Industrial C2C transformation

Cradle-Alp Case

Introduction

The Alpine region is home to a rich industrial tradition, diverse natural resources, and a strong network of small and medium-sized enterprises (SMEs). At the same time, it faces pressing environmental challenges and increasing demands for more sustainable production. In this context, the Cradle-ALP project was launched to support the transformation of industries from linear production models to circular, cradle-to-cradle (C2C) value chains.

Funded by the Interreg Alpine Space programme, Cradle-ALP brought together partners from Austria, France, Germany, Italy, Slovenia, and Switzerland with a shared ambition: to accelerate the uptake of circular design, material substitution, and C2C innovation in five priority sectors – chemicals & materials, polymers & composites, packaging, textiles, and wood & furniture.

Over the course of the project, a set of practical tools and sector-specific transformation roadmaps were developed and tested with more than 250 companies and research organisations. Through hands-on workshops, matchmaking events, company visits, and individual mentoring, SMEs were introduced to circular business models, life-cycle assessment methods, and innovative approaches for building regional and transnational value chains.

This publication showcases the achievements of Cradle-ALP, highlights the lessons learned, and presents recommendations for businesses, support organisations, and policymakers. Its aim is not only to capture the progress made in the Alpine region, but also to inspire future initiatives that can build on these results, scaling up circularity and strengthening the competitiveness of European industries.

The Alpine region combines strong industrial traditions with urgent sustainability challenges — Cradle-ALP was created to accelerate the shift from linear to circular value chains.

Our Journey: Tools and Approaches

A central achievement of Cradle-ALP has been the development and testing of practical tools that help SMEs take their first steps towards circularity. These instruments offered companies both strategic guidance and hands-on methods to analyse their business models, identify opportunities for circular value creation, and design innovative solutions.

The tools tested in the project included:

LEGO® Serious Play®
An innovative facilitation method that uses LEGO bricks to co-create and discuss solutions. In Cradle-ALP, it was applied to explore circular packaging solutions and innovation challenges in SMEs, helping participants think beyond traditional boundaries and strengthen collaboration across value chains.

Circularity Compass
A strategic tool to visualise material and resource flows across the life cycle of a product. It allows companies to identify where resources enter and leave the system, and to explore options for closing loops, substituting materials, or creating circular synergies with partners.

Life Cycle Assessment (LCA)
A structured methodology to assess environmental impacts of products and processes across their entire life cycle – from raw materials to end-of-life. Through beginner-friendly guides and workshops, SMEs were introduced to LCA and supported in applying it to their own products, helping them make more informed design and investment decisions.

Sustainable Business Model Canvas
A strategic tool to visualise material and resource flows across the life cycle of a product. It allows companies to identify where resources enter and leave the system, and to explore options for closing loops, substituting materials, or creating circular synergies with partners.

Quick Scan
A rapid assessment tool that gives SMEs a first orientation on potential circular business models and practices. In a short time, companies gain actionable insights into where to begin and which opportunities to prioritise.

Audit & Maturity Assessment
A diagnostic tool that helps SMEs assess where they stand in terms of circularity and sustainability. By highlighting strengths, gaps, and development opportunities, it provides a baseline for companies to plan their transformation journey.

By combining these approaches, Cradle-ALP created a flexible toolbox that addressed different stages of the transformation process – from quick diagnostics and creative ideation to in-depth environmental assessments and business model innovation. The diversity of tools ensured that every SME, regardless of size or sector, could find an entry point suited to its needs and ambitions.

Pilot Activities and Results

The real strength of Cradle-ALP emerged not only from developing new tools, but from testing them in practice with SMEs and stakeholders throughout the Alpine region. Over the course of the project, more than 250 companies and research organisations engaged in collective and individual activities, providing a rich ground for experimentation, learning, and collaboration.

Testing tools with more than 250 companies showed that combining collective events with tailored mentoring is the most effective way to engage SMEs in circular transformation.

On the collective level, Cradle-ALP partners created spaces for companies to meet, exchange knowledge, and explore new ideas. A series of matchmaking events brought together SMEs, technology providers, and researchers from different countries, focusing on topics such as composites recycling, circular packaging, and innovation in the wood and furniture sector. These events attracted over 130 participants and led to dozens of bilateral meetings, many of which evolved into lasting collaborations. Complementing this were workshops built around innovative methods. The LEGO® Serious Play® sessions, for instance, encouraged participants to co-create solutions to challenges in sustainable plastics and packaging, revealing both opportunities and systemic barriers such as regulatory hurdles or communication gaps between sectors. Equally impactful were the Life Cycle Assessment (LCA) workshops held in Austria, Germany, France, and Slovenia. These introduced SMEs to the principles of environmental footprinting and eco-design, supported by a beginner's guide developed within the project, and enabled many companies to take their first steps into structured sustainability assessment. Visibility was further enhanced through a joint presence at the CIRPLEX Summit in Klagenfurt, where SMEs presented their innovations at the Cradle-ALP booth, signalling the Alpine region's emergence as a hub for circular solutions.

Beyond these group activities, individual support played a decisive role. Partners worked closely with SMEs to apply tools such as the Sustainable Business Model Canvas, Value Proposition Canvas, and maturity assessments. This tailored guidance helped firms analyse their current practices, identify new circular opportunities, and re-design products and business models in line with C2C principles. The combination of personalised mentoring and access to wider networks proved especially effective in ensuring that insights were translated into concrete strategies.

Several success stories illustrate the impact of this approach. In Germany and Austria, the collaboration between Rottal Hanf and Grüne Erde marked the beginning of a new regional value chain for hemp fibres, demonstrating the potential of natural and renewable materials to substitute fossil-based inputs. In France, the start-up Polyloop established a strategic partnership with IPC, leading to a joint carbon footprint study and further cooperation on composite recycling. Another French SME, Plastic at Sea, used the project's matchmaking platform to connect with international research institutes, opening up new opportunities for collaboration and service expansion.

The pilots also revealed important insights. Start-ups and younger companies were the most agile and open to adopting new business models, while established firms showed greater caution due to higher internal resource requirements. Overall, it became clear that direct and personal support, when combined with network-based events, provides the most effective pathway for engaging SMEs in circular transformation. At the same time, while there is strong economic interest in sustainable approaches across the Alpine region, large-scale implementation will require targeted incentives and stronger policy backing.

Through these pilot activities, Cradle-ALP not only tested tools and approaches but also laid the foundations for cross-sectoral and transnational networks that can accelerate the shift to circular value chains in the years to come.

Showcases – Practical Examples

The following showcases illustrate how the Cradle-ALP project translated circular economy concepts into practice across different sectors and regions of the Alpine Space. Each example highlights a specific tool, method, or collaborative format that was tested with companies and stakeholders.

Together, these cases demonstrate the diversity of approaches that can support SMEs in their transition towards circular business models – from quick diagnostic tools and hands-on workshops to in-person and online matchmaking formats. They also show how targeted interventions can build trust, generate new value chains, and create knowledge that is transferable across borders.

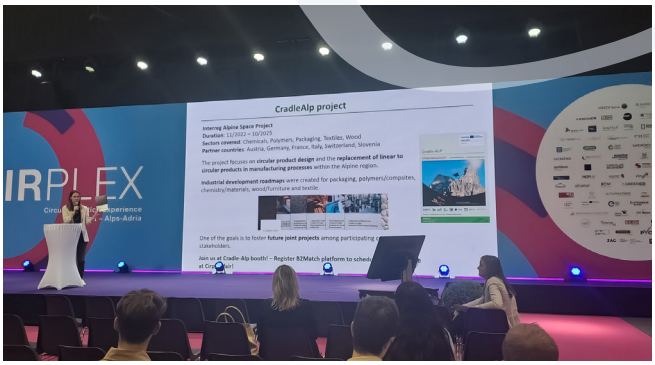
By capturing concrete experiences, the showcases provide inspiration for companies, business support organisations, and policy makers who wish to foster circularity in their own contexts. They illustrate not only what has been achieved, but also why these approaches matter, for whom they are relevant, and how they can be applied in the future.

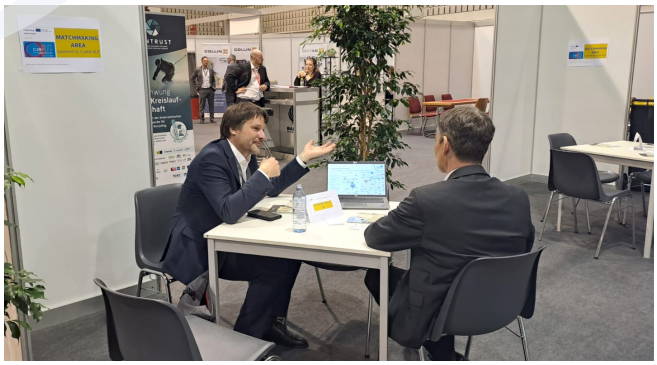
Onsite Matchmaking at CIRPLEX (Biz-up)

Biz-up and Cradle-ALP partners successfully implemented an onsite matchmaking event during the CIRPLEX – Circular Plastics Experience Summit in Klagenfurt, Austria. This two-day activity offered SMEs from the Alpine Space an effective opportunity to connect with industry leaders, discuss innovative solutions, and build partnerships. The event was complemented by a joint Cradle-ALP exhibition booth, which provided participating SMEs with additional international visibility.

The matchmaking generated a large number of bilateral meetings and numerous informal discussions, strengthening collaboration in packaging, plastics, and recycling. This neutral setting created trust, encouraged cooperation, and proved that the approach is both scalable and replicable.

This showcase demonstrates the power of in-person networking as a driver of circular innovation. It highlights the importance of creating neutral meeting spaces where SMEs, start-ups, and research institutions can build long-term partnerships. Such events are particularly valuable for regions or sectors where personal trust and visibility are critical for collaboration.



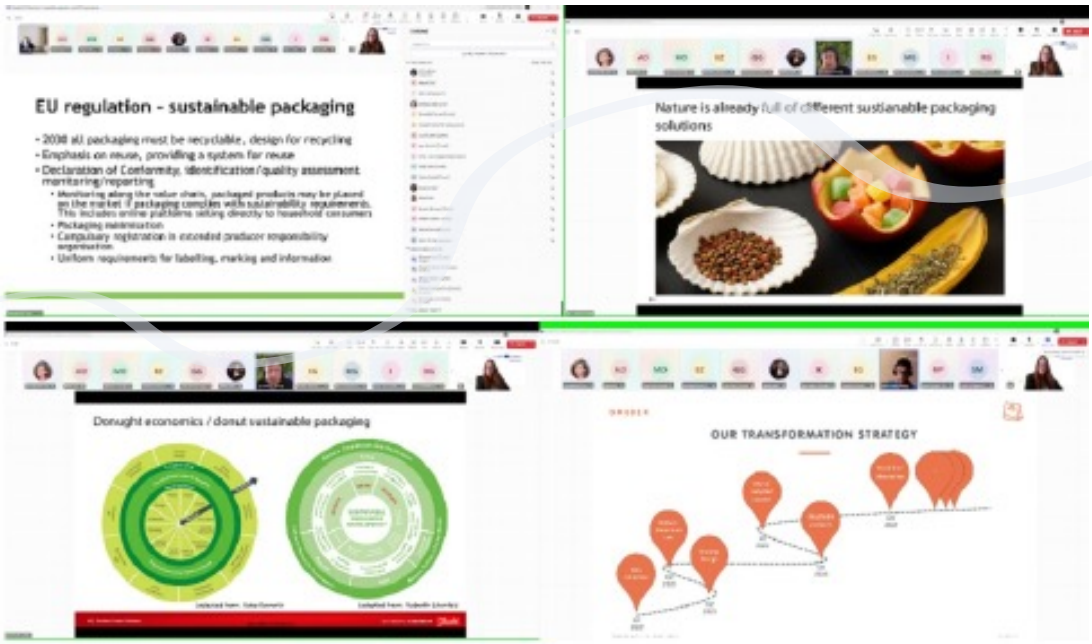


Transnational Online Matchmaking Events on Circularity (All Partners)

Cradle-ALP partners organized a series of online matchmaking events across the sectors of Composites & Chemistry, Wood, and Packaging. Each event followed a common format: a conference with expert presentations on regulatory frameworks, innovative recycling approaches, and sector-specific challenges, combined with SME pitches and B2B sessions hosted on the B2match platform.

The events provided companies with opportunities to showcase circular solutions, explore innovation prospects, and connect with research institutes and larger industrial players. Together, these matchmaking activities enhanced SME visibility, fostered trust-based networks, and generated a pipeline of collaborative projects that strengthen circular value chains across the Alpine Space.

This showcase highlights the effectiveness of digital platforms in connecting actors across borders. It shows that virtual formats can complement in-person events by lowering barriers to participation. For SMEs and clusters, such online matchmaking is an efficient way to reach international partners and build transnational value chains.



Direct Matching between Grüne Erde and Rottal Hanf (CCB)

Chemie-Cluster Bayern facilitated a collaboration between Grüne Erde, an Austrian pioneer in ecological furniture and textiles, and Rottal Hanf, a Bavarian start-up specializing in hemp cultivation and processing. This case demonstrates how regional value chains and sustainable materials can put circular economy principles into practice.

Initial meetings and testing of hemp fiber samples led to an agreement for Rottal Hanf to supply fibers for Grüne Erde's product lines. This successful match illustrates the potential of direct connections to spark new regional circular value chains.

This showcase underlines the role of business matchmaking in building new value chains from local resources. It is important for companies and clusters seeking to substitute fossil-based materials with renewable alternatives. The example can inspire future cross-border collaborations where niche expertise and market demand align.

Lifecycle Club Meeting – LCA of Materials (Polymeris)

Polymeris organized a Lifecycle Club Meeting dedicated to the Life Cycle Assessment (LCA) of materials, bringing together SMEs, large industrial groups, consulting firms, and technical centers. Industrial testimonials underlined the strategic role of LCA: Forvia presented it as a decision-making tool, while Michelin discussed the challenges of data comparability.

The event also included the presentation of the Cradle-ALP LCA Guide, a demonstration of the C3R'IMPACT tool, and a hands-on comparative workshop. By combining expert input with practical exercises, the meeting raised awareness, strengthened skills, and provided participants with methods and tools ready to be applied in their own companies.

This showcase illustrates how collective learning formats can demystify complex sustainability tools like LCA. It is significant for industries facing regulatory pressure to measure impacts and for SMEs that need practical guidance to integrate LCA into decision-making. Such formats can serve as models for sectoral or regional knowledge exchange.

Quickscan at Irinox SpA (UniSMART)

Within the framework of the project, UniSMART held one-to-one sessions with various SMEs, including Irinox S.p.A., to apply the Quickscan tool. The activity guided the company through a structured reflection on sustainability and offered a clear methodology to assess its position across environmental, social, and economic dimensions.

Through this exercise, Irinox S.p.A. identified its main strengths and challenges, highlighted priority areas for improvement, and explored new directions aligned with the European green transition. The tailored exchange between Irinox and UniSMART laid the foundations for ongoing collaboration.

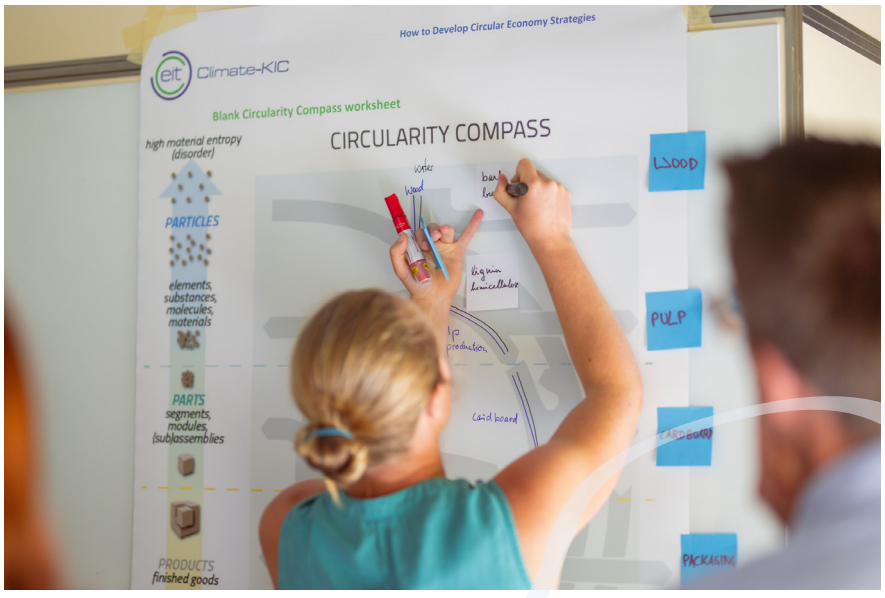
This showcase demonstrates how a simple diagnostic tool can unlock reflection and action for SMEs. It proves that companies at different stages of maturity can benefit from structured sustainability assessments. The Quickscan is especially relevant for businesses that need an accessible entry point into circular strategies without large resource investments.

Applying the Circularity Compass (CCIS)

As part of the Slovenian pilot activities, the Chamber of Commerce and Industry of Slovenia introduced SMEs from different sectors to the Circularity Compass tool. This strategic instrument helped companies visualize material and resource flows across the life cycle of their products, showing clearly where resources entered and left the system.

Through dedicated workshops, CCIS guided SMEs in mapping their value chains and identifying hotspots where waste could be reduced and circular loops could be created. The tool encouraged companies to reflect on alternative materials, design-for-recycling strategies, and synergies with local partners.

This showcase demonstrates how visual and easy-to-use tools can make circularity tangible. It is particularly useful for SMEs that need a structured way to start redesigning products or processes. In the future, such tools can help scale up circular innovation by providing a shared language for collaboration across sectors.



Financing and Policy Support

While tools and networks are essential to enable change, access to financing and supportive policy frameworks ultimately determine whether SMEs can scale their circular innovations. Within Cradle-ALP, a comparative mapping of national and regional funding instruments was carried out across the partner regions. The analysis showed that circular economy is increasingly present in public funding strategies: Austria promotes resource efficiency through programmes such as the FFG Circular Economy Initiative, France launched the ORMAT call under ADEME to support material recycling, Germany introduced targeted schemes for SMEs under the “KMU innovativ” framework, while Italy set up a Green Transition Fund under the national recovery plan. Slovenia and Switzerland have also put forward measures that support circularity, either directly or under the broader umbrella of innovation and sustainability.

While national programmes increasingly support circularity, cross-border funding gaps remain a barrier for transnational value chains in the Alpine region.

Despite this growing attention, the mapping revealed a persistent gap: existing instruments remain fragmented and primarily designed for national or regional applicants. For SMEs operating in transnational value chains, which are crucial in the Alpine space, access to synchronised or cross-border funding remains limited. As a result, many promising collaborations face difficulties in moving from pilot phase to industrial scale. Cradle-ALP therefore highlights the need for policy makers to improve coordination across funding systems and to create incentive structures that actively support cross-border partnerships. Without such alignment, the transition risks remaining confined to isolated initiatives rather than becoming a systemic industrial shift.

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Findings and Recommendations

The experience of Cradle-ALP offers valuable lessons for the future of industrial transformation in the Alpine region and beyond.

For **SMEs**, the pilots confirmed that the transition towards circularity can start with small but concrete steps. Rapid assessment tools such as the Quick Scan or Circularity Compass provide accessible entry points, while workshops and mentoring help translate concepts into actionable strategies. Early engagement with customers through tools like the Value Proposition Canvas ensures that circularity also creates tangible market value.

The Alpine region can become a European model for circular industry if networks are strengthened, tools mainstreamed, and policy frameworks aligned.

For **business support organisations**, clusters and innovation agencies play a pivotal role in building bridges between companies, researchers, and policy makers. Their ability to organise matchmaking, provide training on methods such as LCA, and offer tailored mentoring proved essential in helping SMEs overcome barriers. Going forward, these organisations should continue to act as facilitators of regional and transnational networks, lowering the threshold for SMEs to adopt new practices.

For **policy makers**, the project underlined the importance of a coherent policy framework that reduces administrative hurdles and provides clear incentives for circular business models. Complex regulations on waste streams, for instance, often create unnecessary barriers for SMEs wishing to reuse by-products. Adjusting these frameworks, introducing fiscal incentives, and ensuring cross-border funding alignment would accelerate adoption.

Taken together, these findings highlight that circular transformation is not only an environmental necessity but also a driver of competitiveness. The Alpine region, with its strong industrial base and culture of cooperation, is uniquely positioned to lead this transition, provided that businesses, support organisations, and policy makers act in con[illegible]

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You can find out more about the project at:
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