DECISO
DEVELOPERS OF CIRCULAR SOLUTIONS

Topic: CIRCBIO-01-01 Circular Cities and Regions Initiative's project development assistance (CCRI-PDA]

D1.3 Reports from mobilization and mutual learning workshops in the pilot areas

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D1.3 Reports from mobilization and mutual learning workshops in the pilot areas

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Abstract	This deliverable describes the results from the mobilisation and mutual learning workshops in the different pilots. The deliverable has as an annex the results of the 4 pilots mutual learning activities workshops in terms of stakeholders' awareness improvement, financial supports identified and legislative/regulatory framework.
Title and number of connected deliverables	D1.1 – Market state of the art of circular economy in the pilot areas and D1.2 – Guide to good practices and opportunities at the European and National level
Explain Deliverable Dependency/ Connection	D1.1 and D.1.2 The mutual learning activities are focused on discussing the outcomes of Task 1.1 and Task 1.2
Title of connected external documents	None
Reference of the document and the link (if available)	None

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1. Introduction

1.1 Purpose of the report

DECISO Work Package 1 (WP1) is crucial for the Circular Economy Ecosystems (CEEs) implementation in each of the pilots, to ensure the harmonization, the adherence to the specific principles, high quality data and a fair representation of stakeholders. Task "T1.3- Mutual learning from good practice" aims to promote mutual learning through the organization of workshops and mobilization of stakeholders within the different pilots. This approach facilitates the knowledge sharing and the discussion of the previous phases results produced by Task "T1.1- Market state of the art" and "T1.22- Practices and opportunities at national and European levels", focused on the identification and application of best practices (Task T1.3- Mutual learning from good practices).

This process is part of a more general state-of-the-art study regarding collective stakeholders' awareness, knowledge, plans, projects, and initiatives on circular economy, with a special emphasis on the specificity of the four pilots of the DECISO project. The in-depth analysis proposed by this study not only aims to identify existing needs and barriers, but also extends to a critical examination of policies, legislation, rules, technical gaps, and financial needs at the local and European levels.

This phase discussion is crucial in what regards several key reasons that underscore the importance of this phase in the broader context of the circular economy and sustainability.

a) The implementation phase of Circular Economy Ecosystems (CEEs) requires a strong **understanding of best practices**, aiming to highlight the process of adoption of these practices into each pilot and ensuring that the solutions identified are not only theoretically grounded, but also practically applicable and adaptable to the local context.

b) It is also crucial to emphasize the importance of **creating an environment of collaboration among stakeholders**. The experience and knowledge sharing among the different stakeholders, not only facilitates the achievement of the project's specific objectives, but also creates a collaborative network that can be extended beyond the DECISO context, promoting innovation and a more widely dissemination of the best practices.

c) **Increase stakeholder awareness**. Informed stakeholders are more likely to support initiatives and actively participate in the transformation process.

d) The creation of a **collaborative community** is a desirable outcome of the mutual learning phase. Building a dynamic network of shared knowledge and skills among stakeholders promotes innovation, the sharing of resources, and the creation of sustainable solutions that extend beyond project boundaries.

e) This phase not only focuses on the immediate activities but also sets the stage for the DECISO project long-term sustainability. The discussion highlights the DECISO project's strategic approach in what regards the stakeholders' engagement and promoting durable changes that contribute to the circular economy transformation.

1.2 Background

The work carried out within the task "T1.3- Mutual learning from good practices" was based on the assumption that it is very important to analyse the geographical, socio-economic, and environmental context

in which the various DECISO pilots are located. Below, a brief description is provided considering these three aspects for Greece, Germany and Portugal, including specific information on the areas involved.

1.2.1 Greece

In this historic period, Greece is facing external challenges to its economic recovery, which has been slowed by the rising of energy prices and the general uncertainty. Greece has experienced a remarkable recovery thanks to the government support, a recovery in tourism and in exportation and, improved consumers' and investors' confidence, returning Gross Domestic Product to COVID-19 pre-crisis levels. Despite the continued fiscal support and ongoing reforms, it is critical that the country implements the Recovery and Resilience Plan, manages cost and supply pressures, and returns banks to optimal "health" to ensure a sustained recovery. The war in Ukraine has further complicated the situation, directly affecting Greece's energy supply. In addition to immediate challenges, Greece also faces some long-term problems, such as low labour participation and adaptation to climate challenges. The occupation rate, especially among women and youth, remains lower than in the other OECD countries, despite the post-COVID employment recovery. In addition, an ageing population poses a challenge for the labour force. Greece must continue to improve the public resource management, with an emphasis on reforms full implementation and an effective use of available funds. Reducing the fiscal deficit and returning to fiscal sustainability are key aspects to ensure a long-term economic stability (EC-Country report Greece, 2022).

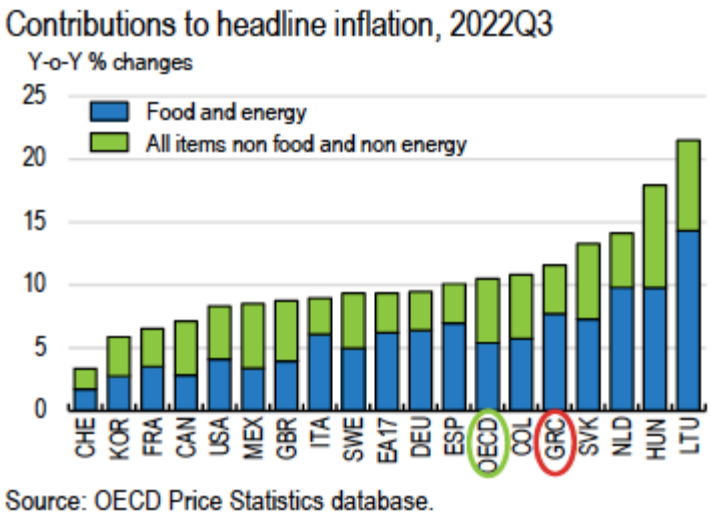


Figure 1: Contributions to headline inflation Source OECD Price statistics databse

The green economy, and particularly the circular economy sector, in Greece requires targeted policies that consider the need to address climate change and manage the transition from carbon-intensive sectors. Greece has demonstrated a good awareness related to the climate change costs, with 80 percent of the public in favour of more stringent approaches. However, the transition requires stakeholders' involvement and consensus and the inclusion of business, trade unions and NGOs representatives.

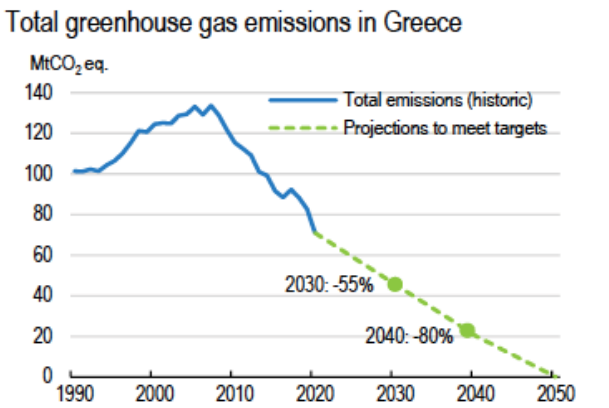


Figure 2: Total GHG emissions in Greece. Source: OECD,2022

Greece has adopted stricter environmental laws and implemented educational environmental issues initiatives in schools. However, there is the need to improve the collection and publication of environmental data, ensuring accessibility and clarity of information (OECD Economic Survey Greece January 2023).

Traditionally, Western Macedonia has played a crucial role as the "Energy Heart" of Greece, providing over 65% of the country's electricity, primarily through lignite-powered stations. This was a major driver for the area's economy, which depended largely on the Public Power Corporation S.A. of Greece. Currently, the region is undergoing a transition away from fossil fuels (closure of lignite-fired plants by 2028), moving towards a new, sustainable economic model. While this shift offers significant development opportunities, it also introduces challenges, including high unemployment and low levels of competitiveness, innovation and new investment attraction.

The lack of adequate job opportunities is leading to the desertification of the area. The energy sector's ongoing changes are causing local residents to leave, a situation that might worsen with future shifts, potentially resulting in a brain drain. Although the Region of West Macedonia is aligning with European priorities in transitioning to a new production model, improvements are still needed. However, the move towards renewable energy and the phasing out of lignite plants have highlighted the immediate need for significant reskilling or upskilling of the regional workforce.

In addition, Greece needs to align training with the need for new skills required by the green economy by incentivizing participation in continuing education programs and offering employment subsidies to support the long-term unemployed hiring. Investment certainty, stakeholder involvement, and training support are key factors to the successful transition to a green economy in Greece, with a specific focus on managing the decline of the lignite industry in Western Macedonia.

1.2.2 Germany

Germany is facing a complex energy crisis, worsened by the war in Ukraine and rising energy prices. In response, the government has implemented immediate supportive measures, focusing on incentives for energy conservation and boosting consumer and investor confidence. Although uncertainty related to energy security may affect investment, a gradual economic recovery is expected, supported by the substantial savings of businesses and the investment needed to transition to sustainable energy sources.

However, demographics are another obstacle: the rapid population ageing requires structural reforms to ensure sufficient fiscal space and promote growth. These reforms should include incentives for sustained

employment and improvements in adult education programs. In the context of public sector modernization, digitization emerges as a key lever to improve administrative efficiency and promote economic growth. Achieving the ambitious goal of climate neutrality by 2045 poses significant challenges. There is a need to reinforce emissions pricing and adopt targeted strategies for energy-intensive sectors. In parallel, it is essential to address labour force reallocation, with the goal of minimizing inequality through active labour market programs and increased support for education and training (OECD Economic Surveys Germany May 2023).

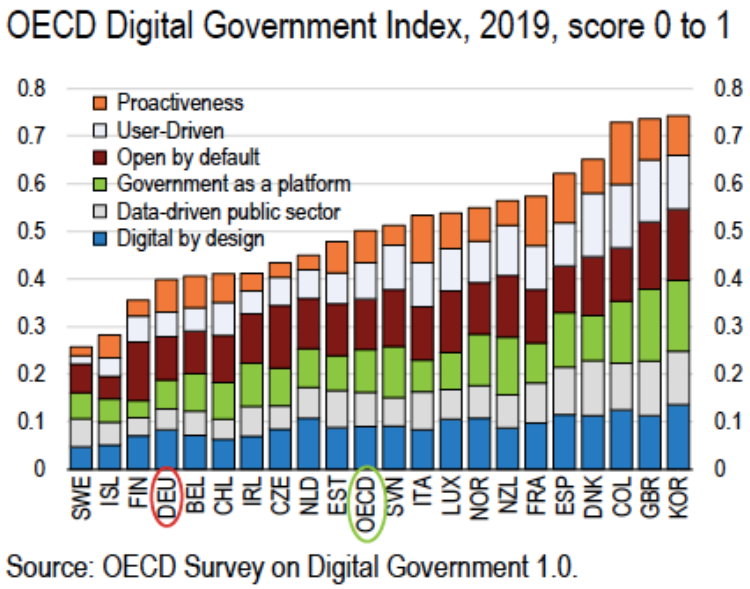


Figure 3: OECD Digital Government Index 2019 - Source: OECD Survey on Digital Government

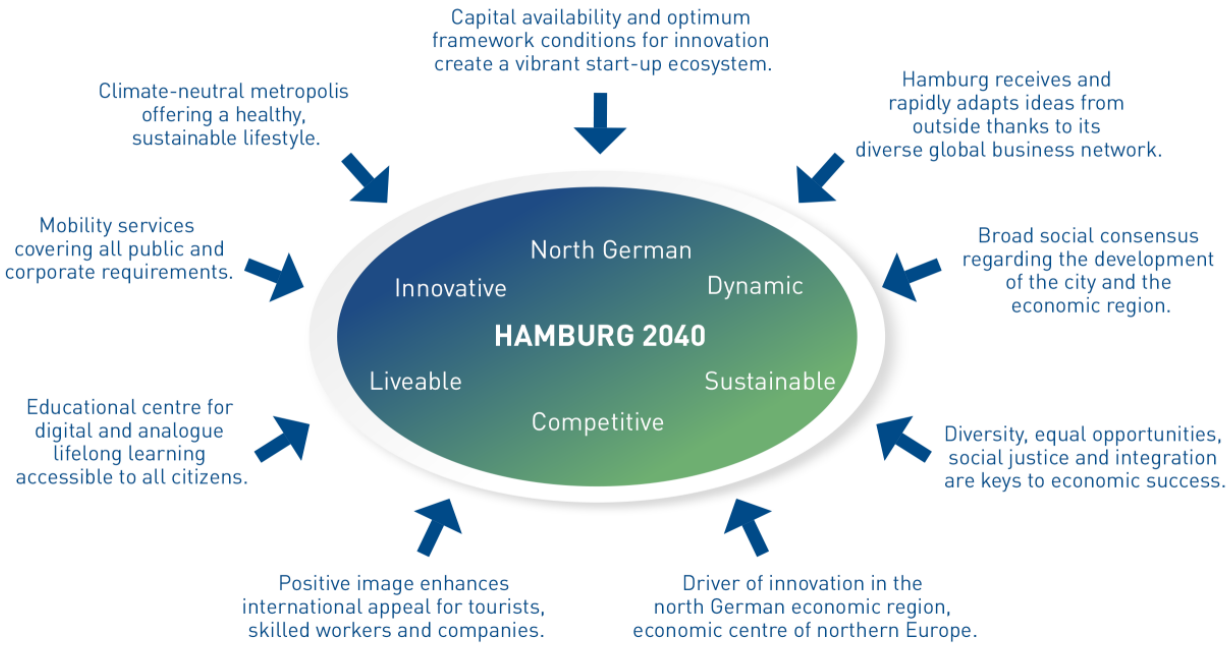


Figure 4: Hamburg 2040 target vision - Source: Hamburg Chamber of Commerce, 2022

The climate challenge, with its economic and social implications, requires an integrated approach and long-term strategies to ensure a sustainable and resilient future. The Hamburg Chamber of Commerce (HCC) has set a goal of achieving climate neutrality by 2040 by engaging Hamburg's business community in the climate challenge. Reaching Climate Neutrality for the Hamburg Economy by 2040 analyses what it means for Hamburg businesses to achieve this goal and identifies key actions. Climate neutrality requires zero direct and indirect emissions, involving SMEs, which contribute significantly to emissions but often lack resources. Funding is a barrier, but business networks and shared goals can facilitate access to green financing. The circular economy is a driver for climate neutrality, but it requires awareness, incentives, and favourable regulations.

1.2.3 Portugal

Portugal's economic framework, although it has showed an efficient post-pandemic recovery, has slowed down considerably mainly due to the high inflation and the global economic conditions. The Recovery and Resilience Plan (RRP) is a key tool, along with fiscal policies, to achieve an economic recovery. Portugal's growth will continue to slow in future years, partly due to the conflict between Russia and Ukraine, which has negatively affected energy costs and general uncertainty. In fact, Portugal has experienced a reduction in consumer spending and a slowdown in investment and hiring decisions by the business sector. EU grants and subsidies worth €14 billion will seek to cushion these shocks and support growth once energy prices stabilize. Bank credit has declined, with attention to loan quality. Household debt is high, making them vulnerable to rate hikes. Risks to businesses increase as rates rise.
Restructuring has increased. Public debt has declined, but efficient spending is essential to address budgetary pressures and support green and digital transitions (OECD Economic Survey Portugal, June 2023). Portugal has improved energy and climate sustainability by reducing emissions and increasing access to clean energy, although challenges remain in materials consumption, waste, and ecosystem management. Although GHG emissions have decreased, achieving carbon neutrality will require sustained action.

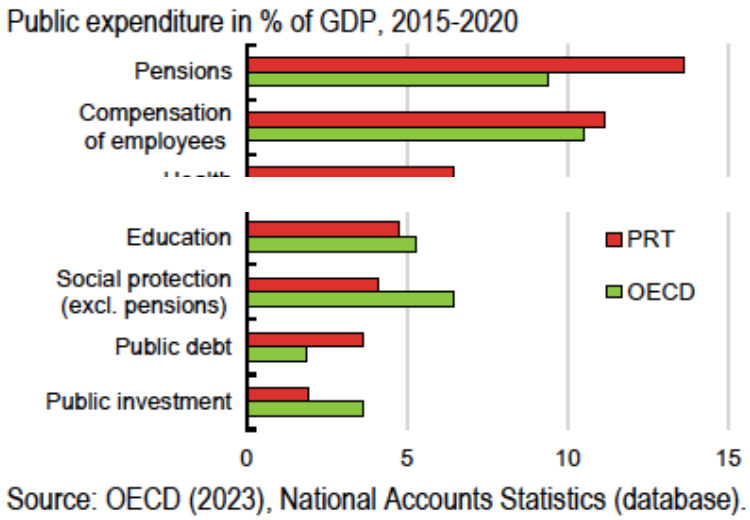


Figure 5: Public Expenditure in % of GDP - Source: OECD (2023) National Accounts Statistics (database)

Portugal has met its 2020 climate targets, but additional policies are needed to reduce emissions by 2030 and 2050. Emphasis should be placed on renewable energy development, building renovation, low-impact vehicles, and reducing agricultural emissions (OECD Environmental Portugal Review 2023).
As for Alentejo, the Portuguese region faces severe population decline and ageing, with financial challenges made more severe by the current overall global situation. High service costs in low-population areas and a lack of digital infrastructure make complex the delivery of public services. These challenges are common to other OECD regions and require policy responses focused on digitization and administrative coordination. Portugal's decentralization offers opportunities, but transfers not always accompanied by sufficient funding generate inconsistencies. Improved inter-municipal cooperation can help address the challenges of dispersion, decline, and an ageing population by ensuring adequate funding. School closure and consolidation policies affect the region and require customized strategies to ensure access and quality of education. Incentivizing teachers' mobility and improving digital infrastructure can help overcome school transportation challenges (OECD Rural Studies – Delivering Quality Services to All in Alentejo).

1.3 Objectives

Increasing stakeholders' awareness plays a central role in the mobilisation and mutual learning activities. Raising awareness means providing key stakeholders with a thorough understanding of the problems and the best practices applicable in each pilot area, and enabling them to play an active role in the decision-making process. This effort is critically important because awareness not only fosters the knowledge dissemination and improvement of skills, but also forms the basis for informed decisions and active participation, thus promoting the large-scale adoption of sustainable and cost-effective practices within the circular economy.
Moreover, collective awareness is not only an information tool, but a catalyst for the creation of a collaborative community. Through active participation in mobilization workshops, it aims to build a dynamic network of shared knowledge and experience among stakeholders. This synergy not only facilitates the adoption of sustainable practices, but also creates fertile ground for innovation and the creation of shared solutions, thus helping to promote a successful transition to a circular economy on a large scale. Ultimately, raising awareness is the key to turning DECISO's ambitious goals into a concrete and sustainable reality for the future.
In essence, the central objective of Task 1.3 is to orchestrate a dynamic collaborative environment in which stakeholders can not only learn from each other, but also actively contribute to building the necessary foundation for informed decisions and large-scale dissemination of sustainable practices within the different DECISO project pilot areas. This process of mutual exchange and learning, carried out through the mobilization workshops, serves as a key catalyst for establishing constructive dialogue and creating fertile ground for the effective adoption of innovative and sustainable solutions.

2. Methodology

A common framework has been defined and adopted by the four DECISO project pilots dedicated to the implementation of the mobilization and mutual learning workshops; the adopted methodology is fundamental for promoting an active and inclusive engagement among participants. The methodology was focused on democratic and well-structured dialogues; each workshop was held using online and in-presence modalities and significantly contributed to the creation of a collaborative context in which ideas, opinions and information could flow out freely. This structure helps to set the agenda and maintain a coherent flow

of topics, facilitating participants' understanding and offering an opportunity for participants to express their opinions. In addition, a well-defined dialogue structure helps to avoid misunderstandings and promote deeper mutual understanding among participants, while also enabling effective time management.
The presentation of good practices also proved to be a crucial element in modelling and guiding the discussion. Presentations not only provided a clear visual structure of complex information, but also facilitated an active participation, transforming decision-making into an inclusive and shared experience.
This deliverable explains in detail how the intersection of democratic dialogues and presentations shaped the methodology adopted in the workshops, highlighting this synergy benefits and its relevance in facilitating a collaborative and participatory approach. There were different types of stakeholders involved in the workshops, as shown in the next figure.

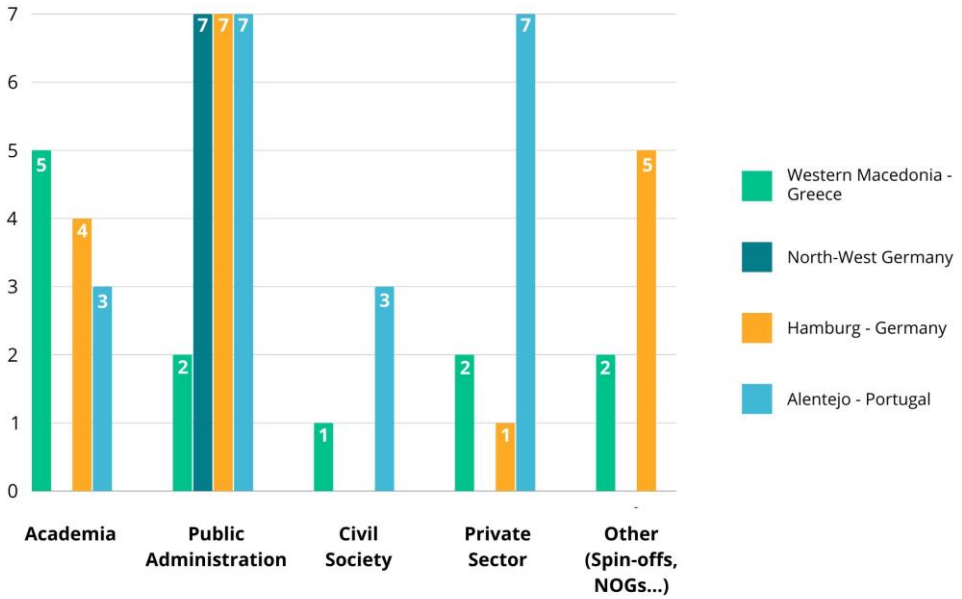


Figure 6: Stakeholders by categories - Source: author

Below is detailed the methodology used for each of the pilot's workshops.
The workshop related to the Greek pilot project was conducted online through a semi-structured dialogue, following a predetermined agenda, and using presentations. This approach proved convenient for all participants, allowing them to express ideas and gather information effectively. The event involved carefully selected stakeholders, with the participation of 4 women and 8 men, distributed in the following categories: Academics (2 women - 3 men), Spin-offs (2 men), Industry (1 woman - 1 man), Government/Policymakers (1 woman - 1 man) and Civil Society (1 man).
The workshop related to the Northwest Germany pilot was also conducted online through a well-structured dialogue, using GoToMeeting software for video conferencing and presentations related to the DECISO and pilot projects. Involved 7 participants (2 men and 5 women) from public administration.
The workshop related to the Hamburg pilot project, Germany, adopted a well-structured discussion and a World Café approach with a networking break. Facilitated by a project manager from the Senate Chancellery, it involved almost all participants as presenters of their own projects or best practices. With 17 physical

participants out of 50 invited, the World Café approach facilitated smaller group discussions and then presented the results to the whole group. The participants were 10 women and 7 men, representing different categories such as spin-offs, universities, public administration, public authority, private sector, and NGOs.
Lastly, the workshop related to the Alentejo pilot project, in Portugal, was based on a democratic in-person discussion group with no remote participants. The use of presentations and physical tools enriched the discussion. Involving 20 people, including 6 men and 14 women, from sectors such as civil society, public administration, municipal, private sector, and academia, the focus group provided a comprehensive overview of stakeholder views and opinions, contributing to the participatory process of project construction and discussion.

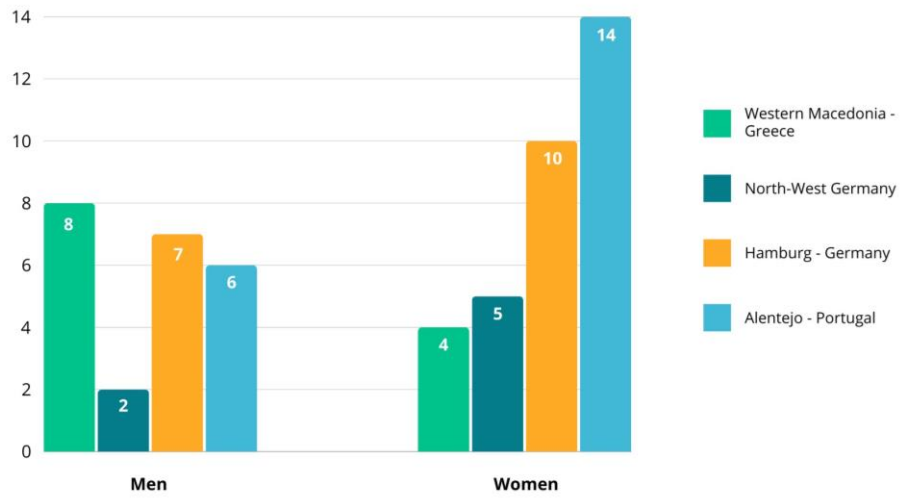


Figure 7: Stakeholders by gender - Source: author

2.1 Overview of activities

The common purpose of these workshops was to promote collaboration and knowledge sharing for the support of sustainable practices. These activities focused on networking to facilitate connections and synergies, in-depth exploration of funding opportunities at various levels, and discussions aimed at identifying opportunities and overcoming barriers in promoting circular economy projects.
The Workshop related to the Greece pilot was significant for the DECISO project advancement, having been designed to inform stakeholders about good practices to be adopted in the context of the circular transition in line with the targets and ambitions of DECISO. The idea behind the workshop was to invite participants to share their knowledge about local, national, and European financial instruments relevant to the pilot project, to have a comprehensive overview of the available financial resources and enable an accurate assessment to be made about funding options. In addition, the workshop aimed to identify the legislative and regulatory framework necessary to ensure the success of the program.
The workshop held in Northwest Germany was also significant in allowing for an in-depth exploration of the initiatives and operational structures in the region, as well as a deeper understanding of the pilot area. By facilitating an in-depth exchange of opinions and knowledge among participants, the workshop enabled them to share their experiences and provide a detailed overview of the organizational structures and networks involved in rainwater management.

The workshop in Hamburg provided a significant opportunity to bring together different actors involved in circular projects from a wide range of sectors, including NGOs, start-ups, universities, local authorities, and spin-offs. The event adopted a well-defined structure based on three key pillars: networking, exchange of information on available funding schemes, and discussion of existing opportunities and barriers in this regard.
Lastly, the workshop in Alentejo proved to be a crucial event for the analysis of local initiatives in this specific area. The main objective of the event was to explore and identify needs and opportunities for the pilot project by actively involving local stakeholders. The focus group took a targeted approach, focusing on identifying strengths, weaknesses, opportunities, threats and needs related to funding in the aromatic and medicinal plants sector. This approach provided a comprehensive view of the context, which is essential for the development of targeted and sustainable strategies.

2.2 Region specific activities

This section of the report aims to explain the specificities of the activities conducted in the workshops of the different pilots.

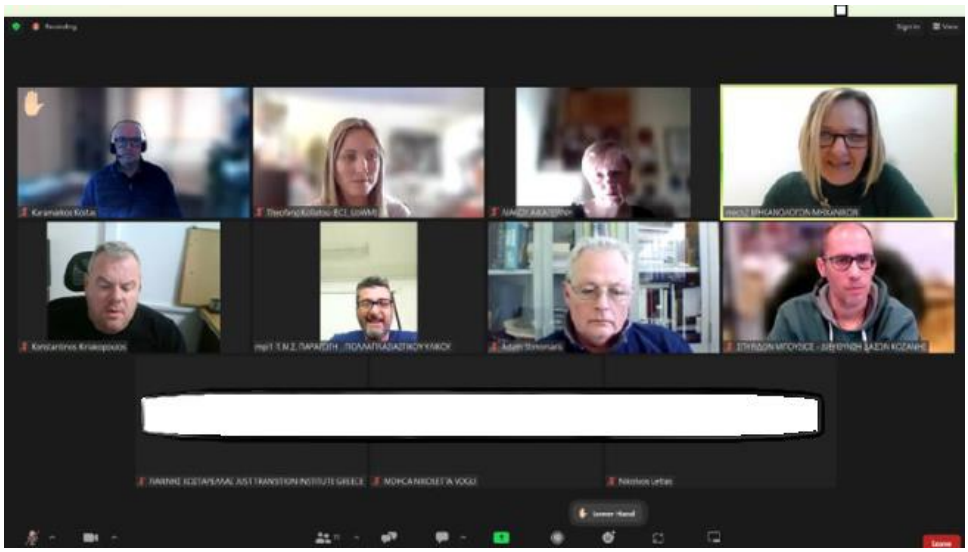


Figure 8: Online Workshop in Greece - Source: PDM Mutual Learning Workshop

2.2.1 Western Macedonia's Pilot

The workshop held in Macedonian region, Greece, (September 2023), was a key moment dedicated to deepening the circular economy dynamics, seeking to answer crucial questions and promote collaboration among local actors, as well as practices in the DECISO pilot project. The meeting began with an introductory presentation led by a member of the DECISO project team, and the Director of DETEPA S.A. This phase explained the goals of the project, presenting the successful initiatives of DETEPA S.A. in the Greater Amyndeon Area.
After that, participants had the opportunity to briefly present the financial instruments available at the local, national, and European levels for the pilot. This knowledge exchange was followed by an intensive discussion on identifying the legislative and regulatory framework essential to the success of the program.

The presentation part concluded with 5-minute speeches by participants focused on financial support and the legislative/regulatory framework. The final discussion allowed for synthesizing the information presented and outlining the next steps for the project. The workshop provided an important space for sharing and discussion, helping to create a collaborative network and stimulating the identification of opportunities and challenges within circular economy in the Macedonian region of Greece.

2.2.2 Northwestern Germany's Pilot

The Workshop held in Northwest Germany (August 2023) aimed to explore and answer key questions, focusing on the circular economy sustainable development in the region. It starts with a warm welcome, during which the organiser gave an overview of the DECISO project and its impact in northern Germany. This presentation set the objectives of the workshop, creating a meaningful context for the participants.
Afterwards, the introduction was enriched by each participant and organization involved presentation. A time devoted to organizational and network structures in the field of stormwater management provided a detailed insight into the context, stimulating the sharing of experiences and perspectives. One workshop crucial focus was the transfer of results obtained from the stormwater interviews. Through critical analysis of inhibiting and promoting factors, participants helped further specify emerging challenges and opportunities in stormwater management in the region.
The concluding part focused on the OOWV (Western Water Association) association area, with a brief presentation of the initial situation and present challenges. A key moment was the participants' ideas, comments, and recommendations on how to strategically address stormwater management in the association area in the future.
The workshop provided an important platform for the discussion and sharing of perspectives, helping to define concrete strategies and promote innovation in sustainable stormwater management.

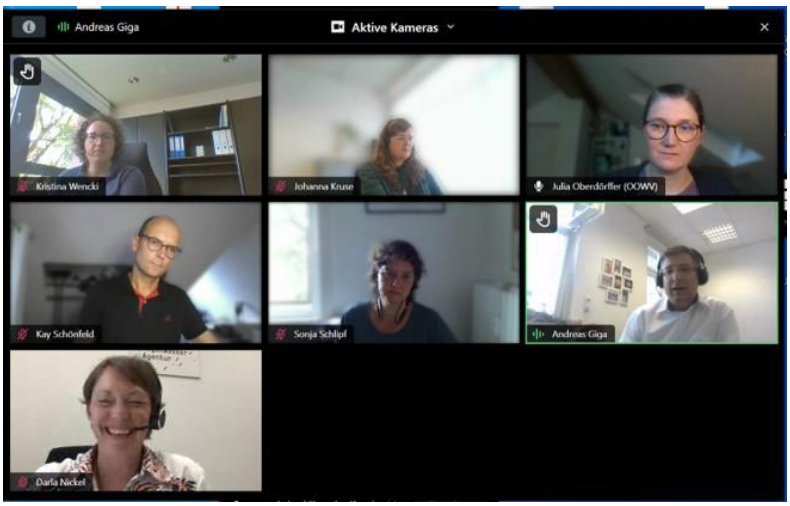


Figure 9: Online Workshop in Northwestern Germany - Source:Mutual Learning Workshop

The conclusions opened future perspectives, consolidating the value of this collaboration to address common challenges in the Northwest German region.

2.2.3 Hamburg's Pilot

The Workshop held in Hamburg (September 2023) was an in-depth examination of the dynamics of the circular economy, seeking to answer to key questions and foster a collaborative and informative environment. The event began with a Q&A phase, focusing on the barriers and funding opportunities for circular economy ideas in the region. Active involvement of participants allowed an analysis of the specific needs of circular economy practitioners in Hamburg, highlighting the critical aspects related to financing.
Networking was a central element, bringing together actors with different backgrounds in the circular economy landscape in Hamburg. Interest in an ongoing exchange of knowledge and synergies emerged as a key need, highlighting the lack of information on funding sources. DECISO's request for knowledge sharing underscored the importance of building bridges between different contexts and future workshops. The structure of the workshop included a detailed presentation of active circular economy projects in Hamburg, followed by an overview of funding instruments at the European, national and local levels. This information phase was crucial in providing participants with a thorough understanding of available financial resources, promoting an accurate assessment of financing options.
The discussion of the opportunities and barriers of circular economy financing in Hamburg was the focus of the workshop, enabling participants to critically examine the existing challenges and identify new possibilities and strategies to overcome them. The active participation of representatives from different areas enriched the discussion, leading to an inclusive perspective and the creation of an essential collaborative network.

Figure 10: Workshop in Hamburg, Germany - Source: FHH Mutual Learning Workshop

2.2.4 Alentejo's Pilot

The Workshop in Alentejo (June 2023) focused on answering crucial questions regarding the medicinal plant sector, promoting a participatory and informative approach. The predefined agenda followed a structure aimed at exploring and understanding the dynamics of this sector.
The workshop started with a presentation of the DECISO project, providing a key context for the understanding of the subsequent activities. Thereafter, the focus shifted to an intensive information exchange activity aimed at diagnosing the medicinal plant sector.

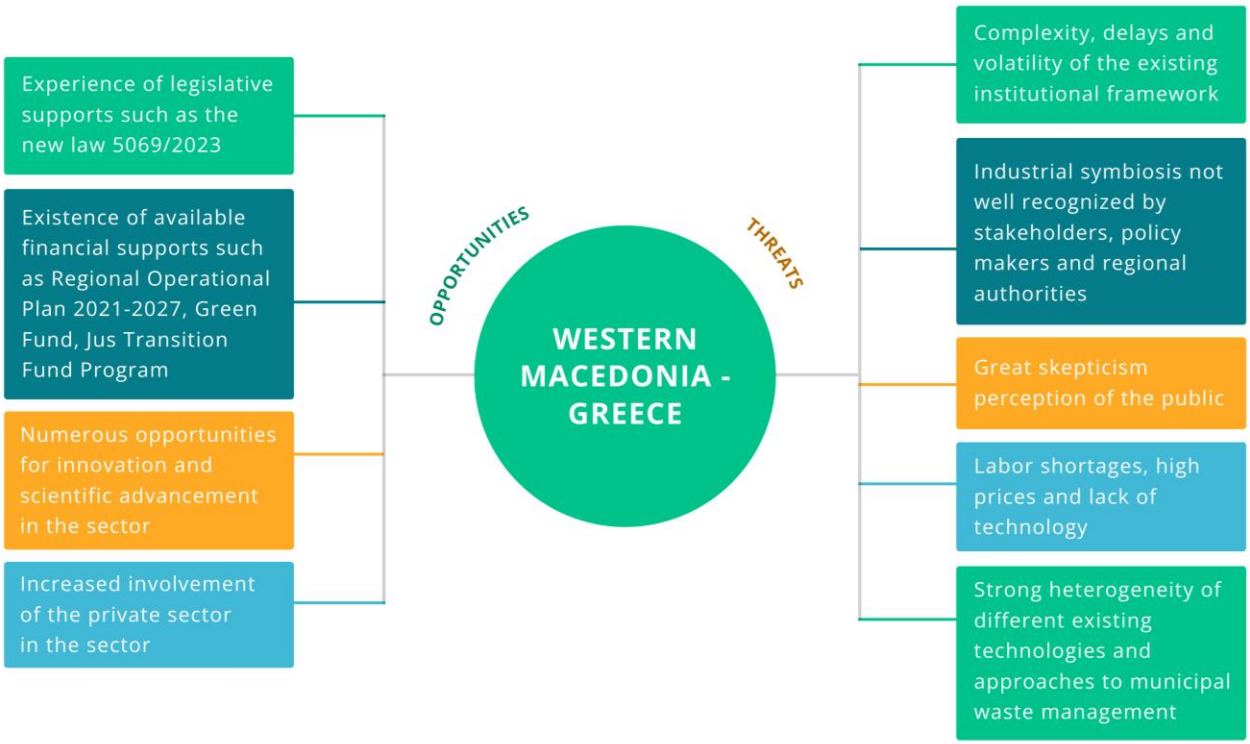
Triggering questions guided this process, analysing the characteristics, strengths and weaknesses and funding opportunities perceived by producers.
A distinctive aspect of the workshop was the examination of local circular economy initiatives in the Alentejo region. It was highlighted how circularity was intrinsic to the area, for example in the complete utilization of cork oak, including elements that are traditionally considered waste. MAP (Models of Participatory Agriculture) solutions emerged as key tools to promote circular economy along the value chain.
The primary target audience was medicinal plant producers, but the participation was extended to a broad spectrum of stakeholders, including university representatives, non-profit institutions and tourism agencies. This diversification enriched the discussion, allowing for a more inclusive approach and a deeper understanding of the sector dynamics.

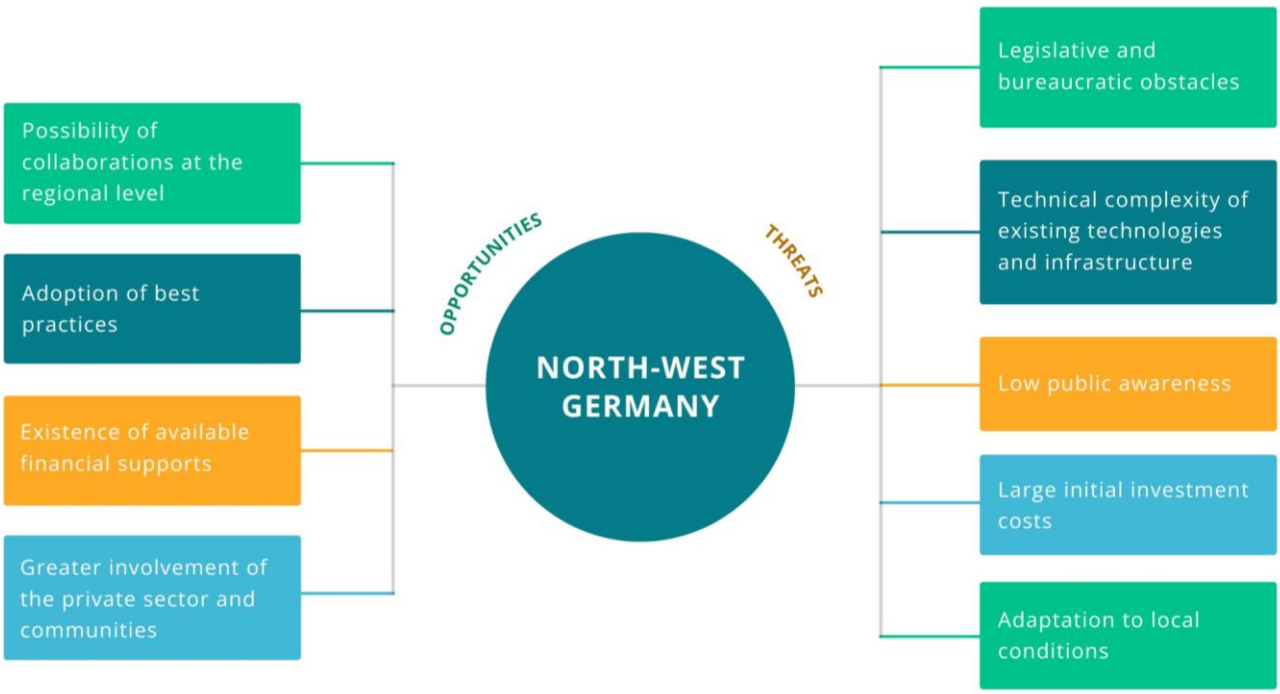
Figure 11: Workshop in Alentejo - Source: CCDRA Mutual Learning Workshop

The workshop played a key role as a platform for the dialogue and the exchange of ideas, facilitating the creation of synergies among different stakeholders in the sector. The discussion allowed a clear delineation of the challenges and opportunities present in the local context, thus contributing to a critical reflection that is essential for the definition of concrete strategies and the strengthening of circular economy initiatives in the Alentejo region.

3. Results

This section is focused on summarizing the workshops findings and results regarding the financial supports (section 3.1) and the legislative framework identified by stakeholders in each DECISO pilot, highlighting the findings that emerged through a perspective similar to a SWOT analysis, dividing them into two key categories, "Opportunities" and "Threats". Thus, uncovering the unique perspectives of each workshop, enabling an in-depth understanding of the elements that positively and negatively influence the operating environment of each pilot.





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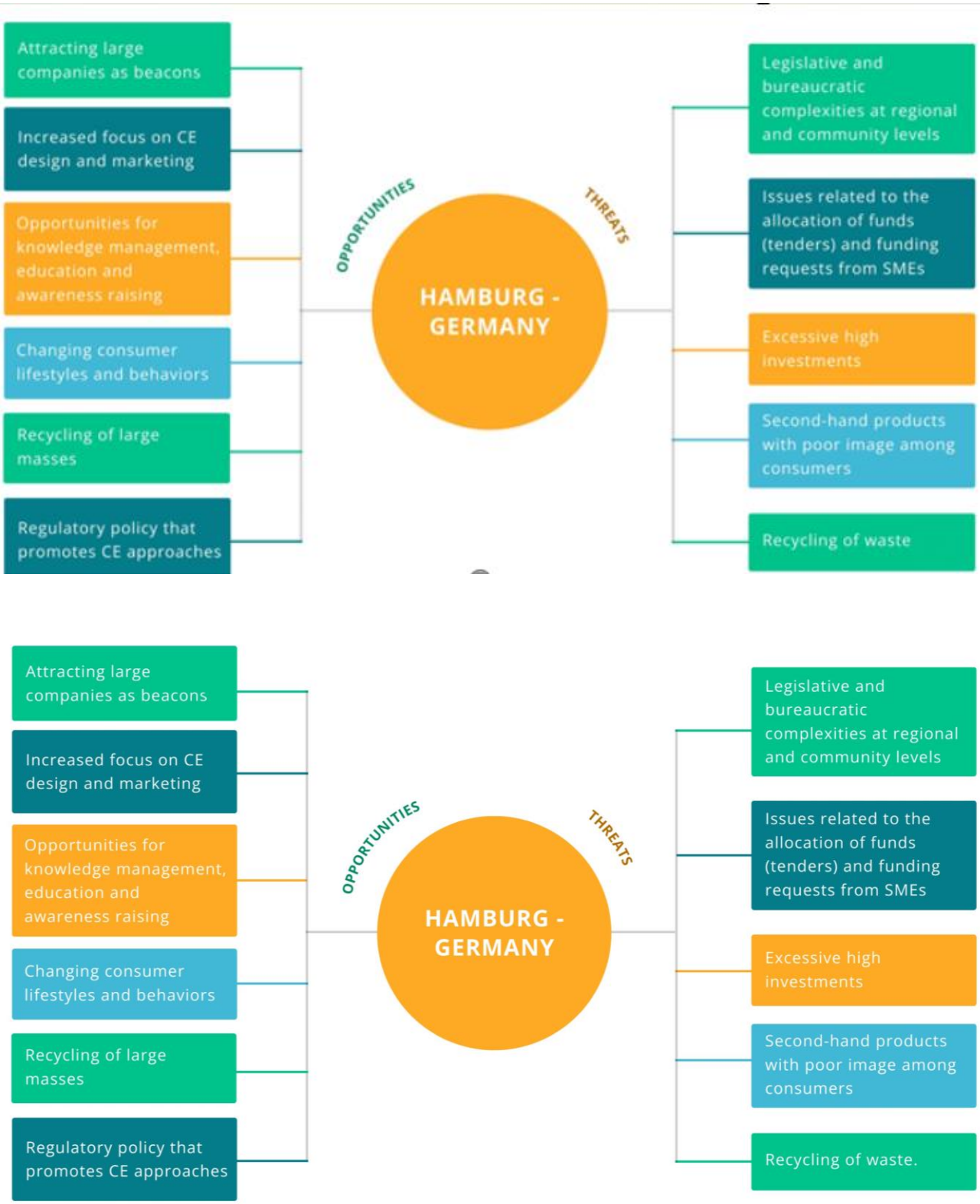

Figure 12: Results from workshop – Source-Author

3.1 Financial Supports Identified

Below are listed the financial supports identified during the activities, including grants, investments, and partnerships, and its detailed how the identified financial supports have contributed to the success of the activities and any ongoing or future projects.

Western Macedonia

The following financial sources were identified at the European, National and Local level:

European Level

Just Transition Fund (JTF) Programme: Greece allocated a total investment of €1.63 billion through structural funds to mitigate the effects of the energy and climate transition on the local economy and society. The Greek plan will receive in total €1.38 billion in grants from the EU JTF (https://ec.europa.eu/regional_policy/funding/just-transition-fund_en). This support from the JTF is directed towards various sectors and initiatives, including energy transition, adapting land use, and promoting the circular economy. These efforts encompass activities such as improving energy efficiency, empowering self-production through energy communities, utilizing renewable energy sources, advancing e-mobility, and enhancing energy storage systems. Another operation of significant strategic importance within the program is the 'Innovation Zone' in Western Macedonia (https://pta.pdm.gr/studies/meleti-skopimotitas-organosis-kai-thesmothetisis-tis-zonis-kainotomias-katharis-energeias-kai-perivallontikon-technologion-dytikis-makedonias/), which serves as a central entity for infrastructure development and initiatives aimed at fostering innovative entrepreneurship.

National Level (Greece)

Green Fund: The purpose of the Green Fund (https://prasinotameio.gr/) is to support development through the protection of the environment by providing administrative, technical, and financial support for programs, measures, interventions, and actions aimed at the enhancement and restoration of the environment, the support of the country's environmental policy, and the service of public and social interests.

Hellenic Republic Asset Development Fund: The philosophy of the HRADF (https://hradf.com/en/home/) is to serve as a strategic ally to the Greek State, aiming to draw investments, boost the growth potential of the Greek economy, improve its global standing, and generate national wealth. In alignment with this mission, the Fund intends to provide financial assistance to forest associations for the development of projects that forecast the production and transportation of forest biomass.

Upcoming financial support from the Hellenic Ministry of Environment, Energy, and Climate Change: This support will be allocated to research focused on the biomass management of underutilized productive forests.

Local Level

Regional Operation Plan 2021-2027: "Program Ditiki Makedonia 2021-2027" (https://www.pepdym.gr/index.php?option=com_content&view=article&id=698&Itemid=272) is called upon to play a crucial role, among other things, in addressing the needs of the transition to the post-lignite period and in highlighting its specific developmental characteristics through targeted and carefully selected interventions. These actions will yield significant added value and contribute to achieving the goals of the European Structural and Investment Funds (ESIF) 2021-2027 and the European Union's Policy Objectives for

the period 2021-2027, which relate to a greener Europe with low carbon emissions. Just transition to clean energy sources, green and blue investments, circular economy, climate change adaptation, risk prevention, and management will be adopted through this program. From a total of €391.1 billion, 20% will be allocated to support clean energy and green sustainable development.

The Municipal District Heating Company of Amyntaio (MDHCA) has successfully obtained complete financial support from the Green Fund, as established by the Ministry of Environment, Energy and Climate Change. This funding aligns with the broader ambitions of the programme, aiming to provide affordable and clean thermal energy, particularly through the utilization of non-fossil fuels like agricultural biomass and other residual streams. With the financial assistance secured from the Green Fund, MDHCA plans to undertake key activities such as retrofitting existing power plant equipment and supplying new combustion equipment. This initiative is expected to ease the procurement of the necessary fuel significantly, ensuring the company's sustainable operation and contributing to the regional strategy for energy poverty prevention and circular economy development.
Funding from both local and European sources can be leveraged to support the maintenance and operation of upgraded equipment, as well as to enable the retraining of current employees and the advanced training of the workforce in the region.

Financial supports identified	Link to the call	Period (release of the call - deadline)	State of the proposal
European level			
Just Transition Fund (JTF) Programme	https://ec.europa.eu/regional_policy/funding/just-transition-fund_en	New instrument of the Cohesion Policy 2021-2027	Not Submitted
National level			
Green Fund	https://prasinotameio.gr	First open call: 22/09/2021	Submitted
Hellenic Republic Asset Development Fund	https://hradf.com/en/home/	Open, ongoing	Not submitted
Financial support from the Hellenic Ministry of Environment, Energy, and Climate Change	https://www.gov.gr/en/upourgeia/upourgeio-periballontos-kai-energeias	Upcoming	Not submitted
Local level			
Program Ditiki Makedonia 2021-2027	https://www.pepdym.gr/index.php?option=com_content&view=article&id=698&Itemid=272	Open, ongoing	Not Submitted

Hamburg

The following financial sources were identified at the European, national and local levels:

European level

- HORIZON EUROPE: CircBio Calls
- InvestEU Fund
- European Investment Fund: Venture capital for SMEs
- Circular invest: PDA for CE projects

National level (Germany)

- #DBUcirconomy: Initiative for economy and society of the future
- National Circular Economy strategy: will be published soon, new financial sources expected
- Partnership: Circular Hub (North)
- Difu: Circular City

Local level (Hamburg)

- PROFI Environment Transfer: Hamburg investment and funding bank
- InnoFounder, InnoRampUp: Hamburg investment and funding bank, Innovationsstarter
- Companies for resource protection: Environmental Authority
- Hamburg Climate Plan Fund

At the European level, the HORIZON EUROPE CircBio Call CL6-2024-CIRCBIO-01-03 was identified for a project application regarding circular furniture in February 2024. If accepted, the project will be coordinated by Hamburg, with CNR, OV and IrRADIARE as partners. Circular invest offers PDA for CE projects. Hamburg is planning a workshop together with circular invest for CE ideas in Hamburg, when the next call for projects is opened. (approx. Summer 2024). The InvestEU Fund and the European Investment Fund were presented to the DECISO CE ecosystem in Hamburg, where several start-ups and SMEs are interested in those funds. Especially with regard to the identified lack of venture capital, those funds might be used by Hamburg CE ideas in the future.

At the national level in Germany, the partnership with the Circular Hub (national level), respectively the Circular Hub North (regional level) is contributing to the DECISO pilot with synergies in knowledge exchange and contacts with regional SMEs. #DBUcirconomy is an initiative financing SMEs as well as providing scholarships to students focusing on CE. The programme was presented during several workshops and has attracted the interest of several SMEs and initiatives. The National Circular Economy strategy in Germany will be published soon. New financial sources are expected within the strategy, which will be very interesting for the CE Ecosystem in Hamburg.

For the local level, several funding opportunities for CE are available for the DECISO project and the CE Ecosystem in Hamburg: funds from the Hamburg Climate Plan will be considered when applying for small-scale ideas on Hamburg level. For the other opportunities, as PROFI Environmental Transfer, the Inno-programmes from the Hamburg investment and Funding Bank and the Innovations starters, as well as the programme “Companies for resource protection” from the Environmental Authority; they are available for start-ups and SMEs providing circular solutions in Hamburg. With funds from DIFU (German Institute for Urbanistic), Hamburg is supported for finding a strategy for a circular city.

Financial supports identified	Link to the call	Period (release of the call-deadline)	State of the proposal
European level			
HORIZON EUROPE: CL6-2024-CircBio-01-03	EU Funding & Tenders Portal (europa.eu)	Deadline: 22.02.2024	Proposal submitted
Circular Invest	Applications (circularinvest.eu)	No open calls now, next appr. Summer 2024	Not submitted
National level			
#DBUcirconomy	Förderung - DBU	Call is open, continuous submission possible	Not submitted
National Circular Economy strategy	Nationale Kreislaufwirtschaftsstrategie - NKWS - Plattform Nationale Kreislaufwirtschaft (dialog-nkws.de)	Strategy will be published soon, new funding possibilities are expected	Not submitted
Local level			
Hamburg Climate Plan Fund	Hamburger Klimaplan - Leitstelle Klima - hamburg.de	Call is open, submission possible	Not submitted
InnoImpact	InnoImpact - Innovationsstarter Hamburg	Call is open, continuous submission possible	Not submitted

Northwest Germany

The following financial sources were identified (so far) on the European, national and local level:

European level

- Interreg A (Ems Dollard Region)
- Interreg B (North Sea Region)

National level (Germany)

- DBU Grant Funding
- FONA Call (German Federal Ministry of Education and Research's (BMBF))

Local level

- Metropol Region North West (not suitable yet)

At the national level, the pilot has applied for a DBU Grant Fund to support a project looking into alternative water resources for the hydrogen industry. The DBU (Deutsche Bundesstiftung Umwelt) is a German federal foundation dedicated to environmental protection and sustainability. It provides grant funding to support projects and initiatives that contribute to environmental conservation, sustainable development, and the protection of natural resources. The funding is available for a wide range of activities, including research, innovation, pilot projects, environmental education, and capacity-building initiatives.

In addition, they are looking into the FONA (Forschung und Nachhaltigkeit) call published by the Bundesministeriums für Bildung und Forschung (BMBF). FONA is the German Federal Ministry of Education and Research's (BMBF) research funding initiative for sustainable development. FONA supports research and innovation projects across various thematic areas, including climate change, energy, biodiversity, and sustainable resource management. Through FONA, the BMBF provides funding opportunities for interdisciplinary research projects, collaborative networks, and innovative solutions aimed at addressing pressing environmental and societal challenges. These grants enable researchers, institutions, and stakeholders to develop and implement strategies, technologies, and policies that contribute to sustainable development goals in Germany and beyond. One call that is being looked at is focussing on the water supply of the future and might be a great fit for this pilot.
On a European level, they are applying for Interreg North Sea Region "Robust and Smart Economies". The Interreg North Sea Region Programme aims to promote sustainable economic development across countries bordering the North Sea. Under the theme "Robust and Smart Economies," the program focuses on enhancing the resilience and competitiveness of regional economies through innovative and sustainable approaches. Through collaborative projects, it seeks to address challenges such as climate change, digitalization, and resource efficiency while fostering economic growth and social cohesion in the region. This call is very interesting for this pilot since we are able to combine both rainwater harvesting and digital solutions, allowing for a practical approach that can be replicated across our pilot area.

Financial supports identified	Link to the call	Period (release of the call-deadline)	State of the proposal
European level			
Interreg North Sea – Robust & Smart Economies	NSR – Robust & Smart Economies	08.03.2024	Submitted
National level			
Deutsche Bundesstiftung Umwelt	DBU Förderung	Open Call	Approved
Bundesministeriums für Bildung und Forschung (BMBF)	Wasserversorgung der Zukunft	29.04.2024	Proposal writing
Local level			

Alentejo

Below are listed the financial supports identified.

European level

Interreg SUDOE Program 2021-2027- For this programming period, the preservation of Southwest Europe's natural capital and its adaptation to climate change, on the one hand, and the strengthening of social cohesion and territorial and demographic balance through innovation and endogenous development, on the other, are the foundations of our line of action.
LIFE - The LIFE Programme is the EU's funding instrument for the environment and climate action. The Circular economy and quality of life sub-programme aims at facilitating the transition toward a sustainable, circular, toxic-free, energy-efficient and climate-resilient economy and at protecting, restoring and improving

the quality of the environment, either through direct interventions or by supporting the integration of those objectives in other policies.

National level

Portugal 2030 – One of Portugal 2030's central thematic agendas is "Portugal + Green", which aims to accompany the climate emergency and incorporate decarbonisation targets by supporting innovation and the circular economy, benefiting sustainable production methods. In addition, the public investment programme "*INVESTIMENTOS PORTUGAL 2030*" aims to promote sustainability and resilience, including the promotion of the ecological transition and the circular economy, through investments in energy efficiency, the circular economy and nature conservation, biodiversity and natural heritage.

The Sustainable Thematic Operational Programme 2030 is one of the four thematic operational programmes of Portugal 2030 and has a total of 3.1 billion euros financed by the Cohesion Fund. The programme is national in scope and aims to respond to the challenges arising from sustainability and the climate transition, with a special focus on decarbonising the various sectors of the economy, making a strong contribution to meeting the national goal of achieving carbon neutrality by 2050.The programme's interventions focus on the energy transition (mainly through decarbonisation) and actions that promote the sustainability of resources and urban mobility. This programme covers demanding challenges such as adaptation to climate change, risk prevention and disaster resilience, the transition to a circular economy and sustainable urban mobility. The priorities or areas to be supported in the Sustainable 2030 programme are: Sustainability and climate transition; Sustainable urban mobility and Rail transport networks.

Environmental Fund In order to ensure that environmental policy is more effective, the XXI Constitutional Government's program included the creation of a single Environmental Fund, concentrating the resources of the existing funds to obtain an instrument with greater financial capacity and greater adaptability to the proposed challenges. To this end, Decree-Law no. 42-A/2016, of August 12, which came into force on January 1, 2017, set out to create the Environmental Fund, establishing the rules for its allocation, management, monitoring and execution of the respective revenues and support to be granted.

The Recovery and Resilience Plan (RRP) is a national program, with an implementation period until 2026, which aims to implement a set of reforms and investments aimed at restoring sustained economic growth after the pandemic, reinforcing the objective of convergence with Europe over the next decade.

The European Council created Next Generation EU, an instrument to mitigate the economic and social impact of the crisis, helping to ensure long-term sustainable growth and responding to the challenges of the dual climate and digital transition. This instrument contains the Recovery and Resilience Facility, which includes the PRR, an investment plan for all Portuguese people, based on three structuring dimensions: Resilience; Climate Transition; Digital Transition.

Local level

The Alentejo 2030 Regional Program is one of the main financial instruments made available to the Alentejo to promote the competitiveness of the economy, environmental sustainability and the enhancement of the region's territory and people.

At this stage, the financial support has been identified and the Alentejo Pilot is starting to develop the business plans that will apply for different funds. In particular, the second call of proposals of Interreg SUDOE will focus on Priority 2: Promote social cohesion and territorial and demographic balance in SUDOE through innovation and the transformation of productive sectors among others, and the objective OE 1.4 SO1.4

Developing skills for smart specialization, industrial transition and entrepreneurship (7.5 M€) it's of special interest for the Alentejo pilot.
The activity of defining the financial support and sharing the information with the stakeholders is crucial for the region, as one weakness that has been identified in the different meetings is the lack of awareness of stakeholders about financing schemes and the difficulties to apply for funding.

Financial supports identified	Link to the call	Period (release of the call-deadline)	State of the proposal
European level			
Interreg SUDOE Program 2021-2027	https://5.interreg-sudoe.eu/gbr/sudoe-2021-2027/second-call	26th of February- 31st of May 2024	A concept note has been developed for the call and analysis of potential partners and proposals with topics of interest for the region
LIFE	https://cinea.ec.europa.eu/programmes/life_en	18th of April / to be defined	Once the call is released, the pilot will analyse if its suitable
National level			
Portugal 2030	https://portugal2030.pt/	To be defined	Analysis of the programme and calls of interest
The Sustainable Thematic Operational Programme 2030	https://sustentavel2030.gov.pt/	To be defined	Analysis of the programme and calls of interest
Environmental Fund	https://www.fundoambiental.pt/	To be defined	Analysis of the programme and calls of interest
The Recovery and Resilience Plan (RRP)	https://recuperarportugal.gov.pt/?lang=en	To be defined	Analysis of the programme and calls of interest
Local level			
The Alentejo 2030 Regional Program	Alentejo 2030 | (portugal2030.pt)	To be defined	Development of the programme

3.2 Legislative/Regulatory Framework

3.2.1 Pre-Activity Legislative Landscape

Below is described the legislative/ regulatory framework in place before the mutual learning activities for the different pilots:

Western Macedonia

In Greece, the **National Action Plan – Roadmap for Circular Economy 2021** has been formulated, outlining 71 initiatives for the years 2021 to 2025. Out of these, 46 are focused on areas such as production, consumption, waste management, and governance. Efforts are underway to implement the National Circular Economy Action Plan (CEAP) to promote circular practices nationwide. These include updating regional and local waste management strategies to reflect circular economy principles and the latest national regulations, developing specific circular economy action plans for regions reliant on lignite, and organizing funding for new and improved facilities for separate waste collection, recycling, and recovery. Additionally, financial mechanisms are being set up to support the waste hierarchy and decrease municipal waste production. These include the introduction of a landfill tax in 2022, which will rise incrementally until 2027, and the implementation of a "pay-as-you-throw" system in municipalities with populations over 100,000 by 2023 and over 20,000 by 2028. Moreover, the standardization of processing and preparation methods for waste recycling is being established.

Following the CEAP, **a Waste Management Law (Law 4819/2021)** was recently enacted. This legislation supports the conversion of waste into energy, including transforming Waste Treatment Plants (WTPs) into Waste Recovery and Energy Units (WREUs). Additionally, it encourages the use of secondary fuels and residues for energy.

The **revised National Waste Prevention Program** aims to reduce waste generation in both domestic and commercial settings, engaging a wide array of stakeholders such as product manufacturers, economic operators, and consumers. The program outlines policies and strategies to minimize waste generation, mitigate the adverse effects of waste, reduce hazardous substances in materials and products, and encourage circular consumption patterns. It particularly emphasizes priority waste streams such as food waste, paper, packaging, plastics, and municipal waste. The selection of these streams is based on an evaluation of the current national circumstances and the prevailing waste prevention trends within the European Union.

The Hellenic Ministry of Environment, Energy, and Climate Change is devising plans to manage residual forest biomass from recent wildfires. A new statute, **Law 5069/2023**, has been introduced, incorporating measures for utilizing **forest biomass** in energy generation. The law is being continually updated to address new and evolving needs.

Hamburg

In Hamburg, sustainability is more and more included in the legislative/regulatory framework, but circularity still needs to be implemented. The Hamburg Climate Plan is continuously updated and needs to include more and more aims for a circular city. Another aspect concerns the procurement guidelines. Sustainability is already a factor when buying products and services in the public sector, but precise and practicable measures for circularity are still not included.

Northwest Germany

Regarding the topic of rainwater harvesting, there are various policy documents that are linked to this topic. On a European level, water management is strictly organised through for example: EU Water Framework Directive, EU Floods Directive, Urban Wastewater Treatment Directive etc. These collectively focus on comprehensive water management, encompassing protection, treatment, and mitigation strategies for water resources, including rainwater, across the European Union.

In March 2023 the National Water Strategy for Germany was published. The goal of this strategy is to ensure sustainable management of water resources, address water quality and quantity issues, and adapt to the challenges posed by climate change. Since it was only recently published, there are no immediate effects visible yet. However, the document does support the general ambition and programme that has been defined for the DECISO project.

Alentejo

The most important factors to consider in what regards legislation are the following:

- EU Regulatory Support: Being part of the European Union, Alentejo benefits from EU agricultural policies, subsidies and regulatory frameworks, providing a stable and supportive environment for the circular agri-food sector;
- Quality Standards: Compliance with EU quality standards ensures that Alentejo's agri-food products meet rigorous regulatory requirements, enhancing their marketability and reputation;
- Environmental responsibility and social responsibility as common values in the agri-food sector;
- Lack of regulatory, fiscal and incentive framework for the new clusters of activity;
- Legislation: limits or hinders the expansion of the market/products/services with positive environmental impact;
- The absence of supportive policies and regulations can impede the growth of circular economy initiatives. Also, circular economy projects may struggle to attract funding if they lack scalability. Investors may be more willing to participate when there is a clear and consistent regulatory framework that encourages circular practices;
- Complex Regulatory Compliance: The complexity of EU regulations and administrative requirements may pose a challenge, particularly for smaller farmers or businesses that may struggle with compliance;
- Risk of Policy Changes: Changes in EU agricultural policies or regulations can have significant impacts on the agri-food system, requiring constant adaptation by local producers;
- Bureaucratic Challenges: The bureaucratic processes associated with regulatory compliance may create delays and administrative burdens, affecting the agility of the agri-food system.

3.2.2 *Influences and Changes*

Western Macedonia

In W. Macedonia, there aren't any influences or changes on the legislative regulatory framework arose by the DECISO project until now. The activities in MDHCA could influence the recent updates in national legislation on energy recovery from waste, especially regarding the utilization of residual forest biomass and secondary fuels. This might lead to clearer guidelines and standards for energy recovery processes and the types of materials that can be utilized, enhancing environmental protection and energy efficiency.

Hamburg

In Hamburg, there aren't any changes on the legislative/regulatory framework measurable until now but will be in the future. From the vivid CE network in Hamburg, supported and initiated by the DECISO pilot, influence on the framework is expected, especially within the Circular City Strategy (activity started in autumn 2023), the procurement guidelines in Hamburg and the Hamburg Climate Plan. This plan was updated in October 2023 and will be updated on a yearly basis.

Northwest Germany

In the Northwest Germany pilot area, the DECISO project hasn't caused any changes in the rules yet. But, the work done by OOWV might affect how laws about using rainwater get made in the future. For example, laws about reusing rainwater in gardens or other places. This could help make clearer rules about how we use rainwater, ultimately increasing circularity in the water sector.

Alentejo

So far, there have been no changes in the legislation in Alentejo, but the stakeholder meetings have served to reinforce the need to establish more connections between the different stakeholders (e.g. policymakers, universities and producers), so that different laws could be communicated and understood by the different stakeholders.

3.2.3 Recommendations for Policy Makers

Western Macedonia

Based on the finding and outcomes of the activities in W. Macedonia, below are detailed recommendations for policymakers:

- **Leverage Legislative Support** by utilizing the new Law 5069/2023, which supports the use of forest biomass in energy production, to foster sustainable projects. They should also encourage the implementation of this law by providing **clear guidelines and resources for interested parties**.
- Ensure that stakeholders are aware of and can access the available funding sources. Workshops or seminars should be facilitated by policymakers to guide stakeholders through the application process for these funds. In this way, the **financial support will be maximized**.
- Research in biomass management and other circular economy initiatives should also be encouraged. Academic institutions and other research bodies should be supported with funding and resources to explore innovative solutions that can be applied locally to **Foster Research and Development.**
- **The engagement of Private Sector in Circular Economy** through the creation of incentives for private companies to participate in circular economy projects should be also created. This could include tax breaks, public recognition, or co-investment opportunities. Collaboration between the public and private sectors can bring in additional expertise, resources, and funding.
- **Community involvement and awareness** are equally important; early community engagement can foster greater support and acceptance for such initiatives. Organization of public meetings and awareness campaigns to educate the community about the benefits of the circular economy and specific projects, like the Circular Economy Park in Western Macedonia, are some recommendations.
- **Infrastructure development** should be a priority, with a focus on evolving and refining the essential infrastructure for waste segregation, recycling, and recovery, ensuring these services meet circular economy needs and are accessible to all stakeholders.
- Implementation and promotion of economic incentives such as the landfill tax and the pay-as-you-throw scheme for municipalities are **Economic Incentives and Disincentives** that could be designed to encourage waste reduction and recycling and discourage landfill use.
- The development and enforcement of standards for waste treatment and recycling processes through **Standardization and Regulation,** could ensure that all activities are efficient, environmentally friendly, and aligned with circular economy principles.

- Foster a collaborative environment where all stakeholders, including academia, industry, government, and civil society, can come together to share ideas, challenges, and solutions. This can be facilitated through regular workshops, forums, and collaborative platforms that will strengthen the **Stakeholder Collaboration.**
- Establish a framework for **monitoring and evaluation** of the progress of circular economy initiatives. This should include clear metrics and benchmarks to measure success and identify areas for improvement.

Hamburg

From the Hamburg perspective, a huge leverage to foster circular economy is procurement. The public sector should serve as a role model to buy circular. This would enable providers of circular solutions to strengthen their businesses, since the public sector has a rather large market share on the demand side. Life cycle calculations and implying external costs to the evaluation of products and services in public procurement will serve as a justification for buying the more circular or sustainable option. In Hamburg, the volume of new furniture bought for the public sector is huge. To face this problem, several activities regarding circular furniture are in progress.

Northwest Germany

Policymakers in the Northwest Germany pilot region are presented with an opportunity to enact policies that support and encourage the widespread adoption of rainwater harvesting initiatives. By aligning regulatory frameworks with the objectives of promoting water circularity and enhancing resource efficiency, policymakers can create an enabling environment for innovation and investment in rainwater harvesting technologies. Collaboration across sectors, including government agencies, utilities, industry stakeholders, and academic institutions, is essential to develop cohesive strategies and leverage collective expertise. Investments in infrastructure upgrades and green infrastructure projects will be crucial to accommodate the implementation of rainwater harvesting systems and manage stormwater run-off effectively. Additionally, raising public awareness and providing educational resources will empower citizens and businesses to embrace sustainable water management practices. Finally, supporting robust monitoring and evaluation frameworks will enable policymakers to assess the effectiveness of interventions, make data-driven decisions, and refine policies over time. By prioritizing these recommendations, policymakers can catalyse the transition towards a more water-resilient and sustainable future in the Northwest Germany pilot region.

Alentejo

Based on the Alentejo's circular agri-food sector challenges, below it is detailed some policy recommendations:

- Implement programs and support services to assist the different stakeholders related to the circular agri-food ecosystem in navigating the complexity of EU and national regulations;
- Develop targeted incentive schemes (including small companies) to encourage the adoption of circular economy practices in the agri-food sector;
- Capacity-building and knowledge exchange: Invest in capacity-building programs and knowledge exchange initiatives to enhance the skills and expertise of local stakeholders in circular agriculture and food systems;

- Foster collaboration between policymakers, industry stakeholders, academia, and civil society organizations to co-create and implement effective policies and initiatives for advancing the circular agri-food agenda in Alentejo;
- Promote the integration of circular economy principles into public procurement policies and practices.

By addressing these policy recommendations, Alentejo could strengthen its regulatory framework, support the growth of circular economy initiatives, and foster a more sustainable and resilient agri-food sector for the benefit of local communities, the environment, and the economy.

4. Discussion

By conducting a detailed analysis of the opportunities and challenges that emerged during the workshops, it was possible to comprehensively categorize all the technical aspects that were covered in the individual workshops, but which prove to be common to all four pilot projects. The following figures systematically outline these elements, which can present themselves as much as potential opportunities as potential obstacles to the concrete projects' implementation.

First, the analysis of the workshops shows that one of the prominent opportunities, in all the considered contexts, lies in research, innovation and development in the sectors in which the individual pilot projects are located. This prospect is realized through the development of new business models, improved operational organization, increased market interest, renewed environmental responsibility and more robust knowledge sharing among the various production actors.

The centrality of investing in research, innovation and development is significantly reflected in the effective implementation of circular economy projects. This triad of elements is the driving force behind the sustainable evolution of economic activities, enabling the creation of new methodologies, processes and products. The adoption of new business models not only optimizes economic performance, but also contributes to a better resources' organization, while promoting greater demand in the sectors involved.

In addition, research and innovation foster the design of solutions that minimize environmental impact, promoting the creation of more efficient and sustainable production cycles. Advanced knowledge shared among manufacturers, fuelled by investment in research and development, not only increases the industry expertise but also facilitates the spread of best practices and the widespread adoption of circular approaches.

Another extremely important aspect, common to all the pilot projects, and one of the workshops' pillars, was the **involvement of stakeholders and communities** (local, national, and community). First and foremost, the involvement of a plurality of stakeholders makes it possible to widen the knowledge and awareness network. Undoubtedly, the knowledge dissemination broadens the understanding of problems and goals, engaging stakeholders, enabling a more active participation, and fosters innovation and creativity, enriching decision-making.

Sharing information and expertise creates collaborations and synergies that enable the foundation for partnerships building with large companies and other institutions and agencies that operate in a multi-level context. The stakeholders' involvement at the local, national and community level indicates a holistic approach, considering the dynamics relevance at different spatial levels. This approach can help design solutions that are more suitable and adaptable to the specific needs of each context.

Figure 13: Opportunities and Threats by categories - Source: Author

Although there are many benefits generated by networking, there are several potential barriers that may arise. First, some projects may not gain European or international visibility, limiting the access to additional resources and potential collaboration opportunities. The lack of visibility may affect the ability to attract investment or share good practices with other similar settings. In addition, in multiple projects, local communities may be sceptical of proposed changes or new initiatives, especially if they are not adequately involved in the decision-making process. This form of resistance could stem from fear of negative impacts or lack of confidence in the new proposals.

On the legislative side, several opportunities and threats emerge that help shape the implementation environment for circular economy projects. The regulatory structure that provides support to these projects was discussed at length in the previous section.

On the other hand, obstacles also emerge in all 4 pilot projects arising mainly from excessive, slow and complex bureaucracy, which often slows down project implementation time and reduces the effectiveness of circular economy initiatives. In addition, the presence of insufficient regulation in green sectors and circular economy projects is a further obstacle because this lack of regulation can generate legal uncertainty and lack of clarity for practitioners, discouraging investment and active participation.

On the other hand, a large number of funding programmes at the European and national levels have proven to be appropriate to the needs of each pilot.

Inevitably, there is no shortage of financial complications involving all pilot projects. Small and medium-sized enterprises often have excessive barriers, represented by high initial investment costs and limited ability to credit access. Large upfront costs, due for example to equipment purchase, staff training and operational-administrative expenses, not only hinder the implementation of circular economy projects, but more generally slow down the speed at which SMEs make technology transitions. The lack of a strong credit track

record or adequate collateral can make it more complex for SMEs to obtain access to credit. In addition, banks may view SMEs as riskier investments than larger firms, thus limiting the financing availability.
In addition, there are often inappropriate funding limits for the type of projects to be developed, as well as poor coordination. Moreover, the lack of synergies can result in a lack of clarity about available funding and support opportunities, making it difficult for SMEs to go through the financial ecosystem and get the support they need.
While innovation, research and development can only benefit the development of circular economy projects, existing technology on the other hand is a form of barrier for all pilot projects. Current available technology, in the absence of sufficient investment in research and development, is a significant obstacle to the development of projects in the circular economy. For example, SMEs low digital skills or the ineffectiveness of existing business models can lead to an inefficient use of labour and other inputs The low effectiveness of business models can result from a lack of adaptation to new circular paradigms, often causing inefficiencies in resource utilization and production chain optimization. A concrete example is the difficulty of properly integrating recycling, reuse and repair practices into existing production processes, preventing the full realization of circular potential.
In addition, the complexity resulting from the strong heterogeneity of the business fabric is another obstacle. The variety of sectors and sizes of businesses makes it difficult to identify optimal, standardized solutions, as each context requires a customized approach, consequently slowing the transition to a more sustainable economy.
Finally, the existing institutional context represents a category that encapsulates the socio-economic and cultural context of the country in which the pilot projects are located. The institutional contexts of the various countries are placed in a neutral position, as there are favourable aspects to the development of green initiatives as well as unfavourable aspects. Positive aspects that have emerged, for example, include the presence of tax incentives or subsidized financing. In addition, financial support measures can incentivize businesses and communities to adopt sustainable practices and invest in eco-friendly technologies. Negative aspects, for example, include the lack of collaborative organizations such as cooperatives or sector associations, or excessive volatility in the institutional environment resulting from low levels of growth or internal crises, which can therefore limit long-term planning.

5. Conclusions

The Mobilization and Mutual learning activity proved to be a fundamental catalyst within DECISO project, as it offered a crucial space for the active participation of stakeholders in the information exchange process. The synergistic collaboration between the interested parties has led to a notable increase, both in quantity and quality, of information regarding circular economy. In particular, the clear definition of the opportunities and threats related to the feasibility of the four pilot projects represented a significant result, helping to guide decisions and consolidate a common vision.
The workshop played a key role in deepening the stakeholders' understanding of the project, allowing them to develop specific interests in the various initiatives. The stakeholders emerged as the essential core of the project, with reference to the "Mobilization and Mutual Learning Activities" activity. A clear definition of financing possibilities and strategies is a crucial step for ensuring the long-term sustainability and success of the projects. The identification of the cultural background of the four regions involved and the in-depth understanding of their legislative system is fundamental. These elements have not only contributed to a

better integration of the initiatives in the local context but have also opened prospects for more effective adaptation and collaboration.
In conclusion, the workshop played a central role in shaping the success and coherence of the project, providing a crucial platform for mutual understanding, and building a solid foundation for the implementation of circular economy initiatives in the four regions involved.
More specifically, in the pilot project in Greece, opportunities interventions are crucial to successfully implement circular economy initiatives. The upcoming public meeting will serve to generate awareness and gain community support for the Circular Economy Park in Western Macedonia.
In Northwest Germany, the workshop results guide the strategic planning of the OOWV pilot project, exploiting opportunities and proactively addressing barriers to advance rainwater harvesting projects.
In Hamburg, the workshop raised awareness about funding opportunities for circular economy projects, sparking interest among participants who want to involve funding experts like DECISO in their events.
Finally, in Alentejo region, focus groups emerge as one of the best methods for understanding stakeholders' experiences, encouraging diversity of opinions, and building a more complete vision. They allow the construction and sharing of perspectives, actively involving stakeholders in the participatory process of project construction and discussion.

6. Recommendations

Considering the previous discussions and the context provided, valuable recommendations are outlined to shape future development and ensure the sustainability of the initiatives that emerged in the workshops. The results of the workshops should serve as a basis for future strategic planning. Integrate the information and conclusions collected to direct efforts in a targeted manner towards the key objectives identified during the meetings.

Recommendation	Description
1	Invest in digital skills training to address the digital challenges that emerged during the workshops, improving the ability to adopt innovative technologies and business models.
2	Pursue funding opportunities through calls that appropriately reflect the specific needs of the sector, ensuring a budget to support circular economy initiatives
3	Encourage the creation of networks and partnerships with the interested parties that emerged during the workshops can facilitate the collective request for funding.
4	Consider the possibility of creating a dedicated legal entity in order to simplify access to funds, offering a formal structure for the management and effective use of financial resources.
5	Explore opportunities also at community level, to significantly enrich the range of available resources.
6	Promote a constant vigilance on emerging financing opportunities.
7	Adapt to financial market specific dynamics in order to ensure continued sustainability of initiatives.
8	Collaborate with financing experts and financial advisors in order to improve the ability to navigate through bureaucratic complexities and ensure efficient financial management.
9	Adapt strategies and initiatives based on the evolving regulatory, economic, and social context, ensuring flexibility that allows an effective response to changing needs of the sector.
10	Explore opportunities for collaboration and exchange with similar initiatives in other regions and countries, promoting the sharing of knowledge, resources and best practices internationally.
11	Promote an active community involvement at all stages of the process and ensure that initiatives are aligned with the real needs and expectations of the local population.

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Annex I Market structure - gaps mapping

The following tables reflect the market gaps and the factors needed for improvement for the 4 pilots on a legislative, financial and technological level.

1. Legislative market gaps

Hamburg Pilot	Alentejo Pilot	Northwestern Germany Pilot	Western Macedonia Pilot
Specific regulations for developing strategic financial frameworks related to circular economy	Regulations related to sustainable agri-food business models	Specific regulations for optimising the use of rainwater.	Specific regulations for the decarbonisation and post-lignite transition
Performance indicators and metrics in order to assess and compare the impact of circular economy projects	National environmental standards certifying the sustainability of circular initiatives in the agri-food sector	Standards to certify the effectiveness of circular practices in rainwater use	Performance indicators and standard metrics in order to monitor the post-lignite transition
	Feedback and monitoring systems to assess the effectiveness of agribusiness models	Monitoring mechanisms to measure the impact of the models on rainwater use	
	Networking between different entities with licensing activities and companies aiming to explain the legislation applicable to the introduction of CE in business		

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2. Economic market gaps

Hamburg Pilot	Alentejo Pilot	Northwestern Germany Pilot	Western Macedonia Pilot
Private Incentives to encourage circular practices	Private incentives to promote circular agribusiness models	Private incentives to optimise the use of rainwater.	Access to financing for SMEs to support decarbonization and post-lignite transition.
Investors willing to invest capital in circular and innovative financial programs	Investors willing to invest capital in circular economy projects in the agri-food sector	Investors willing to invest capital in Rainwater optimization projects	Investors willing to invest capital in Decarbonization and post-lignite Transition projects.
Long-term investments mechanisms and specific local innovative financial programs	Long-term horizon in the agribusiness Investments promoting sustainability	Long-term investment in sustainable water management	Long-term investments to facilitate the energy transition
Training for employees to enhance the effectiveness of circular financing	Training initiatives for employees to promote a sustainability culture in the agribusiness sector	Involvement of local communities in optimizing the use of rainwater for the benefit of the territory.	Scalable approaches for decarbonisation of the economy
Innovative financial models that promote projects scalability	Resilient business models that foster circularity in the agribusiness sector	Partnerships in developing innovative solutions for the sustainable use of rainwater	Partnerships for decarbonisation strategies and to facilitate the post-lignite transition
Involvement of local communities to ensure a positive impact of the projects	Networking within local stakeholders to identify funding opportunities in the agribusiness sector		
Partnerships to develop innovative circular solutions and secure adequate funding.	Valorisation of sustainable agricultural products		
	Partnerships to develop circular approaches in agribusiness		

3. Technological market gaps

Hamburg Pilot	Alentejo Pilot	Northwestern Germany Pilot	Western Macedonia Pilot
Infrastructure and advanced technologies to support the circular transition	Use of advanced technology to optimize agri-food processes within a circular model.	Efficient utilization of water resources through circular models	Training programs for employees in the transition to a less carbon-intensive culture
	Infrastructure for the collection, processing and distribution of circular food products.	Advanced training programs for employees to improve sustainable rainwater management	Technologies to accelerate the transition to sustainable post-lignite energy sources
		Development of innovative technologies to maximize the sustainable use of rainwater.	Infrastructure for the production and distribution of renewable energy in the sustainable transition process
		Infrastructure for rainwater harvesting and reuse in urban and rural areas	Access to alternative materials with low environmental impact

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