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Circular Economy, Construction and Social Sustainability

Results and Recommendations

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Content

1. Introduction

South Tyrol is embarking on its transition toward a Circular Economy, guided by the European Green Deal, the EU's new Circular Economy Action Plan, and the "Provincial Strategy for Circular Economy." This transition aims to transform the entrepreneurial, social, and manufacturing fabric from a linear to a circular model, with a focus on the construction sector, which is crucial to the local economy but responsible for significant greenhouse gas emissions and waste generation.

However, the shift to a circular model is currently hindered by regulatory, economic, technical, informational, and cultural barriers that keep the sector anchored in a traditional "business-as-usual" approach, limiting circular innovation opportunities. Eurac Research supports the circular transition through European projects and initiatives that specifically promote circular economy principles in the Province of Bolzano, with the goal of fostering its innovative potential.

Among the various initiatives, a workshop titled **"Circular Economy, Construction, and Social Sustainability"** was organized to stimulate dialogue among local stakeholders about the barriers, opportunities, synergies, and social benefits of the transition to a circular economy model in the construction sector in South Tyrol.

The workshop was held on Wednesday, October 2, 2024, at the NOI Techpark in Bolzano and involved over 45 representatives from local authorities, businesses, social enterprises, cooperatives, and research centers in South Tyrol.

This report summarizes the main results from the workshop. The document aims to inspire local authorities and stakeholders to take actions that can promote a local circular economy model in the construction sector, leveraging South Tyrol's traditional know-how, innovation capabilities, and available resources to create new business and employment opportunities linked to the circular economy. The report is divided into two sections: the first provides recommendations for policymakers, while the second offers an in-depth analysis of the workshop methodology and results.

2. Key Recommendations

Seven Main Recommendations Emerged from the Workshop:

1 **Establish a Provincial Circular Economy Task Force in the Construction Sector.**

— Involve representatives from local businesses, SMEs, artisans, trade associations, social enterprises, cooperatives, research centers, universities, and the provincial government to connect and monitor the numerous ongoing circular economy initiatives in South Tyrol.

2 **The Public Administration as a Virtuous Model for Circular Economy.**

— Integrate circular and environmental criteria into public procurement, prioritizing these criteria over price and costs for the construction and renovation of public buildings.

— Act as a virtuous model and driver for the circular economy, helping to create a market for circular products and services.

3 Adopt Local Policies to Support the Expansion of Circular Economy, Promoting Material Reuse and Penalizing the Use of Raw Materials.

— **Policies:** simplify regulations and policies to facilitate the recovery and reuse of non-hazardous waste and construction debris. Promote a guarantee system and simplify existing policies that currently prevent reuse in buildings.

— **Taxation:** promote taxation in favor of a circular economy, penalizing the use of non-renewable raw materials, excessive energy consumption, water use, and the transportation of building materials over long distances.

— **Incentives:** introduce "green and blue quotas" for local businesses to incentivize the adoption of circular principles in the construction and renovation of buildings, as well as in the production of circular materials and components, similar to past requirements for energy performance standards.

4 Develop New Skills and Training Opportunities for Construction Professionals.

— **For architects, developers, builders, and other workers:** develop and promote new skills, experiences, and knowledge on circular buildings and techniques through dedicated training courses. Promote circular design principles in building design processes (design for disassembly, adaptability, longevity, etc.).

— **For suppliers of intermediate products:** provide instructions and guidelines for users on how to manage the end-of-life of products. Encourage suppliers to collect discarded materials at the end of their lifecycle.

— **For artisans and manufacturers of building components:** provide key services for the reuse and repurposing of materials, certifying the quality and technical performance of products.

5 Encourage a New Culture and Perception of Second-Hand Materials through Campaigns, Events, and Urban Upcycling Workshop.

— **Organize thematic events and initiatives** to raise awareness about the importance of reuse, recycling, and repurposing products, as well as the impact of using raw materials versus reused ones.

— **Launch campaigns** to increase social acceptance of second-hand materials **("new is old").**

— **Promote the use of bio-based materials and those made from secondary (waste)** materials to enhance the sustainability of products, ensuring they are durable and reusable over time.

— **Change the perception of recovered materials:** no longer "waste" to be disposed of but "resources" to be reused, recycled, and repurposed. Encourage consumers to invest time and money in recovering and upgrading existing materials rather than purchasing new ones.

6 Promote the Creation of *Urban Mining* Spaces to Facilitate the Practical Reuse of Materials and Construction Component.

— **Create storage and distribution spaces for materials,** both for direct reuse and for potential refurbishment or repurposing to produce new circular products. Abandoned public areas and structures could be ideal locations for urban mining spaces.

— **Promote the creation of digital platforms** that support circular markets by connecting supply and demand for reused materials in the construction sector (both B2B and B2C).

7 Create New Certifications for Circular Buildings/Components and Circular Building Passports.

— **Create a new circularity certification** or implement the existing Klimahouse certification, integrating circularity as a criterion to evaluate the sustainability of buildings (new or renovated).

— **Promote the adoption of a "material passport"** that specifies the technical characteristics and user guidelines for maintaining, recovering, reusing, and recycling key construction components throughout their lifecycle.

3. Methodology

The event was structured in two main phases: an initial session of presentations followed by a collaborative workshop phase.

In the first part, participants attended a series of presentations that provided an overview of three European projects—ATTENTION, ECLECTIC, and Innocircle—that are currently working on Circular Economy, as well as some best practices on the topic in Alto Adige and Tyrol, including Revytalize, REX Materials and Things, and OEW. Revytalize, based in Innsbruck, is an online platform to leverage the untapped resource potential of existing buildings. REX is a storage center for used materials located in Bressanone, while OEW is an association focused on sustainability and organizes *repair cafés*, among other activities.

In the second part, participants were divided into working groups to answer four specific questions, supported by a moderator:

- **Challenges and Barriers:** What are the challenges to developing circular models in your sector?
- **Needs and Requirements:** What do you need to adopt a circular model in your sector?
- **Synergies and Opportunities:** What collaboration opportunities exist between businesses and sectors in Alto Adige?
- **Social Impact:** How does a circular model affect your sector socially?

At the end of the group sessions, each team presented their responses in a plenary session, allowing for a sharing of key outcomes and collective reflection on the main points that emerged.


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4. Results

Legislative barriers, economic disadvantages, technical difficulties, and a lack of awareness among producers, suppliers, and consumers hinder progress towards a circular economy. To foster the circular transition, simplified policies, incentives, and education programs are needed. Collaboration among stakeholders and the creation of networks can bridge some gaps, with a critical role played by research centers, universities, SMEs, and social enterprises to build new knowledge and innovation in the reuse, repurposing, and recycling of construction materials. Opportunities include the creation of a local task force to coordinate efforts for the transition to a circular economy, the promotion of urban mining for collecting and storing materials, and the establishment of certifications for circularity in buildings. Circular economy models can offer environmental benefits and social impacts, such as waste reduction, job creation, and the social inclusion of vulnerable workers, but it is crucial to expand efforts to achieve significant progress.

4.1 Challenges and Barriers

— **Normative Barriers:** italian legislation in the construction sector has gaps and contradictions that limit the reuse of construction materials. For example, Italian law classifies almost all materials removed from a building during renovation or demolition as waste, preventing easy reuse of these products. This highlights Italy's regulatory lag compared to other countries, where the use of recycled or refurbished materials is more actively promoted. The Province of Bolzano can act as a political innovator by experimenting with new legislation inspired by countries like Norway and Switzerland, where circularity is integrated into building policies

— **Economic Barriers:** the lack of clear competitive advantage for individual companies and the absence of established markets for circular materials and solutions are significant economic barriers. Moreover, businesses and consumers tend to overlook the total lifecycle costs of buildings and materials, focusing instead on initial investments. This highlights the need for greater awareness of the long-term benefits and economic feasibility of circular models.

— **Technical Barriers:** technical barriers represent a major obstacle: various materials and products are difficult to manage, transform, separate, and reuse at the end of their life due to the way they are designed and built. There is a lack of "clean materials" in buildings, where the mixture of various components and materials makes recovery at the end of their lifecycle difficult (e.g., insulation materials, plastics, tapes, etc.). Circular materials or "second-hand products" also face challenges in meeting new energy and quality standards, especially regarding performance guarantees.

— **Informational Barriers:** the concept of circular economy is poorly defined, even among policymakers, leading to a lack of awareness and understanding among the public and business leaders. Insufficient training, along with scarce data, scenarios, and opaque processes, further hinders its efficient and effective integration into the construction market. The absence of relevant reference examples and accessible networks keeps sectors isolated, losing collaboration opportunities. As a result, existing initiatives and best practices (e.g., Rex - Materials and Things) remain sporadic and uncoordinated.

— **Cultural Barriers:** companies and users tend to remain in a "business-as-usual" mode because they are in their "comfort zone" and are not motivated to shift to a circular approach. On the consumer side, there is mistrust of recycled and reclaimed materials. Consumer preferences still lean toward new materials rather than reused ones in construction projects due to perceived poor quality, lack of trust in performance, and the feeling of buying something "old."

4.2 Needs and Requirements

— **Normative Needs:** simplified procedures and streamlined processes are necessary to make the circular market an opportunity for existing businesses and new ones. This would generate a more accessible circular market for end-users. Legislative action is therefore crucial to encourage the private sector to embrace circularity, such as introducing "green and blue quotas" that require greater use of recycled and reclaimed materials and products in new constructions. Additionally, reforming public procurement criteria, which currently focus mainly on price, by integrating circular requirements and making the Minimum Environmental Criteria (CAM) more ambitious would improve competitiveness in terms of circularity and sustainability in tenders. Standardizing lifecycle assessment criteria and carbon footprint accounting would also enhance the ability to compare different studies and analyses of environmental impacts of products and materials. Finally, creating a "circular passport for materials" that specifies technical characteristics and user guidelines would enable the maintenance, recovery, reuse, and recycling of key construction materials and components.

— **Economic Needs:** strong incentives for recycled and reclaimed materials and products should be established so that reuse becomes an economically viable option. This could be achieved by increasing taxes and responsibilities on energy use, emissions, and the use of non-renewable raw materials while incentivizing the implementation of circular strategies, products, and materials.

— **Training Needs:** Dedicated training programs are needed for both managers and professionals/workers to enable the execution of new activities required by the circular market. These activities include planning new business ventures, designing new buildings and renovations with circular models, dismantling, collecting, and properly storing materials for reuse.

— **Cultural Needs:** A mindset shift is essential at all levels, from policymakers to designers and end-users, to move from viewing waste as something to discard to promoting more positive principles of reuse, reduction, recycling, and repurposing. Designers are responsible for innovating and testing new construction techniques that facilitate dismantling and reuse of materials and components. Consumers, on the other hand, can significantly influence production choices by changing their purchasing habits and favoring used products over new ones. Awareness campaigns, events, and initiatives are key to educating consumers about these choices. Furthermore, rebuilding trust in reused materials is essential by certifying the quality and safety of second-hand products and materials, with artisans potentially playing a key role in providing repair services. Digitalization is a fundamental tool for establishing circular markets and connecting various actors in the public and private sectors, including citizens, facilitating cooperation among them.

4.3 Synergies and Opportunities

The synergy between local businesses, social enterprises and cooperatives, SMEs, artisans, research centers, universities, and public administration focuses on “building bridges,” creating strategic networks (such as a “Provincial Task Force” on circular economy in the construction sector) to share knowledge, skills, and best practices among professionals and industry experts. This process also involves co-creation, where the actors involved can act as both consumers and producers, creating participatory processes to encourage more circular models. An example is the “Manu” cooperative, which collaborates with local companies to repurpose materials like glass from dismantled windows into products such as plates, mosaics, and lamps. The case of “Revytalize” shows that digital innovation is crucial to connect the supply and demand for secondary raw materials. Additionally, the “REX - Materials and Things” cooperative functions as a small local depot for discarded products, giving them a new life. These initiatives, along with the creation of urban mining areas for recovering and exchanging materials and products, could support resource recovery and create a market for reuse and recycling.

Further opportunities include creating new certifications for construction that consider circularity indicators (such as Klimahouse), as well as showcasing circular economy practices at high-profile events. This visibility could stimulate demand for circular solutions, promoting innovation and the creation of startups. Additionally, the establishment of the Circular Construction HUB by Eurac Research at the NOI Tech Park, aimed at providing services to companies to develop more circular construction solutions, could become a reference platform for local businesses. Finally, the reuse of disused public buildings and areas in Alto Adige could provide strategic sites for urban mining and testing circular economy models (such as new modular buildings and construction techniques), accelerating the adoption and development of such models on a large scale.

4.4 Social Impact

Circular economy offers not only environmental benefits, such as the reduction of raw material extraction and the associated advantages, but also measurable social benefits. During the interactive session, it was emphasized how circular models can raise consumer awareness and change culture, encouraging appreciation for existing materials and products instead of continuously seeking new ones.

In addition to social and cultural changes, the circular economy improves product quality and durability, creating new business and skilled job opportunities, enhancing workers' dignity. Cooperatives and social associations, like "Politermica," involve vulnerable groups in rehabilitation and professional programs through building retrofitting projects, thus offering dignity and inclusion to marginalized workers while benefiting from their contribution. The new skills acquired in this transition could create long-term professional pathways for social inclusion. The model also has a positive impact on local job creation: new activities related to deconstruction, rehabilitation, dismantling, storage, and sorting materials have great potential to generate more local employment.

5. Conclusion and Next Steps

The circular economy represents a fundamental opportunity for South Tyrol, particularly in the construction sector, to reduce environmental impact, promote local business growth, and create lasting social value. The main recommendations from the workshop emphasize the importance of establishing a “Provincial Circular Economy Task Force” to unite stakeholders, monitor progress, and promote cohesive actions. Additionally, public administration should act as a leader in the circular economy and an innovator in policies, adopting circular procurement practices and demonstrating best practices in public construction projects.

Among the key obstacles, regulatory complexity hinders the reuse of materials, highlighting the need for simplified policies to support circular practices. In response to this and other challenges, a key requirement is specialized training to equip professionals with the necessary skills for sustainable and circular building practices. Opportunities include the creation of urban mining spaces for storing and exchanging reusable materials, while the social impact extends to job creation and community development, particularly among vulnerable groups.

As a next step, continuous engagement through public events and initiatives will be essential to maintain momentum, expand awareness, and strengthen network building.

6. Authors

The report and the workshop were developed by the researchers of the “Urban and Regional Energy Systems” and “Energy Efficient Buildings” groups at the Institute for Renewable Energy, Eurac Research.

The two groups are currently working on the topic of the circular economy in the construction sector through two European projects: ATTENTION and ECLECTIC.

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The objective of the Interreg VI-A IT-AT 2021-2027 ATTENTION project is to increase circular processes in the construction sector through the creation of a permanent cross-border network of HUBs providing circular services in architecture, technologies and materials, thus supporting companies in the construction sector supply chain. For further information: **ATTENTION - Eurac Research.**

The objective of the ECLECTIC project is to support local actors in designing, implementing and monitoring circular economy action plans that can transform cities from linear to circular models, thus effectively contributing to the transition to climate-neutral, sustainable and just cities, with a focus on small and medium-sized cities in the EU.

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For futrher information: **ECLECTIC - Eurac Research.**

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