

Accelerating Circular Bioeconomy Governance in European Regions

Key Insights from the ROBIN Replication Guide, Toolkit and Policy Recommendations in Brief

PEDAL Consulting
July 2025



DEPLOYING CIRCULAR BIOECONOMIES AT
REGIONAL LEVEL WITH A TERRITORIAL APPROACH



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Policy Brief #1: Replication Guide consisting of Steps for Replicating Circular Bioeconomy Governance

Policy Brief #2: The ROBIN Toolkit – Digital Tools for Regional Transformation

Policy Brief #3: Policy Recommendations for Circular Bioeconomy Governance in Europe

Policy Brief #4: From Evidence to Action – Key Policy Options from ROBIN Pilots

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**Accelerating Circular Bioeconomy
Transformation in European Regions**

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1. Introduction: Regional Solutions for a Circular Bioeconomy Transformation

1.1 Why Regional Action in the Circular Bioeconomy is Crucial

The circular bioeconomy is not just about technological innovation – it is about creating **inclusive, sustainable, and regionally grounded solutions**. As key drivers of territorial development, **regions play a pivotal role** in leading this transformation.

The **ROBIN project** (Horizon Europe, 2022 – 2025) **supports European regions in developing and replicating inclusive, place-based governance models for the circular bioeconomy**. Drawing on real-world testing across five pilot regions (Andalusia in Spain, Baden-Württemberg in Germany, Central Macedonia in Greece, Southern Region in Ireland, and Žilina Region in Slovakia), ROBIN delivers tested replications methodologies, practical digital tools, and evidence-based Policy Recommendations tailored to regional contexts.

This collection of four Policy Briefs summarizes the key outputs of ROBIN's Deliverable 4.3 titled **“Replication Guide, Toolkit, and Policy Recommendations”**. Built on the principles of co-creation, participatory governance, and mutual learning, they provide a **comprehensive roadmap to accelerate systemic, just, and place-based circular bioeconomy development across Europe** – while aligning with the EU Bioeconomy Strategy, European Green Deal, and Sustainable Development Goals.

Key Messages at a Glance:

- ◆ **Policy Brief No 1: Step-by-step Replication Guide** to help regional authorities design and implement circular bioeconomy governance – from initiation to evaluation.
- ◆ **Policy Brief No 2: Practical ROBIN Toolkit** containing interactive tools of **ROBIN Toolbox** readily available online, as well as **training modules, informative materials, glossary and FAQs, case studies** of successful implementations, and **lessons learned** from challenges encountered.
- ◆ **Policy Brief No 3: 20 targeted Policy Recommendations** tailored to the needs of European regions, addressing governance models, financing methods, awareness strategies, and more.
- ◆ **Policy Brief No 4: From Evidence to Action – Policy Options from ROBIN Pilots** which translate ROBIN's Evidence into Policy Guidance.

QR Code / Short Link: Download the full **D4.3** → [[https://robin-project.eu/wp-content/uploads/2025/07/D4.3 Replication Guide Toolkit and Policy Recommendations v 4.0 FINAL.pdf](https://robin-project.eu/wp-content/uploads/2025/07/D4.3%20Replication%20Guide%20Toolkit%20and%20Policy%20Recommendations%20v4.0%20FINAL.pdf)]

2. Policy Brief No. 1: ROBIN Replication Guide for Replicating Circular Bioeconomy Governance

2.1 ROBIN Replication Guide

This *Guide* presents a structured five-step framework: **Initiate**, **Assess**, **Envision & Plan**, **Implement**, and **Evaluate**. Each phase is supported by practical tools, templates, and documents for further reading. The approach is adaptable to diverse territorial realities and is designed to foster inclusive, sustainable, and place-based circular bioeconomy governance.





How It Fits?

The guide illustrates how its methodologies and tools are aligned with key EU policy frameworks – including the EU Bioeconomy Strategy, the Circular Cities and Regions Initiative (CCRI-CSO), the European Green Deal, and the Sustainable Development Goals – ensuring strong support for both sustainability and innovation.



Who Is It For?

The guide is intended mainly for regional policymakers, managing authorities, local administrators, regional planners, and other stakeholders engaged in or exploring the development, execution, or enhancement of circular bioeconomy initiatives.



What Is Inside?

An overview of the five replication steps, supported by practical tools, templates, and other relevant documents.

1. First Replication Step: INITIATE – Build Multi-Actor Regional Constellations

Start by establishing Multi-Actor Regional Constellations – cross-sectoral governance platforms that bring together key regional stakeholders. Use the Typology Matrix to assess governance readiness and the Stakeholder Mapping Framework to identify relevant actors and power dynamics. Convene inclusive dialogues, define shared objectives, and build trust through transparent, participatory processes. Tested in ROBIN pilot regions, Multi-Actor Regional Constellations fostered local ownership, legitimacy, and long-term collaboration.

[ROBIN Toolbox – Typology Matrix](#)

2. Second Replication Step: ASSESS – Understand Governance Landscape and Analyse Governance Models

Analyse your region's governance and policy landscape to identify strengths and gaps. Use the ROBIN Knowledge Platform to explore governance models, benchmark against good practices, and position your region within ROBIN's typology. Draw inspiration from regional case studies to adapt successful approaches to your local context.

[ROBIN Toolbox – Knowledge Platform](#)

3. Third Replication Step: ENVISION & PLAN – Co-Create Governance Models

Translate shared visions into actionable plans by co-designing governance models with regional stakeholders. Use the ROBIN Governance Model Canvas to guide participatory design, develop implementation roadmaps, and formalise partnerships through trust-based agreements. This step anchors circular bioeconomy strategies in long-term institutional frameworks.

[ROBIN Toolbox – Canvas](#)

4. Fourth Replication Step: IMPLEMENT – Use the ROBIN Toolbox

Put your plans into action using the ROBIN Toolbox, a set of practical, online tools designed to support governance implementation. Apply the Policy Monitoring System to evaluate environmental, social and governance, and responsible research and innovation dimensions; use the Environmental Protection Planning Tool to identify unsustainable practices; and consult the Support Actions Portfolio for capacity-building measures. Leverage the Circular Bioeconomy Governance Model Canvas to design or update your region's governance model by outlining its value proposition, beneficiaries, activities, partnerships, infrastructure, resources, cost structure, and sustainability-related costs and benefits. Each tool includes user guidance and has been tested in real regional settings.

[ROBIN Toolbox](#)

5. Fifth Replication Step: EVALUATE – Monitor, Learn and Engage with the CCRI-CSO

Close the loop by assessing the impact of your governance model through monitoring and assessing your circular bioeconomy policies using ROBIN tools like the Policy Monitoring System and Environmental Protection Planning Tool. Use ROBIN's evaluation framework to track progress and impact. At the same time, engage with the CCRI-CSO, the EU's circular economy support body: register as a stakeholder, share events and publications, join working groups, and subscribe to their newsletter. Formalise collaboration to strengthen ties and align with EU-wide circular economy initiatives.

[Circular Cities and Regions Initiative](#)

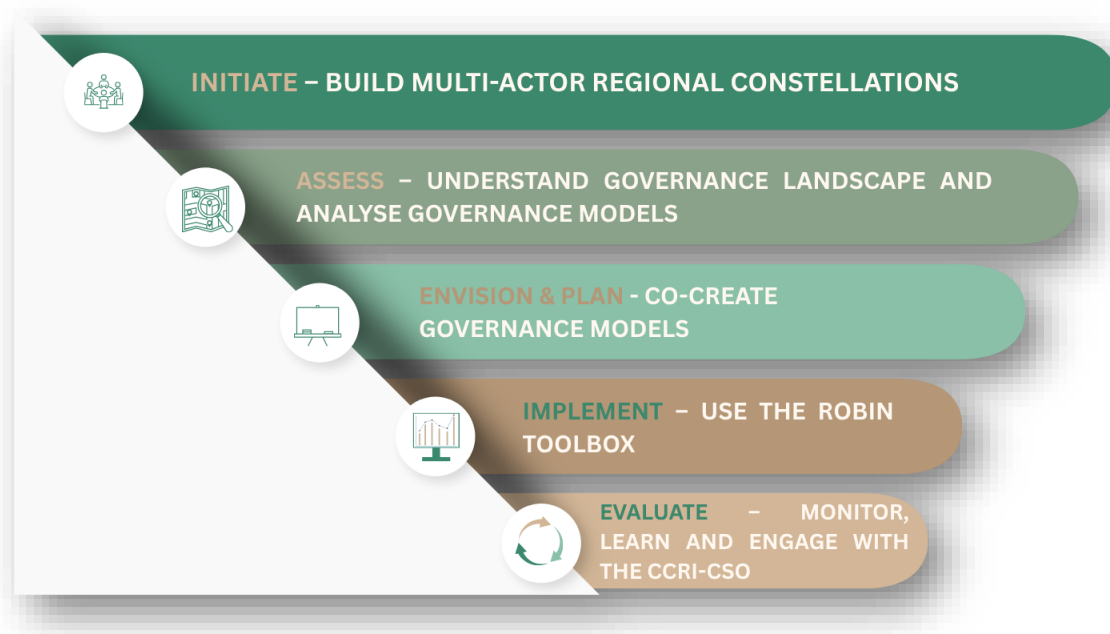


Figure 1. A five-step framework

Key Takeaways:

- **Replication** is not about copying – it is about **adapting proven strategies to local realities**.
- Strong **stakeholder constellations** and **shared ownership** are critical for sustainability.
- **Evaluation is essential** – embed monitoring from the start.

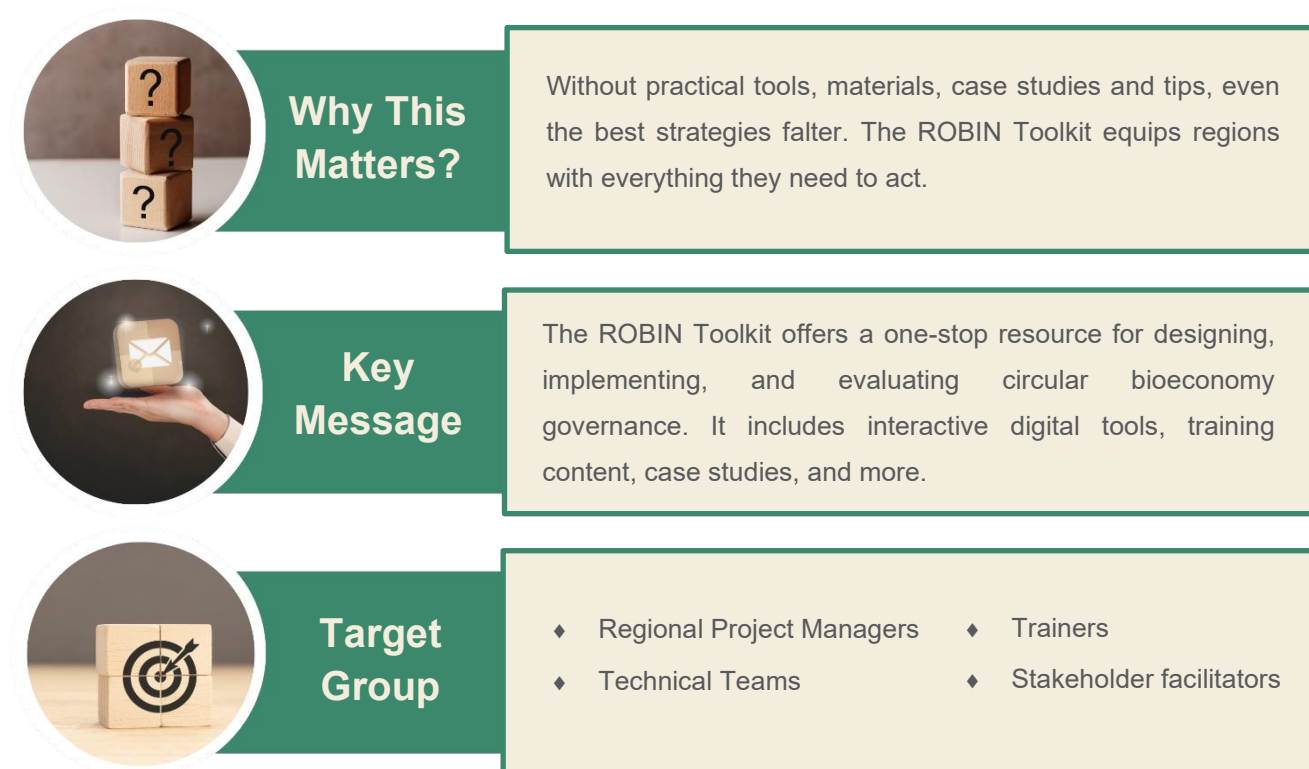
3. Policy Brief No. 2: ROBIN Toolkit – Resources for Regional Transformation

3.1 ROBIN Toolkit – Resources for Your Regional Strategy

Interactive modules designed for planning, evaluation, and stakeholder engagement, accessible via the ROBIN online platform.

The ROBIN Toolkit is a practical and accessible “umbrella” resource developed to support regional actors in implementing circular bioeconomy governance strategies. It enables the replication of innovative governance models across diverse European contexts and contributes to a broader transition toward sustainable, place-based bioeconomy systems.

The Toolkit brings together a wide range of supportive elements: interactive decision-support tools, training materials, policy templates, data repositories, and documentation. It also includes a glossary of essential terms, a Frequently Asked Questions (FAQ) section, and curated learning materials to ensure that the content remains accessible and applicable for a broad audience of policymakers, practitioners, and local stakeholders.



A key distinction must be made between the Toolkit and the Toolbox:

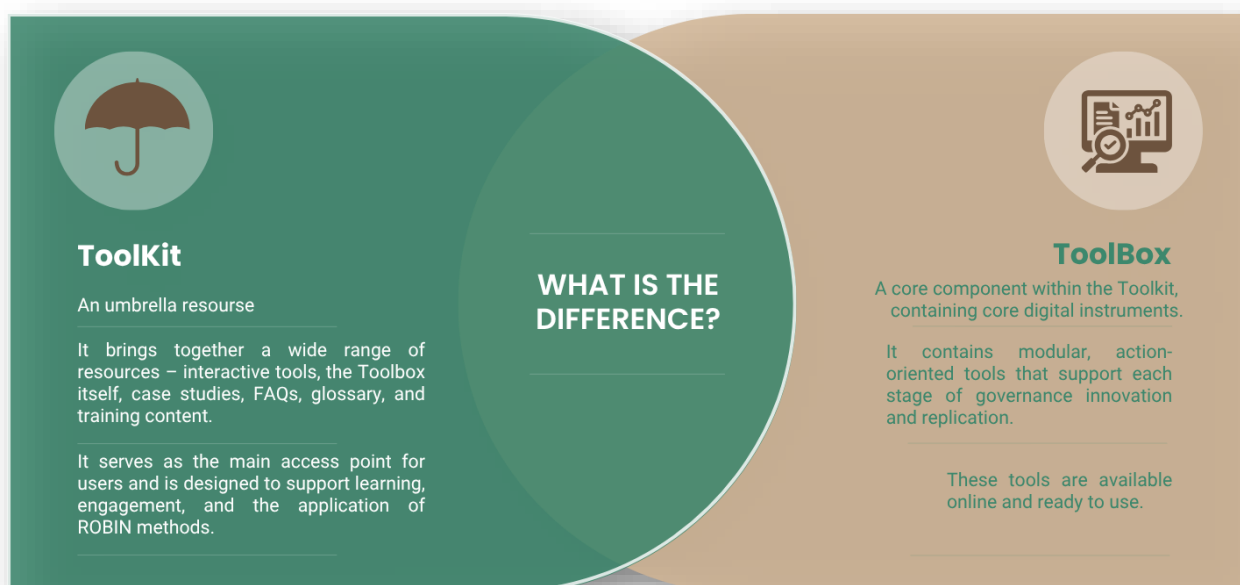


Figure 2. Toolkit VS Toolbox

ROBIN Toolbox

1. POLICY MONITORING SYSTEM TOOL

Evaluates circular bioeconomy governance using ESG (Environmental, Socioeconomic, Governance) and RRI (Responsible Research & Innovation) indicators.

- ◆ [Policy Monitoring System Tool](#)

2. ENVIRONMENTAL PROTECTION PLANNING TOOL

Identifies unsustainable practices and designs strategies for restoring local ecosystems.

- ◆ [Environmental Protection Planning Tool](#)

3. CIRCULAR BIOECONOMY GOVERNANCE MODEL CANVAS

Helps co-design inclusive, place-based governance models by mapping partnerships, resources, actions, and strategic goals.

- ◆ [Circular Bioeconomy Governance Model Canvas](#)

4. SUPPORT ACTIONS PORTFOLIO

Provides examples of support actions for regional capacity building, including searchable measures by type (Regional Analysis, Social, Technical) to strengthen stakeholder awareness and engagement.

- ◆ [Support Actions Portfolio](#)

5. KNOWLEDGE PLATFORM – REGIONAL GOVERNANCE MODELS

Showcases diverse circular bioeconomy governance models tailored to regional contexts across the EU, accounting for governance mechanisms, territorial conditions, and sustainability goals.

- ◆ [Knowledge Platform – Regional Governance Models](#)

6. KNOWLEDGE PLATFORM – GOOD PRACTICES

Compiles governance practices from EU regions, featuring policy and social measures classified by regional characteristics and observed impacts.

- ◆ [Knowledge Platform – Good Practices](#)

7. KNOWLEDGE PLATFORM – TYPOLOGY MATRIX

Categorises governance models and evaluates their effectiveness based on transparent and clearly defined assessment criteria.

- ◆ [Knowledge Platform – Typology Matrix](#)

Other Components of Toolkit:

Glossary of Key Terms: Definitions of core bioeconomy and governance concepts used in ROBIN.

→ [\[Glossary section of the Toolbox\]](#)

Frequently Asked Questions (FAQs): Quick answers to practical questions about applying ROBIN tools. → [\[FAQ section of the Toolbox\]](#)

Informative Materials and Useful Tips: Collection of materials (practical guides from ROBIN, and resources from other initiatives) along with tips to support stakeholders in effectively applying key concepts. → [\[Deliverable 3.2\]](#) and [\[Deliverable 4.3\]](#)

Case Studies (Success Stories and Lessons Learnt): 20+ case studies from the ROBIN regions and beyond, highlighting success factors, challenges, and lessons learned to guide future implementations. → [\[Deliverable 4.3\]](#)

Key Takeaways:

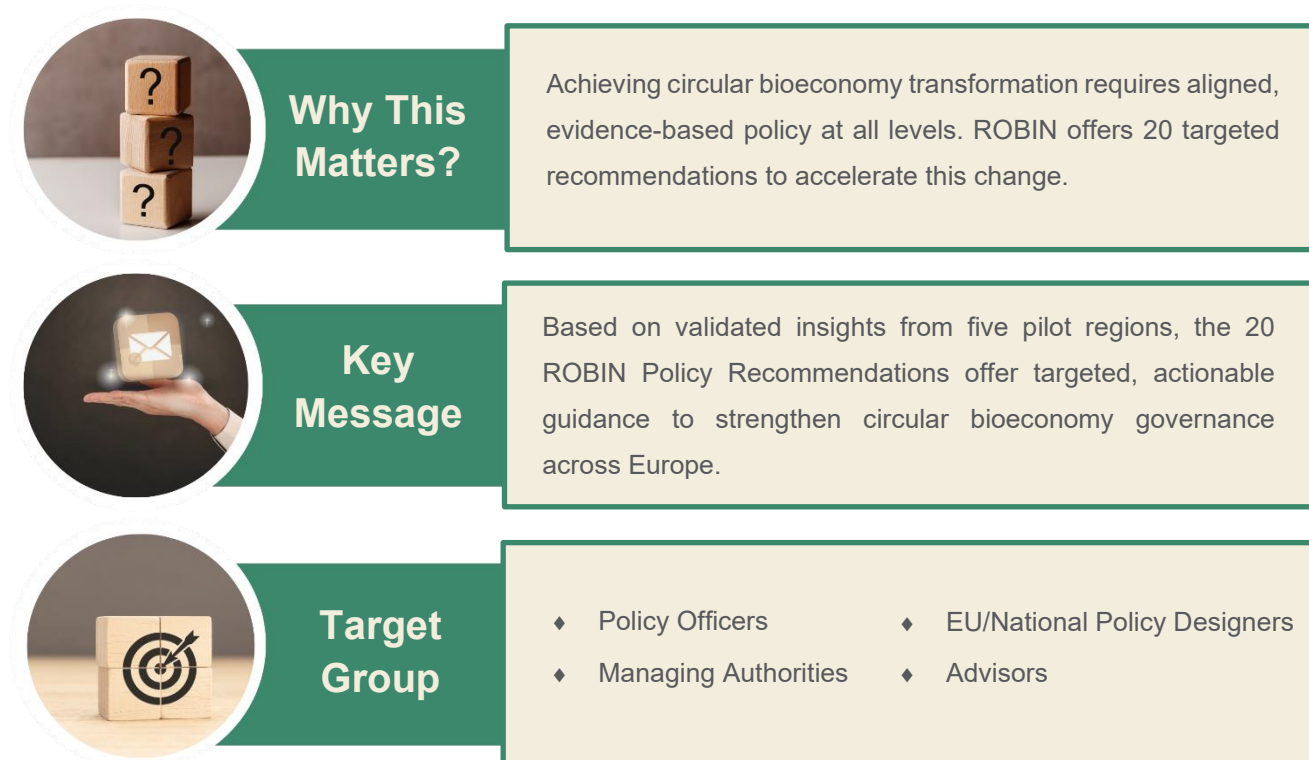
- The **Toolkit helps regions** plan, implement, and evaluate strategies with confidence.
- **Tools are adaptable, digital, and free to access.**
- It **supports both beginners and advanced users.**

- ◆ Explore additional interactive tools and training modules in the full ROBIN Toolbox at <https://robintoolbox.web.auth.gr>

4. Policy Brief No. 3: ROBIN Policy Recommendations for Circular Bioeconomy Governance in Europe

4.1 ROBIN Policy Recommendations – Priority Actions for Regions

The ROBIN Policy Recommendations provide practical guidance for European regions and Member States in the design, implementation, and management of circular bioeconomy governance models. They are grounded in the empirical findings of the ROBIN project, enriched by extensive synergy activities with related EU-funded initiatives, and aligned with the overarching objectives of the EU Bioeconomy Strategy. The Recommendations deliver actionable policy insights aimed at accelerating the bioeconomy transition, while simultaneously promoting regional development, environmental sustainability, and economic competitiveness.



In total 20 recommendations are organised into 7 strategic areas, each designed to support regional and local governance efforts and promote a just, inclusive, and sustainable bioeconomy transition. These areas include:

I. Strategic Area: Policy and Governance Models Frameworks

Recommendations for creating cohesive, multi-level governance structures that ensure policy alignment and foster cross-regional cooperation.

- ♦ *Policy Recommendation 1: Develop Integrated Circular Bioeconomy Strategy*

- ◆ *Policy Recommendation 2: Promote Multi-Level Governance and Coordination*
- ◆ *Policy Recommendation 3: Ensure Policy Coherence Across Sectors*

II. Strategic Area: Stakeholder Engagement and Capacity Building

Guidance on creating multi-stakeholder governance bodies, enhancing community participation, and fostering partnerships between public, private, and research sectors.

- ◆ *Policy Recommendation 4: Foster Regional Innovation Clusters*
- ◆ *Policy Recommendation 5: Strengthen Multi-Stakeholder Governance*
- ◆ *Policy Recommendation 6: Develop Skills and Competences*

III. Strategic Area: Financing and Investment

Strategies for establishing bioeconomy-focused investment funds, promoting public-private partnerships, and leveraging EU funding mechanisms.

- ◆ *Policy Recommendation 7: Provide Tax Incentives and Subsidies for Innovation*
- ◆ *Policy Recommendation 8: Support Public-Private Partnerships*
- ◆ *Policy Recommendation 9: Use Green Public Procurement*

IV. Strategic Area: Research, Innovation, and Education

Proposals for expanding bioeconomy research, supporting innovation hubs, and integrating sustainability concepts into educational programs.

- ◆ *Policy Recommendation 10: Invest in Research and Development*
- ◆ *Policy Recommendation 11: Build a Data-Driven Monitoring System*
- ◆ *Policy Recommendation 12: Share Knowledge and Best Practices*

V. Strategic Area: Social Fairness and Environmental Impact

Measures to ensure a socially equitable bioeconomy transition while addressing environmental sustainability and minimizing ecological footprints.

- ◆ *Policy Recommendation 13: Ensure Just Transition*
- ◆ *Policy Recommendation 14: Align with SDGs*
- ◆ *Policy Recommendation 15: Promote Equitable Access to Resources*

VI. Strategic Area: Awareness Raising

Communication strategies aimed at enhancing public understanding, promoting stakeholder engagement, and building support for bioeconomy initiatives.

- ◆ *Policy Recommendation 16: Implement Effective Bioeconomy Dissemination Activities*

- ◆ *Policy Recommendation 17: Raise Awareness in Education Systems*

VII. Strategic Area: Data-Driven Monitoring and Evaluation

Frameworks for developing real-time monitoring systems, using performance metrics, and fostering evidence-based policy adjustments.

- ◆ *Policy Recommendation 18: Establish Robust Monitoring Frameworks*
- ◆ *Policy Recommendation 19: Adopt Data-Driven Decision-Making*
- ◆ *Policy Recommendation 20: Strengthen Evaluation Mechanisms*

Key Takeaways:

- **Tailor policies** to regional realities but anchor them in EU priorities.
- **Combine governance reforms with public awareness and inclusive financing.**

- ◆ Visit [D4.3](#) to explore all 20 Policy Recommendations in full context.

5. Policy Brief No. 4: From Evidence to Action – Policy Options from ROBIN Pilots

5.1 Translating ROBIN's Evidence into Policy Guidance

Findings from ROBIN's pilot regions and validation activities highlight key gaps and opportunities in implementing circular bioeconomy strategies at the regional level. This section summarizes those insights into concrete policy options and practical recommendations for regional, national, and EU decision-makers.

The following insights are based on ROBIN's pilot testing in five European regions and reflect validated learning across diverse territorial contexts.

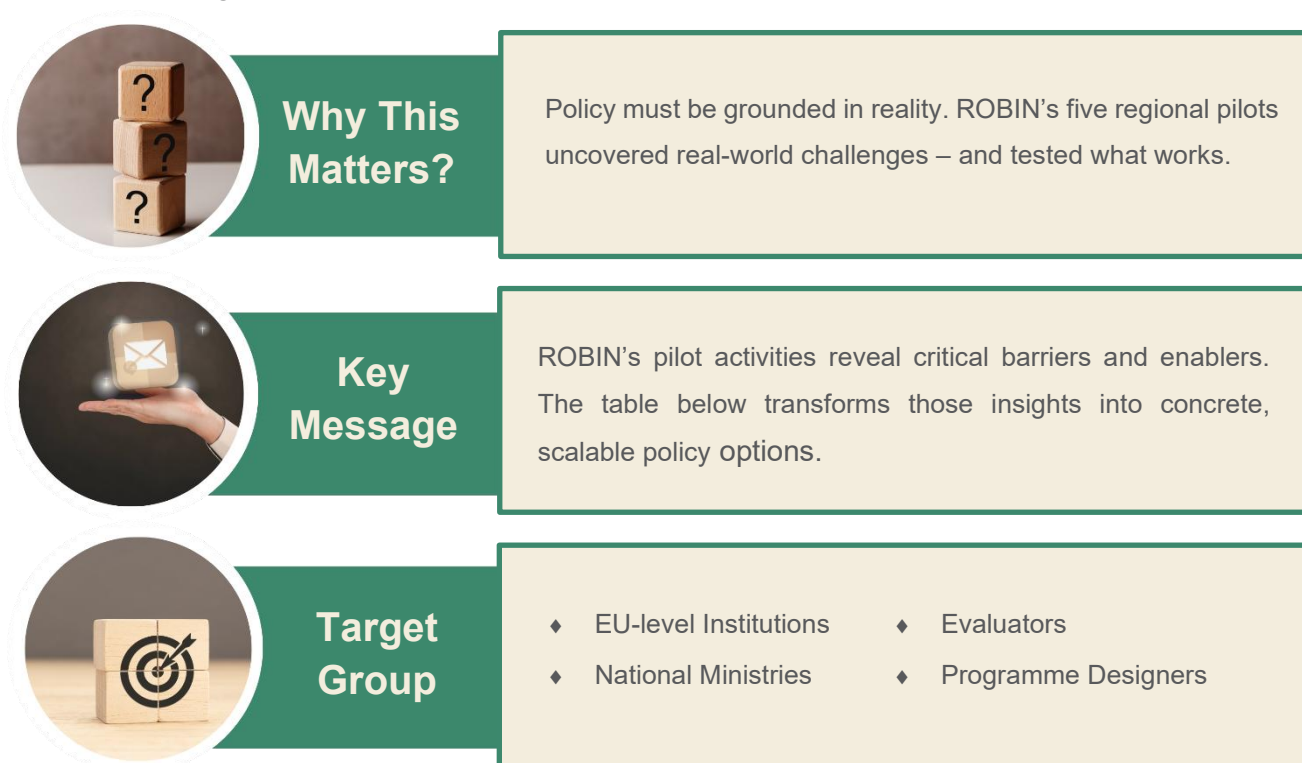


Table 1. Key challenges, options, and ROBIN's Recommendations

Key Challenges Identified	Policy Options	ROBIN Recommendations
Fragmented governance limits strategic bioeconomy planning.	Establish multi-actor governance structures.	Institutionalise Multi-Actor Regional Constellations to foster coordination and co-creation.
Policy incoherence across sectors obstructs integration.	Create dedicated coordination roles.	Appoint regional transition brokers to align strategies across departments and policy levels.
SMEs face barriers in accessing circular bioeconomy funding.	Introduce decentralised investment mechanisms.	Develop regional bioeconomy investment funds and funding.

Public knowledge of bioeconomy is limited.	Raise awareness through education and media.	Integrate bioeconomy in school curricula and run targeted outreach campaigns.
Rural areas are underserved in transition plans.	Prioritise territorial inclusion.	Apply Just Transition policies and targeted support for structurally weak regions.
Implementation tools are often missing or underused.	Offer practical, user-friendly tools and resources.	Promote the use of ROBIN's Policy Monitoring System, Environmental Protection and Planning Tool, and Circular Bioeconomy Governance Model Canvas as go-to instruments.

Key Takeaways:

- **Tailor policies** to regional realities but anchor them in EU priorities.
- **Combine governance reforms with public awareness and inclusive financing.**

6. Conclusion

The ROBIN project delivers both evidence and actionable tools to support regional transformation. These policy options offer adaptable, ready-to-use solutions that can accelerate a just, inclusive, and sustainable transformation across Europe.

7. Next Steps: From Briefs to Action

The ROBIN Policy Briefs are designed not only to inform but to empower regional actors to take practical, evidence-based steps toward circular bioeconomy transformation.

Whether you are a policymaker, regional authority, project manager, or practitioner, these briefs provide tools, guidance, and tested models to support you along the way. ROBIN's integrated methodology – spanning replication guidelines, a digital toolkit, and policy recommendations – can be readily adapted to diverse territorial contexts.

How to Engage Further

- **Use the ROBIN Replication Guide** to structure your regional circular bioeconomy initiative.
- **Explore the ROBIN Toolkit and Toolbox** to access practical instruments, case studies, and planning support.
- **Adopt and adapt the Policy Recommendations** to suit your regional governance and development frameworks.
- **Share your experience with the ROBIN project by connecting with other regions.** Help us spread knowledge and good practices to accelerate the circular bioeconomy transition across Europe.

The circular bioeconomy transition starts with regional leadership – and continues through collaboration, innovation, and learning. ROBIN invites all regions to take part in shaping a more just, inclusive, and sustainable Europe

About the project

Europe's regional authorities have a crucial role to play as agents of inclusive and resilient economic development for their territories. ROBIN sets out to empower them to fulfil this role with support to co-shape their governance structures in to accelerate the deployment of their circular bioeconomy targets, while also promoting social innovation. We demonstrate the potential of innovative circular bioeconomy governance structures and models in 5 regions within Ireland, Germany, Spain, Slovakia and Greece. We set-up Multi-Actor Regional Constellations engaging key stakeholders to co-create novel governance structures, well-embedded within existing structures of our regions and mandated to execute circular bioeconomy strategies and to coordinate effectively with the Circular Cities and Regions Initiative – Coordination and Support Office (CCRI-CSO). We also provide them with tailored support for enhanced stakeholder engagement, as well as a practical toolbox to improve the operation and monitoring of their models. In the process we coordinate our actions with the CCRI-CSO.

Partners	URL
Q-PLAN INTERNATIONAL ADVISORS PC	www.qplan-intl.gr
FUNDACION CORPORACION TECNOLOGICA SE ANDALUCIA	www.corporaciontecnologica.com
WHITE RESEARCH SRL	www.white-research.eu
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ARISTOTELEIO PANEPISTIMIO THESSALONIKIS	www.auth.gr
REGION OF CENTRAL MACEDONIA	www.pkm.gov.gr
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