities, institutes, administration; such as:</p> <ul style="list-style-type: none"> -City of Hallstadt -Ministry of Economics of Bavaria -Landkreis Bamberg -Michelin -University of Bamberg -Cleantech Cluster
<p>ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT? (Please answer these questions in relation to your pilot site, use Table 1 on p.9)</p>	
<p>MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM (Please answer these questions in relation to your pilot site, use Figure 2 on p.10)</p>	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy

<p>PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM</p> <p>(Please answer these questions in relation to your pilot site, use Figure 6 on p.14)</p>	<p>-The stakeholders will be engaged by organizing meetings B2B with them, keeping them updated about the new steps of the project, by maybe sending them monthly updates after important turn points of the project.</p>
<p>The guiding questions for setting up a structured STCM process are:</p> <ul style="list-style-type: none"> • Who should be engaged? • How should they be engaged? • How often and for what purpose? • What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform) <p>(Please answer these questions in relation to your pilot site, see the explanation on p. 17-18)</p>	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

Annex II – UNIDO Indicators for status quo

Source: UNIDO, 2019: International Guidelines for Industrial Parks. PP 112-114,
https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
1. Good economic governance		
Robust economic system tracking economic analysis quantitatively showing a positive economic return (i.e., in terms of employment, taxes, net exports, forex, local supplies), after such factors as land, CAPEX and OPEX costs and subsidies are taken into account	(Yes =1; No =0)	
Private participation in industrial park planning	(Yes =1; No =0)	
Private participation in industrial park ownership	(Yes =1; No =0)	
If industrial park is on public land, Operator sourced on the basis of an open competitive tender	(Yes =1; No =0)	
Private sector represented on Board of Regulator	(Yes =1; No =0)	
Existence of 60% occupancy rate within 6 years (ha of land used by companies for productive use) ¹⁷	(Yes =1; No =0)	
Existence and functioning of a formal Industrial Park marketing department/unit	(Yes =1; No =0)	
User Maintenance & Operation fees or charges collected by the Operator	(Yes =1; No =0)	
% user enterprise satisfaction with the services provided by the Industrial Park Operator	(≥51% =1; ≤49% =0;)	
Operator Customer Relationship Management (CRM) system in place	(Yes =1; No =0)	
Operator ISO 9001 certification	(Yes =1; No =0)	
Good Economic Governance Score	(Scale of 0-11)	
2. Economically-enabling site & infrastructure 'hardware' (appropriate site selection)		
Unencumbered land title	(Yes =1; No =0)	
Phased site development strategy and implementation	(Yes =1; No =0)	
Proximity to urban centre*(with country significant population) ¹⁸	(Yes =1; No =0)	
Proximity to appropriate highway*	(Yes =1; No =0)	
Proximity to power transmission or distribution grid*	(Yes =1; No =0)	
Proximity to gas transmission mains and gas 'city-gate'*	(Yes =1; No =0)	
Proximity to microwave tower for broadband GSM mobile telephony and Wi-Fi connectivity*	(Yes =1; No =0)	
Appropriately-sized (wide) internal roads*	(Yes =1; No =0)	
Proximity Operational Public Port, Airport of use and of interest to the Industrial Park's users*	(Yes =1; No =0)	
[% hours power outage per period in Industrial Park /% hours power outage nationally]	(≥1 =0; <1 =1)	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

[% hours of interruption of water supply, quality or quality in INDUSTRIAL PARK/% hours of interruption of water supply, quality or quality nationally]	(≥1 =0; <1 =1)
Economically-Enabling Site & Hardware Score	(Scale of 0-11)
3. Economically-enabling services 'software'	
Regular, Scheduled Maintenance of buildings, as well as dedicated Rapid-Response or Emergency Maintenance, Repair, Rectification & Restoration Service, including for utilities and superstructure assets	(Yes =1; No =0)
Dedicated or localized industrial park Business Support, Business Association Support, Incubation, Innovation or Competitiveness programs on effective offer	(Yes =1; No =0) (Depending on # of programs available)
Industrial park user enterprises have access to specific financial support programmes	(Yes =1; No =0)
Dedicated One-Stop Shop/Single-Window in industrial park	(Yes =1; No =0)
E-government services dedicated to the industrial park	(Yes =1; No =0)
[#services offered through One-stop shop in industrial park /# services offered through One-stop shop in nearest urban community]	(≥1 =1; <1 =0)
Formal industrial park B2B Gatherings held on formal Industrial Park B2B Platforms on regular basis	(Yes =1; No =0)
Operator landscaping, gardening and cleaning services	(Yes =1; No =0)
Presence of mechanical cargo loading and off-loading services for users	(Yes =1; No =0)
Operation of product exhibition centres, product display areas, conference centres, and/or auditoria	(Yes =1; No =0) (depending on # and variety)
Presence of on-site banking, bureaux-de-change and ATM Facilities	(Yes =1; No =0) (depending on # and variety)
Presence of Human Resources Agency & Recruiting Services	(Yes =1; No =0)
Presence of manpower training services, in coordination with recognized specialized technical training institutions in various fields	(Yes =1; No =0)
Presence of dedicated on-site R&D, patenting, and product commercialisation services, in conjunction with recognized universities and/or legal services providers	(Yes =1; No =0)
Presence of dedicated on-site matching, twinning, and local supplier and buyer forward and backward linkages schemes	(Yes =1; No =0)(Depending on # and sophistication of schemes)
Presence of Quality, Product, Process Standards, and/or Trade Certification services	(Yes =1; No =0)
Economically-Enabling Software & Services Score	(Scale of 0-16)
4. Economically impactful nature: Employment, investment, turn-over	
[Per Capita Income in the industrial park /Per Capita Income Nationally]	(≥1 =1; <1 =0)
[Full-time equivalent employment/hectare in industrial park]/ Full-time equivalent employment/hectare / In industrial parks Nationally]	(≥1 =1; <1 =0)
[(Investment/ha) In Industrial Park / (Investment/ha) Nationally]	((≥1 =1; <1 =0)
[(US\$ sales revenues/ha) In Industrial Park / (US\$ sales revenues/ha) Nationally]	(≥1 =1; <1 =0)

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular **E**conomy

[% manufacturing inputs sourced domestically In Industrial Park/ % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales /US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)
[US\$ Economic value addition ('EVA', calculated as output-inputs) per capita In Industrial Park/US\$ EVA per capita nationally]	(≥1 =1; <1 =0)
[(Exports minus Imports) In Industrial Park / (Exports minus Imports) Nationally]	(≥1 =1; <1 =0)
[FDI % of total investment (or GFCF) In Industrial Park/FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)
[(US\$ exports/ha) In Industrial Park / (US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports /US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)
[(Enterprises/ha) In Industrial Park / (Enterprises/ha) Nationally]	(≥1 =1; <1 =0)
[(IPR registrations/year/company) In Industrial Park / (IPR registrations/ year/company) nationally]	(≥1 =1; <1 =0)
Economically Impactful Nature Score	(Scale of 0-13)
Economic performance score	(Scale of 0-61)

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plan for the Eco-Industrial Park of the Haut-Bugey agglomeration (Veyziat) and its uptake of the circular economy approach

Deliverable D1.4.1

Produced by

PPT 10: POLYMERIS



Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create 10 action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.10
Dissemination	PPs
Partner in charge	PP10 Pol
Author(s)	Julie Malaquin, Roxane Girard

Short Description
This document describe the needs analysis of the industrial park of Auvergne-Rhône-Alpes region (Veyziat) and the tailored action plan.

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	04.05.2023	Astrid Heindel	TZE
V1.1	14.05.2023	Astrid Heindel, Tina Pezdirc Nograšek	TZE, RRA-LUR
V.1.2	25.05.2023	Astrid Heindel, Georgeta Auktor, Tina Pezdirc Nograšek	TZE, TUMInt, RRA-LUR
V2	28.09.2023	Julie Malaquin Roxane Girard	POL
Final Document	31.10.2023	Julie Malaquin Roxane Girard	POL



The document has been prepared by the project partner PP10 - POLYMERIS of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI

PP 2 – Trieste Economic Development Agency (IT): COSELAG

PP 3 – Development agency Sora Ltd. (SI): RA sora

PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR

PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ

PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB

PP 7 – Landshut University of Applied Sciences (DE): TZE

PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM

PP 9 – Grenoble-Alps Metropole (FR): GAM

PP10 – POLYMERIS (FR): POL

PP 11 – Lombardy Foundation for the Environment (IT): FLA

PP 12 – TUM International GmbH (DE): TUMint

REFERENCE DOCUMENTS

D.1.1.1

D.1.1.2

D.1.2.1

D.1.3.1

ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader



INDEX

PROJECT PARTNERS	2
REFERENCE DOCUMENTS	3
ABBREVIATIONS USED	3
1. Objective and summary	5
2. Basis for developing an action plan	6
3. Pilot site / industrial park analysis and description.....	6
3.1 3.1 General description of the IP	7
3.1.1 Benefits and drivers	7
3.1.2 Relevant characteristics.....	8
3.1.3 Profile of, and resources available in the IP	9
3.1.4 Synergies and technologies.....	10
3.1.5 Regional context.....	11
3.2 SWOT Analysis	13
3.3 Action plan: Specific objectives and actions to implement	15
3.4 Concept questions	20
3.5 Stakeholders analysis	22

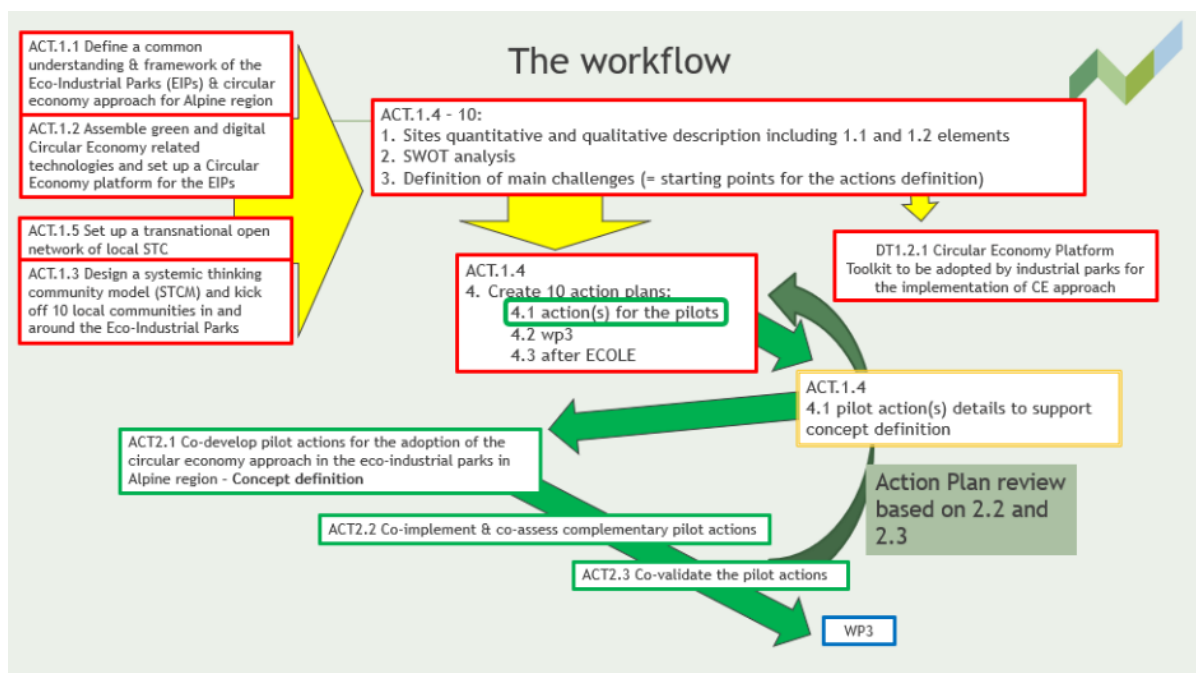
1. Objective and summary

ECOLE provides recommendations for the integration of circularity and sustainability concepts into industrial parks. For this purpose, project partners cooperate with ten industrial parks (IPs) as pilot sites for testing of different approaches and solutions developed during the project. For each pilot park, an individual action plan will be elaborated based on in-depth analysis of SWOT, physical characteristics and discussions with each STC, including park management and tenant companies if applicable.

This document aims to guide PPs in collecting and analysing relevant information to provide an overview of the participating IPs. It outlines which information needs to be provided by the IPs/implementing partners to define the challenges that will be addressed in the action plans. Further, the structure for the individual action plans including KPIs will be outlined. The action plan developed by each of the ten IPs is to be provided in a separate document, highlighting the roadmap of comprehensive actions that the IPs should follow to transform the IPs into eco-industrial parks (EIPs) (or develop greenfield EIPs). A set of actions will then be prioritized for immediate implementation, to be integrated into activity 2.1, i.e. the co-design of the concept, and 2.2. i.e. the co-development of the pilots.

After the completion of the WP2, the Action Plans will be updated based on the achievements of the 2.3, i.e. transnational co-validation of the pilots.

The continuation/implementation of the action plans is ensured through WP3. In particular, the overall goal of A.3.2 is the confirmation that the action plans will be considered for future park management and development by the respective stakeholders through a signed Memorandum of Understanding.





2. Basis for developing an action plan

An action plan outlines all necessary activities and tasks that need to be carried out to achieve the transformation of the IP into an EIP. This overall goal is divided into specific objectives (SO), making it easier to define specific actions and to identify parts that can be changed during and after the project. For each SO, the necessary actions are defined and connected to a key performance indicator (KPI) for measurement. Each action can be described through different categories such as needed resources, costs/risks and benefits, needed stakeholders, implementation timeline and cross-cutting issues.

To ensure the uptake of the action plans, the documents should be concise and, as far as possible, designed in an easy to read way (e.g. through tables, figures, illustrations, colouring etc.).

3. Pilot site / industrial park analysis and description

Name	Type	Location	Responsible
Marangona Area	Greenfield	Verona, Italy	LP
	Greenfield	Trieste, Italy	PP2
Industrial zones Železniki, Trata, Žiri, Todraž (Gorenja vas)	Brownfield	Železniki, Trata, Žiri, Todraž (Gorenja vas), Slovenia	PP3
Zalog Economic and Business Zone	Greenfield (2.7h), brownfield (7h)	Zalog, Slovenia	PP4
	Brownfield (50%), greenfield / planned (50%)	Weiz, Austria	PP5
	Brownfield	Rudersdorf / Deutsch Kaltenbrunn, Austria	PP6
Siemens Technopark	Brownfield	Ruhstorf an der Rott, Germany	PP7
Cleantech Innovation Park	Partially completed	Hallstadt, Germany	PP8
Tbd.	Brownfield, partially greenfield	Grenoble	PP9



Veyziat industrial park (part of Plastics vallée)	Brownfield, partially greenfield (around 30%)	Haut-Bugey Agglomeration, Oyonnax, Auvergne-Rhône-Alpes, France	PP10
--	---	---	------

In this section each PP shortly summarises the main features of their IP. The description and analysis is necessary in order to (1) understand the needs and challenges of the industrial park, (2) cluster the selected actions at IP level into pilot actions in WP2, and (3) get an understanding of the technologies to be tested during pilot implementation.

This section provides the methodology for the description and analysis. The collection of data can be supported by a questionnaire document to be filled at the level of each IP (see Annex I).

For each IP, the following information should be collected:

- (i) Qualitative and quantitative descriptions including elements of D.1.1.1 and D.1.1.2, followed by
- (ii) SWOT analysis, from which
- (iii) main challenges will be defined as starting points for the development of the action plans. The methodologies for those is given in the next section, based on which ten individual action plans will be created in separate documents.

3.1 3.1 General description of the IP

Our Industrial Park is a combination of both: brownfield (2 zones of 8 hectares and 10-12 hectares) and greenfield (around 8 hectares to be built by 2025-2026).

3.1.1 Benefits and drivers

The benefits/drivers of performance most relevant for our IP have been circled in red in the table below.

Environmental	Economic	Social
More efficient use of resources (e.g., energy, water, materials)	Lower operation costs	Creation of (non-relocatable) jobs
Lower waste generation	Lower production cost due to material and energy efficiency	Provision of vocational training
Lower emissions and land degradation	Higher productivity	Stronger community networks and trust building / community cohesion
Greening supply chains	Reduction in waste disposal costs	Larger tax base
Improve resource security /resilience to risks	Reduction in waste recycling needs	Occupational health and safety
Drive environmental policy change	Compliance with regulatory policies	Improved labor rights and relations / working conditions



Cost effective infrastructure that adapts to climate change	New sources of income for industries through sale of unwanted by-products	Improved gender equality within the park
Responding to environ. and social concerns of consumers and communities	Tech and knowledge transfer	Social infrastructure for workers and community
Contributing to industrial decarbonization & green innovation	Skills-upgrading of the labor force	Transition to sustainable land use

3.1.2 Relevant characteristics

The most relevant characteristics is the **Conversion of currently operating industrial parks to EIPs but also the Greenfield industrial park**, circled in red in the table below. This requires working with established companies in the plastic sector to enhance the importance of environmental performance, recycling of waste and the circular synergies that can be done between companies not use to collaborate even though they have similar or complementary needs. They have a relatively high degree of constraint as for example they did not plan to enable tertiary (and not just industries) services to settle (so they are no restaurants, kindergartens, supermarkets etc. near the industries and companies' offices which causes a lot of traffic during the lunch-breaks). Also, there can be a bigger resistance to change, for example some companies might refuse to implement a common management waste system or develop photovoltaics infrastructure or respect some environmental specification in architecture.

But the IP Haut-Buget Veyziat is also partly a greenfield IP, with around 8 hectares that will be built by 2025-2026. This gives a bigger freedom for designing new infrastructure and engaging stakeholders (services-providers, companies etc.) at the beginning of the process so that they are aware of the importance of environmental specification and performance when they decide to settle in the greenfield industrial park. This can also serve as a model and an inspiration for the companies located in the brownfield part.

Greenfield industrial park

- In the design phase, greenfield projects offer the highest degree of freedom for applying and testing new approaches.
- Points of control in the design process (i.e., cost/benefit analysis, regulation, planning, and zoning) are relatively well defined and commonly understood).
- Greenfield design projects also often engender a high level of innovation in participants and the envisioned solutions.

Conversion of currently operating industrial parks to EIPs

- Require working with established parks and their companies to fundamentally enhance environmental performance and, where necessary, clean up past pollution.
- Existing parks have a relatively high degree of constraint in the basic mix of companies (with their plants and equipment) in place, established attitudes and environmental practices may hinder innovation, and existing pollution and liabilities may limit choices.
- Points of control in the transformation process are less clearly defined than with greenfields.



- Demonstrating EIP strategies in existing parks opens opportunities for widespread improvement in environmental performance.

Conversion of abandoned, idled, and often contaminated sites to EIPs

- May include urban industrial parks located in industrial regions that have suffered from the decline of heavy industry such as steep and auto industries, or unused military bases.
- The cost of cleaning up the environmental contamination often exceeds the market value of the property; once cleaned up, new owners may still face liabilities for past contamination.
- May offer valuable resources including airstrips, housing, hospitals, and recreational areas and valuable infrastructure such as roads, sewers, and electric and phone lines.
- The environmental, social, and economic benefits of redevelopment may be significant.

3.1.3 Profile of, and resources available in the IP

Geography	Oyonnax, Ain (France)		
Type of park	Industrial		
Size of park	68.5 ha at present + project for an additional 8.5 ha in 2026	42 companies	1176 jobs The PIO area already accounts for 15% of the region's employment. It is the second largest employment concentration area in the HBA territory.
Sustainability criteria	Renewable energy Waste management		
Type of investment	Public private partnership		
Sizes and types of buildings, years of installation, purpose	There is a wide range of sizes, from very small businesses to SMEs, as well as a few large companies and ETIs. The extension will make it possible to accommodate large companies. This industrial park is located in the northern part of the region, also known as Plastics Valley because of its high concentration of companies in the plastics industry. First creation of Industrial Park in the region was in the 1970's. The PIO1 area is the "oldest", and some of the buildings are not new. However, many companies have extended or improved their buildings. The area is quite modern. The PIO2 area is more recent, with start-ups and some new building projects.		
Description of the tenants companies	sectors: plastics, wood, carton type of firms: SMEs type of products and services: injection, manufacture of plastic packaging, logistic market niche: cosmetics, toys, medical, logistic,		



Park structure (management and governance structure)	Managed by the Haut-Bugey Agglomeration
Park infrastructure and facilities	road, waste management, High level of amenities (functional rail network, marked site entrance, significant presence of green spaces, presence of signage, sufficient and organized parking for personal vehicles), water supply, social services but not enough tertiary services such as restaurants closed to the tenant's firms
Energy consumption profiles for the tenant firms	Consumption of electricity & heat.
Sources for energy consumption in the IP	National electricity grid, gaz, renewables energies (solar energy, photovoltaics) for a small portion of enterprises. But concerning heat energy, most of it comes from waste recovery (heat from the functioning of machines, wood waste etc.)
Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices	<p>Plastic waste: not so well managed</p> <p>Steel waste: sold to recyclers</p> <p>Wood waste: mostly recycled/recovered for energy by the enterprises or recyclers.</p> <p>Water waste: mains drainage for non-polluted water, depollution through filtration and re-use of the water in system that do not needs drinkable water, for the most polluted water: there are put in cask and a service-provider take it away to treat it.</p> <p>Toxic waste: specific services-providers take away the waste to treat it in the frame of a public common waste management frame (Responsibility of the Producer)</p>

3.1.4 Synergies and technologies

<p>WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p><input checked="" type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p> <p><input type="checkbox"/> Utility synergies: shared used of utility infrastructure, mainly revolving around water and energy (e.g., water recovery and energy cogeneration);</p> <p><input checked="" type="checkbox"/> Service synergies: sharing of services and activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p>	<p>PLEASE SHORTLY ELABORATE ON THE RIGHT.</p> <p><u>Supply synergies and co-location of suppliers/clients:</u> The IP of Veyziat would benefit from the co-location of suppliers in terms of waste recycling: several companies based in the IP would like to gather their plastic waste and reach the minimum ceiling in terms of quantity for the recycling. The cost to recycle their waste would be lower and it would be easier to find a recycler that wish to manage the waste from this common frame.</p>
---	--



<p><input type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): the use of previously disposed waste (as solid, liquid, gas) from one facility to another facility to provide a valuable by-product.</p>	<p><i>Services-sharing: development of joint tertiary services (local restauration in the industrial area, car-pooling) in industrial area in order to boost the attractivity of the enterprises and lower the quantity of cars and the traffic on the road.</i></p>
---	---

Photovoltaics is a relevant technology for the Veyziat Industrial Park. There are none photovoltaics installation at the moment, but they are planned with the future extension (greenfield) of the industrial park.

3.1.5 Regional context

Surrounding regional context	
<p>Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment) Points might be:</p> <ul style="list-style-type: none"> • Workforce demographics: Age, gender, education levels, and skill sets of population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges. • Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers. • Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, 	<p><i>The industrial park is located on the north side of the conurbation and is mostly an industrial employment area with plastics industry.</i> <i>South of the conurbation is mostly dedicated to crafts, wood industry. It is the 2nd largest employment zone in the Haut-Bugey region. 66,000 inhabitants within Oyonnax city.</i></p> <p><i>Difficult to get young people to stay (the lack of training/studies offer in Oyonnax push them to move to neighbourhood towns such as Bourg en Bresse or Lyon). Training is now developing but there is a shortage (young people do not necessarily stay/return to Haut Bugey)</i></p> <p><i>Companies are always on the lookout (almost full employment); recruitment outside the area (national and foreign)</i></p> <p><i>CSR and well-being at work implemented AEPV (local business association): organise events to create links (involving employees, managers, politicians) No associative/social activities on the park outside AEPV activities.</i></p> <p><i>Infrastructure: hospital, maternity hospital still in place but threatened,</i></p>



<p>supports local businesses, and engages in social responsibility activities.</p> <ul style="list-style-type: none"> • Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities. • Social infrastructure: Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community. • Social cohesion and integration: Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups. • Social impacts and conflicts: Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management's efforts to address these impacts and resolve conflicts. • Education and skill development: Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement 	<p>there are several junior & high-school in plastics and wood training, a few kindergarten but not close enough to businesses; lack of hotels and some catering.</p> <p>The conurbation also host Rugby fields, Olympic pool, skiing resort, playground, athletics fields, several sports associations, Haut Bugey conservatory; green tourism (lake, mountains).</p> <p>Impact and conflicts: businesses may compete, but cohabitation is ok; easy to poach.</p>
<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy</p>	<p>Extension led by Haut Bugey agglomeration to meet the needs of the area (considering needs, e.g. plots of land of at least 5000m²). There is also a collaboration with Auvergne Rhône Alpes</p>



supply, knowledge exchange: conferences, events, ..)

Enterprise when plots of land are available to attract new tenants firms.

3.2 SWOT Analysis

SWOT analysis

SWOT ANALYSIS



Please elaborate the **strengths** of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development.

Strengths might be:

- Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices.
- Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles.
- Location advantages: Evaluate the geographical location of the industrial

Many stakeholders from the whole supply chains (industrials, recyclers etc.) locally implanted.

Renown on a national scale “Plastics vallée” known and recognized.

Animation & networking of the territory by a local association AEPV (association of the IP stakeholders: gathers enterprises, industries & public stakeholders)

Strong links with Polymeris cluster (headquarters of the clusters based in the region), Polyvia (union), IPC (Technical center)

Strong support from local RTOs to implement industrial ecology. For



<p>park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance the sustainability and competitiveness of the eco-industrial park.</p>	<p>example : access to a collection and sorting centre for industrial waste)</p> <p>Plasticampus(formation) = campus of excellence for the plastics professions</p> <p>2 purchasing groups (RONAX and GAP) for the plastics industry</p> <p>Direct freeway connection to Lyon (1h Lyon, 1h Geneva by car)</p> <p>24 industrial parks in Haut-Bugey</p>
<p>Please elaborate the weaknesses of your IP. Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan.</p> <p>Weaknesses might include:</p> <ul style="list-style-type: none"> • Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. • Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. • Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	<p>Strong specialization on plastic injection but lack of expertise/recognition on other sectors in the polymer industries. Also implies a lot of competition.</p> <p>Not many collaborative project (distrust, see other local enterprises as competitors and not partners), not participating in many national and European projects.</p> <p>No specifics rules for the IP</p> <p>Few and inconvenient trains deserving big cities (Lyon-Oyonnax: 2h15 by train, 1 hour by car, for taking a train to go to Paris: 40min drive to Bourg en Bresse)</p> <p>Plastic bashing.</p> <p>No brownfield sites that could be reconverted</p> <p>No services (just an industrial zone: no restaurants, few hotels)</p>
<p>Please elaborate the opportunities. These are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them.</p> <p>Opportunities might include:</p> <ul style="list-style-type: none"> • Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial 	<p>Cooperation with other industrial parks in the frame of European or regional innovation project</p> <p>Leverage : Industry 4.0 technologies, recycling/recovering channels</p> <p>"Territoires d'industrie" (call for projects open until September): possible future support for companies.</p>



<p>park to support sustainable practices and the adoption of clean technologies.</p> <ul style="list-style-type: none"> Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park. 	<p>Aid to promote ecological and energy transition (ADEME, Bpi France, CCI)</p> <p>PLU to be redefined in the near future: different zoning to be planned to allow for catering facilities, for example, in the middle of industrial zoning (e.g.: restaurants or kindergarten for several companies)</p> <p>Car-pooling application being tested by one company.</p>
<p>Please elaborate the threats. These are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.</p> <p>Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.</p>	<p>Dependence on the raw materials Non-anticipated EU & national regulation</p> <p>No land available New climate and resilience law will complicate opening of new zone (DREAL): hopes for 2025-2026</p> <p>Impact of the economic crisis</p> <p>Complicated to recruit, lack of training, proximity to Switzerland with higher salaries attract the workforce</p>

3.3 Action plan: Specific objectives and actions to implement

Specific Objective 1: Implementing a common waste management between the plastic industry SMEs in the IP

After conducting a thorough analysis of the Industrial Park current challenges to overcome to achieve a more circular model with Haut-Bugey Agglomeration, it appears that the plastic industries SMEs located in the park do not have implemented a common waste collection and recycling system despite important plastic waste stream with similar characteristics. Some SMEs seem to have a too small waste stream to be able to cooperate with a recycler so implementing a common frame would allow to improve the volume of plastic waste recycled and lower the prices paid by the SMEs. The goal would be to both develop a common collection and recycling frame and to support enterprises in finding recycled materials where there is a lack of supply in the raw material value-chain.

Action 1.1: Contact IPC (Technical center of plastics)



A few years ago, IPC started a study to know waste from the cosmetic and outdoor furniture industries. It would be the first step toward global plastic waste management. We will contact IPC to see if their study of plastic waste in Plastics Valley is ready or on-going.

Needed resources, technologies, tools: Time to contact and discuss with IPC

Realistic time frame: 1 month

Risks and benefits: The person who conducted this study left IPC. The main risk is that the study stopped with this leaving. POLYMERIS must find a new contact thanks to its network (IPC and POLYMERIS are partners). Even if unfinished, this study will be beneficial as a good starting point for action 1.2.

Key Performance Indicators: have all enterprises' names contacting by IPC and their response

Phase of development: These actions will be done in priority, starting at the Pilot phase.

Action 1.2: Conduct a study on the current state of play in waste management and needs of the IP enterprises

The IPC study focused only on cosmetic and outdoor furniture industries. We need to update their results and extend the study to all SME of the IP.

Needed resources, technologies, tools: Time to dedicate to individual interviews.

Realistic time frame: 6 months

Risks and benefits: The main risks are the confidences on data and the representativity of the data. Some SME could refuse to communicate on their waste and their needs on recycled raw materials. We need to develop a relationship of trust and rely on our network to mitigate this risk. We will have to be pedagogical and explain the purpose of this study (to help them manage their waste). Thanks to this action we will implement a concrete action and study how to implement a common waste management.

Key Performance Indicators: Contact of 100% of plastics companies in the Plastics Vallée and follow-up until minimum 50% response.

Phase of development: These actions will be done in priority, starting at the Pilot phase.

Action 1.3: Identify the recyclers and the waste collection system to implement

After conducting a survey to analyze the type and volume of plastic waste stream produced by each tenant's firm per year, the objective is to identify the recyclers and the best waste collection system to implement. To do so, Polymeris will contact group purchasing platforms to see if it is possible to identify common collection resources. National and regional recyclers will also be contacted based on the collaborations already established in the IP by the bigger plastic firms and on the type of services offered and volume required.



Needed resources, technologies, tools: time and online research, Polymeris' internal database of plastic industries & recyclers.

Realistic time frame: 1 year

Risks and benefits: The main risk will be to not overcome the difficulties to find recyclers that fit the needs of the tenants' firms. To mitigate this risk Polymeris will first conduct a thorough analysis of the tenant's firms needs and type of waste stream and will rely on its deep knowledge and network of members from the plastic industry and the recycling sector to find the relevant service-providers. The main benefit will be the mutualisation of waste and plastic recycling to lower the cost and improve the volume of recycled plastic in the IP.

Key Performance Indicators: establishing contact with at least 2 recyclers that are in line with the tenant's firms needs in terms of type and volume of plastic waste stream required.

Phase of development: These actions will be done in priority, starting at the Pilot phase.

Specific Objective 2: Improving mobility to improve the attractiveness of the IP and its tenant's firms

There are not many commodities in the industrial park zone, employees need to take their car for lunch/errands. Many cars circulate in a zone where a hospital is also located. It is necessary to improve mobility by reducing the number of individual cars on the agglomeration roads.

Action 2.1: Identify the employees that would be interested in car-pooling and the existing logistic

Before organizing a carpool, we need to know the number of employees who could use this service and the timetable of the enterprises. There must be consistency between where they live and when they work.

Needed resources, technologies, tools: time to create a survey and distribute it to employees via the companies; time to synthesize and exploit responses; HR & CEO to promote the survey

Realistic time frame: 6-8 months

Risks and benefits: The main risk is to have no responses from the employees. We need to implicate the HR or CEO to encourage the responses. The benefit of this action is that we will know the real needs to build a proposition to assure the success of futures actions.

Key Performance Indicators: More than 50% of employees' response

Phase of development: These actions will be done in priority, starting at the Pilot phase.



Action 2.2: identify a car-pooling application & any complementary needs

With the previous action, we will know the needs and an application will be necessary to grant all employees. If the survey has revealed a need for a meeting point, it will be necessary to study whether or not parking is available for this purpose. If not, a position for these parking must be study.

Needed resources, technologies, tools: An application to use. Volunteers to test the application.

Realistic time frame: 6-8 months

Risks and benefits: If no application will be adapt for the plastics vallée, it will be necessary to developed one and it takes more time. To minimise the risk, it will be necessary to anticipate this action before to have all results from action 2.1.

The main benefits of this action is to promote and facilitate the choice of carpooling: the right tools for the right choice.

Key Performance Indicators: 20 volunteers to test the tools

Phase of development: These actions will be done in priority, starting at the Pilot phase.

Action 2.3: Encourage its use among employees

To have a real effect, the car-pooling application needs to be used on a massive scale. We could imagine volunteers reporting on their carpooling experience with the application.

Needed resources, technologies, tools: HR & CEO to promote the application and its use to their employees. Videos for the testimonial

Realistic time frame: 2 years

Risks and benefits: The main risk is that there is no success among the users. The main benefit is the decrease of traffics.

Key Performance Indicators: Promotion of the car-pooling application in 70% of the companies.

Phase of development: These actions will be done in priority, starting at the Pilot phase. But the appropriation of this type of new tools and habits needs times. Maybe the evaluation of this action could take place at the end of the project.

Specific Objective 3: Modify the Local Urban Plan to allow the implementation of services and design new environmental requirements for

The Industrial Park suffers from the lack of commodities such as restaurants, kindergartens, supermarkets close to the tenant's firms. Because of the local urban plan decided 7 years ago and which determine the overall development and town planning and sets the rules for development and land use accordingly, the industrial park zone has been identified only as an industrial zone and cannot accept tertiary industries. This lack of commodities forces the employees to take their car to



drive to the city center and go back home on their lunch break as they do not have any option closer to their offices. To increase the attractiveness of the industrial park and retain the workforce by offering better working conditions, the Haut-Bugey Agglomeration has identified the development of services, and the modification of the Local Urban Plan zoning attribution, as a key priority. The main ambition is to reduce the number of cars on the roads to reduce pollution and bad driving conditions and to improve the attractiveness of the industrial park and its tenant firms.

Action 3.1: Identify the needs and the existing legislation

The first step will be to identify what are the needs from the tenant's firms and employees in term of commodities. This will be done through the diffusion of a survey, that will be shared to the tenant's firms but also the business association AEPV and the Haut-Bugey Agglomeration channels. Polymeris will also works with the Haut-Bugey Agglomeration to identify which constraints and legislation are currently preventing tertiary services commodities to open.

Needed resources, technologies, tools: survey tool such as Google Form, access to the Local Urban Plan and other local legislation documents, involvement of stakeholders to share the survey.

Realistic time frame: This activity should last 6 months.

Risks and benefits: The main risk is to have difficulty to access to legal or political documents but also to collect the enterprise's needs. The cooperation with relevant stakeholders such as the public authority in charge of developing the Local Urban Plan but also the business association and the firms will be key to overcome those difficulties. The benefits will be to collect a good knowledge of the needs and the barriers before further developing this action.

Key Performance Indicators: Identification of the main legal barriers approved by Haut-Bugey Agglomeration.

Action 3.2: Conduct a benchmarking among the other European Industrial Parks

The second step will be to conduct a benchmarking analysis of the other European industrial parks to share good-practices and lessons-learned. The goal if for the Haut-Bugey Agglomeration to share its lessons learned concerning the lack of tertiary services zone and the needs of tenants' firms' employees to the greenfield industrial parks and to learn what are the legal incitation and technical specifications implemented by other Industrial Parks to ensure that the next tenant's firms will consider environmental and circular economy aspects such as the use of renewable energies, waste management, commitment to promote other forms of mobility to their employees etc. The goal is to get inspired from each other's successes and failures.

Needed resources, technologies and tools: time resource, involvement of other industrial parks.

Realistic time frame: 1 year.

Risk and benefits: the main risk will be to not have access to confidential information or not be able to share confidential information from the other industrial parks. Lack of cooperation or no common challenges could also be a risk. To mitigate this risk, it will be important for Polymeris to closely follow the action plan of the other pilots and the WP3 activities to forward to the Haut-



Bugey Agglomeration information relevant to this specific-objective and identified industrial parks meeting common challenges and interested in exchanging best-practices and lessons learned.

Key Performance Indicator: Organization of a session on best-practices and failures.

Participation of the haut-Bugey Agglomeration to the sessions organised by the other pilots Industrial Parks.

Phase of development: These actions might start during WP3 period and after the ECOLE’s project period. It will be further determined in the coming months.

3.4 Concept questions

Question	Answer
I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?	<p>The main challenge concerns the management of plastic waste as there is currently no common waste management frame.</p> <p>The shift toward a more circular and sustainable model in the Industrial Park is a key priority for the main tenants which are from the plastic industries. Managing and recycling waste are an important point for the plastic industry considering current and upcoming national and European legislation that will enforce the obligation to incorporate a certain amount of recycled material in plastics products (for e.g.: plastic packaging, which is an important industrial sector for the Plastics Vallée region)</p>
II. What goal are you targeting / aiming to achieve at your pilot site and why?	<p>Establish a common frame for waste management from plastic industries</p> <ul style="list-style-type: none"> • Identification and characterization of the type and volume of the main waste streams. • Create a community among the tenants' firms and main stakeholders to share key information on the plastic waste and elaborate a common methodology for the management of this waste • Engage with collectors/recyclers and the community of stakeholders from the IP to define of a common management waste
III. At what stage in the process (to address this challenge) are you at the moment (“what is the baseline”)?	<p>Preparatory stage</p> <p>We are currently gathering information already available on plastic waste stream in the IP and contacting stakeholders to analyse the interest, the needs and what has been</p>



	<p>already done to map the waste stream in the IP.</p>
<p>IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?</p>	<ul style="list-style-type: none"> • Contact stakeholders that have started to analyse and map the plastic waste stream in the IP • Contact the tenants' firms individually so they can share information on their waste stream (volume, type) • Create a common community to analyse the best methodology for waste management • Communicate on the importance of setting up a common management frame to overcome resistance to changes • Once all the analysis of the waste stream and the need is defined, contact the collectors/recyclers to define the best solution for a common management frame. • Deliverable will be a proposition of common management waste solution (price, quantity of waste, where are the collecting points, how frequent will the collectors collect the waste etc.)
<p>V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?</p>	
<p>VI. What it is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)</p>	<p>The expected solution is to produce guidelines on how to map the plastic waste stream, implement a common collection system and the main recovery/reuse processes that can be implemented. This will be defined in relation with D.2.2.1 Energy-materials & circularity implementation report in which Polymeris is responsible of a report on recovery & reuse of waste and heat.</p>
<p>VII. What will you be measuring at you pilot site in the framework of Ecole and how?</p>	<p>KPI</p> <ul style="list-style-type: none"> - Contact of 100% of plastics compagnies in the Plastics Vallée and follow-up until minimum 50% response - Contact minimum two recyclers and collect their requirement in terms of quantity and type of plastics <p>We can measure tonnage of plastics waste collected and recycled thanks to the study and</p>



	discussions with collectors and recyclers (or if a contract will be set up)
--	---

3.5 Stakeholders analysis

WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?				
<ul style="list-style-type: none"> • A common waste management to enable small stream of waste from smaller SME to be recycled along the other enterprises' stream of waste. • Reinforce the attractiveness of the IP to keep a good employment rate • Develop alternative mean of transport to reduce CO2 emissions 				
HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?				
IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT? (Please use Figure 1 on p.8)		Public : Haut Bugey Agglomeration, regional authorities Auvergne-Rhône-Alpes & Bourgogne-Franche-Comté, regional agencies (ADEME, ARAE), Chamber of commerce and industry Private: IPC (RTO for plastics), AEPV (local business association), enterprises based in the IP. Civil society: employees		
Stakeholder category	Institutions / Organisations	Roles	Influence	Interest
Government / policy makers	Regional authorities Bourgogne-Franche-Comté / Auvergne-Rhône-Alpes	Set high level policy agenda	Authority to convene stakeholders relevant to EIP development	Align EIP with national policy priorities, share good practices to other EIP in the region
Implementing agency /staff	Park operator – Haut Bugey Agglomeration,	Promote EIPs as a differentiator to attract investment	Influence government on national policy and planning	Attract investment
Tenant firms in sector	Firm	Communicate to their employees the car-pooling options, collaborate in a mutual waste management system	Can affect the extent to which waste gets collected and sorted from different facilities. Can better promote the car-pooling application.	If there is a business for managing waste streams, the firm may have high interest.
Business associations	AEPV	Promote the attractiveness of the enterprises,	Represent the interest and involve the tenant firms,	Share the concerns of its members, attract



		strengthen the network	the regional enterprises in their business, implementing environmental/circular solutions.	animation of the local business	more companies in the region.
Business support organisations	Local chamber of Commerce and Industry, ADEME, Regional Economic development agency			They have a good knowledge on the enterprises from IP's region and on potential funding and support available for projects such as ours. Can help us identify recyclers, funding and give recommendation	Develop their services' offers and their portfolio of enterprises followed in the region, support sustainable economic development of the region.
Service providers	Recyclers	Manage waste for the industrial park		Can affect the extent to which waste gets collected and sorted from different facilities.	If there is a business for managing waste streams, the firm may have high interest.
Employees	Employees of the tenant firms	Work for tenant's companies		Can decrease their use of cars and improve the traffics conditions of the city	Improve their working & mobility conditions,
Industrial Technical center	IPC	Ensure innovation, circular transition and competitiveness of the plastic industry		Can collect data on firms' waste stream and help identifying solution to implement a common recycling system	Better understand the need of the industries, collect data and promote recycling technologies.

<p>ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT?</p>	<p>Very strong interest and power from the Park Operator (Haut-Bugey Agglomeration). Very strong interest as well from the tenant firms, the firms that will set-up in the area and the recyclers.</p> <p>Strong interest from the municipality and the regional authorities in aligning EIP with local and national priorities.</p> <p>Strong interest from AEPV and the employees in the improvement of the working conditions and mobility.</p>
<p>MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM? (Please answer these questions in relation to your pilot site, use Figure 2 on p.10)</p>	<p>Park operator Haut-Bugey Agglomeration has a high interest and a high impact on the technical specification that will be implemented in the EIP and</p>



	<p>develop incentives for tenant’s firms to participate in the measures. The manager of the attractiveness and economic development department of Haut-Bugey Agglomeration is an important source of information and works in close cooperation with Polymeris to define the action plan of the IP.</p> <p>Tenants' firms, recyclers: have a high interest and a medium impact. Can collaborate by delivering information on their waste, being involved in the development of synergy services and communicating to their employees.</p> <p>Regional Authorities & business support organisation: have a medium interest and a high impact. Can encourage the implementation of circular/sustainable measures through territorial/city planning.</p> <p>AEPV: High interest and medium impact. Can ensure good communication among the tenants' firms and their employees.</p> <p>IPC: High interest.</p>
<p>PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM?</p>	<p>The Haut-Bugey Agglomeration is directly involved in the project thanks to close relation with Polymeris.</p> <p>Tenants' firms & recyclers will be directly involved in the project.</p> <p>AEPV will be involved through the organisation of common events with Haut-Bugey Agglomeration.</p> <p>The regional authorities will be involved through Polymeris projects manager respectively based in Auvergne-Rhône-Alpes and Bourgogne-Franche-Comté region. They will be involved at a later stage, once the action plan has been clearly formulated and some studies implemented, to act as link between the local reality and the regional priorities.</p>



<p>The guiding questions for setting up a structured STCM process are:</p> <ul style="list-style-type: none"> • Who should be engaged? • How should they be engaged? • How often and for what purpose? • What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform) 	<p>Who should be engaged and how ?</p> <p>Haut-Bugey Agglomeration (park operator): be part of the analysis and action plan process, be involved in the project discussions with other partners and European IP (should be engaged regularly throughout the project).</p> <p>IPC, tenants' companies, recyclers: through studies on the waste streams and type of waste that could be recycled, be part of a community to define common waste management solution (should be engaged regularly in the implementation of the action 1 and 3.</p> <p>AEPV and employees: through local event and as communication targets to promote new measures for the mobility of workers (should be engaged punctually, during the implementation of action 2)</p> <p>Regional Authorities & business support organisation: communication targets, experts on ecological industry and on strategic policies (should be engaged punctually in the implementation of the action 4 and for dissemination of the projects activities and results)</p> <p>Platform to be used : to be defined.</p>
---	--

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach

Deliverable D1.4.1

Produced by

PPT 7: TZE



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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy

Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create 10 action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP07 TZE
Author(s)	Astrid Heindel

Short Description
This document provides guidelines for the needs analysis of the industrial parks and for the development of tailored action plans for each park.

Dissemination level		
PU	Public	
PP	Restricted to other program participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	04.05.2023	Astrid Heindel	TZE
V1.1	14.05.2023	Astrid Heindel, Tina Pezdirc Nograšek	TZE, RRA-LUR
V.1.2	25.05.2023	Astrid Heindel, Georgeta Auktor, Tina Pezdirc Nograšek	TZE, TUMInt, RRA-LUR
...			
Final Document			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



The document has been prepared by the project partners of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space program. However, views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

- LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI
- PP 2 – Trieste Economic Development Agency (IT): COSELAG
- PP 3 – Development agency Sora Ltd. (SI): RA sora
- PP 4 – Regional Development Agency of the Ljubljana (SI): RRA-LUR
- PP 5 – Energy and Innovation Centre of WEIZ (AT): WEIZ
- PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB
- PP 7 – Landshut University of Applied Sciences (DE): TZE
- PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM
- PP 9 – Grenoble-Alps Metropole (FR): GAM
- PP10 – POLYMERIS (FR): POL
- PP 11 – Lombardy Foundation for the Environment (IT): FLA
- PP 12 – TUM International GmbH (DE): TUMint



REFERENCE DOCUMENTS

D.1.1.1

D.1.1.2

D.1.2.1

D.1.3.1

ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



INDEX

PROJECT PARTNERS	2
REFERENCE DOCUMENTS	3
ABBREVIATIONS USED	3
1. Objective and summary	5
2. Basis for developing an action plan	6
3. Pilot site / industrial park analysis and description.....	6
3.1. General description of the IP	7
3.2. SWOT Analysis	8
3.3. Main Challenges' definition	9
4. Action plan structure.....	10
4.1. Action plan.....	10
4.2. Overview of the actions needed to achieve the SOs.....	12
5. Topic selection for the pilots	14
5.1. Concept main questions	14
5.2. Pilot Questionnaire	14
Annex I – Form for the Action Plan elaboration	16
Annex II – Data of the Technopark and the tenants.....	4
Annex III – UNIDO Indicators for status quo	8

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



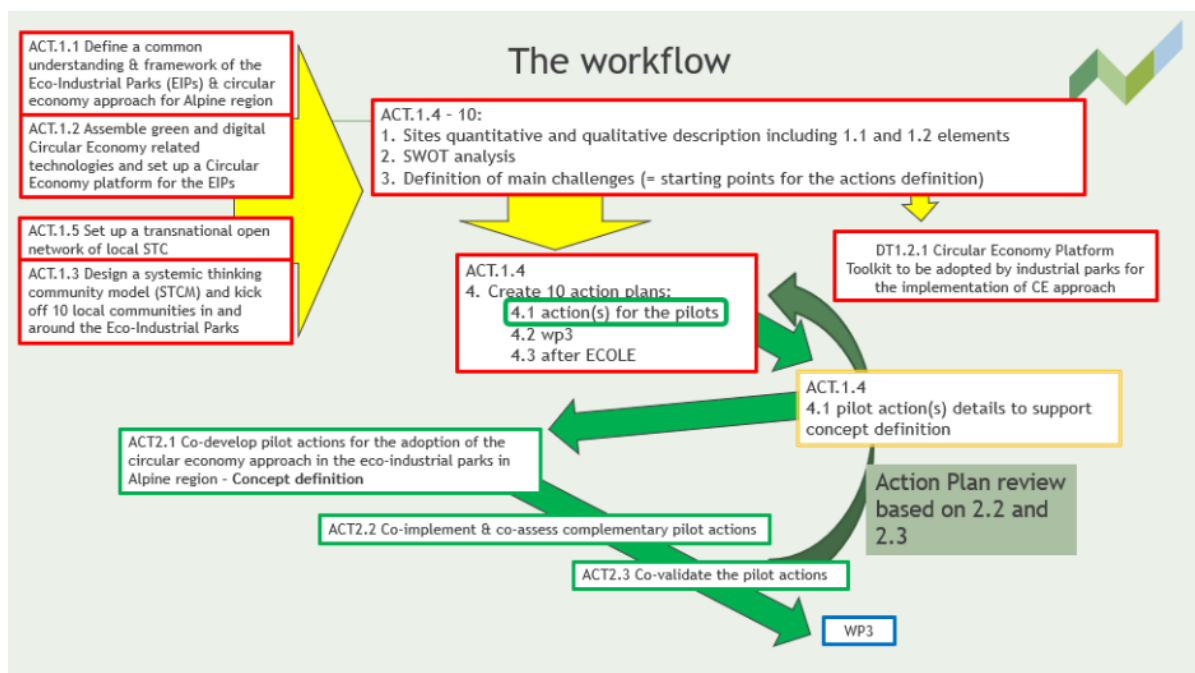
1. Objective and summary

ECOLE provides recommendations for the integration of circularity and sustainability concepts into industrial parks. For this purpose, project partners cooperate with ten industrial parks (IPs) as pilot sites for testing of different approaches and solutions developed during the project. For each pilot park, an individual action plan will be elaborated based on in-depth analysis of SWOT, physical characteristics and discussions with each STC, including park management and tenant companies if applicable.

This document aims to guide PPs in collecting and analysing relevant information to provide an overview of the participating IPs. It outlines which information needs to be provided by the IPs/implementing partners to define the challenges that will be addressed in the action plans. Further, the structure for the individual action plans including KPIs will be outlined. The action plan developed by each of the ten IPs is to be provided in a separate document, highlighting the roadmap of comprehensive actions that the IPs should follow to transform the IPs into eco-industrial parks (EIPs) (or develop greenfield EIPs). A set of actions will then be prioritized for immediate implementation, to be integrated into activity 2.1, i.e. the co-design of the concept, and 2.2. i.e. the co-development of the pilots.

After the completion of the WP2, the Action Plans will be updated based on the achievements of the 2.3, i.e. transnational co-validation of the pilots.

The continuation/implementation of the action plans is ensured through WP3. In particular, the overall goal of A.3.2 is the confirmation that the action plans will be considered for future park management and development by the respective stakeholders through a signed Memorandum of Understanding.



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

Project-ID: ASP0100091



2. Basis for developing an action plan

An action plan outlines all necessary activities and tasks that need to be carried out to achieve the transformation of the IP into an EIP. This overall goal is divided into specific objectives (SO), making it easier to define specific actions and to identify parts that can be changed during and after the project. For each SO, the necessary actions are defined and connected to a key performance indicator (KPI) for measurement. Each action can be described through different categories such as needed resources, costs/risks and benefits, needed stakeholders, implementation timeline and cross-cutting issues.

To ensure the uptake of the action plans, the documents should be concise and, as far as possible, designed in an easy to read way (e.g. through tables, figures, illustrations, colouring etc.).

3. Pilot site / industrial park analysis and description

Name	Type	Location	Responsible
Marangona Area	Greenfield	Verona, Italy	LP
	Greenfield	Trieste, Italy	PP2
Industrial zones Železniki, Trata, Žiri, Todraž (Gorenja vas)	Brownfield	Železniki, Trata, Žiri, Todraž (Gorenja vas), Slovenia	PP3
Zalog Economic and Business Zone	Greenfield (2.7h), brownfield (7h)	Zalog, Slovenia	PP4
	Brownfield (50%), greenfield / planned (50%)	Weiz, Austria	PP5
	Brownfield	Rudersdorf / Deutsch Kaltenbrunn, Austria	PP6
Siemens Technopark	Brownfield	Ruhstorf an der Rott, Germany	PP7
Cleantech Innovation Park	Partially completed	Hallstadt, Germany	PP8
Tbd.	Brownfield, partially greenfield	Grenoble	PP9

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy

In this section each PP shortly summarises the main features of their IP. The description and analysis is necessary in order to (1) understand the needs and challenges of the industrial park, (2) cluster the selected actions at IP level into pilot actions in WP2, and (3) get an understanding of the technologies to be tested during pilot implementation.

This section provides the methodology for the description and analysis. The collection of data can be supported by a questionnaire document to be filled at the level of each IP (see Annex I).

For each IP, the following information should be collected:

- (i) Qualitative and quantitative descriptions including elements of D.1.1.1 and D.1.1.2, followed by
- (ii) SWOT analysis, from which
- (iii) main challenges will be defined as starting points for the development of the action plans. The methodologies for those are given in the next section, based on which ten individual action plans will be created in separate documents.

3.1. General description of the IP

A) Please read the Deliverable D1.1.1 Benchmarking study on the circular economy approach in industrial parks carefully in order to answer the following questions:

- Is your IP a greenfield, a brownfield, or a combination of both?
- Which benefits/drivers of performance are most relevant for your IP and why? Please choose from the categories environmental, economic, and social. (Note: Reflecting on these aspects should help you define the overall short and long-term objective towards becoming an eco-industrial park.)
- Which is the most relevant characteristic associated with your IP? (Please refer to D.1.1.1. main characteristics in Table 2/p.13)

B) Please describe the profile of and resources available in your IP:

- Evaluation of the status quo according to UNIDO (please see Annex II)
- Sizes and types of buildings, years of installation, purpose
- Park structure (management unit and governance structures)
- Description of tenant companies: sectors, type of firms, products and services, market niche, etc.
- Park infrastructure and facilities (e.g. roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services)
- Energy consumption profiles for the tenant firms (heat, electricity, natural gas)
- Sources for energy consumption in the IP
- Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices
- Which types of industrial synergies could be exploited within your IP?

C) Please describe the relevant technologies for your IP

- Please choose technologies outlined in D.1.2.1.

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

Project-ID: ASP0100091



D) Regional context

- Please provide an overview of the economic and social context of the region your IP is located in. (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)
- Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)
- Please describe the industrial context in the IP area, i.e. in the surrounding community/municipality, if applicable.

3.2. SWOT Analysis

The information collection in section 3.1.1 will help you get a sense of the positive and less positive aspects towards achieving your transformation goals. The SWOT analysis helps you synthesize this information, which is key to deducing the challenges that will be addressed in the action plan, and those that will be tackled during pilot action implementation. Figure 1 provides a template for how information is synthesized through a SWOT analysis. Please use a Word or Excel document to compile this information.

Figure 1: SWOT matrix



1) **Strengths:** Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:

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

Project-ID: ASP0100091



- Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices.
- Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles.
- Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance the sustainability and competitiveness of the eco-industrial park.

2) Weaknesses: Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:

- Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process.
- Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives.
- Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation.

3) Opportunities: Opportunities are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them. Opportunities might include:

- Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies.
- Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park.

4) Threats: Threats are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat. Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.

3.3. Main Challenges' definition

Based on the SWOT analysis, **key challenges** need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include (examples, non-exhaustive list):

- Complex value chains

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

Project-ID: ASP0100091



- Resistance to change
- Limited availability of circular materials
- Technical challenges

For each challenge, please describe:

1. **Concise introduction:** summarize the context for the challenge and emphasizes the need for transitioning to an Eco Industrial Park.
2. **Current State Assessment:** underline the current limitations that hinder the achievement of sustainable and eco-friendly practices. Please include when applicable the negative consequences, such as pollution, habitat destruction, carbon emissions, and potential health risks for nearby communities. This analysis helps emphasize the urgency and importance of the transition.
3. **Key Challenges:** identify the main obstacles faced in transitioning to an Eco industrial park (technological limitations, regulatory barriers, financial constraints, lack of awareness or motivation among stakeholders, or resistance to change). Possibly, prioritize the challenges based on their significance and potential impact.
4. **Goals and Objectives:** Clearly state the goals and objectives of transitioning to an Eco industrial park. These may include reducing carbon emissions, minimizing waste generation, improving resource efficiency, promoting renewable energy adoption, enhancing ecosystem protection, and fostering sustainable economic development.

4. Action plan structure

Each individual action plan follows a given structure in order to ensure comparability and joint conclusions as blueprint for future industrial park projects. The action plans are, however, adjusted according to the specific characteristics. In this document, the structure of the action plans is provided, based on which a total of ten individual documents will be prepared (ten action plans, one for each IP).

The action plan provides information on the actions to be implemented in order to transform the IP into an eco-industrial park. It addresses the challenges identified in the prior section, building on strengths and integrating opportunities while tackling weaknesses and managing threats.

The action plan includes three types of actions:

- i. Pilot action(s): action(s) to be developed within the ECOLE pilots,
- ii. WP3 action(s): action(s) to be considered during WP3 for recommendations and further dissemination by a transnational exchange of experience between the 3 pilots
- iii. Impact action(s): action(s) addressed after the completion of the project in terms of additional impact of ECOLE transnational learning process.

Each action plan should be designed according to the following structure.

4.1. Action plan

- 1) Overall goal

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



Which is the main goal that should be achieved by the implementation of the action plan? The overall goal should be specific, measurable and realistic.

2) Specific objectives (SO) and KPIs

Which specific objectives will lead to the achievement of the overall goal? The number of SOs depends on the complexity of the overall goal and can be adjusted accordingly. For each SO, a corresponding action should be formulated. Additionally, a KPI should be defined. KPI stands for Key Performance Indicator. It is a measurable value that helps organizations track their progress towards specific goals and objectives. KPIs are used to monitor and evaluate performance over time and can be used to identify areas for improvement or optimization. In essence, KPIs help organizations stay focused on their strategic objectives and measure their success in achieving them. Please refer to the UNIDO KPIs for framework and reference. Own KPIs can also be created.

Examples of SOs, related actions and KPIs:

- Objective: Enhance resource efficiency and circularity
 - Develop a comprehensive waste management system to promote recycling, reuse, and resource recovery. KPI: Monitoring system is in place (yes/no)
 - Facilitate the establishment of symbiotic relationships and resource-sharing among companies within the industrial park. KPI: Legally binding agreement between firms and park authority is in place (yes/no)
 - Implement measures to minimize waste generation and optimize resource utilization across all industrial processes.
- Objective: Promote renewable energy adoption and energy efficiency
 - Encourage the installation of renewable energy generation systems, such as solar panels or wind turbines, within the industrial park. KPI: Total renewable energy use for electricity and heat production in the industrial park is equal to or greater than the renewable energy share in the annual national electricity mix in the grid. / Share of renewable energy in total energy consumption of the IP (%).
 - Implement energy management programs to optimize energy use and improve energy efficiency in industrial processes. KPI: Proportion of the park management and tenant firms that have a metering system in place.
- Objective: Foster sustainable water management
 - Implement water conservation measures and technologies to minimize water consumption in industrial processes.
 - Promote water recycling and reuse systems within the industrial park.
 - Collaborate with local water management authorities to develop sustainable water sourcing strategies and protect local water resources.
- Objective: Enhance green infrastructure and biodiversity
 - Incorporate green spaces, parks, and green corridors within the industrial park to improve aesthetics, air quality, and biodiversity.
 - Implement sustainable landscaping practices, including native plant species and rainwater harvesting systems.
 - Establish measures to protect and restore local ecosystems and habitats, such as wetlands or wildlife corridors.
- Objective: Foster sustainable mobility and transportation

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

Project-ID: ASP0100091



- Develop an efficient transportation system within the industrial park, promoting the use of electric vehicles, shared mobility options, and alternative fuels.
- Implement measures to reduce transport-related emissions and congestion, such as promoting carpooling or establishing logistics consolidation centers.
- Encourage the use of sustainable transportation modes for commuting, such as cycling or public transportation.
- Objective: Strengthen stakeholder engagement and collaboration
 - Establish a platform for regular communication and collaboration among industrial park tenants, local communities, and relevant stakeholders.
 - Encourage knowledge-sharing and best practice exchange through workshops, seminars, and networking events.
 - Foster partnerships with research institutions, universities, and industry associations to promote innovation and sustainable practices.
- Objective: Ensure compliance with environmental regulations and standards
 - Develop mechanisms to ensure industrial park tenants' compliance with relevant environmental regulations and standards.
 - Establish monitoring systems to track and report environmental performance indicators.
 - Provide support and guidance to help tenants adopt and implement sustainable practices.wat

4.2. Overview of the actions needed to achieve the SOs

Based on the actions defined in the previous section, an overview should be created following the table structure. This adds some additional information, such as needed resources, technologies, tools etc., needed stakeholders, a time frame for implementation, and risks/costs and benefits. This overview also indicates if the action will be (i) part of the pilot, (ii) addressed during WP3, or (iii) part of ECOLE’s impact, i.e. implemented after the end of the project by the IP.

For each SO, the actions shall be listed following the given structure:

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Analysis of waste heat production	Data on waste heat streams	Companies that produce waste heat, park management	2 month / until February 2026		i / ii / iii
2	Analysis of heat demand	Data on heat demand in the IP	Heat consuming companies, park management	2 month / until February 2026		i / ii / iii



3	Implementation of electricity storage (battery)	Investment into a battery system	Park management, battery provider	6 month / until June 2026	High investment, options for more energy self-sufficiency	i / ii / iii
4	Implementation of internal heat network	Investment, reconstruction costs	Park management	24 month / until December 2027	Very high investment costs	i / ii / iii
5	Other (please specify)					i / ii / iii

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

Project-ID: ASP0100091



5. Topic selection for the pilots

This section is a summary of the analysis and the action plan table. It consists of two stages (a list of questions and a questionnaire) in order to provide an overall overview the co-design of the concept (2.1) and later the co-development of the pilot actions (2.2).

5.1. Concept main questions

Please answer the questions concisely and comprehensively:

- I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?
- II. What goal are you targeting/aiming to achieve at your pilot site and why?
- III. At what stage in the process (to address this challenge) are you at the moment (“What is the baseline”)?
- IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?
- V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?
- VI. What is the expected solution/deliverable that will come out of the piloting process (E.g. 1), Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX, etc.)
- VII. What will you be measuring at your pilot site in the framework of Ecole, and how?

5.2. Pilot Questionnaire

In order to prepare the concept and the pilot implementation, by taking into consideration the actions “i” the ones to be developed during the ECOLE pilot (2.2):

1. Please read the document ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs carefully and answer the question below:
 - 1.1 WHICH TOPIC OF CIRCULAR ECONOMY ARE WE AIMING AT?
2. Please read the document Design a systemic thinking community model (STCM) and kick off 10 local communities in and around the Eco-Industrial Parks and answer the question below - HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?
 - 2.1 IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO OR WHO IS INTERESTED IN THE PROJECT? (Please use Figure 1 on p.8)
 - 2.2 ANALYSE STAKEHOLDERS: WHAT IS THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT? (Please answer these questions in relation to your pilot site, use Table 1 on p.9)
 - 2.3 MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM. (Please answer these questions in relation to your pilot site, use Figure 2 on p.10)
 - 2.4 PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM? (Please answer these questions in relation to your pilot site, use Figure 6 on p.14)
 - 2.5 The guiding questions for setting up a structured STCM process are (Please answer these questions in relation to your pilot site; see the explanation on p. 17-18):

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

Project-ID: ASP0100091



- 2.5.1 Who should be engaged?
- 2.5.2 How should they be engaged?
- 2.5.3 How often and for what purpose?
- 2.5.4 What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform)



Annex I – Form for the Action Plan elaboration

1. IP Analysis

1.1 General description of the IP

<p>Please read the document ACT.1.1 Define a common understanding & framework of the Eco-Industrial Parks (EIPs) & circular economy approach for Alpine region carefully and answer the question below.</p> <p>WHAT WOULD WE LIKE OUR EIP TO BE?</p>	
<p>EIP planners can consider choosing between two possible types of EIP sites: greenfield developments (on virgin land) and brownfield developments. All these types of sites offer very different challenges and opportunities for creating EIPs (p.13).</p> <p>WHICH IS THE MOST RELEVANT CHARACTERISTIC ASSOCIATED WITH YOUR PILOT SITE?</p> <p>(First, choose the relevant type for your pilot site/Greenfield, Brownfield, then see the main characteristics in Table 2/p.13 and answer the question.)</p>	<p><input type="checkbox"/> Greenfield <input checked="" type="checkbox"/> Brownfield</p> <p>Conversion of currently operating Industrial Parks to EIPs</p> <p><i>!Partially! Conversion of abandoned, ideal, and often contaminated Sites to EIPs.</i></p>
<p>WHICH BENEFITS/DRIVERS OF PERFORMANCE ARE, FROM YOUR PERSPECTIVE, MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please see the table on p. 12 and choose max 3 most relevant benefits from each category/Environmental, Economic, Social)</p>	<p><i>Environmental: 1. Green Supply chains</i> <i>2. Contributing to industrial decarbonization & green innovation</i> <i>3. More efficient use of resources.</i></p> <p><i>Economic: 1. Higher Productivity (by occupying the unused halls)</i> <i>2. New sources of income for industries through the sale of unwanted by-products</i></p> <p><i>Social: 1. Job creation</i> <i>2. Social infrastructure for workers and community</i></p>
<p>Please elaborate in greater detail. Your IP might have characteristics of both greenfield and brownfield IPs, or some other options might need to be considered.</p>	<p><i>Originally constructed to serve Siemens enterprises, the Siemens Technopark has now expanded its accessibility to other companies. Situated as a brownfield industrial park, it presents limited prospects for enhancement.</i></p>

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

Project-ID: ASP0100091



Which is the most relevant characteristic associated with your IP?	Conversion of currently operating Industrial Parks to EIPs
IP profile	
Please fill out the questionnaire in Annex II.	
Please describe the infrastructural conditions of the IP (sizes and types of buildings, year of installation, purpose)	<p>TECHNOPARK: Total Land area: 100,000 m² Total rentable space: 60,000 m² Production: 50,000 m² Warehouse/logistics: 4,000 m² Office: 6,000 m²</p> <p style="text-align: right;">See Annex 1</p>
Please describe the park structure (management and tenants)	The technopark is managed by Siemens Real Estate. The tenants, however are independent and have their own management.
Please describe the current tenant companies.	See Annex 1
Please describe the park infrastructure and facilities (e.g., roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, and social services)	<p>The park is well connected to the A3-Highway and the nearest airport is Linz and Salzburg. There is also a connection to the Rhine-Danube Waterway.</p> <p>The electricity is procured by Siemens Technopark and sold to Tenants by the lease agreement. Siemens buys electricity (100% green Electricity) centrally from Stadtwerke München.</p> <p>The required heat is currently produced through Oil and Gas.</p> <p>Currently, there is no central waste management system. The tenants take care of the waste they produce.</p>
Please describe the energy consumption profiles (heat, electricity, natural gas).	<p>The specific energy profiles for each individual company are yet to be received.</p> <p style="text-align: right;">See Annex 1</p>

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

Project-ID: ASP0100091



<p>Please describe the current waste situation: Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices.</p>	<p><i>There is a significant amount of electricity (approximately 40.000 kWh) is recovered during Flender’s testing period, which is fed back to the grind. However, the grid management does not pay for the electricity sent back.</i></p>
<p>The type of sectors in EIPs and their needs also define the type of industrial synergies that can be exploited within an EIP. WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p>(Please tick the appropriate box below. Please elaborate shortly on the right. Please mention the tenant companies that must be involved in creating said synergies, if applicable.)</p> <p><input type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p> <p><input checked="" type="checkbox"/> Utility synergies: shared use of utility infrastructure, mainly revolving around water and energy (e.g., water recovery and energy cogeneration);</p> <p><input checked="" type="checkbox"/> Service synergies: sharing of services and activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p> <p><input type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): using previously disposed waste (as solid, liquid, gas) from one facility to another to provide a valuable by-product.</p>	<p><u>Utility Synergies:</u> <i>The Flender production site generates a limited quantity of waste heat during its testing phase, which is efficiently captured using a cooling tower. There exists a potential opportunity to share this waste heat with other companies when the need arises. The company Hatz is in the process of acquiring CO2-neutral heat and might explore a potential collaboration with Flender for this purpose.</i></p> <p><i>Hatz is actively exploring the possibility of partnering with Siemens Technopark to jointly acquire a heat generator, thereby avoiding the separate investments in this technology by both companies.</i></p> <p><u>Service Synergies:</u> <i>The tenants within the Technopark are demonstrating significant enthusiasm for the establishment of a carpooling system, which would enable individuals from the same localities to commute together. This initiative holds the potential to effectively curtail CO2 emissions and alleviate travel costs for the individuals involved. Collaboratively, the tenants, in conjunction with the Industrial Park, can exert their influence on public transport authorities to expand transportation alternatives, thereby benefiting not only the local community in Ruhstorf but also contributing to a more sustainable environment.</i></p>

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

Project-ID: ASP0100091



<p>PLEASE INDICATE/CHOOSE WHICH PERFORMANCE REQUIREMENT FROM EACH FIELD: RELATED TO PARK MANAGEMENT, ENVIRONMENTAL, SOCIAL, AND ECONOMIC IS MOST RELEVANT FOR YOUR PILOT SITE.</p> <p>(Please choose from Tables 7 - 10, p. 20 – 24).</p>	<p><u>Park Management Performance Requirements:</u></p> <ol style="list-style-type: none"> <i>1. Park management entity</i> <i>2. Information on applicable regulations and standards.</i> <p><u>Environmental Performance Requirements:</u></p> <ol style="list-style-type: none"> <i>1. Renewable and clean energy</i> <i>2. Resource Conservation</i> <i>3. Disposal of Waste</i> <p><u>Economic Performance Requirements:</u></p> <ol style="list-style-type: none"> <i>1. Maximizing Local Benefits</i>
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from Table 4: EIP Technologies, p. 16.)</p>	<p><i>Energy management business models (energy performance contracting; energy supply contracting, integrated energy contracting)</i></p> <p><i>Waste to energy</i></p>
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please refer to D.1.2.1)</p>	<ol style="list-style-type: none"> <i>1. Photovoltaic</i> <i>2. Smart Energy Measuring</i> <i>3. Electric Mobility</i> <i>4. Waste Heat integration</i>
<p>Surrounding regional context</p>	
<p>Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)</p> <p>Points might be:</p> <ul style="list-style-type: none"> • Workforce demographics: Age, gender, education levels, and skill sets of the population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges. • Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial 	<p><i>The cities Pfarrkirchen and Passau are located each within a radius of 30 kms. They have Colleges with engineering programmes. The graduates can get opportunities to work at Technopark, when fully developed.</i></p> <p><i>Siemens Technopark is situated within the city of Ruhstorf an der Rott, where an elementary and middle school are available to cater to the educational needs of the families associated with the technopark workforce.</i></p>

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

Project-ID: ASP0100091



<p>park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers.</p> <ul style="list-style-type: none"> • Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, supports local businesses, and engages in social responsibility activities. • Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities. • Social infrastructure: Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community. • Social cohesion and integration: Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups. • Social impacts and conflicts: Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management's efforts to address these impacts and resolve conflicts. 	
--	--

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

Project-ID: ASP0100091



<ul style="list-style-type: none"> • Education and skill development: Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement 	
<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)</p>	<p>Currently collaborating with TZE on Project ECOLE. Technopark is willing to work with TZE on other projects as well.</p>



1.2. SWOT Analysis

SWOT analysis

SWOT ANALYSIS

	Helpful to achieving the objective	Harmful to achieving the objective
Internal origin <small>(attributes of the organization)</small>	S Strengths	W Weaknesses
External origin <small>(attributes of the environment)</small>	O Opportunities	T Threats

Please elaborate the **strengths** of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:

- Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices.
- Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles.
- Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance

The technopark has an ideal Location for transportation:

Destination	Time	Distance
Passau	10 min	22 km
Passau Railway Station	25 min	26 km
Ruhstorf Railway station	1 min	900 m
A3- Highway	7 min	5.5 km
Munich Airport	1.5 hours	140 km
Linz Airport	1 hour	90 km
Salzburg Airport	1.5 hours	100 km

The tenants are prepared to engage in collaboration, both amongst themselves and with the Technopark management, to enhance energy and resource efficiency.

Eder Elektro GmbH, a tenant of the Siemens technopark is willing to do cost estimates for the implementation of certain technologies.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy



<p>the sustainability and competitiveness of the eco-industrial park.</p>	
<p>Please elaborate on the weaknesses of your IP. Weaknesses are harmful to achieving the project objective and are of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:</p> <ul style="list-style-type: none"> • Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. • Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. • Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	<p><i>Metering and measuring the energy consumption of the tenant is not done in an ideal way. The infrastructure isn't sustainable to add a heat meter, and installing a meter costs a lot of money.</i></p> <p><i>Technopark currently lacks a centralized waste management system, leading to challenges in effectively managing waste within the premises. Additionally, the tenants lack comprehensive knowledge and understanding of proper waste management practices.</i></p> <p><i>The Technopark acquires electricity from the government and distributes it to the tenants at the same price for which it was purchased. However, the park does not account for any conversion charges related to the provision of electricity.</i></p> <p><i>The Technopark was originally constructed exclusively for Siemens' utilization, catering specifically to their requirements. Presently, the buildings within Technopark lack the flexibility to be customized or tailored according to the individual needs of the tenants.</i></p> <p><i>The tenants are unhappy with the central energy management system, which calculates the heat consumption on the basis of floor area.</i></p> <p><i>The Electricity recovered during the testing period at Flender's production site is fed back to the grid. However, the grid operators don't pay for this electricity.</i></p>
<p>Please elaborate on the opportunities. These are helpful but of external origin. You can consider opportunities during action plan development but not necessarily change them. Opportunities might include:</p>	<p><i>Technopark has the concept of roof evaluation, which presents an opportunity for the installation of photovoltaic (PV) systems. The availability of rented parking lots further</i></p>

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

Project-ID: ASP0100091



<ul style="list-style-type: none"> • Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies. • Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park. 	<p><i>provides an advantageous prospect for installing PV roofs, allowing electricity generation.</i></p> <p><i>Electric mobility integration.</i></p> <p><i>The Technoparks are experiencing a revitalization driven by local politics, with significant policy support being provided to them to foster their growth and success.</i></p> <p><i>A collaboration with the local waste management center in Ruhstorf.</i></p> <p><i>Dedicated Industrial park Business support, Innovation, or Competitiveness programs on effective offer.</i></p> <p><i>In the event of approval from public transport authorities, custom transport routes may be established to cater to the Technopark employees' requirements, reducing their reliance on private vehicles.</i></p>
<p>Please elaborate on the threats. These are harmful and of external origin. You need to consider the threats during the development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.</p> <p>Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.</p>	<p><i>Technological-socio-economic barriers: Long lead times and disruptions when installing new technologies.</i></p>



1.3. Main Challenges' definition

Challenges: Based on the SWOT analysis, challenges need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include:

- **Complex value chains:** Industrial parks typically involve multiple stakeholders, including manufacturers, suppliers, and customers, which can make it challenging to establish a circular system. For example, one company might produce waste that could be a valuable resource for another, but coordinating the exchange of materials between these companies may require significant effort and investment.
- **Resistance to change:** The shift towards circularity often involves changes to established business models and processes. Some stakeholders may be resistant to these changes, particularly if they see short-term costs without a clear path to long-term benefits.
- **Limited availability of circular materials:** Circular systems depend on the availability of materials that can be reused, recycled, or repurposed. In some cases, these materials may be in short supply or difficult to source, which can limit the potential for circularity.
- **Technical challenges:** Circularity often requires advanced technologies and processes, such as material separation and purification, that may be complex and expensive to implement. Industrial parks may need to invest in these technologies and develop new expertise to effectively integrate circular approaches.

#	Concise introduction	Current State Assessment	Key Challenges	Goals and Objectives
1	Effective Energy Management is crucial in IP to ensure sustainable utilization of energy resources.	Since the IP was built initially for the use of Siemens, it wasn't necessary to add energy meters separately for all the buildings.	The cost of installing smart measuring technologies is relatively high.	To promote fairness and equitable energy management among tenants within the IP.
2	The reliance on fossil resources exacerbates environmental pollution and remains a primary energy source for the industrial sector.	The technopark relies only on fossil resources (oil, gas) to run the heating system.	The upfront cost of renewable heating systems is high. The installation of such systems needs infrastructural changes.	The electrification of heating by using electric heating systems powered by renewable energy sources, such as wind or solar power.
3	Limited train service leading to increased personal vehicle use and environmental concerns	Siemens Technopark employees opt for personal vehicles over the unreliable regional train system.	Achieving unanimous consensus on carpooling adoption.	To reduce the CO2 emissions because of high number of personal vehicle usage

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

Project-ID: ASP0100091

2. Action plan

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Analysis of the potential technologies to reuse the waste heat	<ul style="list-style-type: none"> Data from the production area of Flender at Siemens Technopark. Waste heat recovery technologies. Expert's analysis on the implementation of technology 	<p>Siemens Technopark Management</p> <p>Existing tenants of the IP</p> <p>Flender AG</p>	Oct 2023 – Jan 2024	<p>RISK</p> <ul style="list-style-type: none"> The irregular supply of waste heat can pose challenges when transitioning between direct heating and recovered heating technologies. Technical challenges in integrating new technologies Investment <p>BENEFIT</p> <ul style="list-style-type: none"> Increased energy efficiency. Reduction of heating cost 	i
2	Analysis of Technologies to store/re-use lost electricity	<ul style="list-style-type: none"> Data from the production area of Flender at Siemens Technopark. Energy storage or conversion technologies 	<p>Siemens Technopark Management</p> <p>Existing tenants of the IP</p>	Oct 2023 – Jan 2024	<p>RISKS:</p> <ul style="list-style-type: none"> Battery storage systems can be expensive, and the initial investment may not always justify the potential savings, especially for smaller operations. The size requirements of energy storage systems can be significant, potentially posing limitations for 	i / ii / iii



Alpine Space

			Grid operators Flender		<p>certain facilities. Expanding storage capacity can also present difficulties.</p> <p>BENEFITS</p> <ul style="list-style-type: none"> • Businesses can shift electricity consumption from high-demand, high-cost periods to low-demand, low-cost periods by storing and using recovered electricity, leading to cost savings. • Using recovered electricity reduces reliance on fossil fuels, lowering greenhouse gas emissions and contributing to sustainability goals. 	
3	Conduct discussions with Flender to review the technology analysis and make a decision on whether to implement the chosen technology.	<ul style="list-style-type: none"> • Decision-Making Framework of Flender. • A suitable meeting space for discussions with Flender's management. • Cost Estimation Tools. • Technical Expertise 	EHS department and the management of Flender at Ruhstorf location Siemens Technopark	January 2024 – March 2024	<p>RISKS:</p> <ul style="list-style-type: none"> • Uniform contentment across all the departments of Flender with the same viable solution is not achievable. • Investments <p>BENEFITS:</p> <ul style="list-style-type: none"> • If substantial savings are calculated, these funds can be reallocated to address other essential areas. 	i / ii / iii

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

Project-ID: ASP010091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy



Alpine Space

4	Implementation of technologies in the site	<ul style="list-style-type: none"> • Investments. • Infrastructure Compatibility 	<p>Flender AG</p> <p>Siemens Technopark</p>	<p>Approximately 6 months from April 2024</p>	<p>RISKS:</p> <ul style="list-style-type: none"> • Applying theoretical analysis in a practical setting might shed light on certain obstacles. • The building wouldn't be compatible to the new technologies. <p>BENEFITS:</p> <ul style="list-style-type: none"> • The reduction in energy cost would be significant. 	i / ii / iii
5	Analysis of Technologies to Achieve Energy Efficiency	<ul style="list-style-type: none"> • Energy Consumption Data from Hatz and Siemens Technopark. • Heat generator technologies • Allocation of investments • Energy efficiency experts 	<p>Motorenfabrik Hatz GmbH & Co. KG</p> <p>Siemens Technopark</p>	<p>Oct 2023 – Dec 2023</p>	<p>RISKS:</p> <ul style="list-style-type: none"> • Certain technologies may not equally suit both enterprises due to differences in infrastructure, operational requirements, and organizational objectives. • Both enterprises may not fully commit financially to the technology. This collaborative financing approach will demand precise negotiation and resource alignment between them. • Hatz's relatively short 4-year amortization period poses a challenge when trying to align with Siemens in a joint venture. It's difficult to reconcile this difference. 	i / ii / iii

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

Project-ID: ASP0100091



Alpine Space

					<p>BENEFITS:</p> <ul style="list-style-type: none"> Reducing CO2 emissions in the heating supply will have a positive environmental impact 	
6	Discuss with Hatz and Siemens Technopark to review the technology analysis and decide on technology implementation.	<ul style="list-style-type: none"> An opportunity for a discussion involving the management teams of both Hatz and Siemens. Decision-makers who are responsible for financial matters within their respective companies. Cost Estimation Tools Technical Expertise 	<p>Motorenfabrik Hatz GmbH & Co. KG</p> <p>Siemens Technopark</p>	January 2024 – March 2024	<p>Risks</p> <ul style="list-style-type: none"> The enterprises might not settle on the same technology. <p>BENEFITS:</p> <ul style="list-style-type: none"> One company doesn't have to cover the entire cost of the technology. 	i / ii / iii
7	Implementation of technologies in the site	<ul style="list-style-type: none"> Investments Infrastructure Compatibility 	Motorenfabrik Hatz GmbH & Co. KG	Approximately 6 months from April 2024	<p>RISKS:</p> <ul style="list-style-type: none"> Implementing theoretical analysis within a real-world context may provide insights into specific challenges. 	i / ii / iii

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

Project-ID: ASP010091



Alpine Space

			Siemens Technopark		<ul style="list-style-type: none"> Both enterprises may face financial constraints, which could hinder them from reaching a mutual decision. <p>BENEFITS:</p> <ul style="list-style-type: none"> If the companies collaborate, there will be a reduced necessity for individual technology purchases, resulting in more efficient resource utilization. 	
8	Enhancing Transportation and Carpooling Solutions for Technopark Accessibility	<ul style="list-style-type: none"> Apps/ platform to enable carpooling. Data from the workers – Work timings and place of residence 	Siemens Technopark Tenants of the technopark	Oct 2023 – Jan 2024	<p>RISKS:</p> <ul style="list-style-type: none"> Coordinating schedules and locations for pick-up and drop-off can be complex, leading to potential scheduling conflicts and delays. The use of carpooling apps or platforms may raise concerns about data privacy and security, which need to be addressed to ensure user trust. <p>BENEFITS:</p> <ul style="list-style-type: none"> The primary benefit is a significant reduction in the carbon footprint as fewer individual vehicles are on the road, contributing to a greener and more sustainable environment. Carpooling can foster stronger relationships among workers from different tenant companies, promoting a sense of community within the Industrial Park. 	

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

Project-ID: ASP0100091



Alpine Space

					<ul style="list-style-type: none"> Workers can save money on fuel, parking, and vehicle maintenance, making carpooling a cost-effective alternative to individual commuting. 	
9	Discussion with Technopark Management and Tenants	<ul style="list-style-type: none"> Siemens Technopark Tenants of the technopark 	Siemens Technopark Tenants of the technopark	Feb 2024 – April 2024	<p>RISKS:</p> <ul style="list-style-type: none"> A breakdown in communication or collaboration could hinder the adoption and effectiveness of the carpooling system. <p>BENEFITS:</p> <ul style="list-style-type: none"> Implementing environmentally friendly practices enhances the reputation of the IP and its tenant companies. 	
10	Collaborating with transportation authorities and Technopark management to implement enhanced transport and carpooling solutions.	<ul style="list-style-type: none"> Funding for Vouchers App/platform to implement carpooling. Meeting with municipality /local public transport authorities 	Siemens Technopark Tenants of the technopark Municipality of Passau-Ruhstorf-Mühldorf	Approximately 6-8 months starting from May 2024	<p>RISKS:</p> <ul style="list-style-type: none"> Day-to-day operation of the carpooling system, including dealing with unexpected issues like vehicle breakdowns or scheduling changes, could pose operational challenges. If all parties involved cannot reach a consensus or agree on the proposed transportation improvements, the initiatives may come to a standstill, resulting in a lack of progress and no positive changes for commuters. 	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy

3. Topic selection for the pilots

3.1. Concept main questions

Question	Answer
I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?	<ol style="list-style-type: none"> 1. Energy management 2. Waste heat management
II. What goal are you targeting/aiming to achieve at your pilot site and why?	<ol style="list-style-type: none"> 1. Minimize environmental impact by implementing renewable energy solutions, reducing carbon emissions, and promoting sustainable practices throughout the pilot site. 2. Creating utility and service synergies between the tenants of the technopark. 3. Improving energy management practices to enhance the overall IP efficiency
III. At what stage in the process (to address this challenge) are you at the moment (“What is the baseline”)?	<ol style="list-style-type: none"> 1. Establishing communication channels and gathering essential data from technopark Tenants. 2. Analyzing Technopark Data and Strategizing Circular Economy Technology Implementation.
IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?	<ol style="list-style-type: none"> 1. Collaboration with local farmers by using wood chips to produce energy 2. Assessment and installation of PV cells in the parking lot. 3. Collaboration with the local waste management center in Ruhstorf. 4. Assess and analyze the methods of integrating waste heat. 5. Implementation of energy-efficient technologies
V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?	<ol style="list-style-type: none"> 1. Industrial Symbiosis 2. Renewable Energy and Energy Management 3. Disposal of Waste
VI. What is the expected solution/deliverable that will come out of the piloting process (E.g., 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3)	<ol style="list-style-type: none"> 1. Reduction in energy costs. 2. Re-using the by-products/waste between industries 3. Creating a viable environment 4. Efficient Energy Management System



<p>Concept note for the governance of XXX, etc.)</p>	
<p>VII. What will you measure at your pilot site in the framework of Ecole, and how?</p>	<p>1. Total renewable energy use for electricity and heat production in the industrial park is equal to or greater than the renewable energy share in the annual national electricity mix in the grid.</p> <p>2. Proportion of manufacturing firms adopting circular economy practices, including engagement in Industrial Symbiosis Networks in the park or actively exchanging secondary raw materials, waste, or other circular economy practices.</p> <p>3. Proportion of non-hazardous, solid industrial waste generated by firms that is reused-recycled by other firms, neighbouring communities, or municipalities.</p>



3.2. Pilot Questionnaire

<p>Please read the document ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs carefully and answer the question below.</p> <p>WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?</p> <ul style="list-style-type: none"> • Reducing CO2 emission • Integrating energy storage technologies • Using more renewable energy • ... 	
<p>Please read the document Design a systemic thinking community model (STCM), kick-off 10 local communities in and around the Eco-Industrial Parks, and answer the question below.</p> <p>HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?</p>	
<p>IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO OR IS INTERESTED IN THE PROJECT? (Please use Figure 1 on p.8)</p>	<p>Technologie Zentrum Energie Tenants of the Siemens Technopark Technopark Management</p>
<p>ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT? (Please answer these questions in relation to your pilot site, use Table 1 on p.9)</p>	<p>The Siemens Technopark and its tenants express strong interest in the project and will hold the decision-making authority for implementing actions within their respective domains.</p>
<p>MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM. (Please answer these questions in relation to your pilot site, use Figure 2 on p.10)</p>	<p>The Siemens Technopark and its tenants have a high interest and a high influence. Their impact will be fundamental</p>
<p>PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM. (Please answer these questions in relation to your pilot site, use Figure 6 on p.14)</p>	<p>Stakeholders will have regular engagement through scheduled meetings.</p>
<p>The guiding questions for setting up a structured STCM process are:</p> <ul style="list-style-type: none"> • Who should be engaged? • How should they be engaged? • How often and for what purpose? • What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform) 	<p>Siemens Technopark Management holds biweekly "jour fixe" meetings to receive project progress updates.</p> <p>Tenants will receive project updates tailored to their needs.</p>

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

Project-ID: ASP0100091



(Please answer these questions in relation to your pilot site, see the explanation on p. 17-18)	
---	--



11.	Halle 18	Mechanische Fertigung	1985//1999	
12.	Halle 21 (Teilfläche)	Mechanische Fertigung	1984	
13.	Halle 22	Produktion	1961	
14.	Halle 24	Produktion	1984	
15.	Halle 25	Logistik/Lager	1964	
16.	Halle 26	Leerstand	1955	
17.	Halle 28 Schiff 1 (Nord)	Service-Reparatur Halle	2008	
18.	Halle 28 Schiff III + IV	Service-Reparatur Halle/ Mechanische Fertigung	2008	
19.	Gebäude 35	Büro	1960	Modernisierung 2007
20.	Gebäude 38	Konferenzzone		

Table 2 – Description of the Tennant Companies

No.	COMPANY NAME	AREA OF WORK
1.	Flender GmbH	Wind Energy Generation
2.	Siemens AG	Development of engines.
3.	Vogelsang Service Süd GmbH	Elektromotoren

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



4.	C.E Noerpel GmbH	Logistik
5.	Mypegasus GPQ mbH	
6.	Bayer. Landesanstalt für Landwirtschaft	Agriculture institute (Research)
7.	Lustinger GmbH	Industrial Service and Assembly (Montage)
8.	Eder Elektro GmbH	Electrical installation, Fiber Optics, Fire protection.
9.	APLEONA GmbH	Facility Management services
10.	CS Logistik GmbH & Co.KG	Logistik
11.	Rolls-Royce Solutions Ruhstorf GmbH	Battery Storage Solutions/ Smart Grid
12.	Caritas WfbM	Workshop for disabled people
13.	Prexels GmbH	Engineering and manufacturing
14.	Motorenfabrik Hatz GmbH & Co.KG	Maschinenbau firma
15.	SMP- Steiger GmbH	Metalworking – laser cutting

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy

Table-3 Current Heat Supply

LOCATION	FUEL	POWER (kW)	DISTRIBUTION	YEAR OF CONSTRUCTION	AGE
Halle 1	Oil	494	Decentralized		
Halle 35	Oil	180	Decentralized	1979	41
Halle 35	Oil	350	Decentralized	1882	38
Halle 38	Oil	300	Decentralized		
Halle 2	Gas	330	Heat network	1989	31
Halle 2	Gas	1070	Heat network	1989	31
Halle 5	Gas	720	Decentralized	2003	17
Halle 28	Gas	560	Heat network		
Halle 28	Gas	1120	Heat network	1999	21
Total Power:		5124			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular **Economy**



Annex III – UNIDO Indicators for status quo

Source: UNIDO, 2019: International Guidelines for Industrial Parks. PP 112-114,
https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
1. Good economic governance		
Robust economic system tracking economic analysis quantitatively showing a positive economic return (i.e., in terms of employment, taxes, net exports, forex, local supplies), after such factors as land, CAPEX and OPEX costs and subsidies are taken into account	(Yes =1; No =0)	
Private participation in industrial park planning	(Yes =1; No =0)	
Private participation in industrial park ownership	(Yes =1; No =0)	
If industrial park is on public land, Operator sourced on the basis of an open competitive tender	(Yes =1; No =0)	
Private sector represented on Board of Regulator	(Yes =1; No =0)	
Existence of 60% occupancy rate within 6 years (ha of land used by companies for productive use) ¹⁷	(Yes =1; No =0)	
Existence and functioning of a formal Industrial Park marketing department/unit	(Yes =1; No =0)	
User Maintenance & Operation fees or charges collected by the Operator	(Yes =1; No =0)	
% user enterprise satisfaction with the services provided by the Industrial Park Operator	(≥51% =1; ≤49% =0;)	
Operator Customer Relationship Management (CRM) system in place	(Yes =1; No =0)	
Operator ISO 9001 certification	(Yes =1; No =0)	
Good Economic Governance Score	(Scale of 0-11)	
2. Economically-enabling site & infrastructure 'hardware' (appropriate site selection)		
Unencumbered land title	(Yes =1; No =0)	
Phased site development strategy and implementation	(Yes =1; No =0)	
Proximity to urban centre*(with country significant population) ¹⁸	(Yes =1; No =0)	
Proximity to appropriate highway*	(Yes =1; No =0)	
Proximity to power transmission or distribution grid*	(Yes =1; No =0)	
Proximity to gas transmission mains and gas 'city-gate'*	(Yes =1; No =0)	
Proximity to microwave tower for broadband GSM mobile telephony and Wi-Fi connectivity*	(Yes =1; No =0)	
Appropriately-sized (wide) internal roads*	(Yes =1; No =0)	
Proximity Operational Public Port, Airport of use and of interest to the Industrial Park's users*	(Yes =1; No =0)	
[% hours power outage per period in Industrial Park /% hours power outage nationally]	(≥1 =0; <1 =1)	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



[% hours of interruption of water supply, quality or quality in INDUSTRIAL PARK/% hours of interruption of water supply, quality or quality nationally]	(≥1 =0; <1 =1)
Economically-Enabling Site & Hardware Score	(Scale of 0-11)
3. Economically-enabling services 'software'	
Regular, Scheduled Maintenance of buildings, as well as dedicated Rapid-Response or Emergency Maintenance, Repair, Rectification & Restoration Service, including for utilities and superstructure assets	(Yes =1; No =0)
Dedicated or localized industrial park Business Support, Business Association Support, Incubation, Innovation or Competitiveness programs on effective offer	(Yes =1; No =0) (Depending on # of programs available)
Industrial park user enterprises have access to specific financial support programmes	(Yes =1; No =0)
Dedicated One-Stop Shop/Single-Window in industrial park	(Yes =1; No =0)
E-government services dedicated to the industrial park	(Yes =1; No =0)
[#services offered through One-stop shop in industrial park /# services offered through One-stop shop in nearest urban community]	(≥1 =1; <1 =0)
Formal industrial park B2B Gatherings held on formal Industrial Park B2B Platforms on regular basis	(Yes =1; No =0)
Operator landscaping, gardening and cleaning services	(Yes =1; No =0)
Presence of mechanical cargo loading and off-loading services for users	(Yes =1; No =0)
Operation of product exhibition centres, product display areas, conference centres, and/or auditoria	(Yes =1; No =0) (depending on # and variety)
Presence of on-site banking, bureaux-de-change and ATM Facilities	(Yes =1; No =0) (depending on # and variety)
Presence of Human Resources Agency & Recruiting Services	(Yes =1; No =0)
Presence of manpower training services, in coordination with recognized specialized technical training institutions in various fields	(Yes =1; No =0)
Presence of dedicated on-site R&D, patenting, and product commercialisation services, in conjunction with recognized universities and/or legal services providers	(Yes =1; No =0)
Presence of dedicated on-site matching, twinning, and local supplier and buyer forward and backward linkages schemes	(Yes =1; No =0)(Depending on # and sophistication of schemes)
Presence of Quality, Product, Process Standards, and/or Trade Certification services	(Yes =1; No =0)
Economically-Enabling Software & Services Score	(Scale of 0-16)
4. Economically impactful nature: Employment, investment, turn-over	
[Per Capita Income in the industrial park /Per Capita Income Nationally]	(≥1 =1; <1 =0)
[Full-time equivalent employment/hectare in industrial park]/ Full-time equivalent employment/hectare / In industrial parks Nationally]	(≥1 =1; <1 =0)
[(Investment/ha) In Industrial Park /(Investment/ha) Nationally]	((≥1 =1; <1 =0)
[(US\$ sales revenues/ha) In Industrial Park /(US\$ sales revenues/ha) Nationally]	(≥1 =1; <1 =0)

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



[% manufacturing inputs sourced domestically In Industrial Park/ % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales /US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)
[US\$ Economic value addition ('EVA', calculated as output-inputs) per capita In Industrial Park/US\$ EVA per capita nationally]	(≥1 =1; <1 =0)
[(Exports minus Imports) In Industrial Park / (Exports minus Imports) Nationally]	(≥1 =1; <1 =0)
[FDI % of total investment (or GFCF) In Industrial Park/FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)
[(US\$ exports/ha) In Industrial Park / (US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports /US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)
[(Enterprises/ha) In Industrial Park / (Enterprises/ha) Nationally]	(≥1 =1; <1 =0)
[(IPR registrations/year/company) In Industrial Park / (IPR registrations/ year/company) nationally]	(≥1 =1; <1 =0)
Economically Impactful Nature Score	(Scale of 0-13)
Economic performance score	(Scale of 0-61)

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach

Deliverable D1.4.1

Produced by

PPT 7: TZE



Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create 10 action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP07 TZE
Author(s)	Astrid Heindel

Short Description
This document provides guidelines for the needs analysis of the industrial parks and for the development of tailored action plans for each park.

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	04.05.2023	Astrid Heindel	TZE
V1.1	14.05.2023	Astrid Heindel, Tina Pezdirc Nograšek	TZE, RRA-LUR
V.1.2	25.05.2023	Astrid Heindel, Georgeta Auktor, Tina Pezdirc Nograšek	TZE, TUMInt, RRA-LUR
...			
Final Document			



The document has been prepared by the project partners of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI

PP 2 – Trieste Economic Development Agency (IT): COSELAG

PP 3 – Development agency Sora Ltd. (SI): RA sora

PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR

PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ

PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB

PP 7 – Landshut University of Applied Sciences (DE): TZE

PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM

PP 9 – Grenoble-Alps Metropole (FR): GAM

PP10 – POLYMERIS (FR): POL

PP 11 – Lombardy Foundation for the Environment (IT): FLA

PP 12 – TUM International GmbH (DE): TUMint



REFERENCE DOCUMENTS

D.1.1.1

D.1.1.2

D.1.2.1

D.1.3.1

ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader



INDEX

PROJECT PARTNERS	2
REFERENCE DOCUMENTS	3
ABBREVIATIONS USED	3
1. Objective and summary	5
2. Basis for developing an action plan	5
3. Pilot site / industrial park analysis and description.....	6
3.1. General description of the IP	7
3.2. SWOT Analysis	8
3.3. Main Challenges' definition	9
4. Action plan structure.....	10
4.1. Action plan.....	10
4.2. Overview of the actions needed to achieve the SOs.....	12
5. Topic selection for the pilots	13
5.1. Concept main questions	13
5.2. Pilot Questionnaire	13
Annex I – Form for the Action Plan elaboration	15
Annex II – UNIDO Indicators for status quo	27

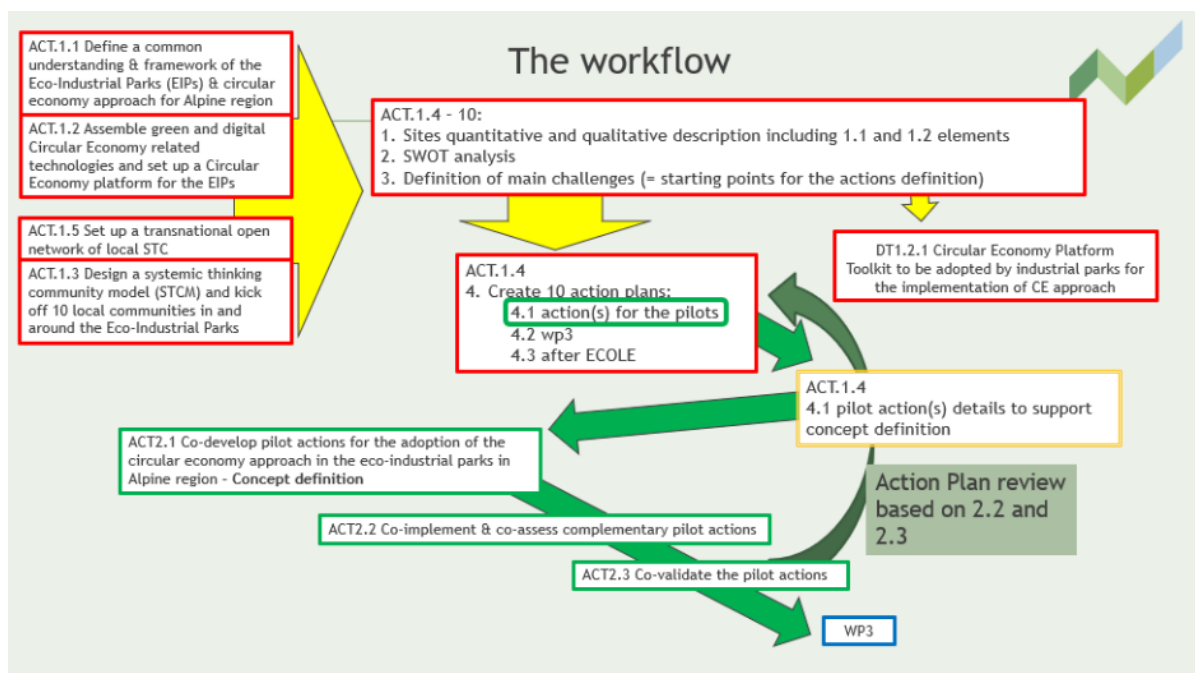
1. Objective and summary

ECOLE provides recommendations for the integration of circularity and sustainability concepts into industrial parks. For this purpose, project partners cooperate with ten industrial parks (IPs) as pilot sites for testing of different approaches and solutions developed during the project. For each pilot park, an individual action plan will be elaborated based on in-depth analysis of SWOT, physical characteristics and discussions with each STC, including park management and tenant companies if applicable.

This document aims to guide PPs in collecting and analysing relevant information to provide an overview of the participating IPs. It outlines which information needs to be provided by the IPs/implementing partners to define the challenges that will be addressed in the action plans. Further, the structure for the individual action plans including KPIs will be outlined. The action plan developed by each of the ten IPs is to be provided in a separate document, highlighting the roadmap of comprehensive actions that the IPs should follow to transform the IPs into eco-industrial parks (EIPs) (or develop greenfield EIPs). A set of actions will then be prioritized for immediate implementation, to be integrated into activity 2.1, i.e. the co-design of the concept, and 2.2. i.e. the co-development of the pilots.

After the completion of the WP2, the Action Plans will be updated based on the achievements of the 2.3, i.e. transnational co-validation of the pilots.

The continuation/implementation of the action plans is ensured through WP3. In particular, the overall goal of A.3.2 is the confirmation that the action plans will be considered for future park management and development by the respective stakeholders through a signed Memorandum of Understanding.



2. Basis for developing an action plan

An action plan outlines all necessary activities and tasks that need to be carried out to achieve the transformation of the IP into an EIP. This overall goal is divided into specific objectives (SO), making



it easier to define specific actions and to identify parts that can be changed during and after the project. For each SO, the necessary actions are defined and connected to a key performance indicator (KPI) for measurement. Each action can be described through different categories such as needed resources, costs/risks and benefits, needed stakeholders, implementation timeline and cross-cutting issues.

To ensure the uptake of the action plans, the documents should be concise and, as far as possible, designed in an easy to read way (e.g. through tables, figures, illustrations, colouring etc.).

3. Pilot site / industrial park analysis and description

Name	Type	Location	Responsible
Marangona Area	Greenfield	Verona, Italy	LP
	Greenfield	Trieste, Italy	PP2
Industrial zones Železniki, Trata, Žiri, Todraž (Gorenja vas)	Brownfield	Železniki, Trata, Žiri, Todraž (Gorenja vas), Slovenia	PP3
Zalog Economic and Business Zone	Greenfield (2.7h), brownfield (7h)	Zalog, Slovenia	PP4
	Brownfield (50%), greenfield / planned (50%)	Weiz, Austria	PP5
	Brownfield	Rudersdorf / Deutsch Kaltenbrunn, Austria	PP6
Siemens Technopark	Brownfield	Ruhstorf an der Rott, Germany	PP7
Cleantech Innovation Park	Partially completed	Hallstadt, Germany	PP8
Tbd.	Brownfield, partially greenfield	Grenoble	PP9

In this section each PP shortly summarises the main features of their IP. The description and analysis is necessary in order to (1) understand the needs and challenges of the industrial park, (2) cluster the selected actions at IP level into pilot actions in WP2, and (3) get an understanding of the technologies to be tested during pilot implementation.

This section provides the methodology for the description and analysis. The collection of data can be supported by a questionnaire document to be filled at the level of each IP (see Annex I).

For each IP, the following information should be collected:

- (i) Qualitative and quantitative descriptions including elements of D.1.1.1 and D.1.1.2, followed by
- (ii) SWOT analysis, from which
- (iii) main challenges will be defined as starting points for the development of the action plans. The methodologies for those is given in the next section, based on which ten individual action plans will be created in separate documents.

3.1. General description of the IP

A) Please read carefully the Deliverable D1.1.1 Benchmarking study on the circular economy approach in industrial parks in order to answer the following questions:

- Is your IP a greenfield or a brownfield or a combination of both?
- Which benefits/drivers of performance are most relevant for your IP and why? Please choose from the categories environmental, economic and social. (Note: Reflecting on these aspects should help you define the overall short and long-term objective towards becoming an eco-industrial park.)
- Which is the most relevant characteristic associated with you IP? (Please refer to D.1.1.1. main characteristics in Table 2/p.13)

B) Please describe the profile of, and resources available in your IP:

- Evaluation of the status quo according to UNIDO (please see Annex II)
- Sizes and types of buildings, years of installation, purpose
- Park structure (management unit and governance structures)
- Description of tenant companies: sectors, type of firms, type of products and services, market niche, etc.
- Park infrastructure and facilities (e.g.roads, transportation, power supply, digital connectivity, sewerage, water supply,solid waste management, social services)
- Energy consumption profiles for the tenant firms (heat, electricity, natural gas)
- Sources for energy consumption in the IP
- Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices
- Which types of industrial synergies could be exploited within your IP?

C) Please describe the relevant technologies for your IP

- Please choose technologies outlined in D.1.2.1.

D) Regional context

- Please provide an overview of the economic and social context of the region your IP is located in. (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)
- Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research

projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)

- Please describe the industrial context in the IP area, i.e. in the surrounding community/municipality, if applicable.

3.2. SWOT Analysis

The information collection in section 3.1.1 will help you get a sense of the positive and less positive aspects towards achieving your transformation goals. The SWOT analysis helps you synthesize this information, which is key to deducting the challenges that will be addressed in the action plan, and those that will be tackled during pilot action implementation. Figure 1 provides a template for how information is synthesized through a SWOT analysis. Please use a Word or Excel document to compile this information.

Figure 1: SWOT matrix



1) Strengths: Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:

- Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices.
- Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles.
- Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance the sustainability and competitiveness of the eco-industrial park.



- 2) **Weaknesses:** Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:
- Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process.
 - Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives.
 - Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation.
- 3) **Opportunities:** Opportunities are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them. Opportunities might include:
- Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies.
 - Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park.
- 4) **Threats:** Threats are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat. Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.

3.3. Main Challenges' definition

Based on the SWOT analysis, **key challenges** need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include (examples, non-exhaustive list):

- Complex value chains
- Resistance to change
- Limited availability of circular materials
- Technical challenges

For each challenge, please describe:

1. **Concise introduction:** summarize the context for the challenge and emphasizes the need for transitioning to an Eco Industrial Park.
2. **Current State Assessment:** underline the current limitations that hinder the achievement of sustainable and eco-friendly practices. Please include when applicable the negative consequences, such as pollution, habitat destruction, carbon emissions, and potential health risks for nearby communities. This analysis helps emphasize the urgency and importance of the transition.
3. **Key Challenges:** identify the main obstacles faced in transitioning to an Eco industrial park (technological limitations, regulatory barriers, financial constraints, lack of

awareness or motivation among stakeholders, or resistance to change). Possibly, prioritize the challenges based on their significance and potential impact.

4. **Goals and Objectives:** Clearly state the goals and objectives of transitioning to an Eco industrial park. These may include reducing carbon emissions, minimizing waste generation, improving resource efficiency, promoting renewable energy adoption, enhancing ecosystem protection, and fostering sustainable economic development.

4. Action plan structure

Each individual action plan follows a given structure in order to ensure comparability and joint conclusions as blueprint for future industrial park projects. The action plans are, however, adjusted according to the specific characteristics. In this document, the structure of the action plans is provided, based on which a total of ten individual documents will be prepared (ten action plans, one for each IP).

The action plan provides information on the actions to be implemented in order to transform the IP into an eco-industrial park. It addresses the challenges identified in the prior section, building on strengths and integrating opportunities, while tackling weaknesses and managing threats.

The action plan includes three types of actions:

- i. Pilot action(s): action(s) to be developed within the ECOLE pilots,
- ii. WP3 action(s): action(s) to be considered during WP3 for recommendations and further dissemination by a transnational exchange of experience between the 3 pilots
- iii. Impact action(s): action(s) addressed after the completion of the project in terms of additional impact of ECOLE transnational learning process.

Each action plan should be designed according to the following structure.

4.1. Action plan

1) Overall goal

Which is the main goal that should be achieved by the implementation of the action plan? The overall goal should be specific, measurable and realistic.

2) Specific objectives (SO) and KPIs

Which specific objectives will lead to the achievement of the overall goal? The number of SOs depends on the complexity of the overall goal and can be adjusted accordingly. For each SO, a corresponding action should be formulated. Additionally, a KPI should be defined. KPI stands for Key Performance Indicator. It is a measurable value that helps organizations track their progress towards specific goals and objectives. KPIs are used to monitor and evaluate performance over time and can be used to identify areas for improvement or optimization. In essence, KPIs help organizations stay focused on their strategic objectives and measure their success in achieving them. Please refer to the UNIDO KPIs for framework and reference. Own KPIs can also be created.

Examples of SOs, related actions and KPIs:

- Objective: Enhance resource efficiency and circularity
 - Develop a comprehensive waste management system to promote recycling, reuse, and resource recovery. KPI: Monitoring system is in place (yes/no)



- Facilitate the establishment of symbiotic relationships and resource-sharing among companies within the industrial park. KPI: Legally binding agreement between firms and park authority is in place (yes/no)
- Implement measures to minimize waste generation and optimize resource utilization across all industrial processes.
- Objective: Promote renewable energy adoption and energy efficiency
 - Encourage the installation of renewable energy generation systems, such as solar panels or wind turbines, within the industrial park. KPI: Total renewable energy use for electricity and heat production in the industrial park is equal to or greater than the renewable energy share in the annual national electricity mix in the grid. / Share of renewable energy in total energy consumption of the IP (%).
 - Implement energy management programs to optimize energy use and improve energy efficiency in industrial processes. KPI: Proportion of the park management and tenant firms that have a metering system in place.
- Objective: Foster sustainable water management
 - Implement water conservation measures and technologies to minimize water consumption in industrial processes.
 - Promote water recycling and reuse systems within the industrial park.
 - Collaborate with local water management authorities to develop sustainable water sourcing strategies and protect local water resources.
- Objective: Enhance green infrastructure and biodiversity
 - Incorporate green spaces, parks, and green corridors within the industrial park to improve aesthetics, air quality, and biodiversity.
 - Implement sustainable landscaping practices, including native plant species and rainwater harvesting systems.
 - Establish measures to protect and restore local ecosystems and habitats, such as wetlands or wildlife corridors.
- Objective: Foster sustainable mobility and transportation
 - Develop an efficient transportation system within the industrial park, promoting the use of electric vehicles, shared mobility options, and alternative fuels.
 - Implement measures to reduce transport-related emissions and congestion, such as promoting carpooling or establishing logistics consolidation centers.
 - Encourage the use of sustainable transportation modes for commuting, such as cycling or public transportation.
- Objective: Strengthen stakeholder engagement and collaboration
 - Establish a platform for regular communication and collaboration among industrial park tenants, local communities, and relevant stakeholders.
 - Encourage knowledge-sharing and best practice exchange through workshops, seminars, and networking events.
 - Foster partnerships with research institutions, universities, and industry associations to promote innovation and sustainable practices.
- Objective: Ensure compliance with environmental regulations and standards
 - Develop mechanisms to ensure industrial park tenants' compliance with relevant environmental regulations and standards.
 - Establish monitoring systems to track and report environmental performance indicators.
 - Provide support and guidance to help tenants adopt and implement sustainable practices.wat



4.2. Overview of the actions needed to achieve the SOs

Based on the actions defined in the previous section, an overview should be created following the table structure. This adds some additional information, such as needed resources, technologies, tools etc., needed stakeholders, a time frame for implementation, and risks/costs and benefits. This overview also indicates if the action will be (i) part of the pilot, (ii) addressed during WP3, or (iii) part of ECOLE’s impact, i.e. implemented after the end of the project by the IP.

For each SO, the actions shall be listed following the given structure:

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Analysis of waste heat production	Data on waste heat streams	Companies that produce waste heat, park management	2 month / until February 2026		i / ii / iii
2	Analysis of heat demand	Data on heat demand in the IP	Heat consuming companies, park management	2 month / until February 2026		i / ii / iii
3	Implementation of electricity storage (battery)	Investment into a battery system	Park management, battery provider	6 month / until June 2026	High investment, options for more energy self-sufficiency	i / ii / iii
4	Implementation of internal heat network	Investment, reconstruction costs	Park management	24 month / until December 2027	Very high investment costs	i / ii / iii
5	Other (please specify)					i / ii / iii



- 2.5.3 How often and for what purpose?
- 2.5.4 What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform)



Annex I – Form for the Action Plan elaboration

1. IP Analysis

1.1 General description of the IP

<p>Please read the document ACT.1.1 Define a common understanding & framework of the Eco-Industrial Parks (EIPs) & circular economy approach for Alpine region carefully and answer the question below.</p> <p>WHAT WOULD WE LIKE OUR EIP TO BE?</p>	
<p>EIP planners can consider choosing between two possible types of EIP sites: greenfield developments (on virgin land), and brownfield developments. All these types of sites offer very different challenges and opportunities for creating EIPs (p.13).</p> <p>WHICH IS THE MOST RELEVANT CHARACTERISTIC ASSOCIATED WITH YOUR PILOT SITE?</p> <p>(First, choose the relevant type for your pilot site/Greenfield, Brownfield then see the main characteristics in Table 2/p.13 and answer the question.)</p>	<p><input type="checkbox"/> Greenfield <input checked="" type="checkbox"/> Brownfield</p> <p>Most relevant characteristic: Conversion of currently operating industrial parks to EIPs</p>
<p>WHICH BENEFITS/DRIVERS OF PERFORMANCE ARE FROM YOUR PERSPECTIVE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please see the table on p. 12 and choose max 3 most relevant benefits from each category/Environmental, Economic, Social)</p>	<p>Environmental:</p> <ul style="list-style-type: none"> • More efficient use of resources • Lower emissions and land degradation • Contributing to industrial decarbonization & green innovation <p>Economic:</p> <ul style="list-style-type: none"> • Lower operation costs • Lower production cost due to material and energy efficiency <p>Social:</p> <ul style="list-style-type: none"> • Stronger community networks and trust building / community cohesion • Increased attractiveness for potential employees with stronger environmental policies in place
<p>Please elaborate in greater detail. Your IP might have characteristics of both greenfield and brownfield IPs, or some other options might need to be considered.</p>	
<p>Which is the most relevant characteristic associated with you IP?</p>	<p>Same as answer 1</p>
<p>IP profile</p>	
<p>Please fill out the questionnaire in Annex II.</p>	



<p>Please describe the infrastructural conditions of the IP (sizes and types of buildings, year of installation, purpose)</p>	<p>We have 4 IP in mind for the pilot: Industrial zone Trata (Škofja Loka) Industrial zone Todraž (Gorenja vas – Poljane) Economic zone Žiri (Žiri) Economic business zone Alples (Železniki)</p>
<p>Please describe the park structure (management and tenants)</p>	<p>None of the 4 parks is managed, each company manages their own interests.</p>
<p>Please describe the current tenant companies</p>	
<p>Please describe the park infrastructure and facilities (e.g. roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services)</p>	<p>Industrial zone Trata (Škofja Loka) Roads: connected with roads to the city Transportation: connected with railway station. Power supply: Digital connectivity Sewage: Water supply: Solid waste management: Social services:</p> <p>Industrial zone Todraž (Gorenja vas – Poljane) Economic zone Žiri (Žiri) Economic business zone Alples (Železniki)</p>
<p>Please describe the energy consumption profiles (heat, electricity, natural gas)</p>	
<p>Please describe the current waste situation: Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices</p>	
<p>The type of sectors in EIPs and their needs also define the type of industrial synergies that can be exploited within an EIP. WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p>(Please tick the appropriate box below. Please shortly elaborate on the right. Please mention the tenant companies that need to be involved in creation of said synergies, if applicable.)</p> <p><input checked="" type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p>	<p>The idea of the pilot is understand the potential of waste heat and potential use of it within the same company or finding synergy with another company, that can use it in their production process. So one company can become the supplier for another (of hot air, hot water).</p>



<p><input type="checkbox"/> Utility synergies: shared used of utility infrastructure, mainly revolving around water and energy (e.g., water recovery and energy cogeneration);</p> <p><input type="checkbox"/> Service synergies: sharing of services and activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p> <p><input type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): the use of previously disposed waste (as solid, liquid, gas) from one facility to another facility to provide a valuable by-product.</p>	
<p>PLEASE INDICATE/CHOOSE WHICH PERFORMANCE REQUIREMENT FROM EACH FIELD: RELATED TO PARK MANAGEMENT, ENVIRONMENTAL, SOCIAL, ECONOMIC IS MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from Tables 7 - 10, p. 20 – 24).</p>	<p>Park management:</p> <ul style="list-style-type: none"> • Master plan for the EIP is developed <p>Environmental:</p> <ul style="list-style-type: none"> • An industrial heat recovery strategy is in place to investigate opportunities for heat and energy recovery <p>Social:</p> <ul style="list-style-type: none"> • Dedicated personnel exists to plan, manage ... <p>Economic:</p> <ul style="list-style-type: none"> • Park management should be economically viable...
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from the Table 4: EIP Technologies, p. 16.)</p>	<p>Energy management (waste heat usage)</p>
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please refer to D.1.2.1)</p>	<p>Waste heat integration</p>
<p>Surrounding regional context</p>	
<p>Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment) Points might be:</p>	



- Workforce demographics: Age, gender, education levels, and skill sets of population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges.
- Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers.
- Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, supports local businesses, and engages in social responsibility activities.
- Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities.
- Social infrastructure: Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community.
- Social cohesion and integration: Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups.



<ul style="list-style-type: none"> • Social impacts and conflicts: Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management’s efforts to address these impacts and resolve conflicts. • Education and skill development: Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement 	
<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)</p>	<p>The 4 IP are collaborating with municipalities when it comes to development and enlargement of the land needs for the companies, but each company acts in their own benefit. At the Development agency Sora we collaborate with individual companies through the projects we conduct.</p>

1.2. SWOT Analysis

SWOT analysis

SWOT ANALYSIS



Please elaborate the **strengths** of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:

- Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices.
- Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles.
- Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance the sustainability and competitiveness of the eco-industrial park.

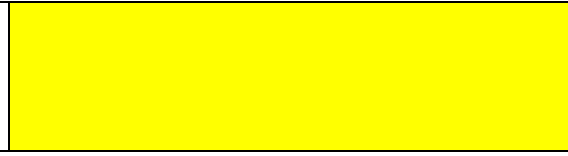
Please elaborate the **weaknesses** of your IP. Weaknesses are harmful to achieving the project



<p>objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan.</p> <p>Weaknesses might include:</p> <ul style="list-style-type: none"> • Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. • Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. • Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	
<p>Please elaborate the opportunities. These are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them.</p> <p>Opportunities might include:</p> <ul style="list-style-type: none"> • Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies. • Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park. 	
<p>Please elaborate the threats. These are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.</p>	



Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.





1.3. Main Challenges' definition

Challenges: Based on the SWOT analysis, challenges need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include:

- **Complex value chains:** Industrial parks typically involve multiple stakeholders, including manufacturers, suppliers, and customers, which can make it challenging to establish a circular system. For example, one company might produce waste that could be a valuable resource for another, but coordinating the exchange of materials between these companies may require significant effort and investment.
- **Resistance to change:** The shift towards circularity often involves changes to established business models and processes. Some stakeholders may be resistant to these changes, particularly if they see short-term costs without a clear path to long-term benefits.
- **Limited availability of circular materials:** Circular systems depend on the availability of materials that can be reused, recycled, or repurposed. In some cases, these materials may be in short supply or difficult to source, which can limit the potential for circularity.
- **Technical challenges:** Circularity often requires advanced technologies and processes, such as material separation and purification, that may be complex and expensive to implement. Industrial parks may need to invest in these technologies and develop new expertise to effectively integrate circular approaches.

#	Concise introduction	Current State Assessment	Key Challenges	Goals and Objectives
1	Using potential within	Current state will be assessed during pilot conduct for each company within the pilot	Measuring the waste heat potential for each company.	Finding potential to use the waste heat within the same company that produces it.
2	Synergies for waste heat use	Potential synergies will be proposed during pilot conduct	Finding the potential for symbiosis between existing companies for heat waste use.	Ideal would be to find potential for using waste heat among existing companies within the IP
3	Attracting complementary companies	Irrelevant	When no symbiosis between existing companies in the IP exists we should be attracting complementary industries to the IP, that could use the excess waste heat. Main challenges here will be the seasonality of excess heat (companies can use a lot if it internally during the winter for heating, the intention would be to find summer need for heat).	Identifying complementary companies that can use the excess heat in needed time periods and attracting them to the IP with systematic policies, rental cost reductions and such.
...				
...				
...				
...				



2. Action plan

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Analysis of waste heat production	Data on waste heat streams within the identified potential producers of excess heat.	Companies that produce waste heat	6-8 months / From October 2023 until May 2024		i
2	Analysis of heat demand	Data on heat demand in the IP	Heat consuming companies,	6-8 months / From October 2023 until May 2024		i
3	Proposal on complementary heat waste synergies	With broad perspective in mind finding synergies between the producers and users of heat	Energy agency conducting the measurements	2 months / from May 2024 till July 2024		i/ii
4	Implementation of internal heat network within the IP	Investment, reconstruction costs	Park management/ municipalities	24 month / until December 2027	Very high investment costs	ii / iii
5	Attracting complementary companies for waste heat use	Marketing, offering benefits, cost reduction for rent for needed companies	Park management/ municipalities	Long term		ii / iii



3. Topic selection for the pilots

3.1. Concept main questions

Question	Answer
I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?	Usage of waste heat as efficiently as possible. We have selected this challenge since we are aware of the potential of excess heat in the 4 IP and the insufficient usage of it.
II. What goal are you targeting / aiming to achieve at your pilot site and why?	Measuring potential of excess heat waste and potential for usage of that in complementary company, then proposing collaboration between the two. If no potential for usage is found among existing companies, attracting symbiotic companies to the IP is needed. Why same as above.
III. At what stage in the process (to address this challenge) are you at the moment (“what is the baseline”)?	Stage 0. We haven’t started contacting the companies yet.
IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?	Analysis of waste heat production Analysis of heat demand Proposal on complementary heat waste synergies
V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?	
VI. What is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)	Concrete proposal for the companies included in the pilot for either <ul style="list-style-type: none"> • Connecting with existing company in the IP to develop synergy for waste heat usage • What are the potential symbiotic companies that the IP management (in our case municipalities) should be attracting to the IP.
VII. What will you be measuring at you pilot site in the framework of Ecole and how?	Excess waste heat. We will be hiring an energy agency to conduct the studies.



3.2. Pilot Questionnaire

Please read the document *ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs* carefully and answer the question below.

WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?

- ...
- ...
- ...
- ...

Please read the document *Design a systemic thinking community model (STCM) and kick off 10 local communities in and around the Eco-Industrial Parks* and answer the question below.

HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?

IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT?

(Please use Figure 1 on p.8)

Internal

- Park operator (municipality)
- Park tenants

Regional

- Municipality

ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT?

(Please answer these questions in relation to your pilot site, use Table 1 on p.9)

Park tenants – financial interest, environment protection interest
 Park operator – environment protection interest, economic interest

MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM?

(Please answer these questions in relation to your pilot site, use Figure 2 on p.10)

Park tenants: High, High
 Park operator: interest medium, influence high

PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM?

(Please answer these questions in relation to your pilot site, use Figure 6 on p.14)

The guiding questions for setting up a structured STCM process are:

- Who should be engaged?
- How should they be engaged?
- How often and for what purpose?
- What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform)

(Please answer these questions in relation to your pilot site, see the explanation on p. 17-18)



Annex II – UNIDO Indicators for status quo

Source: UNIDO, 2019: International Guidelines for Industrial Parks. PP 112-114,
https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
1. Good economic governance		
Robust economic system tracking economic analysis quantitatively showing a positive economic return (i.e., in terms of employment, taxes, net exports, forex, local supplies), after such factors as land, CAPEX and OPEX costs and subsidies are taken into account	(Yes =1; No =0)	
Private participation in industrial park planning	(Yes =1; No =0)	
Private participation in industrial park ownership	(Yes =1; No =0)	
If industrial park is on public land, Operator sourced on the basis of an open competitive tender	(Yes =1; No =0)	
Private sector represented on Board of Regulator	(Yes =1; No =0)	
Existence of 60% occupancy rate within 6 years (ha of land used by companies for productive use) ¹⁷	(Yes =1; No =0)	
Existence and functioning of a formal Industrial Park marketing department/unit	(Yes =1; No =0)	
User Maintenance & Operation fees or charges collected by the Operator	(Yes =1; No =0)	
% user enterprise satisfaction with the services provided by the Industrial Park Operator	(≥51% =1; ≤49% =0;)	
Operator Customer Relationship Management (CRM) system in place	(Yes =1; No =0)	
Operator ISO 9001 certification	(Yes =1; No =0)	
Good Economic Governance Score	(Scale of 0-11)	
2. Economically-enabling site & infrastructure 'hardware' (appropriate site selection)		
Unencumbered land title	(Yes =1; No =0)	
Phased site development strategy and implementation	(Yes =1; No =0)	
Proximity to urban centre*(with country significant population) ¹⁸	(Yes =1; No =0)	
Proximity to appropriate highway*	(Yes =1; No =0)	
Proximity to power transmission or distribution grid*	(Yes =1; No =0)	
Proximity to gas transmission mains and gas 'city-gate'*	(Yes =1; No =0)	
Proximity to microwave tower for broadband GSM mobile telephony and Wi-Fi connectivity*	(Yes =1; No =0)	
Appropriately-sized (wide) internal roads*	(Yes =1; No =0)	
Proximity Operational Public Port, Airport of use and of interest to the Industrial Park's users*	(Yes =1; No =0)	
[% hours power outage per period in Industrial Park /% hours power outage nationally]	(≥1 =0; <1 =1)	



[% hours of interruption of water supply, quality or quality in INDUSTRIAL PARK/% hours of interruption of water supply, quality or quality nationally]	(≥1 =0; <1 =1)
Economically-Enabling Site & Hardware Score	(Scale of 0-11)
3. Economically-enabling services 'software'	
Regular, Scheduled Maintenance of buildings, as well as dedicated Rapid-Response or Emergency Maintenance, Repair, Rectification & Restoration Service, including for utilities and superstructure assets	(Yes =1; No =0)
Dedicated or localized industrial park Business Support, Business Association Support, Incubation, Innovation or Competitiveness programs on effective offer	(Yes =1; No =0) (Depending on # of programs available)
Industrial park user enterprises have access to specific financial support programmes	(Yes =1; No =0)
Dedicated One-Stop Shop/Single-Window in industrial park	(Yes =1; No =0)
E-government services dedicated to the industrial park	(Yes =1; No =0)
[#services offered through One-stop shop in industrial park /# services offered through One-stop shop in nearest urban community]	(≥1 =1; <1 =0)
Formal industrial park B2B Gatherings held on formal Industrial Park B2B Platforms on regular basis	(Yes =1; No =0)
Operator landscaping, gardening and cleaning services	(Yes =1; No =0)
Presence of mechanical cargo loading and off-loading services for users	(Yes =1; No =0)
Operation of product exhibition centres, product display areas, conference centres, and/or auditoria	(Yes =1; No =0) (depending on # and variety)
Presence of on-site banking, bureaux-de-change and ATM Facilities	(Yes =1; No =0) (depending on # and variety)
Presence of Human Resources Agency & Recruiting Services	(Yes =1; No =0)
Presence of manpower training services, in coordination with recognized specialized technical training institutions in various fields	(Yes =1; No =0)
Presence of dedicated on-site R&D, patenting, and product commercialisation services, in conjunction with recognized universities and/or legal services providers	(Yes =1; No =0)
Presence of dedicated on-site matching, twinning, and local supplier and buyer forward and backward linkages schemes	(Yes =1; No =0)(Depending on # and sophistication of schemes)
Presence of Quality, Product, Process Standards, and/or Trade Certification services	(Yes =1; No =0)
Economically-Enabling Software & Services Score	(Scale of 0-16)
4. Economically impactful nature: Employment, investment, turn-over	
[Per Capita Income in the industrial park /Per Capita Income Nationally]	(≥1 =1; <1 =0)
[Full-time equivalent employment/hectare in industrial park]/ Full-time equivalent employment/hectare / In industrial parks Nationally]	(≥1 =1; <1 =0)
[(Investment/ha) In Industrial Park / (Investment/ha) Nationally]	((≥1 =1; <1 =0)
[(US\$ sales revenues/ha) In Industrial Park / (US\$ sales revenues/ha) Nationally]	(≥1 =1; <1 =0)



[% manufacturing inputs sourced domestically In Industrial Park / % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales / US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)
[US\$ Economic value addition ("EVA", calculated as output-inputs) per capita In Industrial Park / US\$ EVA per capita nationally]	(≥1 =1; <1 =0)
[(Exports minus Imports) In Industrial Park / (Exports minus Imports) Nationally]	(≥1 =1; <1 =0)
[FDI % of total investment (or GFCF) In Industrial Park / FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)
[(US\$ exports/ha) In Industrial Park / (US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports / US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)
[(Enterprises/ha) In Industrial Park / (Enterprises/ha) Nationally]	(≥1 =1; <1 =0)
[(IPR registrations/year/company) In Industrial Park / (IPR registrations/year/company) nationally]	(≥1 =1; <1 =0)
Economically Impactful Nature Score	(Scale of 0-13)
Economic performance score	(Scale of 0-61)

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach

Deliverable D1.4.1

Produced by

PPT 5: WEIZ



Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create 10 action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP05 WEIZ
Author(s)	Andrea Dornhofer

Short Description
This document provides guidelines for the needs analysis of the industrial parks and for the development of tailored action plans for each park.

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	04.05.2023	Astrid Heindel	TZE
V1.1	14.05.2023	Andrea Dornhofer	WEIZ
V.1.2	16.08.2023	Andrea Dornhofer	WEIZ
...			
Final Document			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



The document has been prepared by the project partners of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

- LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI
- PP 2 – Trieste Economic Development Agency (IT): COSELAG
- PP 3 – Development agency Sora Ltd. (SI): RA sora
- PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR
- PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ
- PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB
- PP 7 – Landshut University of Applied Sciences (DE): TZE
- PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM
- PP 9 – Grenoble-Alps Metropole (FR): GAM
- PP10 – POLYMERIS (FR): POL
- PP 11 – Lombardy Foundation for the Environment (IT): FLA
- PP 12 – TUM International GmbH (DE): TUMint

REFERENCE DOCUMENTS

D.1.1.1

D.1.1.2

D.1.2.1

D.1.3.1

ABBREVIATIONS USED

AF	Application Form
AP	Associated Partner
AS	Alpine Space
CM	Communication Manager
ECOLE	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
ERDF	European Regional Development Fund
EU	European Union
JS	Joint Secretary
KPI	Key Performance Indicators
LP	Lead partner
PP	Project Partner
TL	Task Leader
TPM	Transnational Project Meeting
WP	Work Package
WPL	Work Package Leader

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



INDEX

PROJECT PARTNERS	2
REFERENCE DOCUMENTS	3
ABBREVIATIONS USED	3
1. Overall Goal	6
2. Specific Objectives (SOs) & Key performance indicators (KPIs)	7
Action 1: Clustering of partners in the supply and value chain of renewable energies	7
Specific Objective 2: Strengthen the engagement and collaboration with stakeholders and companies in the industrial zone Weiz.....	10
Action 4: Develop a communication strategy for regular communication and collaboration of the local community with the companies and institutions in EBZ Zalog.	10
Action 5: Encourage knowledge-sharing and networking events to increase the well-being of the local community.	12
Action 6: Promotion of renewable energy benefits in an industrial company among the local community in Weiz	13
Specific Objective 3: Strengthen Policy and Regulatory Frameworks that would enable the transformation of Industrial parks to Eco-industrial parks.....	14
Action 7: Develop a set of recommendations that incentivize the transformation of industrial parks into eco-industrial parks.	14
Specific Objective 4: Knowledge Sharing and Dissemination of approaches for the transformation of Industrial parks to Eco-industrial parks.....	16
Action 8: Compile and document the findings, best practices, and lessons learned from partner exchanges and research activities related to eco-industrial park development.	16
3 Overview of the actions.....	0
4.1. General description of the IP	Error! Bookmark not defined.
4.2. SWOT Analysis	Error! Bookmark not defined.
4.3. Main Challenges' definition	Error! Bookmark not defined.
5. Action plan structure.....	Error! Bookmark not defined.
5.1. Action plan.....	Error! Bookmark not defined.
5.2. Overview of the actions needed to achieve the SOs.....	Error! Bookmark not defined.
6. Topic selection for the pilots	0
6.1. Concept main questions	0
6.2. Pilot Questionnaire	1
Annex I – Form for the Action Plan elaboration	2
Annex II – UNIDO Indicators for status quo	17

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

Project-ID: ASP0100091



1. Overall Goal

Our action plan is centred on realizing the transformation of the CRAISS Company, located in the industrial area Weiz to an eco-industrial park. Its blueprint follows a structured framework, tailored to the unique characteristics of our target area while ensuring comparability and providing a reference point for future projects aimed at transforming other industrial parks.

The core objective of the action plan is to enhance the environmental sustainability of industrial operations within the park beginning with the company CRAISS. This will be achieved by integrating circular economy principles into renewable energy production, promoting the efficient use of resources, and reducing environmental footprint.

The remaining industrial areas at the site are to be used with a clear focus on sustainability, renewable energy & e-mobility be made more attractive and at the same time measures to increase the quality of life of the people here living and working people.

As part of the project, the aim is to: Scientific process support also shows that investments in growth and engagement very well with the local and natural resources, the local climate as well as the social conditions at the location.

At the same time, the plan also intends to generate social and economic benefits by encouraging local participation, creating business opportunities, and improving regulatory frameworks.

Guiding our mission are three specific types of actions: Pilot actions that form the initial step and allow for real-world testing of our strategies, WP3 actions which ensure the broader dissemination of our experiences and learnings, and Impact actions that ensure the long-term sustainability and far-reaching effects of our efforts even beyond the immediate phases of our plan.

To accomplish this, we have proposed a series of actions: increasing local awareness and engagement in sustainability, implementation of PV panels, an innovative electric storage, green noise barriers, as well as insect hotels and e-charging stations. These implementations should be a best practice for the transformation of existing industrial parks into eco-industrial parks.

These actions will be implemented through a collaboration with relevant stakeholders, comprehensive research, and experience exchange. The action plan seeks to involve a broad spectrum of stakeholders, including local community members, policy makers, companies, government agencies, grid operators and technicians.#



2. Specific Objectives (SOs) & Key performance indicators (KPIs)

Specific objective 1: Facilitate the appreciative cooperation between the Economic Area Weiz-St. Ruprecht and the property owner Craiss Logistics

Action 1: **Clustering of partners in the supply and value chain of renewable energies**

Firstly, a comprehensive assessment was made to understand the existing resources in the CRAISS logistic area. This includes identifying companies, institutions, energy organizations, and community representatives involved in renewable energy issues.

Next a plan to facilitate information sharing and collaboration among the identified stakeholders will be developed in order to enable for stakeholders to connect, exchange knowledge, and explore potential partnerships.

Meetings or workshops at different levels will be organized to bring together the stakeholders. This will provide the opportunity for participants to meet, share expertise, discuss challenges and opportunities, and explore potential collaboration.

The aim is to encourage and facilitate the formation of symbiotic relationships and resource-sharing among stakeholders. Partnerships are based on renewable energy management.

Continuous monitoring and evaluation are implemented to assess the effectiveness of the clustering efforts, allowing for adjustments and improvements as needed. The overall objective is to foster collaboration between all relevant stakeholder.

Needed resources, technologies and tools:

Resource mapping and analysis of renewable energy facilities in the CRAISS company.

Expertise in renewable energy issues and technologies.

Meetings and workshops with relevant stakeholders

Stakeholders involved in STC (Systemic Thinking Community)

WEIZ

Wirtschaftsraum Weiz/Gleisdorf

Company Craiss

City of Weiz

Time frame:

Stakeholder Workshops every two months

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

Project-ID: ASP0100091

**Risks:**

- 1) Resistance or less interest in collaboration
- 2) Technical challenges in implementation of the planned activities
- 3) Conflicts between stakeholders

In identifying the risks and uncertainties a company faces, directors, stakeholders should consider a range of factors. These should include those that are financial and nonfinancial that could have an impact on a company's performance over the longer term, such costs and climate change.

Benefits:

1. Increasing energy efficiency and effectiveness in implementation of renewable energy sources through collaboration and resource sharing
3. Reduction of costs and CO2 emissions
4. Enhanced sustainability practices within the Stakeholders

KPI: Binding agreement between companies and institutions.**Action 2 Implementation of Energy related activities in our Industrial park (PV, storage, energy filling station and all "greening actions")**

This action focuses on implementation of energy actions within the Company Craiss.

Measures (PV panels, storage, energy filling stations, green noise barriers and as well insect hotels) will be implemented to reduce CO2 emissions and optimize energy efficiency in various industries within Industrial Zone Weiz.

This will involve the development of resource optimization strategies, and the promotion of collaboration among companies. The goal is to minimize CO2 emissions and , maximize resource efficiency, and create a sustainable circular economy within the City of Weiz and their industrial zone.

Analyses on energy implementations is an important step. The implementation of PV Panels, hybrid storage (Hydrogen and battery) electric filling stations, green noise barriers, insect hotels, etc.

These implementations will significantly reduce CO2 emissions and will be a best practice for other companies and industrial parks / zones.

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

Project-ID: ASP0100091



Identifying and implementing these actions and these technologies is a key aspect of the action. This may involve partnering with technical companies who are experts in renewable energy systems

In addition, outreach and awareness campaigns will be developed and implemented to educate the local community about the importance of renewable energy sources in a industrial park. Various channels, such as educational materials, workshops, and community engagement activities, will be utilized for effective communication.

Needed resources, technologies and tools:

Communication and outreach tools for awareness campaigns

Expertise in renewable energy systems and monitoring systems

Stakeholders involved/Systemic Thinking Community (STC):

WEIZ

Wirtschaftsraum Weiz/Gleisdorf

Company Craiss

City of Weiz

Varicon (experts in renewable energies and monitoring issues)

E- Steiermark - grid operator

Time frame:

All implementations will finished by January 2024 - the implementation of all this actions is an ongoing process,

Risks:

1. Limited participation or awareness among the local community,
2. Technical challenges in renewable energy sources
3. High prices for renewable energies
4. Regulatory compliance with the feed in tariffs for PV electricity

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

**Benefits:**

1. Reduced environmental impact
2. Closing the loop by creating contributing to energy sustainability.
3. Increased community engagement and awareness of renewable energy practices.
4. Enhanced collaboration and partnerships among stakeholders, fostering a more sustainable ecosystem.

KPIs:**Implementation of Energy investments****CO2 emissions reduction**

Specific Objective 2: Strengthen the engagement and collaboration with stakeholders and companies in the industrial zone Weiz

Action 3: Develop a communication strategy for regular communication and collaboration of the local community with the companies in the industrial zone WEIZ beginning with the company Craiss

This action aims to establish a comprehensive communication plan that includes various channels and platforms, such as websites, social media, and newsletters. The strategy will foster effective information sharing, engagement, and feedback between the local community and the companies/institutions, promoting transparency, understanding, and collaboration.

Needed resources, technologies, and tools:

Communication channels and platforms (e.g., websites, social media, newsletters).

Community engagement tools for interactive communication.

Expertise in communication and public relations.

Data collection and analysis tools to gather feedback and assess communication effectiveness.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

**Stakeholders involved:**

WEIZ

Wirtschaftsraum Weiz/Gleisdorf

Company Craiss

City of Weiz

Time frame:

Development of communication strategy: 1-2 months, implementation and ongoing communication: continuous effort.

Starting with January 23

Risks and benefits:

1. Limited participation or interest from the stakeholders

Communication gaps or misunderstandings leading to misalignment of expectations.

Challenges in accessing communication channels.

2. Enhanced engagement and collaboration between the local community and companies/institutions.

Improved transparency and trust through regular and effective communication.

Opportunities for community input, feedback, and involvement in decision-making processes.

Strengthened relationships and a sense of ownership among community members.

KPI: A communication strategy that outlines the communication channels, frequency, content, and target audience for regular communication and collaboration between companies/institutions and the local community.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



Action 4: Encourage knowledge-sharing and networking events to increase the well-being of the local community.

This action focuses on organizing engaging events, where community members, businesses, and organizations can come together. These events aim to facilitate the exchange of knowledge, experiences, and ideas, fostering connections, collaboration, and a sense of belonging within the community. By providing opportunities for learning and interaction, the events contribute to the well-being and growth of the local community.

Needed resources, technologies, and tools:

Event planning and management expertise.

Venue or space for hosting events.

Speakers or experts in relevant fields.

Audiovisual equipment and technical support.

Marketing and promotional materials for event awareness.

Stakeholders involved:

WEIZ

Wirtschaftsraum Weiz/Gleisdorf

Company Craiss

City of Weiz

Subject matter experts or guest speakers.

Event organizers and volunteers.

**Time frame:**

Planning and preparation: 2-3 months. Implementation of events: Ongoing with regular intervals.

Started with May 23

Risks and benefits:

1. Low attendance or participation in events.

Budgetary constraints for organizing events.

Challenges in coordinating schedules and availability of speakers.

2. Increased knowledge and awareness among the local community.

Networking opportunities for community members and businesses.

Collaboration and sharing of best practices.

Strengthened sense of community and well-being.

KPI: Number of participants engaging in the implemented events, indicating the frequency and success of knowledge-sharing and networking initiatives.

Action 5: Promotion of renewable energy benefits in an industrial company among the local community in Weiz

This action involves raising awareness about the principles of circular economy and the positive impact of the implementation of renewable energies.

Through educational materials, outreach campaigns, and collaboration with renewable energy companies, the goal is to educate and engage the local community in the collection of renewable energy advantages.

Needed resources, technologies, and tools:

Educational materials on circular economy concepts and practices.

Awareness campaigns and outreach materials (e.g., brochures, videos, workshops).

Collaboration with renewable energy experts

Local media platforms for dissemination of information.

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

Project-ID: ASP0100091

**Stakeholders involved:**

WEIZ

Wirtschaftsraum Weiz/Gleisdorf

Company Craiss

City of Weiz

Regional press

Time frame:

Ongoing with periodic awareness campaigns and educational initiatives.

October 2025

Risks and benefits:

1. Limited awareness or understanding of circular economy concepts.

Resistance to change or adoption of new technologies in renewable energy practices.

2. Increased awareness and understanding of circular economy principles among the local community.

Promotion of renewable energy sources and raise awareness in Photovoltaics, storages e.g.

Reduced environmental impact through the implementation of energy actions.

Specific Objective 3: Strengthen Policy and Regulatory Frameworks that would enable the transformation of Industrial parks to Eco-industrial parks

Action 6: Develop a set of recommendations that incentivize the transformation of industrial parks into eco-industrial parks.

In this action, our goal is to create a set of recommendations that will encourage and facilitate the transition of existing industrial parks towards eco-industrial parks. By gathering expertise in

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



sustainable practices, analyzing policy frameworks, and collaborating with stakeholders, we will develop a comprehensive set of guidelines. These recommendations will address barriers, outline regulatory measures, and identify innovative approaches to promote economic growth while prioritizing environmental sustainability.

Needed resources, technologies, and tools:

Expertise in sustainable industrial practices and eco-industrial park development

Research and analysis on policy and regulatory frameworks

Collaboration platforms or networks for knowledge exchange

Economic and financial evaluation tools

Stakeholders involved:

Government agencies responsible for industrial park regulations and policies (Wirtschaftsraum Weiz-St. Ruprecht, WEIZ)

CRAISS company owner

Sustainability experts and consultants

Time frame:

Research and analysis: 2-3 months, recommendation development: 1-2 months.

May 2025

Risks and benefits:

1. Resistance or reluctance from industrial park operators to adopt eco-industrial practices due to perceived costs or complexities

Challenges in aligning policy changes with existing regulations and administrative procedures

Lack of awareness or understanding of the benefits of eco-industrial parks among stakeholders

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

Project-ID: ASP0100091



2. Improved environmental performance and sustainability of industrial parks

Enhanced resource efficiency and cost savings for businesses operating within eco-industrial parks

Strengthened regulatory frameworks to support the development of sustainable industrial practices

KPI: A set of recommendations that outline specific policy and regulatory measures to incentivize and enable the transformation of industrial parks into eco-industrial parks.

Specific Objective 4: Knowledge Sharing and Dissemination of approaches for the transformation of Industrial parks to Eco-industrial parks

Action 7: Compile and document the findings, best practices, and lessons learned from partner exchanges and research activities related to eco-industrial park development.

In this action, we aim to gather and consolidate valuable knowledge and experiences from various partners involved in eco-industrial park development. Through documentation and reporting tools, collaboration platforms, and expertise in knowledge management, we will compile findings, best practices, and lessons learned. This comprehensive compilation will serve as a valuable resource for stakeholders, including industrial park operators, researchers, and industry experts. While there may be challenges in capturing diverse knowledge and reaching a wide audience for dissemination, the benefits include facilitated learning, improved decision-making, and enhanced awareness of successful approaches for transforming industrial parks into eco-industrial parks.

Needed resources, technologies, and tools:

Documentation and reporting tools

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



Collaboration platforms for sharing knowledge and experiences

Expertise in knowledge management and dissemination

Communication and outreach materials

Stakeholders involved:

Partner organizations involved in eco-industrial park development (ECOLE Partnership)

Industrial park operators and management (WEIZ as the initiator of the pilot activities and partner in the ECOLE project)

Wirtschaftsraum St. Ruprecht – Weiz as responsible for industrial zones in the Region

Industry experts and practitioners

Time frame:

Compilation and documentation: 2-3 months, ongoing updates and additions as new knowledge and experiences emerge.

September 2025

Risks and benefits:

1. Limited participation or availability of partner organizations to share their experiences

Challenges in capturing and synthesizing diverse knowledge and practices

Difficulties in reaching a wide audience for dissemination

2. Consolidation of valuable insights and best practices for eco-industrial park development

Facilitated learning and knowledge sharing among stakeholders involved in industrial park transformation

Improved awareness and understanding of successful approaches, leading to more informed decision-making

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



KPI: A comprehensive document or knowledge repository that compiles the findings, best practices, and lessons learned from partner exchanges and research activities, serving as a valuable resource for stakeholders interested in eco-industrial park development.

3 Overview of the actions

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Clustering of partners in the supply and value chain of renewable energies	<p>Resource mapping and analysis of renewable energy facilities in the CRAISS company</p> <p>Expertise in energy issues and technologies.</p> <p>Meetings or workshops to facilitate partnerships</p> <p>events/workshops: 2 months</p> <p>October 2023</p>	<p>Company Craiss</p> <p>City of Weiz</p> <p>WEIZ</p> <p>Wirtschaftsraum Weiz-St.Ruprecht</p>	<p>Conduct resource mapping and analysis: 2 months, develop a plan to facilitate information sharing: 1 month, organize networking events/workshops: 2 months</p> <p>October 2023</p>	<p>1. Resistance or less interest in collaboration</p> <p>Technical challenges in implementation of planned activities</p> <p>conflicts between stakeholders</p> <p>2. Increasing energy efficiency and effectiveness of renewable energy sources through collaboration and resource sharing</p> <p>Reduction of CO2 emissions and costs</p>	i



Alpine Space

					Enhanced sustainability practices within the Stakeholders	
2	Implementation of Energy related activities in our Industrial park	<p>Communication and outreach tools for awareness campaigns.</p> <p>Expertise in renewable energy systems and monitoring systems</p>	<p>Company Craiss</p> <p>City of Weiz</p> <p>WEIZ</p> <p>Wirtschaftsraum Weiz-St.Ruprecht</p> <p>Varicon (experts in renewable energies and monitoring issues)</p> <p>E-Steiermark – grid operator</p>	<p>All implementations will finished by January 2024 - the implementation of all these actions is an ongoing process.</p>	<p>1. Limited participation or interest from the local community.</p> <p>Technical challenges in renewable energy sources</p> <p>High prices for renewable energies</p> <p>Regulatory compliance with the feed-in-tariffs for PV electricity</p> <p>2. Reduced environmental impact</p> <p>Closing the loop by creating contributing to energy sustainability.</p> <p>Increased community engagement and awareness of renewable energy practices.</p> <p>Enhanced collaboration and partnerships among</p>	i

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



Alpine Space

					stakeholders, fostering a more sustainable ecosystem.	
3	Develop a communication strategy for regular communication and collaboration of the industrial Zone Weiz and Company CRAISS	<p>Communication channels and platforms</p> <p>Community engagement tools for interactive communication</p> <p>Expertise in communication and public relations</p> <p>Data collection and analysing tools to gather feedback and assess communication effectiveness</p>	<p>Company Craiss</p> <p>City of Weiz</p> <p>WEIZ</p> <p>Wirtschaftsraum Weiz-St.Ruprecht</p> <p>Varicon (experts in renewable energies and monitoring issues)</p> <p>E-Steiermark – grid operator</p>	<p>The development of communication strategy 1-2 months.</p> <p>Implementation and ongoing communication continous effort</p>	<p>1. Limited participation or interest from the stakeholders</p> <p>Communication gaps or misunderstandings in leading to misalignment of expectations</p> <p>Challenges in accessing communication channels</p> <p>2. Enhanced engagement and collaboration between the local community and companies/institutions.</p> <p>Improved transparency and trust through regular and effective communication</p> <p>Opportunities for community input, feedback and involvement in decision-making processes.</p>	i

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

Project-ID: ASP0100091



Alpine Space

					Strengthened relationships and a sense of ownership among community members	
4	Encourage knowledge strategy that outlines the communication channels, frequency, content, and	<p>Event planning and management expertise</p> <p>Venue or space for hosting events</p> <p>Speakers of experts in relevant fields</p> <p>Audiovisual equipment and technical support</p> <p>Marketing and promotional materials for event awareness</p>	<p>WEIZ</p> <p>Wirtschaftsraum Weiz-St Ruprecht</p> <p>Company Craiss</p> <p>City of Weiz</p> <p>Subject matter experts or speakers</p> <p>Event organizers or volunteers</p>	<p>Planning and preparation 2-3 months, ongoing measures</p>	<p>1. Low attendance or participation in events</p> <p>Budgetary constraints for organizing events</p> <p>Challenges in coordinating schedules and availability of speakers</p> <p>2. Increased knowledge and awareness among the local community</p> <p>Networking opportunities for community members and businesses</p> <p>Collaboration and sharing of best practices</p>	i
5	Promotion of renewable energy benefits in an	<p>Educational materials on circular</p>	<p>WEIZ</p>	<p>Ongoing activities</p>	<p>1. Limited awareness or understanding or</p>	i and iii

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

Project-ID: ASP0100091



Alpine Space

	<p>Industrial company among the community Weiz</p>	<p>economy concepts and practices</p> <p>Awareness campaigns and outreach materials (e.g. brochures, videos, workshops)</p> <p>Collaboration with renewable energy experts</p> <p>Local media platforms for dissemination of information</p>	<p>Wirtschaftsraum Weiz-St Ruprecht</p> <p>Company Craiss</p> <p>City of Weiz</p> <p>Regional press</p>		<p>circular economic concepts</p> <p>Resistance to change or adoption of new technologies in renewable energy practices.</p> <p>2. Increased awareness and understanding of circular economy principles among the local community</p> <p>Promotion of renewable energy sources and raise awareness in photovoltaics, storages, e.g</p> <p>Reduced environmental impact through the implementation of energy actions.</p>	
6	<p>Develop a set of recommendations that incentivize the transformation of industrial parks into eco-industrial parks</p>	<p>Expertise in sustainable industrial practices and eco-industrial park development</p> <p>Research and analysis on policy</p>	<p>Government agencies responsible for industrial park regulations and policies (Wirtschaftsraum</p>	<p>2-3 months, recommendation development 1-2 months May 2025</p>	<p>1) Resistance or reluctance from industrial park operators to adopt eco industrial practices due to perceived costs or complexities</p>	

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

Project-ID: ASP0100091



Alpine Space

		and regulatory frameworks Collaboration platforms or networks for knowledge exchange Economic and financial evaluation tools	Weiz-St. Ruprecht, monWEIZ) CRAISS company owner Sustainability experts and consultants		Challenges in aligning policy changes with existing regulations and administrative procedures Lack of awareness or understanding of the benefits of eco-industrial parks 2) Improved environmental performance and sustainability of industrial parks Enhanced resource efficiency and costs savings for businesses operating with eco-industrial parks Strengthened regulatory frameworks to support the development of sustainable industrial practices	
7	Compile and document the findings, best practices and lessons learned from partner exchanges and research activities	Documentation and reporting tools Collaboration platforms for sharing	Partner organisations involved in eco-industrial park development	2-3 months ongoing updates September 25	1) Limited participation or availability of partner organisations to share their experiences	I and iii

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

Project-ID: ASP0100091



Alpine Space

	<p>related to industrial development</p> <p>eco-park</p>	<p>knowledge and experiences</p> <p>Expertise in knowledge management and dissemination</p> <p>Communication and outreach materials</p>	<p>and (ECOLE Partnership)</p> <p>Industrial park operators and management (WEIZ as the initiator of the pilot activities and partner in the ECOLE project)</p> <p>Wirtschaftsraum St Ruprecht – Weiz as responsible for industrial zones in the region</p> <p>Industry experts and practitioners</p>		<p>Challenges in capturing and synthesizing knowledge and practices</p> <p>Difficulties in reaching a wide audience for dissemination</p> <p>2) Consolidation of valuable insights and best practices for eco-industrial park development</p> <p>Facilitated learning and knowledge sharing among stakeholders involved in industrial park transformation</p> <p>Improved awareness and understanding of successful approaches, leading to more informed decision - making</p>	
--	--	---	---	--	--	--

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

5. Topic selection for the pilots

This section is a summary of the analysis and the action plan table. It consists of two stages (a list of questions and a questionnaire) in order to provide an overall overview the co-design of the concept (2.1) and later the co-development of the pilot actions (2.2).

5.1. Concept main questions

Please answer the questions concisely and comprehensively:

- I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?

They main challenge is to reduce the energy consumption and save CO2

- II. What goal are you targeting / aiming to achieve at your pilot site and why?

Meetings with Stakeholder, intelligent EMS for the visualisation of the energy consumption.

Implementation of charging stations, a storage, PV Panels, green noise barrier

- III. At what stage in the process (to address this challenge) are you at the moment (“what is the baseline”)?

We are currently under construction, a few solutions are already installed and a few solutions are under construction

- IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?

We will implement an Energy management system and an energy visualisation system, an electrical storage system and as well further energy actions, to influence also policy strategies for ECO solutions for industrial parks

- V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?

- Use of local energy resources
- Be part of an energy community – to increase the own PV Use
- Save CO2

- VI. What it is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to find energy solutions for industrial parks (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)

- VII. What will you be measuring at you pilot site in the framework of Ecole and how?

Implement an Energy system to measure the PV production to monitor the own PV use, as well the heating consumption and the stored energy in the electrical storage



Annex I – Form for the Action Plan elaboration

1. IP Analysis

1.1 General description of the IP

<p>Please read the document ACT.1.1 Define a common understanding & framework of the Eco-Industrial Parks (EIPs) & circular economy approach for Alpine region carefully and answer the question below.</p> <p>WHAT WOULD WE LIKE OUR EIP TO BE?</p>	
<p>EIP planners can consider choosing between two possible types of EIP sites: greenfield developments (on virgin land), and brownfield developments. All these types of sites offer very different challenges and opportunities for creating EIPs (p.13).</p> <p>WHICH IS THE MOST RELEVANT CHARACTERISTIC ASSOCIATED WITH YOUR PILOT SITE?</p> <p>(First, choose the relevant type for your pilot site/Greenfield, Brownfield then see the main characteristics in Table 2/p.13 and answer the question.)</p>	<p><input checked="" type="checkbox"/> Greenfield <input type="checkbox"/> Brownfield</p> <p>The core objective of the action plan is to enhance the environmental sustainability of industrial operations within the park beginning with the company CRAISS .This will be achieved by integrating circular economy principles into renewable energy production, promoting the efficient use of resources, and reducing environmental footprint.</p>
<p>WHICH BENEFITS/DRIVERS OF PERFORMANCE ARE FROM YOUR PERSPECTIVE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please see the table on p. 12 and choose max 3 most relevant benefits from each category/Environmental, Economic, Social)</p>	<p>Economic performance</p>
<p>Please elaborate in greater detail. Your IP might have characteristics of both greenfield and brownfield IPs, or some other options might need to be considered.</p>	<p>The whole industrial area has a size of about 100,000 square meters and is surrounded by agricultural fields and a small village with about 30 households. Currently 50 % of the industrial area is established and a company is acting there, the building project took place between 2020 and 2021. The remaining 50 % are partly planned for future projects and partly green field</p>
<p>Which is the most relevant characteristic associated with you IP?</p>	<p>The built distribution center covers around 20,000 square meters of logistics space and is divided into three halls and one bureau building. Inbound logistics, including quality control, is located in the first hall.</p>

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

Project-ID: ASP0100091



	<p>With canopy roofs, the components can be unloaded completely protected from the weather, both outside and inside the hall. The outbound processes are located in the second hall. There, the system components, which are dismantled again after completion, are checked one last time before shipping, including for damage to the paintwork</p>
<p>IP profile</p>	
<p>Please fill out the questionnaire in Annex II.</p>	
<p>Please describe the infrastructural conditions of the IP (sizes and types of buildings, year of installation, purpose)</p>	<p>The whole industrial area has a size of about 100,000 square meters and is surrounded by agricultural fields and a small village with about 30 households. Currently 50 % of the industrial area is established and a company is acting there, the building project took place between 2020 and 2021. The remaining 50 % are partly planned for future projects and partly green field.</p>
<p>Please describe the park structure (management and tenants)</p>	<p>The main tenant is the company Craiss. The Economic Area Weiz - St. Ruprecht/Raab is responsible for the preparation and the necessary infrastructural activities</p>
<p>Please describe the current tenant companies</p>	<p>The CRAISS Generation Logistik Austria GmbH & Co KG is currently the only tenant in the industrial area. The company acts as a logistics service provider and handles the inbound logistics for a major German technology company, which has an already existing production plant in Weiz, where large-scaled systems for the power supply are manufactured</p>
<p>Please describe the park infrastructure and facilities (e.g. roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services)</p>	<p>Around 300 companies are active in the surroundings of the pilot park, which together offer around 15,000 jobs and are crucial network partner for the pilot park area. The region benefits from traditional leading companies in the energy, automotive, construction, food and electronics sectors. Well-known companies here include, for example, Siemens, Andritz, Knill, Weitzer Parkett, Magna, Lieb-Bau, Wollsdorf Leder, ELIN-Motoren, Rondo, Strobl-Bau, frisch-saftig-steirisch,</p>

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

Project-ID: ASP0100091



	Steirerkraft, Alwera, Matzhold, Klampfer and Triotronik.
Please describe the energy consumption profiles (heat, electricity, natural gas)	<p>Already in the development plan of the area it was defined that the heat supply has to be done via the local district heating instead of the usual gas connection. Although there was a certain resistance to that binding clause, especially through the gas crisis and the exploding prices in the last years, the tenant is now very thankful in the aftermath.</p> <p>Detailed information about the energy consumption of the tenant is not accessible, but through the installed 1.2 mWp photovoltaic power plant the location produces more renewable energy than it consumes.</p>
Please describe the current waste situation: Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices	Detailed information about the waste production of the tenant is not accessible, but as the distribution center has as main business activity the quality control of inbound and outbund products and is not active in production processes, the amount of waste production is presumably quite reasonable.
<p>The type of sectors in EIPs and their needs also define the type of industrial synergies that can be exploited within an EIP.</p> <p>WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p>(Please tick the appropriate box below. Please shortly elaborate on the right. Please mention the tenant companies that need to be involved in creation of said synergies, if applicable.)</p> <p><input type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p> <p><input type="checkbox"/> Utility synergies: shared used of utility infrastructure, mainly revolving around water and</p>	

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

Project-ID: ASP0100091



<p>energy (e.g., water recovery and energy cogeneration);</p> <p><input checked="" type="checkbox"/> Service synergies: sharing of services and activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p> <p><input type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): the use of previously disposed waste (as solid, liquid, gas) from one facility to another facility to provide a valuable by-product.</p>	
<p>PLEASE INDICATE/CHOOSE WHICH PERFORMANCE REQUIREMENT FROM EACH FIELD: RELATED TO PARK MANAGEMENT, ENVIRONMENTAL, SOCIAL, ECONOMIC IS MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from Tables 7 - 10, p. 20 - 24).</p>	
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from the Table 4: EIP Technologies, p. 16.)</p>	
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please refer to D.1.2.1)</p>	
<p>Surrounding regional context</p>	
<p>Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)</p> <p>Points might be:</p> <ul style="list-style-type: none"> • Workforce demographics: Age, gender, education levels, and skill sets of population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges. • Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial 	<p>The district of Weiz, with its strong industrial and commercial orientation, is the industrial center of Eastern Styria. Compared to Styria, an above-average number of employees (2016: 46.8 %) work in the secondary sector (Eastern Styria: 38.6 %; Styria: 29.1 %). The production sector in Weiz has a very heterogeneous structure. A regional specialization is most likely to be identified in the electrical engineering and electronics industry, the employment share here is 8.1 % (2016), the second highest in Styria. The employment shares in the production of metal products (6.0 %), in the food industry (3.9 %) and in mechanical engineering (3.6 %) are above the Styrian average. Overall, the proportion of employees in the technology sector is 14.9</p>

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

Project-ID: ASP0100091



<p>park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers.</p> <ul style="list-style-type: none"> • Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, supports local businesses, and engages in social responsibility activities. • Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities. • Social infrastructure: Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community. • Social cohesion and integration: Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups. • Social impacts and conflicts: Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management's efforts to address these impacts and resolve conflicts. 	<p>%, well above the Styrian level (7.8 %). The construction industry also has an above-average number of employees with a share of 10.2 %.</p>
--	---

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

Project-ID: ASP0100091



<ul style="list-style-type: none"> • Education and skill development: Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement 	
<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)</p>	<p>Main stakeholders beside the already mentioned Economic Area Weiz - St. Ruprecht/Raab, the CUT Logistikkimmobilien GmbH & Co KG, the CRAISS Generation Logistik Austria GmbH & Co KG and the major German technology company located in Weiz are of course the municipalities Weiz and St. Ruprecht/Raab and also the inhabitants in the respective area. As the buildup and construction of a new industrial zone is always accompanied by diverse views and opinions regarding noise, traffic and the overall appearance of the locality a main success factor was the continuous inclusion of the inhabitants with a lot of communication procedures. The tenant CRAISS has a certain interest to become part of park circularity. As a claim to the environment and responsibility for all future generations, they ensure that the burden caused by them and their fleet is kept as low as possible. Concrete actions include low-emission vehicles, environmentally friendly planning and monitoring through the use of modern telematics and logistics systems, the use of low-resistance tires and ongoing monitoring of tire pressure values, training staff in fuel-efficient and environmentally friendly driving and the avoidance of detours and empty kilometers thanks to the route specification by the central dispatcher.</p>

1.2. SWOT Analysis

SWOT analysis	
<h1 style="margin: 0;">SWOT ANALYSIS</h1>	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p style="font-weight: bold; color: green;">Helpful</p> <p style="font-size: small; color: green;">to achieving the objective</p> </div> <div style="text-align: center;"> <p style="font-weight: bold; color: red;">Harmful</p> <p style="font-size: small; color: red;">to achieving the objective</p> </div> </div>
<p style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; color: black;">Internal origin</p> <p style="font-size: x-small; color: gray;">(attributes of the organization)</p>	<div style="display: flex; justify-content: space-around;"> <div style="background-color: #90EE90; padding: 20px; border: 1px solid black;"> <p style="font-size: 4em; color: white; opacity: 0.5;">S</p> <p style="font-weight: bold; color: black; font-size: 1.5em;">Strengths</p> </div> <div style="background-color: #FFDAB9; padding: 20px; border: 1px solid black;"> <p style="font-size: 4em; color: white; opacity: 0.5;">W</p> <p style="font-weight: bold; color: black; font-size: 1.5em;">Weaknesses</p> </div> </div>
<p style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; color: black;">External origin</p> <p style="font-size: x-small; color: gray;">(attributes of the environment)</p>	<div style="display: flex; justify-content: space-around;"> <div style="background-color: #90EE90; padding: 20px; border: 1px solid black;"> <p style="font-size: 4em; color: white; opacity: 0.5;">O</p> <p style="font-weight: bold; color: black; font-size: 1.5em;">Opportunities</p> </div> <div style="background-color: #D8BFD8; padding: 20px; border: 1px solid black;"> <p style="font-size: 4em; color: white; opacity: 0.5;">T</p> <p style="font-weight: bold; color: black; font-size: 1.5em;">Threats</p> </div> </div>
<p>Please elaborate the strengths of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:</p> <ul style="list-style-type: none"> Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices. Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles. Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance 	<ul style="list-style-type: none"> Developed pilot site with already one acting company Support of local Economic Area and municipalities Well-working cooperation between the stakeholders Located directly on the main road (B64) and only ten minutes away from the motorway Railway directly next to the pilot site

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

Project-ID: ASP0100091



<p>the sustainability and competitiveness of the eco-industrial park.</p>	
<p>Please elaborate the weaknesses of your IP. Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:</p> <ul style="list-style-type: none"> • Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. • Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. • Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	<p>Restricted expansion possibilities Restricted availability of properties for future developments Restrictions regarding traffic, which have to be solved</p>
<p>Please elaborate the opportunities. These are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them. Opportunities might include:</p> <ul style="list-style-type: none"> • Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies. • Market demand and competitiveness: Evaluate the market demand for sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park. 	<p>Positive impact on the local industry and economic situation Improvement of the internationalization level for the region due to the involved organizations Securing local jobs and attracting talents also from other regions</p>

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

Project-ID: ASP0100091



Please elaborate the **threats**. These are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.

Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.

Insecurity regarding the current economic situation (war, inflation, supply shortage)
 Risk of shortage of skilled workers
 Missing willingness of some authorities and decision makers for further development of the pilot site



1.3. Main Challenges' definition

Challenges: Based on the SWOT analysis, challenges need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include:

- Complex value chains: Industrial parks typically involve multiple stakeholders, including manufacturers, suppliers, and customers, which can make it challenging to establish a circular system. For example, one company might produce waste that could be a valuable resource for another, but coordinating the exchange of materials between these companies may require significant effort and investment.
- Resistance to change: The shift towards circularity often involves changes to established business models and processes. Some stakeholders may be resistant to these changes, particularly if they see short-term costs without a clear path to long-term benefits.
- Limited availability of circular materials: Circular systems depend on the availability of materials that can be reused, recycled, or repurposed. In some cases, these materials may be in short supply or difficult to source, which can limit the potential for circularity.
- Technical challenges: Circularity often requires advanced technologies and processes, such as material separation and purification, that may be complex and expensive to implement. Industrial parks may need to invest in these technologies and develop new expertise to effectively integrate circular approaches.

#	Concise introduction	Current State Assessment	Key Challenges	Goals and Objectives
1				
2				
3				
...				
...				
...				
...				



2. Action plan

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1						i / ii / iii
2						i / ii / iii
3						i / ii / iii
4						i / ii / iii
...						i / ii / iii
...						i / ii / iii
...						i / ii / iii
...						i / ii / iii

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



3. Topic selection for the pilots

3.1. Concept main questions

Question	Answer
I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?	To reduce the CO2 emission, implement energy related issues, engage local stakeholders and policy makers
II. What goal are you targeting / aiming to achieve at your pilot site and why?	The tenant CRAISS has a certain interest to become part of park circularity. As a claim to the environment and responsibility for all future generations, they ensure that the burden caused by them and their fleet is kept as low as possible. Concrete actions include low-emission vehicles, environmentally friendly planning and monitoring through the use of modern telematics and logistics systems, the use of low-resistance tires and ongoing monitoring of tire pressure values, training staff in fuel-efficient and environmentally friendly driving and the avoidance of detours and empty kilometers thanks to the route specification by the central dispatcher.
III. At what stage in the process (to address this challenge) are you at the moment ("what is the baseline")?	50% of the energy implementations are finished and 50% of the energy implementation are under construction
IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?	<ul style="list-style-type: none"> - Engage local Stakeholder - Support the business development organization with dealing with policies - Implement energy actions (PV panels, storage, energy community, charging station)
V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?	The Circular Economy, in contrast, has the opposite aim: to radically limit the extraction of raw materials and the production of waste. It does this by recovering and reusing as many of the products and materials as possible.
VI. What it is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)	A guideline for industrial companies or business companies - which targets should an industrial park fullfill when comes to the Region Weiz-Gleisdorf

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

Project-ID: ASP0100091



VII.	What will you be measuring at you pilot site in the framework of Ecole and how?	An intelligent Energy management system will be implemented
------	---	---



3.2. Pilot Questionnaire

Please read the document *ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs* carefully and answer the question below.

WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?

- Saving CO2*
- Have more employers and keep the companies in our region*
- Have guidelines for energy measures for industrial companies or parks*

Please read the document *Design a systemic thinking community model (STCM) and kick off 10 local communities in and around the Eco-Industrial Parks* and answer the question below.

HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?

IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT?

(Please use Figure 1 on p.8)

- Wirtschaftsraum Weiz – Gleisdorf
- Company Craiss
- City of Weiz
- Local energy planners
- Technicians

ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT?

(Please answer these questions in relation to your pilot site, use Table 1 on p.9)

MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM?

(Please answer these questions in relation to your pilot site, use Figure 2 on p.10)

PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM?

(Please answer these questions in relation to your pilot site, use Figure 6 on p.14)

The guiding questions for setting up a structured STCM process are:

- Who should be engaged?
- How should they be engaged?
- How often and for what purpose?

We have created local Deploymentdeskmeetings all 3 months, to discuss about the pilot implementation and to engage the local stakeholder



- What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform)

(Please answer these questions in relation to your pilot site, see the explanation on p. 17-18)



Annex II – UNIDO Indicators for status quo

Source: UNIDO, 2019: International Guidelines for Industrial Parks. PP 112-114,
https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
1. Good economic governance		
Robust economic system tracking economic analysis quantitatively showing a positive economic return (i.e., in terms of employment, taxes, net exports, forex, local supplies), after such factors as land, CAPEX and OPEX costs and subsidies are taken into account	(Yes =1; No =0)	
Private participation in industrial park planning	(Yes =1; No =0)	
Private participation in industrial park ownership	(Yes =1; No =0)	
If industrial park is on public land, Operator sourced on the basis of an open competitive tender	(Yes =1; No =0)	
Private sector represented on Board of Regulator	(Yes =1; No =0)	
Existence of 60% occupancy rate within 6 years (ha of land used by companies for productive use) ¹⁷	(Yes =1; No =0)	
Existence and functioning of a formal Industrial Park marketing department/unit	(Yes =1; No =0)	
User Maintenance & Operation fees or charges collected by the Operator	(Yes =1; No =0)	
% user enterprise satisfaction with the services provided by the Industrial Park Operator	(≥51% =1; ≤49% =0;)	
Operator Customer Relationship Management (CRM) system in place	(Yes =1; No =0)	
Operator ISO 9001 certification	(Yes =1; No =0)	
Good Economic Governance Score	(Scale of 0-11)	
2. Economically-enabling site & infrastructure 'hardware' (appropriate site selection)		
Unencumbered land title	(Yes =1; No =0)	
Phased site development strategy and implementation	(Yes =1; No =0)	
Proximity to urban centre*(with country significant population) ¹⁸	(Yes =1; No =0)	
Proximity to appropriate highway*	(Yes =1; No =0)	
Proximity to power transmission or distribution grid*	(Yes =1; No =0)	
Proximity to gas transmission mains and gas 'city-gate'*	(Yes =1; No =0)	
Proximity to microwave tower for broadband GSM mobile telephony and Wi-Fi connectivity*	(Yes =1; No =0)	
Appropriately-sized (wide) internal roads*	(Yes =1; No =0)	
Proximity Operational Public Port, Airport of use and of interest to the Industrial Park's users*	(Yes =1; No =0)	
[% hours power outage per period in Industrial Park /% hours power outage nationally]	(≥1 =0; <1 =1)	

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



[% manufacturing inputs sourced domestically In Industrial Park/ % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales /US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)
[US\$ Economic value addition ('EVA', calculated as output-inputs) per capita In Industrial Park/US\$ EVA per capita nationally]	(≥1 =1; <1 =0)
[(Exports minus Imports) In Industrial Park / (Exports minus Imports) Nationally]	(≥1 =1; <1 =0)
[FDI % of total investment (or GFCF) In Industrial Park/FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)
[(US\$ exports/ha) In Industrial Park / (US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports / US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)
[(Enterprises/ha) In Industrial Park / (Enterprises/ha) Nationally]	(≥1 =1; <1 =0)
[(IPR registrations/year/company) In Industrial Park / (IPR registrations/ year/company) nationally]	(≥1 =1; <1 =0)
Economically Impactful Nature Score	(Scale of 0-13)
Economic performance score	(Scale of 0-61)

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy

Interreg



Co-funded by
the European Union

ECOLE

Alpine Space



ECOLE:

**ECO industrial park network for the Alpine Regions
Leveraging smart and Circular Economy**

Action plans for Grenoble Alpes Métropole

Deliverable D1.4.1 bis

Produced by

PPT 9: GAM



Document Details	
Project acronym	ECOLE
Project title	ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy
Project ID	ASP0100091
Action	Deliver a SWOT analysis and create 10 action plans for the uptake of circular economy approach in the EIPs in Alpine region.
Deliverable	D1.4.1 Action plans for the Eco-Industrial Parks and their uptake of the circular economy approach
Due date	2023.09
Delivery date	2023.05
Dissemination	PPs
Partner in charge	PP09 GAM
Author(s)	Marion

Short Description
This document provides guidelines for the needs analysis of the industrial parks and for the development of tailored action plans for each park.

Dissemination level		
PU	Public	
PP	Restricted to other programme participants	X
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	

Revision history			
Version	Date	Author	Organization
V1.0	04.05.2023	Astrid Heindel	TZE
Final Document			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and **C**ircular **E**conomy



The document has been prepared by the project partners of the Interreg Alpine Space project ECOLE. This project is co-funded by the European Union through the Interreg Alpine Space programme. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PROJECT PARTNERS

- LP – Consorzio ZAI Interporto Quadrante Europa (IT): ZAI
- PP 2 – Trieste Economic Development Agency (IT): COSELAG
- PP 3 – Development agency Sora Ltd. (SI): RA sora
- PP 4 – Regional Development agency of the Ljubljana (SI): RRA-LUR
- PP 5 – Energy and Innovation centre of WEIZ (AT): WEIZ
- PP 6 – Wirtschaftsagentur Burgenland GmbH (AT): WAB
- PP 7 – Landshut University of Applied Sciences (DE): TZE
- PP 8 – Italienische Handelskammer München-Stuttgart (DE): ITALCAM
- PP 9 – Grenoble-Alps Metropole (FR): GAM
- PP10 – POLYMERIS (FR): POL
- PP 11 – Lombardy Foundation for the Environment (IT): FLA
- PP 12 – TUM International GmbH (DE): TUMint



INDEX

PROJECT PARTNERS	2
REFERENCE DOCUMENTS	3
ABBREVIATIONS USED	3
1. Objective and summary	5
Annex I – Form for the Action Plan elaboration	6
Annex II – UNIDO Indicators for status quo	45



1. Objective and summary

Grenoble Alpes Metropole is a local public authority with economic development, energy transition, waste and water management competencies. It aims to develop circular economy within its territory, and reduce its environmental impact and carbon emission, while developing the local economy. Its territory includes the South Industrial Park, park connected with the rest of the metropolitan area.

This new ECOLE project is coming after several studies in the south industrial park and in the metropolitan area:

- Study on waste heat in the area: no significant reusable waste heat has been identified through this study.
- Attempt to develop photovoltaic energy at a larger scale within the industrial park, but with no success to make a shared project between several companies.
- Development of low carbon mobility with the extension of a bicycle path underway.
- Urban planning, landscape, environmental and economic development study mission for the reinforcement of the “South Industrial Park”, that led to several objectives that can be found in the action plan of the ECOLE project.
- A circular economy roadmap at the Metropole level, written after interviews and workshops with local companies, and that led to several objectives, including the development of industrial ecology in the metropolitan area.

There are also ongoing works that have direct link with the ECOLE project:

- The creation of the association of the southern industrial park companies, with the objectives to improve park’s accessibility and image.
- The “local economic pact” with several large companies of Grenoble Alpes Metropole territory, including companies in the South Industrial Park: it is ongoing and it addresses subjects such as energy consumption, water consumption or employee mobility through workshops.
- The development of a circular economy network that is just starting in the fall 2023, and linked to the circular economic roadmap.

The action plan will be developed on the South industrial park, and at a larger scale to connect it with the rest of the metropolitan area. This project will be managed closely with other projects having related objectives.

The european dimension should also be integrated in this project to share good practices. Industrial ecology and circular economy are also topics addressed by several other public authority and organisation in France that are sharing their experience, successes and failures.

Considering these elements, a series of actions are proposed through this action plan.

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

Project-ID: ASP0100091



Annex I – Form for the Action Plan elaboration

1. IP Analysis

1.1 General description of the IP

Please read the document ACT.1.1 Define a common **understanding & framework of the Eco-Industrial Parks** (EIPs) & circular economy approach for Alpine region carefully and answer the question below.

WHAT WOULD WE LIKE OUR EIP TO BE?

EIP planners can consider choosing between two possible types of EIP sites: greenfield developments (on virgin land), and brownfield developments. All these types of sites offer very different challenges and opportunities for creating EIPs (p.13).

WHICH IS THE MOST RELEVANT CHARACTERISTIC ASSOCIATED WITH YOUR PILOT SITE?

(First, choose the relevant type for your pilot site/Greenfield, Brownfield then see the main characteristics in Table 2/p.13 and answer the question.)

Greenfield Brownfield

Conversion of currently operating industrial parks to EIPs :

- Require working with established parks and their companies to fundamentally enhance environmental performance and, where necessary, clean up past pollution.
- Existing parks have a relatively high degree of constraint in the basic mix of companies (with their plants and equipment) in place, established attitudes and environmental practices may hinder innovation, and existing pollution and liabilities may limit choices.
- Points of control in the transformation process are less clearly defined than with greenfields.

WHICH BENEFITS/DRIVERS OF PERFORMANCE ARE FROM YOUR PERSPECTIVE MOST RELEVANT FOR YOUR PILOT SITE?

(Please see the table on p. 12 and choose max 3 most relevant benefits from each category/Environmental, Economic, Social)

- Environmental benefits:
 - More efficient use of resource : with the work on companies waste to find new synergies
 - Lower waste generation: as a collateral benefit, better knowing companies' waste can help reduce waste generation
- Economic benefits
 - Lower operation costs: mutualizing equipment through the creation of synergies can reduce operation costs
 - Improve resource security /resilience to risks: with a better management of

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

Project-ID: ASP0100091



	<p>resources use (water, energy...), a better resilience can be achieved</p> <ul style="list-style-type: none"> • New sources of income for industries through sale of unwanted by-products: new synergies can bring new income to industries <p>- Social benefits :</p> <ul style="list-style-type: none"> • Stronger community networks and trust building / community cohesion • Creation of (non-relocatable) jobs : depending on the identified synergies that can be created, creation of local jobs could result from them • Improved labour rights and relations / working conditions
<p>Please elaborate in greater detail. Your IP might have characteristics of both greenfield and brownfield IPs, or some other options might need to be considered.</p>	<p>Fragmented industrial park made of several smaller areas (see map below) :</p> <ul style="list-style-type: none"> - Industrial zone “des Isles” - Chemical platform of Pont de Claix - Development zone of Saut du Moine - Chemical platform of Jarrie - Industrial zone la Plaine - Paper mill Vicat <p>Very few available lands to install new companies. Some unused land inside private</p>
<p>Which is the most relevant characteristic associated with you IP?</p>	<p>Brownfield : with Conversion of currently operating industrial parks to EIPs and Conversion of abandoned, idled, and often contaminated sites to EIPs on very few areas</p>
<p>IP profile</p>	
<p>Please fill out the questionnaire in Annex II.</p>	<p>Completed</p>
<p>Please describe the infrastructural conditions of the IP (sizes and types of buildings, year of installation, purpose)</p>	<p>Industrial park built at various time, from the beginning of the 20th century until today.</p> <p>The park is complex with many buildings, and a detailed description of the buildings would require a long study that would not bring relevant information at this stage.</p>
<p>Please describe the park structure (management and tenants)</p>	<p>Newly created park organisation, to work first on accessibility issues and park image.</p>

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

Project-ID: ASP0100091



	<p>The perimeter of the organisation still needs to be more clearly defined in the coming months.</p>
<p>Please describe the current tenant companies</p>	<p>- <i>Industrial zone “des Isles”</i> :</p> <p>Becton Dickinson : headquarter and production site for pre-fillable glass syringes, willingness to work to improve the circular economy of their company (American multinational company)</p> <p>Artelia : hydraulic laboratory (French design firm)</p> <p>Medtronic : design and production site for surgical suture needles (American medical device company)</p> <p>- <i>Chemical platform of Pont de Claix</i> :</p> <p>Vencorex : production site for chlorine, hydrogen, soda, isocyanates and derivatives, (its main shareholder is a Thai state-owned company PPT Public Company Limited)</p> <p>Air Liquide : production of nitrogen and oxygen for the platform needs (French multinational company)</p> <p>Poral : powder metallurgy, (one of the 2 manufacturing site of the company)</p> <p>Solvay : manage utilities for the platform, with electricity distribution, high pressure steam production, connected to the urban heat network (Belgian multinational chemical company)</p> <p>Suez : manage chlorinated waste for the platform and other area, with heat recovery, (large French utility company)</p> <p>Seqens : chemical production site (French multinational chemical company)</p> <p>- <i>Development zone of Saut du Moine</i> :</p> <p>HRS : production site for Hydrogen Refueling Solutions (commissioning in progress, first and only production site)</p> <p>Aledia : production site for MicroLED display technology (construction in progress, first and only production site),</p> <p>SDCEM : production site for disconnecter switch (since 2019, new and only production site),</p>

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

Project-ID: ASP0100091



	<p>SteelHy : production site for metal casings for hydrogen and biogas stations (local SME)</p> <p>- <i>Chemical platform of Jarrie (location existing since 1916) :</i></p> <p>Arkema : production site for chlorine, soda, oxygenated water, etc. (French multinational chemical company)</p> <p>RSA Le Rubis : production site for high purity alumina, (local SME)</p> <p>Equans : industrial and process engineering (French multi-technical services company)</p> <p>Air Liquide : production of utilities (gas) for the platform needs (French multinational company)</p> <p>Framatome : production site for zirconium sponge and by-products (French nuclear sector company)</p> <p>- <i>Industrial zone “la Plaine” :</i></p> <p>CIC Orio: metallurgical company, (small French group)</p> <p>Avery Dennison : label manufacturing company (American multinational manufacturer and distribution)</p> <p>- <i>Paper mill Vicat (paper production since 1593):</i></p> <p>papeterie de Vizille : paper mill for special papers and Kraft bags (owned by the French group Vicat)</p>
<p>Please describe the park infrastructure and facilities (e.g. roads, transportation, power supply, digital connectivity, sewerage, water supply, solid waste management, social services)</p>	<p>- Transportation :</p> <ul style="list-style-type: none"> - Road access, with complex traffic situation (only one lane on each direction and heavy traffic during rush hours), - Limited railway connection for passengers (a train station in Pont-de-Claix, and another one in Jarrie), with metropolitan medium-term plans to improve connection (new train stations, new timetables) - Important railway connection for freight, - One bus line subjected to major travel time hazards due to traffic congestion - Bike access with existing plan to improve its safety

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

Project-ID: ASP0100091



	<ul style="list-style-type: none"> - Power supply : high electrical power available - Digital connectivity : good digital connectivity - Water supply : important water supply with the drinking water network (drawing nearby), and direct water table access for most sites - Sewerage : water treatment plant in Pont de Claix - Solid waste management: Chlorinated waste incinerated on Pont-de-Claix site
<p>Please describe the energy consumption profiles (heat, electricity, natural gas)</p>	<p>High electricity consumption on most sites. Use of natural gas and heat on the chemical platforms.</p>
<p>Please describe the current waste situation: Type of waste (biogenic wastes, waste heat, unused renewable electricity production, other waste streams (to be specified)), amount, and existing waste management practices</p>	<p>Local waste treatment plant for chlorinated waste. The heat generation facility of the chemical platform of Pont de Claix is connected to the urban heat network, and use of the excess heat when existing (it works in both direction).</p> <p>The situation for other solid waste management needs to be completed throughout this work.</p>
<p>The type of sectors in EIPs and their needs also define the type of industrial synergies that can be exploited within an EIP. WHICH IS THE ONE TYPE OF INDUSTRIAL SYNERGIES THAT COULD BE EXPLOITED WITHIN YOUR PILOT SITE?</p> <p>(Please tick the appropriate box below. Please shortly elaborate on the right. Please mention the tenant companies that need to be involved in creation of said synergies, if applicable.)</p> <p><input type="checkbox"/> Supply synergies and co-location of suppliers and clients: co-location and clustering of companies in the supply and value chains (e.g., producers and suppliers of raw materials, fabricators, manufacturing, business clients);</p> <p><input checked="" type="checkbox"/> Utility synergies: shared used of utility infrastructure, mainly revolving around water and</p>	<p>Mix of industrial sectors :</p> <ul style="list-style-type: none"> - Chemical industry - Healthcare industry - Paper industry - Metallurgical industry <p>Several synergies could be exploited :</p> <p>Previous studies realised on waste heat from local industries. No interesting source identified on site.</p> <p>Potential of by-product synergies between several industries to be identified, and few existing already (hydrogen, chlorine...). Main industries have difficulties regarding data sharing, and trust issues. Possible waste exchanged/shared waste management that would be less strategic with easier data sharing.</p>

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

Project-ID: ASP0100091



<p>energy (e.g., water recovery and energy cogeneration);</p> <p><input checked="" type="checkbox"/> Service synergies: sharing of services and activities between companies (e.g., joint training of staff and sharing of maintenance contractors);</p> <p><input checked="" type="checkbox"/> By-product synergies and waste exchanges (industrial symbiosis): the use of previously disposed waste (as solid, liquid, gas) from one facility to another facility to provide a valuable by-product.</p>	<p>Existing utility synergies between some industries (water treatment, heat generation...).</p> <p>Possible service synergies regarding transport of employees (car shuttle...).</p>
<p>PLEASE INDICATE/CHOOSE WHICH PERFORMANCE REQUIREMENT FROM EACH FIELD: RELATED TO PARK MANAGEMENT, ENVIRONMENTAL, SOCIAL, ECONOMIC IS MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from Tables 7 - 10, p. 20 - 24).</p>	<p>Performance requirements still need to be precisely defined with park association. Performance requirements with current knowledge:</p> <ul style="list-style-type: none"> - The park management entity provides and facilitates common services and infrastructure to firms to ensure smooth operations: plan on employees' transportation. → Approve on common services and infrastructure by the end of the project - Dedicated personnel exists (as part of the park management entity)
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please choose from the Table 4: EIP Technologies, p. 16.)</p>	<p>D.1.2.1 is not finalized, and exact technologies are not defined yet. Here are few potential EIP technologies that need to be refined :</p> <ul style="list-style-type: none"> - Industrial symbiosis - Energy management
<p>WHICH EIP TECHNOLOGIES ARE MOST RELEVANT FOR YOUR PILOT SITE?</p> <p>(Please refer to D.1.2.1)</p>	<p>Electric mobility (to be confirmed) Waste utilisation Water management (to be confirmed) Use of waste land/soil</p>

Industrial area des Isles / PDC 3 000 jobs	ARTELIA Medtronic BD
Chemical platform of Pont de Claix 700 jobs	Venorex Air Liquide PORA SOLVAY SUEZ SEQENS
Development zone of Saut du Moine 1000 jobs (2030)	HRS Aledia SteelHy SDCEM
Chemical platform of Jarrie 1 000 jobs	ARKEMA EQUANS Air Liquide framatom
Industrial zone la Plaine 600 jobs	cic AVERY DENNISON
Paper mill Vicat 160 jobs	PAPETERIES VICAT

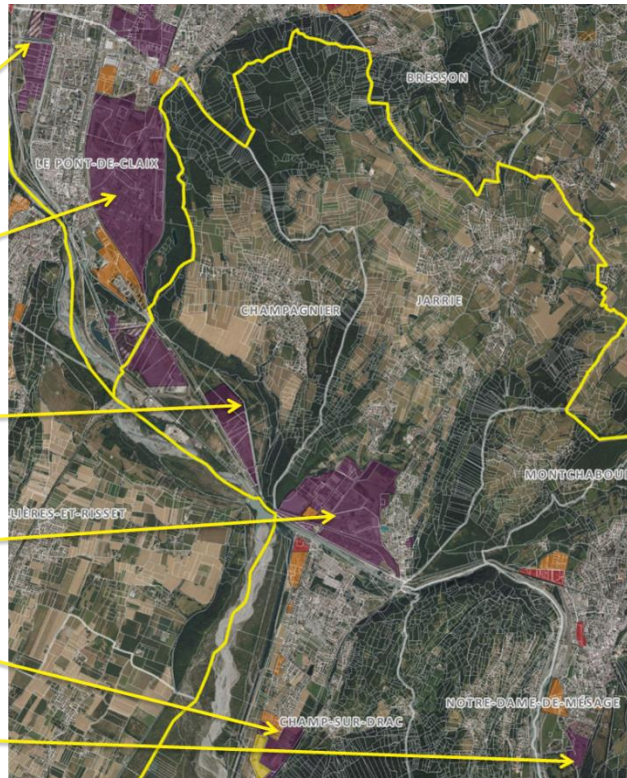


Figure 1 : Map of the south industrial park with companies' name

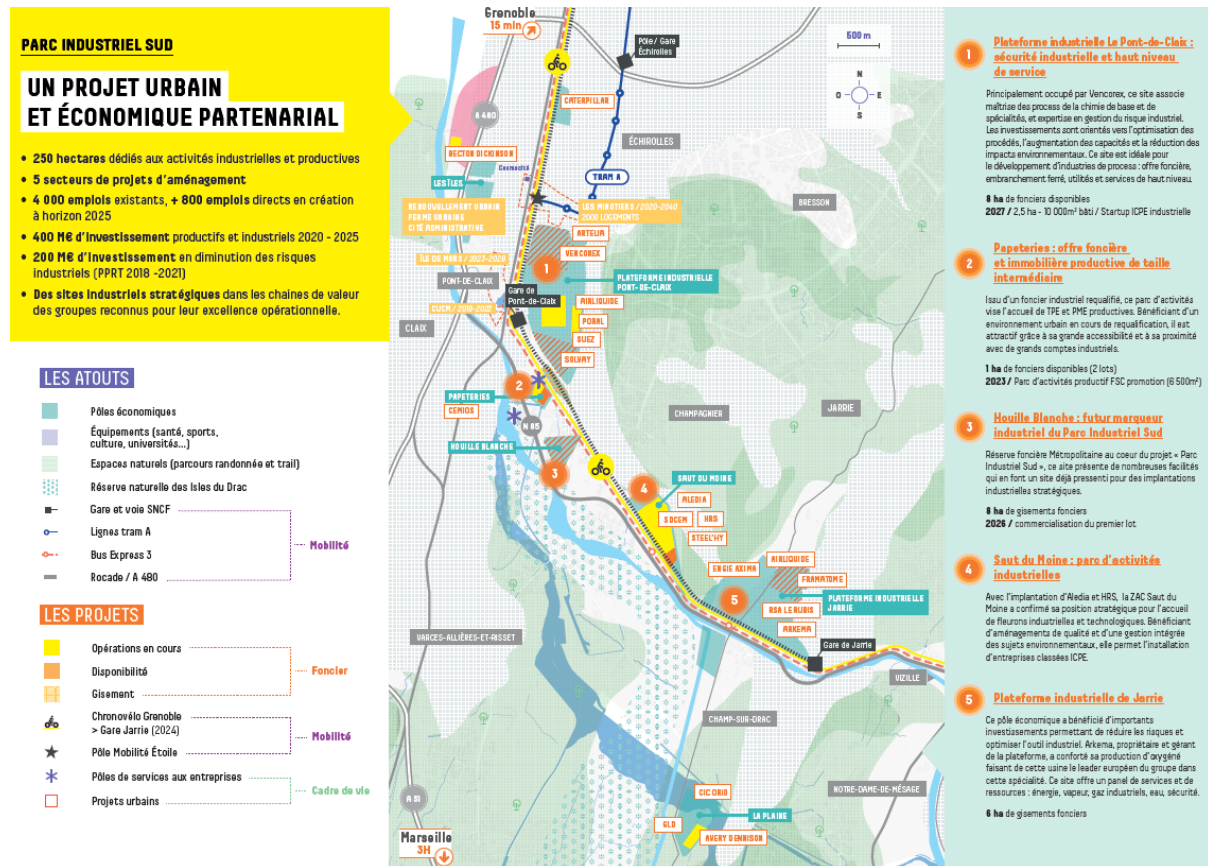


Figure 2 : Map showing current park access and environment (in French)

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

Project-ID: ASP010091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy



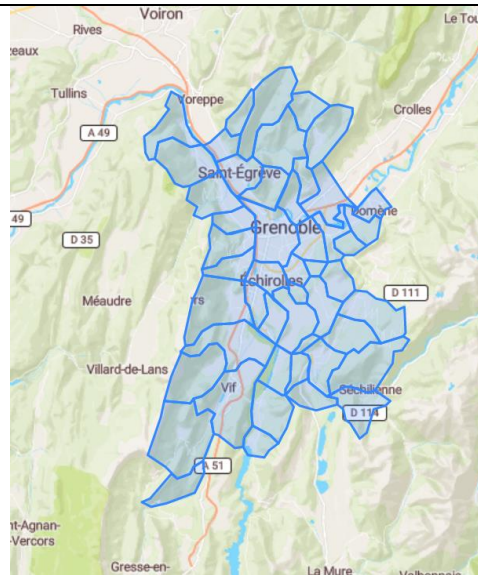
Surrounding regional context	
<p>Please provide an overview of the economic and social context of the region your IP is located in (e.g., industrial/economic focus, other industrial activities in the area, population, availability of education and research institutions, level of unemployment)</p> <p>Points might be:</p> <ul style="list-style-type: none"> • Workforce demographics: Age, gender, education levels, and skill sets of population. Understanding the diversity and characteristics of the (potential) workforce can help identify potential social dynamics and specific needs or challenges. • Employment opportunities: Assess the availability and quality of job opportunities provided by the industrial park. Consider factors such as job stability, wages, benefits, and career advancement prospects. Evaluate whether the industrial park is a major source of employment for the local community or if it relies on commuting workers. • Community engagement: Examine the level of engagement and interaction between the industrial park and the surrounding community. Assess whether the industrial park actively participates in community development initiatives, supports local businesses, and engages in social responsibility activities. • Health and safety: Evaluate the industrial park's impact on the health and safety of workers and the surrounding community. Consider factors such as compliance with safety regulations, exposure to hazardous materials, and the availability of healthcare facilities. 	<p>A short history of the territory “Grenoble Alpes”</p> <p>Grenoble Alpes has become an industrial territory in the 19th century. It all started as early as 1842, just a few hundred meters from the historic center of Grenoble, a cement factory cooked the limestone rocks extracted nearby to make an excellent quality product: prompt natural cement</p> <p>The development of hydroelectricity, a renewable energy, is at the origin of the industrial development of the Grenoble Region: to transform the energy of water into electricity. This energy was useful for the development of industry. This energy source had to be transported and controlled. This has led to the development of new industries: Boilermaking companies (Bouchayer-Viallet, Joya) were born to produce penstocks and pylons, while turbine (Neyrpic) and circuit breaker (Merlin-Gerin) builders experienced rapid expansion.</p> <p>Further developments occurred soon: papermaking, electrochemistry and electrometallurgy.</p> <p>Gradually, in the second half of the 20th century, research activities diversified. Microelectronics and computing are flourishing in Grenoble area, and the semiconductor sector is taking hold. Today the Grenoble innovation ecosystem is based on 5 major sectors: Health, Energy, Chemistry, metallurgy and digital.</p> <p>The natural environment</p> <p>Grenoble Alpes is surrounded by 3 mountain areas: Chartreuse in the north, Vercors in the west, and Belledonne, with peaks at almost 3000m, in the east. Two rivers, the Drac and the Isère, cross the valley.</p> <p>A few figures about Grenoble Alpes Métropole territory</p>

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

Project-ID: ASP0100091



- **Social infrastructure:** Assess the availability and quality of social infrastructure, such as housing, schools, healthcare facilities, recreational spaces, and transportation systems, for both the industrial park's workforce and the local community.
- **Social cohesion and integration:** Evaluate the social cohesion and integration between the industrial park and the surrounding community. Consider whether there are social and cultural barriers or if there are initiatives to foster cooperation, understanding, and integration between different social groups.
- **Social impacts and conflicts:** Identify any social impacts caused by the industrial park, such as displacement of communities, conflicts over land or resources, or environmental justice issues. Evaluate the management's efforts to address these impacts and resolve conflicts.
- **Education and skill development:** Assess the availability of educational and skill development opportunities for the workforce within and around the industrial park. Consider partnerships with educational institutions and initiatives that promote lifelong learning and skill enhancement



Today, there are 450 000 inhabitants in Grenoble Alpes Metropole area, living in 49 municipalities, with the global population increasing slowly, by 0,2% per year.

There are more than 222 000 workers. 19% of the workers work for the industry, while 20% work in research.

Socio-professional categories:

- 14% of the population is white collar and highly qualified worker;
- 15,6% of intermediate profession,
- 15,4% of employees,
- 9,7% of industry or construction workers,
- 23.3% of retirees,
- 19,3% of person with no professional activities,
- 2,9% of craftsmen, shopkeepers and chief executives,
- 0.1% of farmers.

The largest employer is the hospital, followed by the university.

There are 63 000 students in the Metropole.

Datas on the IP:

The IP is located in the south of the metropolitan area. It is constrained by the river Drac and natural areas.



- **Employment opportunities:** around 500 jobs are to be created by 2027 in the South Industrial Park. These jobs are varied and are aimed as much at low-skilled operators (who benefit from internal training), as at technical and engineer positions, and support functions. Companies in these industrial sectors aligned with advantageous branch agreements (metallurgy, chemicals), and the pressure on employment (unemployment is currently less than 6% in Isère) promote the development of social benefits and attractive salaries (4 days week for example).
- **Community engagement:** historically, companies have established individual links with certain municipalities (chemistry museum, schools visits in the company). The current project is to develop structured and collective links between the park association (created in 2023) and the environment in a social and environmental responsibility approach. The approach involves in particular the desire to welcome young people of all educational levels to inform them about the industrial activities and the variety of trades.

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

Project-ID: ASP0100091



	<ul style="list-style-type: none"> • Health and safety: the main subject of concern is linked to the presence of historical pollution associated with chemical activities. The immediate proximity of these activities to the groundwater table, which supplies drinking water to more than 600,000 inhabitants, makes it a matter of concern for all stakeholders. Very precise and frequent monitoring is carried out on the risks of pollutant transfers in drinking water. The same approach was carried out on the study of soil pollution concerning the presence of dioxins (study of the area of southern Grenoble). In addition, industrial risk prevention plans organize regular exercises and measures to reduce the risk of accidents. The logic of risk management and reduction to an acceptable level leads to the establishment of a multi-partner control and regulation system. • Social infrastructure: The main difficulty is linked to the low supply of public transport with regard to the dispersion of activities. The other infrastructures seem sufficient for the time being (housing, schools). The park association plans to develop partnerships with municipalities in order to be able to access municipal sports facilities and make them available to employees. • Social cohesion and integration: Industrial activities benefit from good acceptability due to the local industrial history (chemical platforms) and their links to the territory (workers' housing estates, support from local public actors). Due to the variety of jobs, various social groups are well represented in these industries. • Social impacts and conflicts: non identified • Education and skill development: Many companies integrate a significant proportion of apprentices and develop internal training. The association wishes to develop partnerships with schools and training centres for positions in tension.
<p>Please describe to what extent the IP is collaborating with the regional communities and stakeholders and the nature of those collaborations (e.g., applied research</p>	<p>Individual companies have various collaboration with several universities and research centres. There is no centralized collaboration between the park and other institutions.</p>

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

Project-ID: ASP0100091



<p>projects with scientific institutions, training programs, energy supply, knowledge exchange: conferences, events, ..)</p>	<p>A few companies are part of the “local economic pacte”, a group of large companies of the territory and the local public authorities that committed to actions and cooperation with public and private actors in the region, to succeed transitions in the service of our territory and its attractiveness: Vencorex and Becton Dickinson.</p>
--	---



1.2. SWOT Analysis

SWOT analysis		
<h1 style="margin: 0;">SWOT ANALYSIS</h1>		
	Helpful to achieving the objective	Harmful to achieving the objective
Internal origin <small>(attributes of the organization)</small>	S Strengths	W Weaknesses
External origin <small>(attributes of the environment)</small>	O Opportunities	T Threats
<p>Please elaborate the strengths of your IP. Strengths are helpful to achieving the objective and of internal origin. You will build upon the strengths during the action plan development. Strengths might be:</p> <ul style="list-style-type: none"> Existing infrastructure: Assess the availability and quality of infrastructure within the industrial park, such as utilities, transportation networks, and waste management systems, which can support the transition to eco-industrial practices. Collaboration potential: Identify the level of collaboration and cooperation among tenants and stakeholders within the industrial park, as strong partnerships can facilitate the implementation of shared resource management and circular economy principles. Location advantages: Evaluate the geographical location of the industrial park, considering factors like proximity to renewable energy sources, availability of natural resources, access to markets, and transportation networks that can enhance 	<ul style="list-style-type: none"> - Governance and collaboration through the association of the southern industrial park companies - Good industrial momentum with investment perspective - Available resources (water, energy (high power available on site, high connection capacity, etc.)) - Proximity to the Grenoble technological ecosystem with university, incubation programs, and good economic environment - Industrial acceptability by populations - History of industrial collaboration (existing synergies within the parc) - Presence of industrial decision-making or strategic centres - 1/3 of the future metropolitan available economic land is located in the southern industrial park - Renaturation project of the river bad (Drac river), and study on the restoration of the ecological corridor - Project to raise employee awareness of local environmental issues 	

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

Project-ID: ASP0100091



<p>the sustainability and competitiveness of the eco-industrial park.</p>	<ul style="list-style-type: none"> - Existing work ongoing on water consumption, energy consumption, mobility with a few large companies of the area through the “local economic pact” - Creation of a circular economy network in the metropolitan area
<p>Please elaborate the weaknesses of your IP. Weaknesses are harmful to achieving the project objective and of internal origin. You will need to address the weaknesses and develop measures to minimize them in the action plan. Weaknesses might include:</p> <ul style="list-style-type: none"> • Environmental impact: Examine the current environmental challenges and issues associated with the industrial park, such as pollution, resource depletion, or waste generation, which need to be addressed during the transformation process. • Limited awareness and expertise: Determine the level of knowledge and understanding of sustainable practices among tenants, park management, and stakeholders. Identify any skill gaps or lack of awareness that may hinder the successful implementation of eco-industrial initiatives. • Regulatory barriers: Identify any existing regulations or policies that may hinder the adoption of eco-industrial practices. Assess whether there is a need for regulatory changes or policy support to facilitate the transformation. 	<ul style="list-style-type: none"> - Environmental impact of activities (soil pollution) - Access difficulty due to limited public transport in the area, and constrained road access - Degraded image of the park for potential employees - Conflicting relationship between chemical companies - Lack of available capacity for new activities - Limited facilities close to the park - Weak park collaboration - Lack of general rules for the IP
<p>Please elaborate the opportunities. These are helpful, but of external origin. You can consider opportunities during action plan development, but you cannot necessarily change them. Opportunities might include:</p> <ul style="list-style-type: none"> • Innovation and technology: Assess the potential for technological advancements, innovation, and research and development within the industrial park to support sustainable practices and the adoption of clean technologies. • Market demand and competitiveness: Evaluate the market demand for 	<ul style="list-style-type: none"> - Technological partnership of some companies with local research centres - Installation of means of renewable energy production by some companies - Development of demand for certain companies linked to the energy transition - AMI public-private partnership on Vencorex land for the establishment of new companies with synergies with existing companies - Policy support to implement synergies

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

Project-ID: ASP0100091



<p>sustainable products and services and determine how the transformation to an eco-industrial park can enhance the competitiveness of businesses within the park.</p>	
<p>Please elaborate the threats. These are harmful and of external origin. You need to consider the threats during development of the measures in the action plan and assess if the threats make measures unable to implement. If so, try to find different measures that are not subject to the threat.</p> <p>Threats might be: Changing regulations, market dynamics, or geopolitical risks that may impact the transformation process or the viability of the eco-industrial park.</p>	<ul style="list-style-type: none"> - Scarcity of water resources - Evolution in CO2 quota - Recruitment difficulty pushing other subjects away in companies' agenda - Major economic crisis - Increase in energy cost putting companies in financial difficulties - Domino effect of interdependent chemical activities (other location in France) - Political and regulatory changes (at EU, national or local level) - A few companies in immature sectors with unknown growth (hydrogen) - Lack of financial incentives



1.3. Main Challenges' definition

Challenges: Based on the SWOT analysis, challenges need to be identified. This part is a clear definition of the challenges, describing the action areas in which you will intervene with the measures elaborated in the action plan. Potential challenges might include:

- Complex value chains: Industrial parks typically involve multiple stakeholders, including manufacturers, suppliers, and customers, which can make it challenging to establish a circular system. For example, one company might produce waste that could be a valuable resource for another, but coordinating the exchange of materials between these companies may require significant effort and investment.
- Resistance to change: The shift towards circularity often involves changes to established business models and processes. Some stakeholders may be resistant to these changes, particularly if they see short-term costs without a clear path to long-term benefits.
- Limited availability of circular materials: Circular systems depend on the availability of materials that can be reused, recycled, or repurposed. In some cases, these materials may be in short supply or difficult to source, which can limit the potential for circularity.
- Technical challenges: Circularity often requires advanced technologies and processes, such as material separation and purification, that may be complex and expensive to implement. Industrial parks may need to invest in these technologies and develop new expertise to effectively integrate circular approaches.

What is difference between goals and objectives?

A goal is an outcome you want to achieve, while an objective is a specific and measurable action that can be reached in a short amount of time, often related to a goal

#	Concise introduction	Current State Assessment	Key Challenges	Goals and Objectives
1	Park governance	New park organisation to be finalised	Become a leader for park's projects	Goal : have a park organisation that become a leader to organise park cooperation Objectives : - Finalise the creation of the organisation - Recruit a part time employee - Create events within the park
2	Companies of the south industrial park have very different products and processes	Very few cooperation except within chemical platforms	Find common objectives and use the new park organisation	Goal: Develop new synergies Objectives: - Identify synergies through workshops and visits - Develop the synergies (with support as needed depending on the complexity of the synergies)
3	Resistance to change	Current macro-economic context makes companies	Have companies convinced of	Goal: Raise awareness on the necessary changes due to the

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

Project-ID: ASP0100091



		cautious on changes (inflation, energy crisis, political instabilities...) Most companies are part of large groups, and decisions are not taken locally	necessary changes, and willing to make changes	current environmental and economic context Objectives : - Create workshops to better understand industrial ecology and circular economy benefits, - Define a plan with companies
4	High investment costs	Some potential synergies would require high investment costs from companies, and companies have difficulties having long-term plans with current economic context.	Help companies on potential long term investment (Just Transition Fund, or use of other fund)	Goal: Have companies more willing to invest on important changes Objectives: - Identify all the possible funding for companies - Inform companies of possible funding - Help companies write their grant/fund application
5	Timing between potential synergies identification and ECOLE project	Synergies need to be identified first, and companies participation is important for that	Have companies willing to share data and participate to workshop	Goal: Have companies Objectives - Present ECOLE project to the park association, and companies - Identify synergies through workshops and visits - Develop the synergies (with support as needed depending on the complexity of the synergies)
...				



1. Action plan

Note: Actions detailed below are part of a larger plan defined for the south industrial park and Grenoble Alpes Metropole territory. Some actions in iii might actually be realized during the project timeline without being part of the ECOLE project itself.

#	Action	Needed resources, technologies, tools etc.	Needed stakeholders	Realistic time frame	Risks and benefits	Phase of development: i=Pilot, ii=WP3, iii=After ECOLE Impact
1	Grenoble Alpes Metropole participate to local and national events and promote circular economy and industrial ecology: - Participation to Pollutec (October 2023) - participation to the inauguration of the “Pôle R” in December 2023 - Participation of the new local “circular economy network” - Participation to further events related to EIP, industrial ecology...	Communication tools / medium, Feedback on other EIP projects, List of companies willing to share their experience List of events locally and nationally with related subjects	GAM, companies involved in industrial ecology or circular economy, local circular economy network under creation	Throughout the project	Risks: waste time on event with limited impact Benefits: raise awareness to new companies,	i & ii
2	Spread ECOLE project tools and experiences: - participation to conferences - Shared information on different platforms: local (internal and external GAM website, press), regional (Eclaira network), national (Synapse network) and European	Communication tools / medium, Feedbacks	GAM, companies involved in the projects	WP3	Risks: have limited good feedback Benefits: raise awareness to new companies and authorities	ii

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

Project-ID: ASP0100091

	(Hubs4Circularity community...)					
3	Strengthen shared governance of the South industrial park - Park association creation - Employee hiring - Events animation	Step up of the park association, strategic committee	Park association, Park companies, Grenoble Alpes Métropole (GAM)	Creation of the park association in September 2023, employee recruitment by end of 2023,	Risks: withdrawal of companies from the association Benefits: location where companies communicate openly and create synergies	i
4	Evaluate potential internal and external industrial synergies locally, with the aim of circularity : - Meeting with the south industrial park association - Visit of several companies with identification of the main streams (inputs and waste) - workshops to identify synergies and initial feasibility	Use of an online tool to identify waste streams and potential synergies ("Actif")	Competitiveness cluster(s), Companies, park association, GAM	Up to end of 2024, but other workshops to come as needed	Risks: limited shared data by the industrial, Benefits : start the habits of creating synergies and managing waste, improve communication between companies	i (and after)
5	Develop synergies : Once synergies are identified, it is necessary to work with companies to make sure synergies are actually feasible	Resources needed will depend on the type of synergies identified	Companies with identified synergies, Experts or lawyers depending on the synergy's complexity	From mid 2024 till the end of the project	Risks: have no feasible synergies identified Benefits : Increase synergies realization by supporting companies	i During the project and after
6	Promote and support financial mechanisms regarding sustainable subjects to accelerate changes : industrial ecology, energy transition, reduction	Financial mechanisms: "Just transition fund", "Mur Mur TPE PME", « diag Eco Flux »	Small and middle businesses, GAM, AURA region , CCI, BPI	Event planned in December 2023, and througho	Risks: no mechanisms to support large size company leading to limited actions	i

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

Project-ID: ASP0100091



	of carbon emission, carbon capture and storage...			ut the project	Benefits: Accelerate transition and reduce environmental impacts	
7	Evaluate potential internal and external industrial synergies regarding hydrogen: Hydrogen is currently used on the platform, several electrolysers exist, and some hydrogen is already exchanged between sites : - Identify hydrogen production and needs on the park - Identify potential synergies, costs and construction work	Help of an outside firm for this work, needs will depend on what is needed (new pipelines, hydrogen purification...?)	Companies using and producing hydrogen, parc association, competitiveness cluster	By end of 2024	Risks: unwillingness for companies to share data on hydrogen, economic difficulties of the main hydrogen produced and user, Benefits: full use of hydrogen production on the park	i
8	Identify new opportunities for waste recovery through : - monitoring on existing and new waste recovery technology, local companies creation - contact with competitiveness cluster Participation to working group (industrial ecology, construction industry...)	Monitoring through websites and contacts	Competitiveness clusters, GAM, research labs, European partners	Throughout the project	Risks: No real risks on this action, except for time allocation Benefits: Identify new synergies that can be developed or new waste stream to reduce environmental impacts and reuse of waste stream	i

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

Project-ID: ASP0100091

9	Promote sustainable management of water resources : - Identify the major water users in the park and outside the park - Work with the local economic pact on water issue - Increase awareness on water use	Metropolitan actions on going through the “Local economic pact” and with the water department	Companies, Grenoble Alpes Metropole water department	Project will depend on the local economic pact schedule	Risks: Benefits: increase awareness on water use	iii (work done in parallel to the ECOLE project)
10	Produce fuelwood in the industrial park : some areas have been identified as areas where fast-growing plantation could be put. Those fast growing plantation could be used to fuel city wood-fired heating plants	Land availability, Technical feasibility to burn those fast growing plantation in	Grenoble Alpes Metropole	Validate land availability by mid 2024 Start plantation by the end of the project	Risks: Privately owned land, polluted soiled making wood not fit for heating plant Benefits: increase tree coverage, increase attractiveness of the area, produce sustainable energy	i
11	Reuse existing industrial land to limit soil artificialization and depollute soil: GAM projects on going to purchase the few left available land, Saut du Moine ZAC, Paper mills, Houille Blanche, Poral, Vencorex land	Technology to measure pollution and depollute soil	GAM, future companies, large companies with available land		Risks: Land available on Vencorex site kept by Vencorex Benefits: Establish new companies with synergies with existing ones	iii
12	Increase environmental awareness: Develop a series of animation with the park employees - Visit of local site to explore biodiversity by an organisation	Animations to be developed	Park association, companies, GAM, local environmental organisation	Have 3 visits completed by end of 2025	Risks: have no company implicated in those visits Benefits: Increase awareness on local and global environmental issues	i

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

Project-ID: ASP0100091



1 3	Promote mobility and sustainable transport: Collective organization towards carbon-free transport by shuttles		Companies, park association, GAM, SMMAG (Grenoble urban public transport authority)		Risks: No agreements between the different companies of the park Benefits: reduced impact of employees transportation, reduced traffic jams, and increased park image	iii
1 4	Reconnect the links of the green and blue fabric, promote biodiversity		Companies, park association, local municipalities, GAM			iii
1 5	Develop a carbon-free local service offer for businesses and employees	Catering, supplies, internal PI mobility, deliveries, etc.	Park association, companies,	Time frame will depend on park associations	Risks: no cooperation between companies to develop those services Benefits: reduce impacts of several services, improve park image	iii

Detailed action plan for action during the pilot (i)

Specific objective 1: increase awareness on circular economy and industrial ecology

Action 1: Participate to local and national events and promote circular economy and industrial ecology:

The participation to these events will increase awareness to the general public and companies, and will allow to reach more local companies involved on these issues, within or outside the industrial park.

Events will also be organized through the local circular economy network currently under creation to reach more companies and help to continue develop actions after ECOLE project (see also action 2).

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

Project-ID: ASP0100091



Identified events are currently :

- Participation to Pollutec (October 2023), a national show on solutions for the environment with international reach (<https://www.pollutec.com/en-gb.html>) with the goal to exchange with local companies on circular economy
- Participation to the inauguration of the “Pôle R” (December 1st 2023), new location of the Metropole to promote circular economy with a workshops on circular economy and industrial ecology
- Participation to Tech&Fest, a local event on innovation to be confirmed (February 2024)
- Participation to events organized by the local “circular economy network”
- Participation to further events related to EIP, industrial ecology to be defined depending on coming events

Needed resources, technologies, and tools:

Communication tools / medium, feedback on other EIP projects, list of companies and persons willing to share their experience, list of events locally and nationally with related subjects.

Stakeholders involved/Systemic Thinking Community (STC):

Grenoble Alpes Metropole, companies involved in synergies and circular economy, local circular economy network under creation

Time frame

Throughout the project depending on planned events

Risks and benefits

Risks: waste time on event with limited impact

Benefits: raise awareness to new companies,

KPI

Number of events participation

Number of companies reached through those events (KPI to be confirmed during the first event)

Specific objective2: Develop synergies in the industrial park to reduce environmental impacts

Action 3: Strengthen shared governance of the South industrial park

This first action will actually help all the specific objectives. The stronger shared governance go through

- Park association creation in September 2023
- Employee hiring to come, with objectives depending on fundings (50% from GAM, and rest to be confirmed)

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



Grenoble Alpes Metropole, association of the companies of the south industrial park, companies in the metropolitan area, Chamber of Commerce and Industry, possible involvement of an external design office depending on the difficulty of data collection.

Support needed from elected representatives to validate and promote the approach.

Time frame

Up to end of 2024, and later in the project depending on the number of synergies identified, and companies involved

Risks and benefits

Risk: limited shared data by the industrial companies, especially the one targeted in the South industrial park,

Benefits: start the habits of creating synergies and managing waste, improve communication between companies, reduce environmental impacts of companies

KPI

Number of companies visited with stream waste identification

Number of companies participating to the workshops

Number of synergies identified

Action 5: Develop identified synergies

Once synergies are identified, it is necessary to work with companies to make sure synergies are actually feasible and will be implemented. To help that, further study will be realized to identify the economic and technical feasibility of synergies, and support will be provided to companies for that.

Needed resources, technologies, and tools:

Depending on the type and complexity of the synergies, different resources will be needed: existing literature on the specific synergies, support of an external firm to validate and implement the synergy, support on finding funding for the synergy implementation

Stakeholders involved/Systemic Thinking Community (STC):

Stakeholders will also vary on the type of synergies: GAM, external consulting firm, companies involved, competitiveness clusters related to the industry...

Time frame

Starting mid-2024, after synergies identification, and throughout the project depending on synergies identification and available time

Risks and benefits

Risks: have no feasible synergies identified, or no synergies feasible within a reasonable amount

Benefits: Increase of synergies realization by supporting companies and helping them validate feasibility and possible funding

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



Action 7: Evaluate potential internal and external industrial synergies regarding hydrogen

Hydrogen is currently used on the chemical platforms, several electrolyzers exist to produce it, and some hydrogen is already exchanged between sites. There are still some hydrogen waste on site, and some hydrogen needs. The goal would be to :

- Identify hydrogen production and needs on the park
- Identify potential synergies, costs and construction work

Needed resources, technologies, and tools:

Help of an outside firm will be needed for this work, as companies can have trouble sharing strategic data.

Technologies needs will depend on what is needed (new pipelines, hydrogen purification...?)

Stakeholders involved/Systemic Thinking Community (STC):

GAM, companies producing and needing hydrogen, support from local elected representatives

Time frame

Start in 2024

Risks and benefits

Risk: unwillingness for companies to share data on hydrogen, economic difficulties of the main hydrogen producer and user. Risk of failure is high for this action: several previous attempts failed. A high-level support would certainly be needed, though not sufficient.

Benefits: full use of hydrogen production on the park and reduced energy consumption

KPI

Project launch (yes/no)

Number of companies involved in the project

Action 8: Identify new opportunities for waste recovery

The action aims at keeping an eye on what exists:

- Monitoring on existing and new waste recovery technology,
- Monitoring of local companies creation on waste use
- Contact with competitiveness cluster to increase monitoring
- Participation to working group (industrial ecology, construction industry...) to be aware of new actions

Stakeholders involved/Systemic Thinking Community (STC):

Competitiveness clusters, GAM, research labs, European partners

Time frame

Throughout the projects

Risks and benefits

Risks: No real risks on this action, except for time allocation

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

Project-ID: ASP0100091



Benefits: Identify new synergies that can be developed or new waste stream to reduce environmental impacts and reuse of waste stream

KPI

Number of interesting news waste recovery or stream identified

Specific objective 3: Appropriate use of local natural resources**Action 9: Promote sustainable management of water resources****Action 10: Study fuelwood production potential in the industrial park**

Some areas are currently wasteland, and might stay this way for a few years. In the meantime, fast-growing plantation could be made that need 3 years to grow. Those fast growing plantation could be used to fuel some of the city wood-fired heating plants.

Those areas still need to be better identified, and might be on public or private land.

Those plantations could also come from areas where they are used for soil remediation (use of miscanthus).

Needed resources, technologies, and tools:

Identification of land

Stakeholders involved/Systemic Thinking Community (STC):

GAM services (spatial planning department, energy transition department...), wasteland owners

Time frame

By mid 2024: validation, or not, of land availability

By end of 2024:

Risks and benefits

Risks: Privately owned land where land owners are not willing to lend them, polluted soil making wood not fit for heating plant. Too few lands, making the operation not economically viable (need to change heating plants settings to burn this type of plantation).

Benefits: increase tree coverage, increase attractiveness of the area, produce sustainable energy

KPI

Hectare of land identified for fast-growing plantation

Potential of kWh produced

Action 11: Reuse existing industrial land to limit soil artificialization: GAM projects on going to purchase the few left available land, Saut du Moine ZAC, Paper mills, Houille Blanche, Poral, Vencorex land

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

Project-ID: ASP0100091



Specific objective 4: Improve park image

The degraded park image is an issue for companies within the park as they have hiring issues. Of course, improving their environmental impact through objectives 2 and 3 will help improve their image. Other actions have also been identified.

Action 12: Increase local environmental awareness

Develop a series of animation with the park association and for the park employees to visit of local site to explore biodiversity. The goal of those visits is to develop a greater environmental awareness within park employees, and reach companies through it.

Needed resources, technologies, and tools:

Stakeholders involved/Systemic Thinking Community (STC):

Park association, companies, GAM, local environmental organisation

Time frame

Realize at least 3 visits by the end of 2025

Risks and benefits

Risks: have companies management reluctant regarding those visits, having no employee interested by them

Benefits: increase awareness at every level of the company

KPI

Number of visits carried out

Number of employees involved

Action 13: Promote mobility and sustainable transport: Collective organization towards carbon-free transport by shuttles

Action 14: Reconnect the links of the green and blue fabric, promote biodiversity

Action 15: Develop a carbon-free local service offer for businesses and employees



3. Topic selection for the pilots

3.1. Concept main questions

Question	Answer
I. What is the challenge to be solved at your pilot site in the ECOLE project? Why have you selected this challenge/action?	Develop collective (multi-stakeholder) project that reduce the environmental impact of flows and productions Several projects have been launched in the past, but few succeeded. The new park organisation creation and the ECOLE project are good catalysts to restart projects in the area, and test industrial ecology implementation at a larger scale in Grenoble Alpes Metropole.
II. What goal are you targeting / aiming to achieve at your pilot site and why?	Evaluate potential industrial synergies in connection with the local ecosystem, with the aim of circularity, and with park association support
III. At what stage in the process (to address this challenge) are you at the moment (“what is the baseline”)?	Reaching out and planning meetings with private stakeholders
IV. Provide just the main steps (in bullets) that you will implement in the framework of ECOLE and will bring you to the solution/deliverable?	Main steps : <ul style="list-style-type: none"> - Strengthening governance with the park association (throughout the project) - Identify the material flow through interview and visits with the industrial companies (intervention of outside firm to be conformed) - Identify potential synergies through interviews and dedicated workshops - Mobilization of funding for the implementation of the action plan
V. What are the three main aspects of circular economy approaches that you are going to use at your pilot site?	Through this project, we will work mainly on the reuse/redistribute, refurbish/remanufacture and recycle aspects through creation of new synergies, and the potential creation of new locally waste stream valorisation. Depending on available wasteland, projects regarding renewable energy production and soil regeneration might be studied.
VI. What it is the expected solution/deliverable that will come out of the piloting process (E.g. 1) Guidelines on how to XXXX (approx ten-page document) or 2) Signed	Better knowledge of the industrial area, and the metropolitan companies’ waste Signed agreement on the exchange of resources between companies

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

Project-ID: ASP0100091



	<p>agreement on the exchange of resources between companies or 3) Concept note for the governance of XXX etc.)</p>
<p>VII. What will you be measuring at you pilot site in the framework of Ecole and how?</p>	<p>The number of company involved in the project The number of synergies identified The number of synergies implemented The number of square meter of available land for renewable energy or soil regeneration projects</p>



3.2. Pilot Questionnaire

Please read the document *ACT.1.2 Assemble green and digital Circular Economy related technologies and set up a Circular Economy platform for the EIPs* carefully and answer the question below.

WHICH TOPIC OF CIRCULAR ECONOMY WE ARE AIMING AT?

Document 1.2 still in draft version. Limited list proposed.

- Waste utilisation
- ...
- ...
- ...

Please read the document *Design a systemic thinking community model (STCM) and kick off 10 local communities in and around the Eco-Industrial Parks* and answer the question below.

HOW SHOULD OUR STCM LOOK LIKE, AND WHICH SHS TO INVOLVE?

IDENTIFY STAKEHOLDERS: WHO IS CONNECTED TO, OR WHO IS INTERESTED IN THE PROJECT?

(Please use Figure 1 on p.8)

See table below

ANALYSE STAKEHOLDERS: THEIR LEVEL OF INTEREST AND POWER IN THIS PROJECT?

(Please answer these questions in relation to your pilot site, use Table 1 on p.9)

See table below, to be completed

Stakeholder category	Institutions / Organisations	Roles	Influence	Interest
Intercommunal structure	Grenoble Alpes Métropole – (economic developpement, energy transition, water, waste)	Jurisdiction on local economic development, municipal waste, mobility, water, waste water, environmental protection, urban planning	Influence on its fields of jurisdiction Elected officials can also have influence and need to be involved in the project	Improve attractiveness of the industrial parc, accelerate reduction of environmental impacts
Municipalities	Jarrie, Pont de Claix, Champagnier, Vizille		Influence on industrial companies through good relationship	Improve attractiveness of the industrial parc, increase employment

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

Project-ID: ASP0100091



Elected officials	At Metropole or city levels			
National government	DREAL, Regional Directorate for Environment, Development and Housing	establish and coordinate the policies of the state regarding ecological transition, biodiversity, risks and pollution prevention	Influence regarding law enforcement on their field	Application of their policies and compliance to the law
National government	DREETS, Regional Directorate of Economy, Employment, Labor and Solidarity	Role includes monitoring the proper functioning of the markets relations, consumer protection, development of sectors and support for businesses, economic transition towards sustainable development, etc.	Influence on businesses through legal means, and partnerships development	Create partnerships, reduce environmental impacts of companies,
Public institution	SYMBHI, joint association of the Isère river basin	In charge of the development and management of the rivers of South Isère	Influence of river management and protection	Create partnerships, raise awareness on river protection, have rehabilitation projects
Local business network	Circular economy network: under creation by Grenoble Alpes Metropole	Mobilize companies of the metropole area around circular economy subjects	Still limited: network under creation. Influence through companies setting the example	Help identify mobilize companies one circular economy topics
Local business network	CCI (chamber of commerce and industry), AURA Entreprise (Regional Economic Development Agency)	Economic development, with specific supports regarding environmental issues	Through their good relationship with companies	Increase
Business associations	Park association of the South Industrial Park	Work on mobility and park image issues	Influence on companies part of the park	Accelerate the improvement of park image, and mobility through cooperation
Business associations	Axelera, Chemistry and Environment Competitiveness Cluster in Auvergne-Rhone-Alpes region	Promote innovation, support companies	Influence on companies by helping them on funding for specific projects (reduction of carbon emission, innovation...)	Increase their presence in this area, develop projects with local actors
Companies of the industrial park	All, small and large companies	Improve or maintain their own businesses	Influence of their company, more or less depending on companies ownership	Retain employees and hire new employees by improving image

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

Project-ID: ASP0100091



			and headquarters location	
Firm in industrial zone “des Isles”	Becton Dickinson	Production site for pre-fillable glass syringes	Influence on their own production process, and through setting on example to other industrial companies	Willing to improve their environmental impact
Firm in industrial zone “des Isles”	Artelia	hydraulic laboratory	Limited influence and impact	
Firm in industrial zone “des Isles”	Medtronic,	Design and production site for surgical suture needles		
Firm in Chemical platform of Pont de Claix	Vencorex	Production site for chlorine, hydrogen, soda, isocyanates and derivatives	Limited influence on their own site, its main shareholder is a Thai state-owned company. Available land.	Important stakeholder, but low involvement and very limited medium and long term plans. Interest to be demonstrated to them National objective regarding CO2 reduction
Firm in Chemical platform of Pont de Claix	Air Liquide	Production of nitrogen and oxygen for the platform needs		Have an attractive chemical platform for their business
Firm in Chemical platform of Pont de Claix	Poral	Powder metallurgy		
Firm in Chemical platform of Pont de Claix	Solvay	Manage utilities for the platform, with electricity distribution, high pressure steam production, connected to the urban heat network		Have an attractive chemical platform for their business
Firm in Chemical platform of Pont de Claix	Suez	Manage chlorinated waste for the platform and other area, with heat recovery		Have an attractive chemical platform for their business
Firm in Chemical platform of Pont de Claix	Seqens	Chemical production site		
Firm in Development zone of Saut du Moine	HRS	Production site for Hydrogen Refueling Solutions		Development of hydrogen use
Firm in Development zone of Saut du Moine	Aledia	Production site for MicroLED display technology		

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

Project-ID: ASP0100091



Firm in Development zone of Saut du Moine	SDCEM	Production site for disconnecter switch		
Firm in Development zone of Saut du Moine	SteelHy	Production site for metal casings for hydrogen and biogas stations		Development of hydrogen use
Firm in Chemical platform of Jarrie	Arkema	Production site for chlorine, soda, oxygenated water, etc		
Firm in Chemical platform of Jarrie	RSA Le Rubis	Production site for high purity alumina		
Firm in Chemical platform of Jarrie	Equans	Industrial and process engineering		
Firm in Chemical platform of Jarrie	Air Liquide	Production of utilities (gas) for the platform needs		
Firm in Chemical platform of Jarrie	Framatome	Production site for zirconium sponge (for nuclear industry) and by-products		
Firm in Industrial zone “la Plaine”	CIC	Metallurgical company		
Firm in Industrial zone “la Plaine”	Avery Dennison	Label manufacturing company	American owned company	Motivation to improve their environmental impacts locally, and existing projects
Paper mill Vicat	papeterie de Vizille	Paper mill for special papers and Kraft bags	Only paper mill owned by Vicat group	Willing to improve their environmental impact
Suppliers				
Customers	Other businesses nationally and internationally			
Employees	/	/		Improve the park infrastructures, improve employment capacity, increase of interest for their companies
Local residents				Improve the aspects of the area, limit risk, maintain or increase
Companies in Grenoble Alpes Metropole area	Large and small industrial companies within the area			Have interest in creating synergies with companies within the park

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

Project-ID: ASP0100091



ECOLE partners	Various form of public and private partners	Provide support and feedbacks	No direct influence on the local EIP, influence on the project itself	Have interest in seeing what works or not
----------------	---	-------------------------------	---	---

<p>MAP STAKEHOLDERS: CREATE A VISUALIZATION TO UNDERSTAND THE ECOSYSTEM?</p> <p>(Please answer these questions in relation to your pilot site, use Figure 2 on p.10)</p>	See figure below
<p>PRIORITIZE STAKEHOLDERS: CREATE A PLAN ON HOW TO ENGAGE WITH THEM?</p> <p>(Please answer these questions in relation to your pilot site, use Figure 6 on p.14)</p>	See figure below
<p>The guiding questions for setting up a structured STCM process are:</p> <ul style="list-style-type: none"> • Who should be engaged? • How should they be engaged? • How often and for what purpose? • What platforms could be used to ensure systemic engagement? (e.g., ICT network for data exchange, events platform) <p>(Please answer these questions in relation to your pilot site, see the explanation on p. 17-18)</p>	See table below

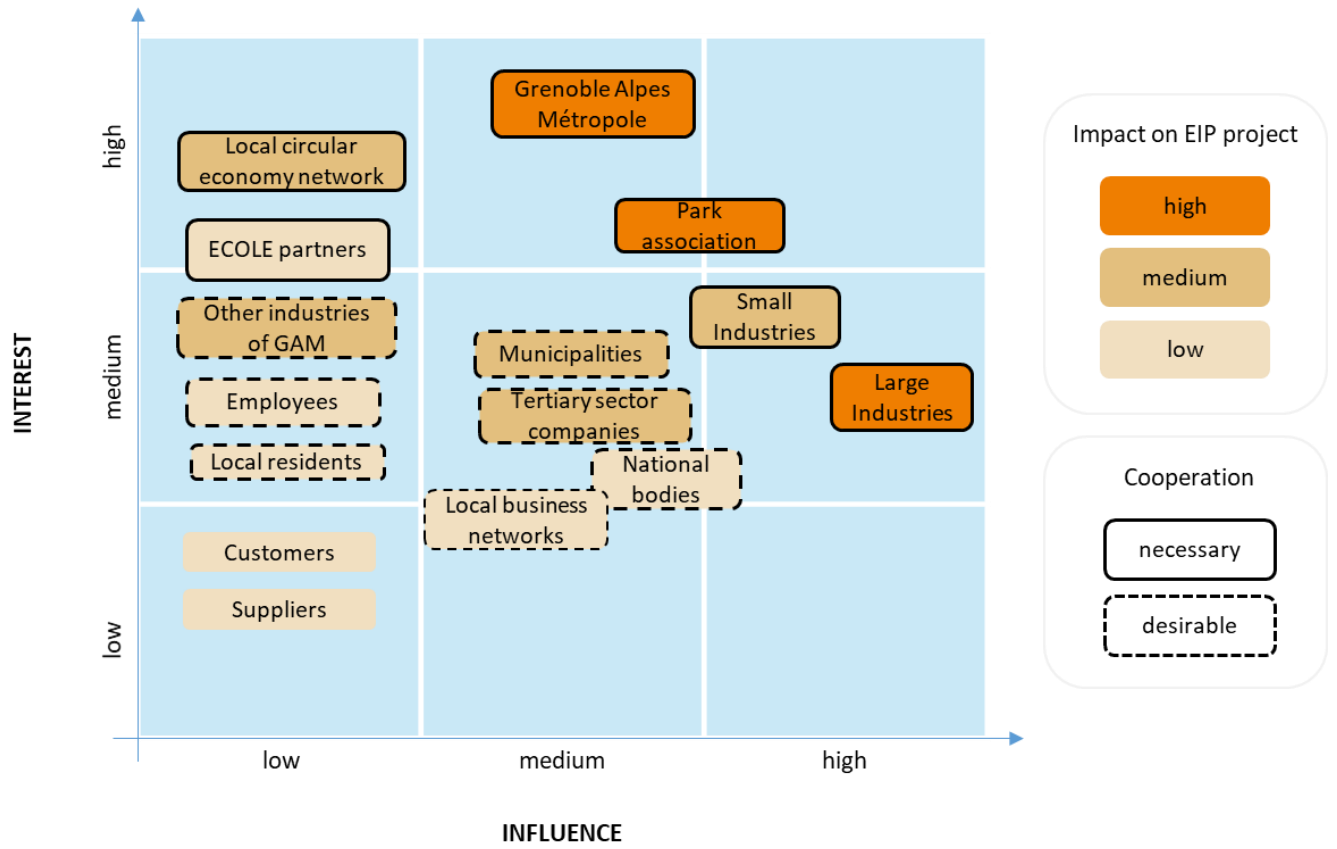


Figure 3: Stakeholders mapping matrix

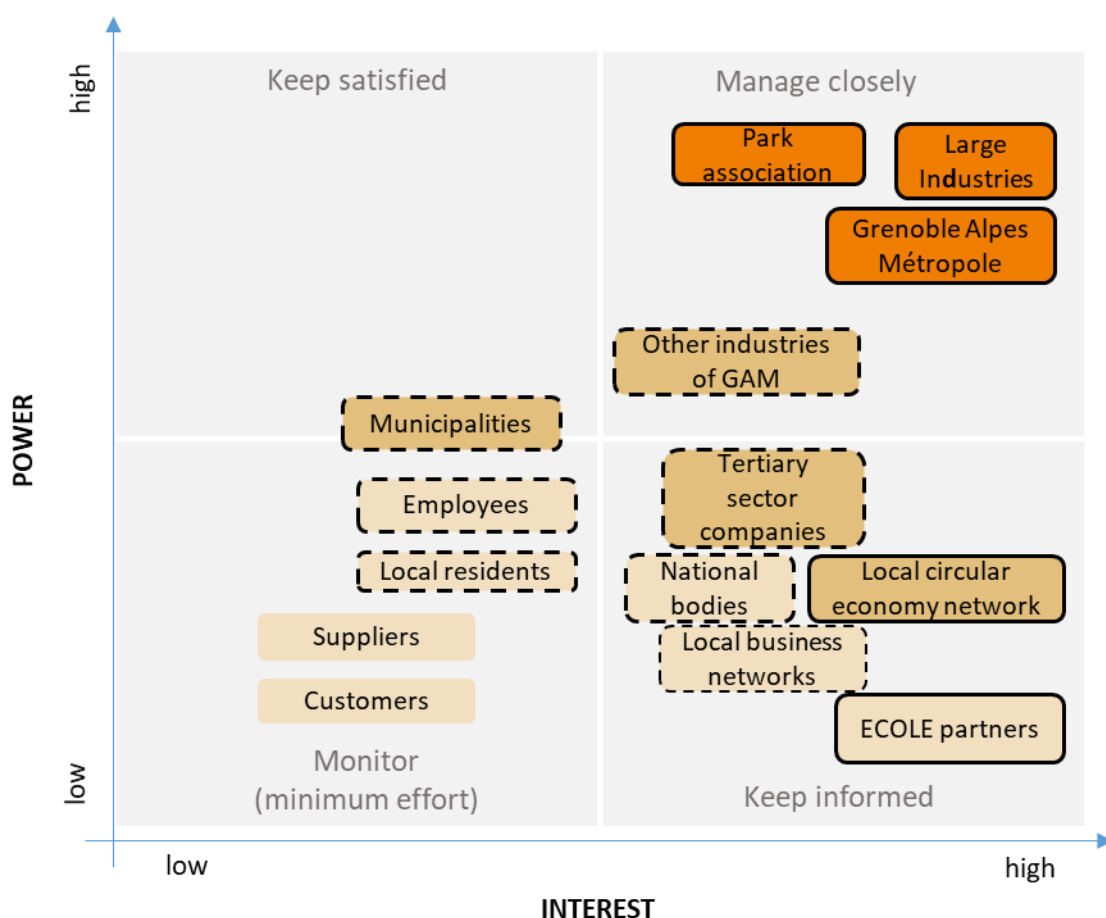


Figure 4: Categorization of stakeholders based on level of interest and power

Who	How	How often	What platforms
Manage closely:			
Grenoble Alpes Metropole	Regular meetings for co-creation including different services (economy, circular economy, waste, water, energy...) and elected officials	Every month	
Industries	Visits and meetings: co-creation workshops to be realized Involved industries hard to engage by using support of other industries, competitiveness	Every couple of month	Use a web application for waste that could be reused, and needs
Park association	Participate to park association meetings, and use future employee to help		
Other industries of GAM	Involve industries through workshops to identify potential synergies		
Keep satisfied			
Keep informed			

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions Leveraging smart and Circular Economy



Annex II – UNIDO Indicators for status quo

Source: UNIDO, 2019: International Guidelines for Industrial Parks. PP 112-114,
https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
1. Good economic governance		
Robust economic system tracking economic analysis quantitatively showing a positive economic return (i.e., in terms of employment, taxes, net exports, forex, local supplies), after such factors as land, CAPEX and OPEX costs and subsidies are taken into account	(Yes =1; No =0)	0
Private participation in industrial park planning	(Yes =1; No =0)	1
Private participation in industrial park ownership	(Yes =1; No =0)	1
If industrial park is on public land, Operator sourced on the basis of an open competitive tender	(Yes =1; No =0)	95% on private land
Private sector represented on Board of Regulator	(Yes =1; No =0)	1
Existence of 60% occupancy rate within 6 years (ha of land used by companies for productive use) ¹⁷	(Yes =1; No =0)	1
Existence and functioning of a formal Industrial Park marketing department/unit	(Yes =1; No =0)	0
User Maintenance & Operation fees or charges collected by the Operator	(Yes =1; No =0)	0
% user enterprise satisfaction with the services provided by the Industrial Park Operator	(≥51% =1; ≤49% =0;)	0
Operator Customer Relationship Management (CRM) system in place	(Yes =1; No =0)	0
Operator ISO 9001 certification	(Yes =1; No =0)	0
Good Economic Governance Score	(Scale of 0-11)	4
2. Economically-enabling site & infrastructure 'hardware' (appropriate site selection)		
Unencumbered land title	(Yes =1; No =0)	0
Phased site development strategy and implementation	(Yes =1; No =0)	1
Proximity to urban centre*(with country significant population) ¹⁸	(Yes =1; No =0)	1
Proximity to appropriate highway*	(Yes =1; No =0)	1
Proximity to power transmission or distribution grid*	(Yes =1; No =0)	1
Proximity to gas transmission mains and gas 'city-gate'*	(Yes =1; No =0)	1
Proximity to microwave tower for broadband GSM mobile telephony and Wi-Fi connectivity*	(Yes =1; No =0)	1
Appropriately-sized (wide) internal roads*	(Yes =1; No =0)	0
Proximity Operational Public Port, Airport of use and of interest to the Industrial Park's users*	(Yes =1; No =0)	0
[% hours power outage per period in Industrial Park /% hours power outage nationally]	(≥1 =0; <1 =1)	1

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



[% hours of interruption of water supply, quality or quality in INDUSTRIAL PARK/% hours of interruption of water supply, quality or quality nationally]	(≥1 =0; <1 =1)	1
Economically-Enabling Site & Hardware Score	(Scale of 0-11)	8
3. Economically-enabling services 'software'		
Regular, Scheduled Maintenance of buildings, as well as dedicated Rapid-Response or Emergency Maintenance, Repair, Rectification & Restoration Service, including for utilities and superstructure assets	(Yes =1; No =0)	0
Dedicated or localized industrial park Business Support, Business Association Support, Incubation, Innovation or Competitiveness programs on effective offer	(Yes =1; No =0) (Depending on # of programs available)	1
Industrial park user enterprises have access to specific financial support programmes	(Yes =1; No =0)	1
Dedicated One-Stop Shop/Single-Window in industrial park	(Yes =1; No =0)	0
E-government services dedicated to the industrial park	(Yes =1; No =0)	0
[#services offered through One-stop shop in industrial park /# services offered through One-stop shop in nearest urban community]	(≥1 =1; <1 =0)	0
Formal industrial park B2B Gatherings held on formal Industrial Park B2B Platforms on regular basis	(Yes =1; No =0)	0
Operator landscaping, gardening and cleaning services	(Yes =1; No =0)	0
Presence of mechanical cargo loading and off-loading services for users	(Yes =1; No =0)	0
Operation of product exhibition centres, product display areas, conference centres, and/or auditoria	(Yes =1; No =0) (depending on # and variety)	0
Presence of on-site banking, bureaux-de-change and ATM Facilities	(Yes =1; No =0) (depending on # and variety)	0
Presence of Human Resources Agency & Recruiting Services	(Yes =1; No =0)	0
Presence of manpower training services, in coordination with recognized specialized technical training institutions in various fields	(Yes =1; No =0)	0
Presence of dedicated on-site R&D, patenting, and product commercialisation services, in conjunction with recognized universities and/or legal services providers	(Yes =1; No =0)	0
Presence of dedicated on-site matching, twinning, and local supplier and buyer forward and backward linkages schemes	(Yes =1; No =0)(Depending on # and sophistication of schemes)	0
Presence of Quality, Product, Process Standards, and/or Trade Certification services	(Yes =1; No =0)	0
Economically-Enabling Software & Services Score	(Scale of 0-16)	2
4. Economically impactful nature: Employment, investment, turn-over		
[Per Capita Income in the industrial park /Per Capita Income Nationally]	(≥1 =1; <1 =0)	Unknown
[Full-time equivalent employment/hectare in industrial park]/ Full-time equivalent employment/hectare / In industrial parks Nationally]	(≥1 =1; <1 =0)	Unknown
[(Investment/ha) In Industrial Park /(Investment/ha) Nationally]	((≥1 =1; <1 =0)	Unknown
[(US\$ sales revenues/ha) In Industrial Park /(US\$ sales revenues/ha) Nationally]	(≥1 =1; <1 =0)	Unknown

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

Project-ID: ASP0100091

ECO industrial park network for the Alpine Regions **L**everaging smart and Circular **E**conomy



[% manufacturing inputs sourced domestically In Industrial Park/ % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)	Unknown
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales /US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)	Unknown
[US\$ Economic value addition ('EVA', calculated as output-inputs) per capita In Industrial Park/US\$ EVA per capita nationally]	(≥1 =1; <1 =0)	Unknown
[(Exports minus Imports) In Industrial Park / (Exports minus Imports) Nationally]	(≥1 =1; <1 =0)	Unknown
[FDI % of total investment (or GFCF) In Industrial Park/FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)	Unknown
[(US\$ exports/ha) In Industrial Park / (US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)	Unknown
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports / US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)	Unknown
[(Enterprises/ha) In Industrial Park / (Enterprises/ha) Nationally]	(≥1 =1; <1 =0)	Unknown
[(IPR registrations/year/company) In Industrial Park / (IPR registrations/ year/company) nationally]	(≥1 =1; <1 =0)	Unknown
Economically Impactful Nature Score	(Scale of 0-13)	0
Economic performance score	(Scale of 0-61)	14

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.