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Implementing Local Accelerator Hubs to foster business innovation in the circular economy

Part of the Collection: Findings and Recommendations
from the SHARED GREEN DEAL Social Experiments



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Executive summary of recommendations

This report presents key recommendations from the Circular Economy experiment stream as part of the SHARED GREEN DEAL project. SHARED GREEN DEAL uses diverse, cutting-edge Social Sciences and Humanities research to understand and support sustainability transitions. Within this, the Circular Economy stream aimed to support business innovation by developing Local Accelerator Hubs (LAHs). An LAH is an interactive space (physical and virtual) that fosters knowledge-sharing and collaboration between diverse actors, helping to build a robust business ecosystem for circular economy transitions. This report draws on insights from interviews conducted with participants of LAHs in Portugal, Cyprus, Slovenia, and France.

To accelerate the transition to the circular economy and promote business innovation and environmental stewardship across Europe, we suggest the following recommendations:

1. Create Local Accelerator Hubs to strengthen collaboration and innovation

Findings highlight the need to develop robust, collaborative business ecosystems by creating dedicated networking spaces that can support cross-sectoral workshops, interactive events, and informal networking events to facilitate the exchange of good practices. LAHs can support the development of pilot testing environments to reduce market risks, and help local organisations access funding and policy support, including consulting services for navigating EU programmes, which are vital for scaling up circular economy solutions.

2. Invest in skills development and digital knowledge platforms

There is a need to prioritise training, knowledge sharing and skills development through structured education and specialised programmes tailored to industry needs, in order to equip employees and decision-makers with essential circular economy skills. Digital platforms that centralise knowledge about case studies, such as the ones built in these experiments, can support this. Such platforms can also share regulatory updates and funding opportunities, and facilitate continuous learning and information dissemination to support the development of circular innovations.

3. Strengthen and harmonise regulatory and financial frameworks for circular economy innovations

Governments should adopt effective regulatory and financial support measures by instituting policies, tax incentives, and robust financial assistance to accelerate circular economy adoption. Harmonising national policies, such as the Extended Producer Responsibility (EPR) system in France (that mandates sustainable production and waste management) with European regulations (e.g. the Waste Framework Directive) is essential to ensure regulatory coherence, effective enforcement and cross-country collaboration.

4. Facilitate multi-stakeholder engagement and cross-sectoral collaborations

Building a supportive ecosystem for business innovation through multi-stakeholder engagement is crucial to fostering partnerships across sectors. Industry-academic collaborations should be expanded to leverage research expertise for sustainable practices and continuous knowledge transfer. Promoting collaboration among LAHs and similar hub initiatives can further enhance knowledge sharing, spark innovative ideas and drive transformative growth.

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1. Introduction

1.1. The SHARED GREEN DEAL project

This report presents findings on the Circular Economy as part of the Horizon 2020 project “*Social sciences and Humanities for Achieving a Responsible, Equitable and Desirable Green Deal*” (SHARED GREEN DEAL). The EU Green Deal is a programme of policies aimed at overcoming climate change and environmental degradation by transforming the EU into a modern, resource-efficient and competitive economy. The goal of SHARED GREEN DEAL is to stimulate behavioural, social and cultural change across Europe, aligned with the policy priorities of the Green Deal.

SHARED GREEN DEAL provides Social Sciences and Humanities (SSH) tools to support the implementation of the Green Deal programme. In the past, SSH research on green transitions has focussed on changes to either individuals (‘micro’ phenomena) or systems and collectives (‘macro’ phenomena). In contrast, SHARED GREEN DEAL focuses on ‘middle range’ (‘meso’) changes to bridge these two sets of understandings and priorities (Foulds et al., 2025). Using this innovative ‘meso’ approach, the project links societal actors to foster knowledge sharing, learn from collective experiences, and feed back into ‘macro’ policies and governance.

The SHARED GREEN DEAL consortium brings together 22 leading organisations from across Europe, including universities, research institutions, network organisations and businesses. The project is structured around six priority Green Deal topics: Clean Energy, Circular Economy, Efficient Renovations, Sustainable Mobility, Sustainable Food, and Preserving Biodiversity. Within these six themes, a total of 24 social experiments have been delivered across different EU member states and affiliated countries, working with local municipalities and not-for-profit organisations¹. Alongside this report on the Circular Economy, there are five further reports, on the other five priority Green Deal topics of the project². Other resources related to the running of and impacts from the social experiments can also be found via www.sharedgreendeal.eu.

This report presents the findings of the experiment stream on the Circular Economy. The experiments in this stream aimed to support local businesses and organisations in the transition from the linear to the circular economy. A linear economy is a traditional model where raw materials are collected and transformed into products that consumers use until discarded as waste, disregarding their ecological footprint and impact on the environment. The circular economy is a new business model that aims to slow, narrow, and close the loop of industrial economies by reintroducing objects and materials into a circular flow before they become waste.

1 Further detail about each of the SHARED GREEN DEAL social experiments can be found in the project’s Case Study Guides (Kovács et al., 2024).

2 All reports can be accessed here: www.sharedgreendeal.eu/expt-findings

1.2. Policy context

There have been several new policies and strategies introduced at the EU level in recent years, related to circular economy issues.

The European Green Deal is the overarching strategy guiding Europe's transition to climate neutrality by 2050, identifying circular economy principles as a key driver in reducing resource dependency and enhancing product longevity. Within this framework, the Circular Economy Action Plan (CEAP) (European Commission, undated: a) provides a structured approach to accelerating circular economy adoption, emphasising waste prevention, sustainable design, and developing secondary raw material markets. Following the CEAP, sector-specific policies (e.g. textiles, construction) reinforce the need for sustainable materials and higher reuse and recycling rates, opening opportunities for businesses to develop alternative solutions and closed-loop systems. For example, the EU Strategy for Sustainable and Circular Textiles (European Commission, 2022) aims to transform the textile industry by promoting durability, recyclability, and waste reduction. This strategy aligns with the EU's Ecodesign for Sustainable Products Regulation (European Commission, undated: b) which entered into force in 2024 and replaces the Ecodesign Directive 2009/125/EC, further strengthening circular economy innovation by ensuring that products are designed for durability, reparability, and recyclability, including textiles. In the built environment sector, the Regulation on Construction Products and the Level(s) framework (European Commission, undated: c) promotes the adoption of circular construction materials and lifecycle assessments, encouraging the development of sustainable infrastructure solutions at the local level.

In 2023, the commission proposed revising the Waste Framework Directive (European Commission, undated: d) initiative to introduce mandatory and harmonised Extended Producer Responsibility (EPR) schemes for textiles in all EU Member States. EPR is a policy approach that makes producers responsible for their products throughout their entire lifecycle, including at the post-consumer stage. Doing so helps achieve environmental goals for reintroducing materials in the production loop. At the same time, EPR generates funding from producers to help pay for the collection, sorting, and recycling of waste products and generates detailed information on production, products, waste generation, and treatment (OECD, 2016). The Waste Framework Directive therefore establishes a legal basis for efficient waste management, prioritising prevention, reuse, and recycling over disposal.

Additionally, across sectors, the Corporate Sustainability Reporting Directive (CSRD) (European Union, 2022) enhances transparency by requiring organisations to disclose their environmental and social impacts, promoting accountability, and driving market incentives for sustainable practices.

As the above illustrates, there are various revised or, in some cases, new policies that support the transition to the circular economy. Local organisations need guidance to navigate this new policy landscape built around the circular economy and embrace the potential of circular practices for business innovation.

2. The social experiment

2.1. Experiment aims

The Circular Economy experiments aimed to support business innovation (the ‘meso’ unit for the experiment stream), focusing on circular business models – see Box 1. ‘Business Innovation’.

Innovation in circular business models manifests in both incremental and disruptive forms. Incremental changes include process improvements, such as implementing waste recovery systems or using secondary raw materials in production. Disruptive changes involve fundamentally rethinking business models (Brenner and Drdla, 2023). Experimentation is a key route to innovation; Bocken et al. (2021) highlight the importance of business experimentation in fostering sustainable value creation.

Box 1. Business Innovation

We define business innovation as implementing new processes, ideas, services, or products that support organisations in exploring new revenue sources by improving product value and customer benefits. The innovation process is a serial, iterative process where lessons learned from experimentation enable organisations to redirect their further development efforts. Business innovation can include launching or improving products or services, making an existing process more efficient, or solving a recurrent business problem to increase revenue and decrease costs and time.

We intervened in business innovation through the development of Local Accelerator Hubs (LAHs). An LAH is a physical and online interactive space offering support (e.g. physical workshops, collection good practices, etc.) to connect local stakeholders (e.g. local businesses, business organisations, consumer associations, local authorities, and financial institutions), providing a structured environment for negotiation and co-creation, facilitating debate and discussion among diverse actors with alternative views and enabling businesses to experiment, pilot, and scale circular innovations which challenge linear practices. In this way, we aimed to foster circular economy ecosystems³.

This study explores the role of LAHs in fostering innovation in circular business models through a series of experiments, outlined in section 2.2 below.

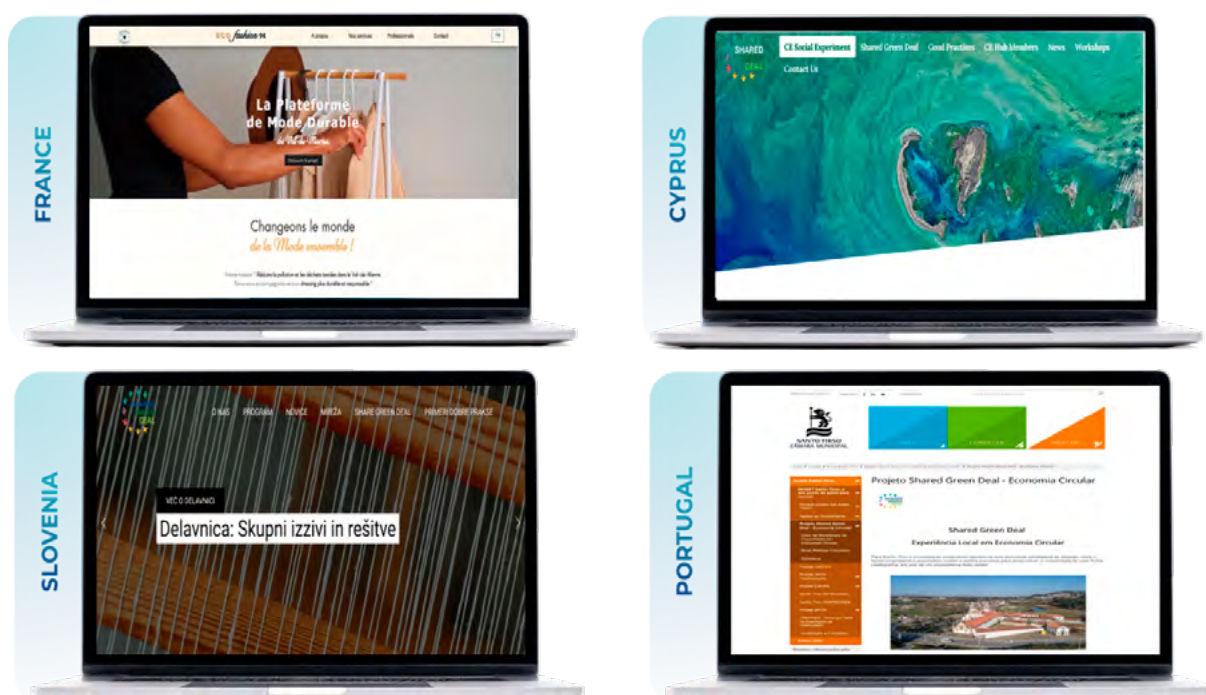
³ Adner (2017) described two views on the ecosystem concept. Ecosystem as affiliation in the circular economy context means that businesses should consider all relevant stakeholders along the material flow chain (or loop) to make circularity a reality. Ecosystem as structure focuses on the activities needed per stakeholder and, hence, the interdependent coordination of activities like the collection of materials at the end of a product's lifecycle and their reintroduction into the circular flow. In fostering strong ecosystems, financial mechanisms that support the network of actors (companies, research institutes, and other technology developers) are important factors to consider (Clarysse et al., 2014).

2.2. Establishment of LAHs

We worked with four local partners in four European countries: the Cyprus Organisation for Standardisation from Cyprus, the Municipality of Santo Tirso from Portugal, the Technology Park of Ljubljana from Slovenia, and Val-de-Marne in Transition from France. These partners comprised local authorities (Cyprus and Portugal) and non-governmental organisations (France and Slovenia). These four local partners each established LAHs as physical and online platforms that act as a 'one-stop shop' for collecting innovation knowledge, sharing good circular economy practices and linking relevant stakeholders. Local partners chose the focus of each LAH in line with the resource-intensive sectors identified within the EU Circular Economy Action Plan (e.g. packaging, textiles, plastics, batteries and vehicles, electronics and Information and Communication Technologies, construction and buildings, food, water, and nutrients). The chosen foci were on textiles in the case of France and Slovenia, construction and buildings in the case of Cyprus, and food, water, and nutrients in the case of Portugal.

Each LAH gathered more than 10 local organisations as active participants of the platform, including businesses (e.g. local producers, local retailers), local business organisations (e.g. retailers' associations), consumer associations, associations for disabled citizens⁴, local authorities, financial institutions, etc. Other actors with complementary roles, such as local government, research, and academic organisations, were also included.

Figure 2.2a. The Local Accelerator Hubs each developed websites. Click on each image to be taken to the site.

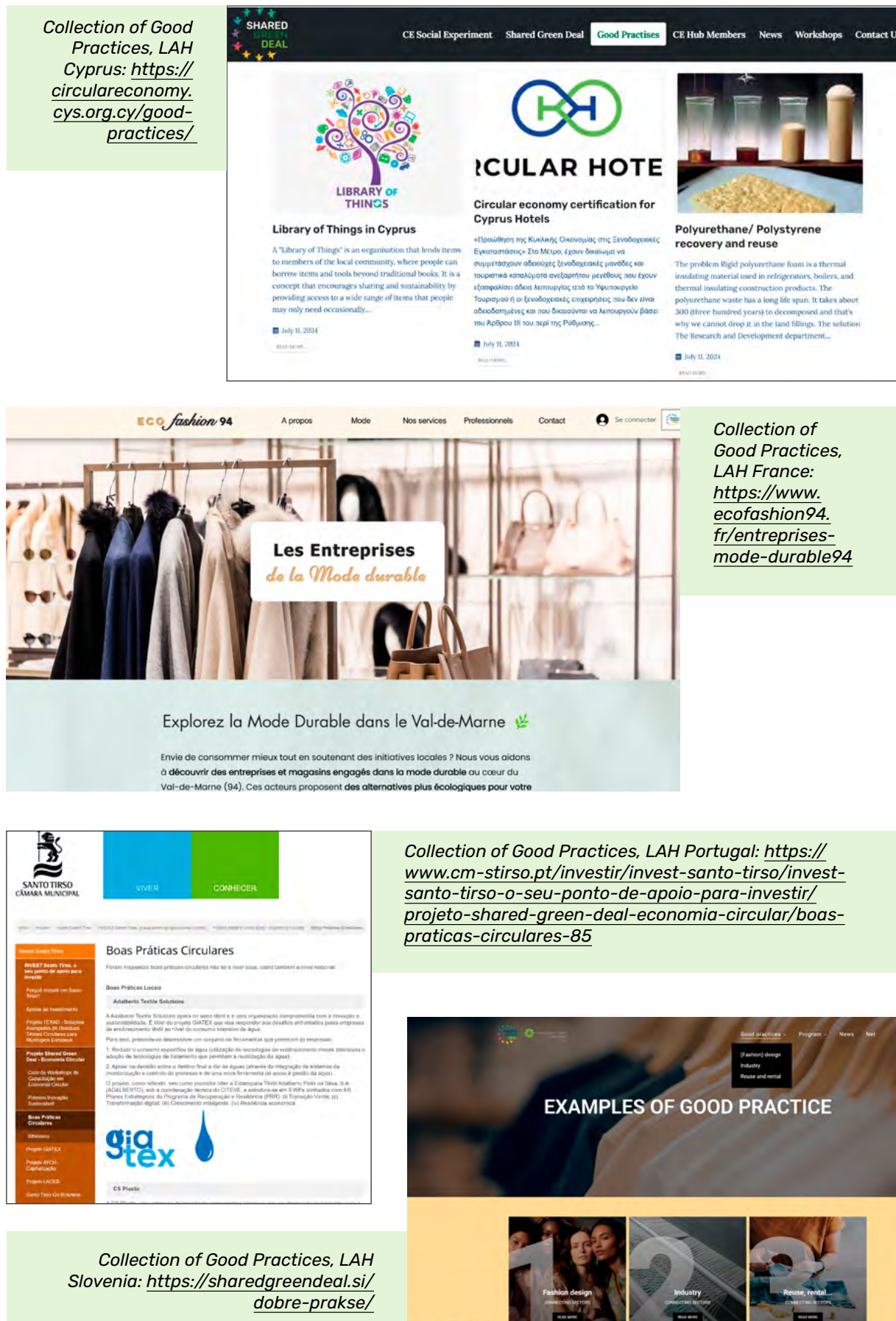


Each LAH developed a website – see Figure 2.2a – and recruited members, created a knowledge centre with local use cases, and ran a series of activities, including three workshops and an award event.

Together, they showcased more than 70 local circular good practices via their websites – see Figure 2.2b. Collections of good practices for the four experiments.

⁴ The needs and roles of disabled groups were a theme considered within this experiment stream.

Figure 2.2b. Collections of good practices for the four experiments



2.3. Workshop delivery

The implementation of the experiments included delivering three design thinking workshops focused on circular business innovation in each location – see Figure 2.3. Design thinking is a robust methodology for fostering business innovation, particularly within circular economy initiatives. It emphasises problem framing, identifying, structuring, and redefining challenges, providing a structured yet flexible approach to addressing sustainability and circular business model development (Santa-Maria et al., 2022). The workshops involved primarily members of the LAHs, including local businesses, local authorities, academia, and organisations for persons with disabilities.

Figure 2.3 Three workshops were conducted by each LAH.



The three workshops built on each other, with the purpose of each as follows:

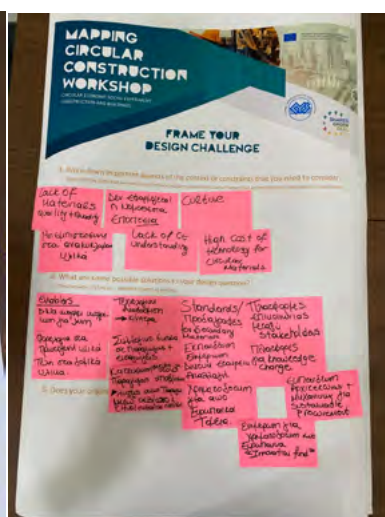
Workshop 1: Collectively define a circular challenge, in other words, a set of specific issues that a sector faces.

Workshop 2: Identify and propose circular business solutions based on the challenge defined in Workshop 1. In some locations the ‘Value Proposition Canvas’ was used to help define the most important components of the solutions, and how they can address problems and create gains for customers⁵.

Workshop 3: Collect consumer feedback on the potential solutions developed in Workshop 2. In some locations, the Six Thinking Hats⁶ Process was used, a simple, effective parallel thinking process that helped participants provide feedback. Also, some local partners directly involved vulnerable groups in feedback processes.

5 <https://www.strategyzer.com/library/the-value-proposition-canvas>

6 <https://www.debonogroup.com/services/core-programs/six-thinking-hats/>



Workshop 1. Definition of the local challenge in the construction sector (Cyprus)



Workshop 2. Portugal and Cyprus used the 'Value Proposition' methodology



Workshop 3. Collecting feedback from disability groups in France, and with participants in Portugal and Slovenia.



2.4. Circular Economy Award

As a final event, each LAH organised a Circular Economy Award to recognise participants' efforts in the different workshops. More than 15 selected participants from the hubs received free access to the online certification in the circular economy provided by the consortium partner Circular Economy Alliance (CEA). Local partners organised award ceremonies, such as public, private, and social events. For example, in the case of Portugal, the mayor from the municipality of Santo Tirso participated in the Circular Economy Award ceremony. See Figure 2.4.

Figure 2.4. Circular Economy award in the different locations.



2.5. Data collection for interviews

Following the workshops described in section 2.3, we interviewed a selection of participants to explore their experiences and views on the changes in business innovation achieved. We asked each local partner to select ten interview participants, representing a range of sectors (local businesses, academia, local authorities, and representatives from organisations for vulnerable groups) and experiences; we also asked them to include at least four women⁷. In the case of Cyprus, an additional two interviewees were selected (leading to 12 in total) as some of the early interviews were shorter in length and so yielded less data. Table 2.5 shows the characteristics of selected participants in the interviews for each LAH.

Table 2.5. Characteristics of selected participants in the interviews for each LAH.

Country	No. Participants interviewed	Gender		Value chain addressed
		Women	Men	
Portugal	10	4	6	Food, water, and nutrients
Cyprus	12	3	9	Construction and buildings
Slovenia	10	9	1	Textiles
France	10	9	1	Textiles

The gender distribution may reflect the tendency in Cyprus and Portugal towards men's dominance in construction, building, and food, water, and nutrient value chains. Meanwhile, in Slovenia and France, the textile sector showed more women's dominance, as reflected in the interview sample.

When quoting from our interview transcripts, we use a reference code to protect participant identities, including a country code. Each interview has been allocated a number, with this acting as a unique marker for each participant in that location. We have also chosen to include the participant's gender and participant category (academia, business, local authority etc.), as these are important characteristics for us in contextualising our data and claims.

⁷ When collecting data on participants' genders, we asked them to self-identify. We report genders using the terms "man", "Woman" and "non-binary", in accordance with World Health Organisation guidance on sex and gender terminology. See: <https://www.who.int/health-topics/gender>

3. Transformations in business innovations

This section presents findings from interviews with LAH participants, exploring how the meso intervention in business innovations enabled change. Section 3.1 focuses on the impact of design thinking workshops within LAHs, showing how and why these specific activities are effective in supporting business innovation. Section 3.2 looks at the wider ways in which LAHs enable change, including their role in the sociotechnical evolution⁸ of circular economies. Section 3.3 considers skills development and training and how LAHs can support these vital interventions. Finally, section 3.4 presents findings on how regulations, policies and incentives shape circular economy adoption.

3.1. Impacts of design thinking workshops within LAHs

The circular economy stream implemented a series of workshops within the LAHs, based on the design thinking methodology (see section 2.3) to foster creativity, problem solving and a systemic approach to circular innovations. The following impacts were highlighted by participants as outcomes of the design thinking methodology.

3.1.1. Problem framing and identifying challenges

Design thinking emphasises a systematic approach to framing problems and identifying, structuring, and redefining challenges. A key insight from the workshops is that design thinking helped participants to share their own particular perspectives on challenges:

“Design thinking can be applied to any project... It brings together people from different areas and helps to break the ice, first of all. Then, it allows there to be no clash of ideas about what each person’s truth is. People can put their ideas on the table... And so there is an exposure of certain issues” [PT10, Local Business, Man].

Participants noted that transitioning from broad, abstract sustainability goals to concrete, actionable problems can enable more effective solution development. Some highlighted how the workshop methods challenged their thinking:

“The methods were useful because they pushed us to think outside the box and explore different ways of thinking, which led to tangible results” [SI07, Academia, Woman].

“I think the Design Thinking process has had an impact because it effectively forces us to think about what the final product or service we have today is. It forced us to think about what second life, or what alternative we have, to reduce the impact that this product or service has today” [PT06, Local Business, Woman].

⁸ In this project, the term ‘sociotechnical’ refers to an understanding of social and technical elements as co-constructive. In other words, social phenomena (such as communities, relationships and emotions) both shape and are shaped by technologies (such as buildings, infrastructures and devices). Our analysis, therefore, pays attention to how social dynamics shape technical ones, and vice versa.

Some French participants emphasised that breaking life-cycle challenges into subtopics during the workshops made solutions more tangible, while others said the workshop activities helped develop a global vision.

“It allowed us to build a fairly comprehensive vision of all actors and of the life-cycle of the textile, from end to end. This we don’t usually do, as we only act on a small part of it in fact. So, this exercise helped us to gain a much more global vision” [FR10, Local Business, Woman].

“This is what these workshops gave us: the opportunity to step back, to discuss, and to study what was being done elsewhere, to allow us to find solutions on our own scale, innovative actions, things that we wouldn’t have necessarily thought of and that could actually be implemented quite easily on our scale” [FR10, Local Business, Woman].

3.1.2. From concept to prototyping

Design thinking is not just about defining challenges. It also involves testing and refining circular economy solutions through iterative prototyping (Sedini et al., 2024). In the workshops, structured problem identification facilitated more realistic business ideas.

“This particular approach and use of these tools and methods were very helpful in identifying viable solutions, and this is mainly due to having direct feedback from industry, which is what is largely missing from theoretical models to achieve a sustainable operating model” [CY10, Local Authority, Man].

Participants appreciated how the activities helped move beyond theoretical discussions and build understanding of the challenges to implementation.

“When you think about real issues and then start coming up with real solutions, you understand why it’s difficult to implement them” [SI07, Academia, Woman].

Portuguese participants found that mapping circular value chains helped define business opportunities, making sustainability initiatives more feasible.

“All the groups were able to take the content they had been given, the projects and ideas they had brought from home and were able to present a well-thought-out project at the end of the last day, with ideas that, in principle, could be applied in practice” [PT10, Local Business, Man].

Moreover, the workshops revealed that cross-sector discussions led to broader perspectives and more practical solutions. In Cyprus, a participant from the construction sector noted that design thinking pushed them to explore service-based circular models they had not considered.

“While in my job, we may work only in a more industrial environment, the workshop made me think about a service exchange platform, something that we may never have examined or that we may just have considered in theory” [CY11, Local Business, Woman].

Slovenian participants said that co-designing with raw material suppliers revealed hidden inter-sections between industries, leading to new collaborations.

“The connection between stakeholders involved with materials, raw materials, or waste – although I don’t like using the word ‘waste’ – how to prevent it from becoming waste by using these materials beforehand is very important. When we, the stakeholders there, saw some shared interests, we exchanged contacts” [SI10, Local Business & Academia, Woman].

Techniques such as structured brainstorming were used in Slovenia to examine and scrutinise circular business ideas, for example, utilising leftover materials from textile manufacturers to reduce raw material consumption.

“We went through these brainstorming methods and ‘brainwriting’ in groups. Then, when we evaluated these ideas and collected them together, we found that maybe one thing at first glance was not the most attractive. These methods show that they support a circular business model” [SI02, Local Business, Woman].

In summary, the design thinking methodology applied in the workshops helped participants develop collaborative innovative solutions to support the transition from the linear to the circular economy. These are likely to have ongoing impacts for these participants, and beyond.

“In the next workshop we host as a company, we will adopt tools that I saw in these workshops” [CY02, Local Business, Man].

“We met after the workshop just to assess realistically whether or not there is a possibility for us to develop our idea further” [SI09, Local Business, Woman].

3.2. How LAHs enable change in business innovation

The implementation of the four LAHs led to a range of impacts on business innovation.

3.2.1. Experimentation and piloting for business innovation

As a result of the LAHs, businesses across the four countries have developed collaborative pilot projects to assess the feasibility of circular solutions and embraced experimentation as a critical step in adopting circular economy principles. For example, agricultural and industrial companies collaborating with academics in Portugal are testing the reuse of waste materials, such as sludge from food production, as fertilisers.

“The project came at the right time... because we were looking for partners [involved in] the circular economy in this area. So, having the school’s scientific department do analysis and studies; having the area of the farm, where we have an area where we can actually do the tests and apply them, was ideal for us” [PT10, Local Business, Man].

Moreover, in Portugal, participants conducted interviews and gathered feedback from companies to develop a concept for establishing a collection centre.

“We did a short interview with three or four commercial establishments. Then, we spoke to the collection company. So, to give us feedback on how these companies, the ones we’re talking to, are disposing of the waste, in other words, whether they separate it or not. We already have that starting point” [PT08, Local Authority, Woman].

Similarly, in France, as a result of the LAH, businesses have experimented with garment repair and upcycling prototypes to extend product life cycles and reduce waste. An innovative pilot initiative, *La Retoucherie Ecofashion* 94⁹, has been launched to develop a local system for collecting and repairing clothing.

9 See: <https://www.ecofashion94.fr/retoucherie>

“[We have a] local collection system, in which anyone can give their garments for repair to a neighbour. Their garments are transported, like magic, to [local designer], who does the repair work. Finally, they are brought back to the local collector, then to the garment owner” [FR07, Local Business, Woman].

“Our garment alteration and repair prototype... You could replicate this prototype where you live without any problem, using the resources we have compiled” [FR04, Local Business, Woman].

Participants emphasised that experimentation allows companies to learn about novel products, services, and sustainable value generation with limited risks and resources. In this sense, pilot projects are crucial for testing new circular business models before full-scale deployment. Piloting enables businesses to assess feasibility, understand environmental impacts, and refine their strategies before committing to large-scale implementations. Through the workshops, the LAHs supported the development of innovative prototypes (products, technologies, services, devices, etc.), paving the way for the transition from the linear to the circular economy.

3.2.2. Developing and disseminating circular business models

Through the LAHs, participants shared their current practices and circular solutions, in order to disseminate good practices. Businesses in Portugal shared how they are refining existing processes to reduce waste and enhance efficiency, and how the food and beverage industry minimises processing waste while finding innovative uses for by-products. Also, waste audits and collaborations with waste collection companies have helped businesses understand and refine their waste management strategies.

“... as well as reducing or trying to reduce as much as possible what is wasted during processing, we also reuse certain by-products and/or make use of the packaging of the raw materials or the packaging itself, the packaging materials. And the possibility of also using by-products of what is rejected during the manufacturing process” [PT10, Local Business, Man].

Some corporate-sector participants from the resourcing sector in France explained how they have embraced modular design, allowing products to be easily repaired and reconfigured instead of discarded. Also, some organisations have adopted new business models that fundamentally alter traditional processes, such as introducing reuse and repair services to extend product life cycles and reduce waste.

“We are a circular economy organisation, since we recycle clothes and textiles. Therefore, we are completely part of the circular economy. Our objective is to contribute to reuse, to raise awareness about it and therefore, to increase the share of second-hand textiles” [FR03, Local Business, Woman].

“At our resourcing facility, we regularly organise workshops focused on ecological transition. For two years now, we have facilitated a zero-waste workshop at regular intervals. In this context, we talk a lot about circular economy, recycling...” [FR06, Local Business, Woman].

Moreover, many organisations participating in the LAHs, particularly in Cyprus, shared best practices on optimising waste collection and recycling efficiency to ensure materials re-enter production cycles effectively. The Cyprus LAH has made efforts to integrate recovered and recycled materials into construction projects, reducing the demand for virgin resources. Raising awareness about these good practices is crucial in helping local business ecosystems to adopt circular innovations.

“... if the quantity [of material] is expected to exceed a specific number in some demolitions, separation at the source should be done. Unfortunately, these [rules] are not widely known or disseminated, and workshops like this could help inform all stakeholders about these existing laws and initiatives for the circular economy to be better promoted [CY06, Local Business, Man].

3.2.3. Cross-sector collaboration and knowledge sharing

In order to upscale circular economy initiatives, businesses must transition from isolated pilot projects to systemic adoption (Schroeder et al., 2019), and LAHs can support this by facilitating cross-sector collaboration and knowledge sharing.

“... support in the form of what we’ve received from the [LAH innovation centre], like space, a workshop where we can develop prototypes or experiments. That’s necessary, in my opinion” [SI02, Local Business, Woman].

Collaboration and knowledge sharing were highlighted by the participants as key outcomes of the LAHs, including collaboration between research institutions, government agencies, and industry peers. In Slovenia, universities played an important role within the LAH:

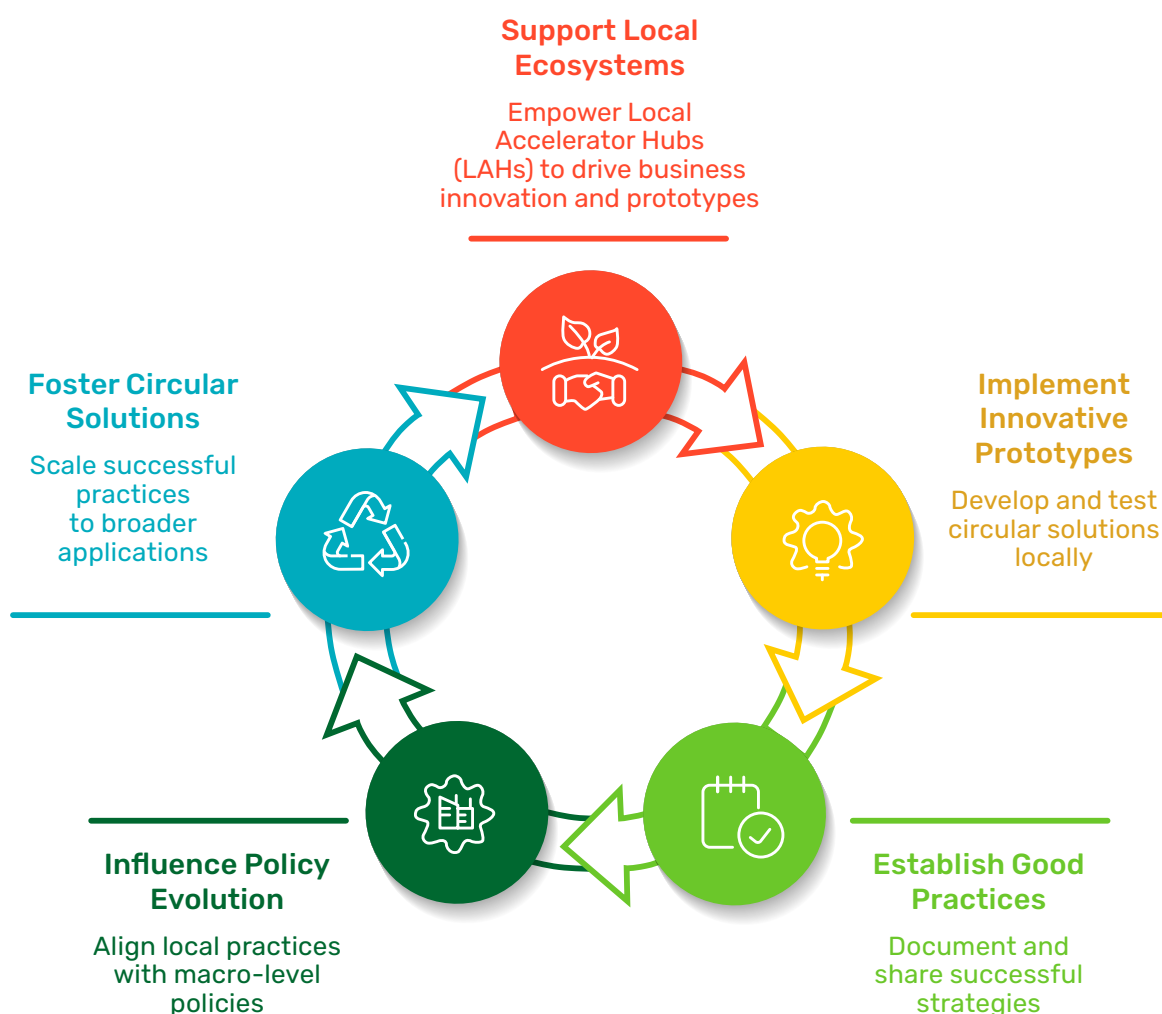
“There were scientists among us, which never happens because we designers are more like social scientists than natural scientists... we would never meet anywhere else at all [at] the textile-related events. It’s always the same participants, right? So, that was a bit of freshness for me” [SI05, Local Business, Woman].

Networking and partnerships have enabled cross-industry learning, as seen in Cyprus, where the construction sector explored the reuse of demolition waste through innovative recovery and recycling techniques.

“... we had a very good conversation with a [steel] company on the issues they deal with. Through the workshop, I had the opportunity to tell them my own experiences; they had the opportunity to tell me the issues they deal with, and, in fact, we had meetings during which we discussed submitting joint research proposals on issues related to the circular economy. The same thing happened with a [construction] company regarding recycled materials, which they get from their quarries and need to be processed” [CY07, Academia, Man].

The various dynamics outlined in this subsection are represented in Figure 3.2.3. As the above discussions make clear, the social and technical aspects of circular economy development are inseparable, with social aspects such as knowledge and collaboration being closely connected with material aspects such as prototype development and supply chains.

Figure 3.2.3 Sociotechnical evolution in the Circular Economy experiments.



3.3. Skills development and training

The transition to a circular economy demands a multidisciplinary approach to skills development, incorporating technical expertise, managerial expertise, and creative problem-solving (Cedefop, 2023). One of the main findings from the participant interviews was the critical need for structured education, mentorship, and inclusive reskilling programs to facilitate this transition. Stakeholders across sectors need to be equipped with the competencies necessary to implement circular economy practices effectively. LAHs can play a part in this important process.

3.3.1. Education and training

A recurring theme across the interviews was the need for education as a precursor to adopting circular economy principles. Participants from all four countries emphasised that training programmes should extend beyond technical knowledge to cultivate a broader understanding of sustainability and circularity in business models. They explained that the LAH activities, such as

workshops, played an important part in developing knowledge, and that these activities could be rolled out more widely.

“I developed new skills. The methodology presented during the workshops can be translated into education in the classroom, especially the part concerning the evaluation of solutions. The method used, Bono Hats, was very impressive. It sort of leads to a result, the evaluation, but in a more playful way” [CY01, Academia, Man].

“During the workshops, we gained a lot of new skills and knowledge that we could use either internally in the organisation to create our own ideas or to promote some of our ideas” [CY05, Local Authority, Woman].

Practical exposure, such as visits to waste processing facilities and hands-on training programmes, was identified as an effective means of enhancing awareness. Regular visits to infrastructures supporting the circular economy can be part of future activities to provide more services to the LAHs members.

“Promoting visits to the facilities where waste is processed is the best way of raising people’s awareness” [PT08, Local Authority, Woman].

Universities can also embed circular economy concepts within curricula, ensuring that future professionals enter the workforce equipped with relevant skills.

“Academia can play a key role in shaping innovations in terms of circular business models. First, in the field of education. The next generation of scientists and engineers is required to have expertise in circular economy issues. So, the university can provide this education. Alongside skills related to the circular economy, entrepreneurship skills can also be developed. University can also engage in public debate” [CY01, Academia, Man].

3.3.2. Mentorship

Mentorship was recognised as a critical mechanism for guiding businesses and individuals through the transition from awareness to implementing circular practices. The need for structured mentorship and expert-led guidance from experienced professionals in circular economy sectors was highlighted, particularly for small businesses that lack internal expertise.

“Include experts like yourselves in the circular economy and experienced facilitators who can guide us through the discussions and activities. Have tools and practices that can be applied directly to the participants’ businesses. Guides, economic manuals. And then also to promote collaboration and networking between the participants, which can later, as was the case here, lead to partnerships and joint projects in the future” [PT09, Local Authority, Woman].

“It seems important to have an address, a support organisation, where we, as startups or innovative ideas, can turn to for information – this is the first step. The second step is concrete help and support in the areas we discussed, or at least guidance and advice, although concrete help would be best, such as a legal expert or help with applying for calls, or support in the form of space, like a residence for project development” [SI10, Local Business & Academia, Woman].

Government-backed mentorship programmes and financial assistance were proposed to help companies integrate circular economy principles.

“There needs to be more financial and training support. Support for consultancy and training. Often, companies may want to do it, they may really want to, they want to apply these circular

practices, but as we said earlier, they live very much day-to-day, and they certainly don't have qualified people to do it. Perhaps if they had external support, especially from government bodies, in terms of training and mentoring, they could demystify the complexity of the processes and the questions that were asked in the workshop [PT09, Local Authority, Woman].

3.3.3. Reskilling and inclusivity: expanding participation

A significant challenge in the transition to a circular economy is around reskilling and job creation. One aspect of this is ensuring that reskilling efforts are inclusive, particularly for marginalised groups such as people with disabilities or those from disadvantaged backgrounds. Circular economy policies and practices should ensure that the existing skills and contributions of disabled people are recognised and valued, while also ensuring that disabled people can fully participate in new training and upskilling opportunities.

"It is undisputed that all people with disabilities...should be included in any thinking or any planning, just like any other citizen... By its nature, circular economy, having as its ultimate goal and purpose the protection of the environment, is characterised by sensitivity, so it could never work without taking into account the specificities of these individuals" [CY07, Academia, Man].

Businesses play a crucial role in promoting economic inclusion within the circular economy by identifying roles that are suitable for, or can be adapted for, marginalised workers.

"We had an example where [vulnerable groups] were involved in cleaning and inspecting incoming materials. This is all excellent and very useful... I think there's still a lot of room in this area and other tasks or phases of this circular model – I'm specifically talking about the textile waste cycle or textile industry – where these jobs could be created, and these target groups could significantly contribute to the process" [SI10, Local Business & Academia, Woman].

"We have a service dedicated to employment, and we publish calls for proposals where we ask providers to employ [a certain number of] reintegrated workers... So, I guess we can also create such a clause for disabled workers" [FR08, Local Authority, Woman].

When social enterprises create tailored employment opportunities that align with the capabilities of differently-abled individuals, this can ensure that circular economy growth is both sustainable and inclusive.

"Recently, we were contacted by [a] day centre, which hosts disabled adults during the day. They came three times on site to help us with the sorting. Now we are looking for ways to perpetuate a partnership like this... The people who came to work on sorting were mentored by someone from the day centre and someone from our own team" [FR03, Local Business, Woman].

To support these efforts, governments could implement incentive-driven policies and provide funding encouraging businesses to hire and train marginalised groups, fostering equitable access to green job opportunities.

3.3.4. Specialised knowledge

Beyond general awareness and reskilling, there is a strong need for technical expertise tailored to specific industries transitioning to circular models. Effective circular economy skills development requires sector-specific training, particularly in sectors like construction, fashion, and manufacturing, where specialised workshops on sustainable materials, life cycle assessment (LCA), and eco-design are essential. LAH participants highlighted that hands-on, project-based learning

significantly enhances comprehension and real-world applicability, enabling individuals to translate theoretical knowledge into practical solutions.

However, a key barrier identified is the limited access to up-to-date legal and policy frameworks as circular economy regulations continually evolve. Addressing this gap is crucial to ensure businesses and professionals remain informed and compliant with regulation.

“... companies that want to move to a circular economic model will want some access to skills, experts, and specialists. They will also need access to legislation, that is, a place where laws, regulations, policies and funding opportunities are gathered.” [CY01, Academia, Man].

Therefore, education serves as a fundamental pillar in driving the transition to a circular economy, equipping the workforce with the critical knowledge, skills, and mindset needed to address present and future challenges. As economies shift towards more resilient models, education plays a key role in preparing professionals to navigate complex environmental, technological, and economic transformations. Following the insights from the interviews, investing in education ensures a skilled, adaptable, and forward-thinking workforce capable of driving long-term economic and environmental sustainability. Once again, it is clear that the social and technical aspects of circular economies are inseparable: skills are an example of a social element that directly relates to specific technical systems, equipment and infrastructure.

3.4. Findings on regulations, policies, and incentives supporting circular economy adoption

Governmental regulations, policies, and financial incentives significantly influence the transition to a circular economy. Across Portugal, Cyprus, Slovenia, and France, varying levels of governmental engagement highlight the critical role of public intervention in fostering sustainability-driven economic transformations (see Table 3.4).

Regulations at both national and European levels are essential in driving circular economy adoption. The European Green Deal is a fundamental policy framework, yet awareness and implementation vary significantly by country. Portugal exhibits a gap in circular economy-specific policies, with businesses often struggling with bureaucratic hurdles and misaligned government incentives. Cyprus has developed a National Action Plan for Circular Economy (2021-2027) that provides financial support, particularly for SMEs, but enforcement of regulations remains inconsistent. Slovenia benefits from localised initiatives such as the Slovenian Enterprise Fund, yet small businesses often lack direct access to structured circular economy incentives. France stands out for its progressive legislative frameworks, such as the Extended Producer Responsibility (EPR) system, which mandates sustainable production and waste management.

Table 3.4. Findings from the interviews on current policy contexts in the four experiment locations.

Country	Findings on policy context
Portugal	<p>Lack of strong government policies; businesses struggle with slow bureaucratic processes.</p> <p>Limited awareness of Green Deal; no significant national policies identified.</p> <p>Taxes are often passed to consumers; some incentives exist for waste management.</p> <p>Government funding is crucial but not fully aligned with industry needs.</p>
Cyprus	<p>A national action plan exists; funding and support for SMEs are available.</p> <p>Some policies from the EU were adopted but not consistently effectively implemented.</p> <p>Tax credits and financial incentives exist, but businesses are not ready to absorb them.</p> <p>Collaboration between government and industry is needed for effective transition.</p>
Slovenia	<p>There is a need for more targeted support for small businesses; current policies exclude them.</p> <p>Awareness of legislative changes is growing but still fragmented.</p> <p>Some tax reductions exist; financial sustainability remains a challenge.</p> <p>The government must provide infrastructure support and stronger collaboration.</p>
France	<p>Public funding is essential for circular initiatives; city-level support exists.</p> <p>New legislation aims to promote circular practices; policy gaps remain.</p> <p>Tax incentives for repair services subsidies promote circular business models.</p> <p>Stronger public-private collaboration is needed to implement effective frameworks.</p>

Government-backed funding plays a vital role in accelerating circular economy initiatives. Portugal's support is sporadic, with industries often feeling pressured by environmental taxes rather than being provided with adequate financial backing for innovation.

"I'm talking in particular about the food or agri-food industry. We have to give time, and we have to invest in innovation so that we, the industry, can clearly innovate in order to also have a greener economy. Because if the pressure is on to tax plastics, wood, paper, or emissions faster than the ability to develop innovative products, we will pass this on to consumers" [PT10, Local Business, Man].

Cyprus has explored regulatory and financial incentives to encourage the adoption of circular economy practices, demonstrating the role of policy in disruptive change.

"The Ministry of Environment and the Deputy Ministry of Innovation have created a national action plan for the Cypriot economy, which has been implemented since 2021. This action plan includes four pillars of actions which relate to providing information to the public and businesses on the Cypriot economy, the creation of infrastructure, access to finance and waste management" [CY10, Local Authority, Man].

Cyprus has introduced funding programmes like its Circular Economy Grant Scheme, but businesses struggle to adopt these incentives due to infrastructural gaps.

"We, as a ministry, are currently implementing the communication plan for the circular economy, which is aimed at both businesses and the public. We also launched last month the Circular Economy Grant Scheme for small and medium-sized enterprises, and we are already running the large business grant scheme, which includes investments in the circular economy" [CY10, Local Authority, Man].

"It is clearly the funding, the financial part, that concerns a grant scheme that gives enough money. But businesses are not ready to absorb it [CY12, Local Business, Woman].

France provides structured financial incentives, including repair incentives under the Refashion Label, which subsidise sustainable business practices.

“I was able to benefit from the repair incentive” [FR01, Local Business, Woman].

“The government needs to, on the one hand, steer and, on the other hand, facilitate any such transitions with tax breaks” [SI09, Local Business, Woman].

Tax incentives are crucial in making circular economy adoption financially viable for businesses. However, in Slovenia, small businesses struggle to navigate tax reductions and regulatory exemptions. There is an important role here for LAHs, which can help small businesses to understand and manage these regulatory and financial landscapes. The findings presented here on policy contexts provide the groundwork for the next section, which draws out recommendations for policy and governance.

4. Learning points and recommendations for policy and governance

The insights from interviews in Portugal, Cyprus, Slovenia, and France highlight key mechanisms that facilitate business innovation to develop circular business models. From these, we can draw recommendations for policy and governance. In section 4.1 we review how LAHs can be used to create robust business ecosystems. Section 4.2 highlights recommendations for skills development and digital knowledge platforms, and section 4.3 considers the need to strengthen and harmonise regulatory and financial frameworks. Finally, section 4.4 offers recommendations on facilitating multi-stakeholder engagement and cross-sectoral collaborations. These insights are also summarised in this report's Executive summary of recommendations.

4.1. Create Local Accelerator Hubs to strengthen collaboration and innovation

Findings highlight the need to develop robust, collaborative business ecosystems by creating dedicated networking spaces that can support cross-sectoral workshops, interactive events, and informal networking events to facilitate the exchange of good practices. LAHs can support the development of pilot testing environments to reduce market risks, and help local organisations access funding and policy support, including consulting services for navigating EU programmes, which are vital for scaling up circular economy solutions.

A strong circular economy relies on well-developed ecosystems that connect businesses, policy-makers, academia, and other communities. Across all four countries, knowledge transfer through workshops, networking, and collaborative initiatives emerged as a key enabler of circular economy development. Participants emphasised the value of cross-sectoral workshops and interactive events, covering diverse industries such as agri-food, textiles, and construction. These events allowed stakeholders to exchange good practices, identify shared challenges, and create synergies where waste from one sector became an input for another. LAHs can provide more systematic access to physical and online infrastructures where businesses and designers can propose, test and develop pilots and circular economy solutions, which is crucial for practical experimentation and applying circular economy principles. Many interviewees pointed out that sharing experiences in casual, low-barrier interactions such as coffee breaks, networking events, or business roundtables helped generate innovative ideas.

“The Hub could be a common platform for information exchange, that is, it could create a common space for cooperation. It could also contribute to the provision of specific training or information at institutional or research level, as well as create some seminars to acquire specific knowledge” [CY04, Local Business, Man].

The LAHs provided physical and digital spaces for innovation and facilitating knowledge exchange are necessary to translate ideas into concrete actions.

“We offer here, I’d say, a very high-quality product for which we try to have a circular approach. There’s a physical space that embodies these ideas by offering repairs and quality materials” [SI08, Local Business, Man].

Many stakeholders stressed that businesses require financial and regulatory incentives to implement circular models. Consulting services that guide businesses on available EU-funded programs were frequently mentioned as a missing link. Moreover, several interviewees emphasised the potential of online tools, databases, and repositories that compile case studies and solutions. When asked to reflect on future possibilities for similar hub initiatives, some expressed interest in platforms that centralise success stories, regulatory updates, and funding opportunities.

“The hub could gather and provide a compilation of information on legislation, regulations, and funding sources. It could also establish a register of experts and offer skill matching to better benefit interested companies that want to move to a circular economy model. At the same time, it could also offer training or consultancy services” [CY01, Academia, Man].

4.2. Invest in skills development and digital knowledge platforms

There is a need to prioritise training, knowledge sharing and skills development through structured education and specialised programmes tailored to industry needs, in order to equip employees and decision-makers with essential circular economy skills. Digital platforms that centralise knowledge about case studies, such as the ones built in these experiments, can support this. They can also share regulatory updates and funding opportunities.

Facilitating continuous learning through regular training, workshops, and real-world applications ensures that businesses, policymakers, and communities remain engaged and adaptable in the evolving landscape of the circular economy. Sector-specific training programmes tailored to key industries such as construction, textiles, and packaging will help to identify and address circular economy gaps unique to each sector.

“Access to training programmes, encouraging partnerships, and promoting and supporting best practices and innovative solutions could certainly contribute” [CY09, Local Business, Man].

In all four locations, stakeholders highlighted the need for training programmes tailored to companies’ needs, ensuring that employees and decision-makers have the skills to implement sustainable business practices. Some suggested developing modular learning experiences that allow businesses to integrate circular economy practices gradually.

“For example, doing more training like this. Applying or creating implementation programmes in companies, aimed at the various business sectors we have in the municipality” [PT07, Academia, Man].

4.3. Strengthen and harmonise regulatory and financial frameworks for circular economy innovations

Governments should adopt effective regulatory and financial support measures by instituting policies, tax incentives, and robust financial assistance to accelerate circular economy adoption. Harmonising national policies, such as the Extended Producer Responsibility (EPR) system in France (that mandates sustainable production and waste management) with European regulations (e.g. the Waste Framework Directive) is essential to ensure regulatory coherence, effective enforcement and cross-country collaboration.

In Cyprus, interviewees highlighted the importance of clear policies on waste reduction and recycling incentives.

“... many times the ... products resulting from efforts made in the field of circular economy are not easily accepted ...[For example, regarding] the use of recycled concrete or the use of fire-resistant materials, which are derived from construction waste, or the use of thermal insulation materials, which are derived from construction waste. It’s extremely difficult to get these materials into the marketplace unless the State intervenes and says, for example, “for this project, whoever gets the bid has a contractual obligation to use 10% recycled materials” [CY07, Academia, Man].

French LAH participants emphasised the need for subsidies or tax incentives for companies adopting circular models.

“I still find it hard to understand how we could achieve economic viability without relying largely on public subsidies. If we focused solely on sales or awareness-raising workshops, it would not be enough to cover our structural costs, the salaries, etc.” [FR03, Local Business, Woman].

Participants also highlighted the importance of infrastructure development to offer accessible recycling facilities and supply chains that support circular operations. In Portugal, businesses wanted solutions for better logistics and material recovery systems.

“The development of infrastructure to support recycling, which I think is common to everyone... whether large organisations or small companies. I know that these are huge investments, but I think it would be important for Invest Santo Tirso and the Santo Tirso City Council, as a government entity, to contribute or try to support, which I think is important to have this infrastructure” [PT06, Local Business, Woman].

Effective governmental action through legislation, funding, and public procurement is indispensable for accelerating circular economy adoption. There is a need for streamlined national policies that align with European regulations, ensuring businesses can seamlessly transition into circular economic practices while benefiting from tangible fiscal support.

4.4. Facilitate multi-stakeholder engagement and cross-sectoral collaborations

Building a supportive ecosystem for business innovation through multi-stakeholder engagement is crucial to fostering partnerships across sectors to strengthen problem-solving and innovation. Building industry-academic partnerships with support from universities and research institutions is crucial for driving circular innovation, as they provide valuable expertise, data analysis, and technological development that can enhance sustainable practices.

Interviewees also stressed the role of networking hubs in identifying industry-specific challenges, enabling peer-to-peer learning, and fostering cooperation among industries (industrial symbiosis). Creating cross-border and inter-hub collaborations was highlighted as an essential mechanism for knowledge exchange. Participants suggested that LAHs establish connections with similar networks to understand good practices.

“...communication with the other hubs to understand what the problems are, what are the good practices that the other hubs are implementing, to have a specific target and to have a specific purpose” [CY10, Local Authority, Man].

Another suggestion was for LAHs to connect with other local networks and organisations:

“In Île-de-France, we have the REFER network: their team is very good, and they support the resourcing facilities very well. Perhaps the LAH could make tighter connections with the REFER, so as to generate exchanges within Val-de-Marne, exchanges between organisations and even organisations that don't operate resourcing or recycling centres, creators... This could help to build new bridges and create maybe new workshop formats...” [FR03, Local Business, Woman].

Providing services such as the ones mentioned above will allow LAHs to expand their offer and cope with the actual needs of their local business ecosystem as it evolves.

“We want to find in a hub the information we need from the business ecosystem. That is, what are the needs of businesses out there, and what are the businesses out there engaged in specific sectors” [CY10, Local Authority, Man].

A multi-stakeholder approach involving governments, businesses, academia, and civil society is critical to driving circular transformation effectively. LAHs offer an effective way to foster such collaborations and connections that support transitions to the circular economy.

“I enjoyed this experiment, mainly because it allowed me, as someone from the academic sphere, to connect with stakeholders more easily. We're not in our own pillar or bubble but more connected to society, and we can collaborate more effectively, addressing not just our interests but also the needs of society” [SI07, Academia, Woman].

5. Conclusions

This set of SHARED GREEN DEAL experiments aimed to support business innovation, focusing on circular business model implementation. Our LAHs intervened to support local business ecosystems in adopting circular solutions (products, services, technologies, etc.) in line with circular economy principles. An LAH provides a structured environment for negotiation, co-creation and discussion, enabling businesses to experiment, pilot, and scale circular innovations. As seen across Portugal, Cyprus, Slovenia, and France, businesses within our LAHs are developing innovative approaches to sustainability, ranging from incremental improvements in resource efficiency to disruptive changes in consumption and production models.

When an LAH for circular economy innovation integrates design thinking into its core activities, this helps foster creative, user-centred solutions. The insights from this study reinforce that early-stage problem clarity leads to more effective, impactful circular economy solutions. Problem framing through design thinking equips businesses with the mindset and tools to transform circular economy challenges into opportunities.

Through structured workshops, LAHs can guide businesses in defining problems, mapping stakeholders, and developing prototypes, ensuring a straightforward, solution-oriented approach. Iterative prototyping can create a dynamic feedback loop, allowing businesses to test collaborative solutions, refine ideas, and better align them with evolving market needs. Multi-stakeholder engagement is key, bringing together experts from diverse fields to broaden perspectives and enhance problem-solving capabilities. These environments can also serve as neutral grounds to foster networking, enabling partnerships, resource sharing, and promoting circular business practices.

Strengthening LAHs further could include creating pilot testing environments for innovative circular business models allows businesses to test and refine their ideas before market implementation, reducing risks and enhancing the viability of sustainable solutions.

The findings from our four experimental LAHs reinforce that a practical skills development framework for the circular economy must integrate formal education, mentorship, and specialised training while ensuring inclusivity to reach diverse groups. LAHs acting as a centralised knowledge platform can further strengthen this ecosystem of local organisations providing services such as storing and disseminating good practices, case studies, and technical solutions and ensuring businesses can access relevant, up-to-date information to drive their circular initiatives forward.

Innovative spaces such as LAHs can help governments accelerate the adoption of circular economy principles at scale. Policymakers can support this upscaling by investing in research and implementing incentives for circular business models. Creating dedicated spaces for innovation is critical to successfully transferring knowledge in the circular economy. Through structured, well-supported local hubs, stakeholders across different sectors can accelerate the transition toward a more sustainable and circular future.



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Appendix – Methods

A1. Data collection processes, including interview sampling criteria

The data collection process relevant for this report was a series of semi-structured interviews to gather in-depth qualitative insights on experiences within the circular economy experiment. The preparation involved the development of the interview protocol with open-ended questions tailored to explore participants' insights on their experience as part of the Local Accelerator Hubs, the challenges faced, and the perceived impacts. The interviews were conducted in the local language, either in person or virtually, depending on participants' preferences, and recorded with consent for accuracy in data analysis. The interviews were then transcribed, and translated into English.

When selecting interviewees from across the experiment participants, selected individuals who had attended at least two workshops as part of their local circular economy experiment. At least six representatives from local businesses were interviewed at each of the four locations, with a mix of participants with varied levels of expertise (e.g. established practitioners, new entrants) and a diversity of roles (e.g. technical staff, mid-level managers, executives). A total of 42 interviews were conducted, which comprised 10 for each local partner from France, Portugal, and Slovenia, and 12 interviews in Cyprus (two extra were conducted since some of the early interviews were shorter in length, and thus yielded less data).

Table A1. Characteristics of selected participants in the interviews for each LAH.

Country	No. interviewees	Gender		Value chain addressed
		Woman	Man	
Portugal	10	4	6	Food, water, and nutrients
Cyprus	12	3	9	Construction and buildings
Slovenia	10	9	1	Textiles
France	10	9	1	Textiles

The anonymised interview transcripts are publicly available to promote transparency and support further research in the field via: <https://doi.org/10.5281/zenodo.15387249>. By removing all identifying information, the privacy and confidentiality of participants has been maintained while allowing other researchers, practitioners, and stakeholders to access valuable qualitative data.

A2. Coding process

Thematic analysis and coding helped to identify patterns and key insights from the interviews.

In the first phase of the code development, a single analyst coded 12 transcripts, selecting three from each site. This preliminary coding helped identify recurring themes and patterns and integrated them into an initial draft codebook presented to the research team for review and feedback. Moreover, to enhance the reliability and validity of the coding framework, all analysts participated in a collaborative exercise by coding an additional 16 transcripts. This process involved applying the initial codebook, engaging in discussions to reconcile differences, and iteratively refining the codes. The outcome of this phase was a refined codebook that reflected a shared understanding of key themes and categories. Finally, the research leader applied the refined coding framework to the remaining 14 interviews in the final phase. During this process, more fine-grained codes were developed within the established broad categories to allow for deeper thematic analysis. The other analysts conducted regular quality checks to ensure consistency and accuracy, reviewing coded transcripts and providing feedback to maintain coding reliability across the dataset. This report presents the results of coding of the interviews.



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